BOSCH
Invented for life

LBB 190x/10 and LBB 191x/10 Plena Mixer Amplifiers

- **Range of single and dual zone mixer amplifiers from 30 W to 120 W**
- **Four low-noise balanced inputs for microphone or line**
- **Selectable priority & VOX switching on microphone input 1**
- **Optional 2-tone chime to precede announcements**
- **VOX activated emergency override**
- **Outputs for normal, call-only and mix-only zones**
- **Choice of CD, tuner or auxiliary music inputs**

The Plena mixer amplifier is a versatile, high-performance unit with four mono microphone inputs and a music input. It fulfills a wide variety of public address requirements at a surprisingly low cost.

Functions

All input channels have a phantom power supply to provide power to condenser microphones and selectable speech filters for improved intelligibility. Input channels 3 and 4 can also be switched to line sensitivity. Separate music inputs are available with their own input selector and volume control.

Input channel 1 can take priority over all other microphone and music inputs. Contact closure on the 5-pin DIN connector, or if the signal level on channel 1 exceeds a predefined value (VOX) will activate priority. A 2-tone chime can be configured to precede a priority announcement. A telephone or emergency input with VOX activation and its own preset volume control overrides all other input.

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. An LED VU-meter monitors the master output. The unit also has a tape output channel.

The Plena mixer amplifiers come in a range of maximum output power. This power is directly available on 70 V and 100 V constant voltage connections and on a low impedance connection for an 8 ohm load. Moreover, the amplifiers have a separate 70 V / 100 V call-only output channel for addressing areas where only priority announcements are required, and a 70 V / 100 V mix-only output channel for areas where no priority announcements should be heard. The call-only output can also be used for 3-wire remote, volume control override. For more output power than the built-in power stage can deliver, additional Plena power amplifiers can be connected to the balanced line output in a loop-through arrangement.

The LBB 1914/10 offers the same functionality as the LBB 1912/10 but also has two front-panel switches to direct the amplifier output to two separate zones. This is useful when certain announcements or background music should not be heard in part of a building. Priority calls, however, are always routed to both zones.

Controls and indicators

Front

- LED power meter
- Power on LED
- Master volume control knob
- Four volume control knobs for mic inputs
- Three knobs for BGM volume, treble, and bass levels
- BGM source selection knob
- On/off switch
- Two zone selection buttons (LBB1914/10 only)

Back

- EMG input volume control
- Two mic/line switches
- Chime on/off switch
- Mains voltage switch

Interconnections

Front

- Headphone jack

Back

- Priority mic input (DIN/6.3 mm jack)
- Mic input (XLR/6.3 mm jack)
- Two mic/line inputs (XLR/6.3 mm jack)
- Three audio inputs (2 x cinch)
- EMG input (screw)
- Line output (XLR)
- Tape output (2 x cinch)
- Insertion input/output (2 x cinch)
- 24 VDC input
- Three (five for the LBB 1914/10) loudspeaker outputs (screw)

Certifications and Approvals

Region	Certification	
Europe	CE	Declaration of Conformity
Safety		acc. to EN 60065
Immunity		acc. to EN 55103-2
Emission		acc. to EN 55103-1

Installation/Configuration Notes

LBB 190x/10 and LBB 191x/10 rear view

Parts Included

Quantity	Components
1	LBB 190x/10 Plena Mixer Amplifier or LBB 191x/10 Plena Mixer Amplifier
1	Power cord
1	Set of 19" mounting brackets
1	Installation and User Instructions

Technical Specifications

Electrical

Mains power supply	
Voltage	230/115 VAC, ±10%, 50/60 Hz
Inrush current	
LBB 1903/10	4.5 / 9 A (230 / 115 VAC)
LBB 1906/10	5 A / 10 A (230 / 115 VAC)
LBB 1912/10, LBB 1914/10	8 / 16 A (230 / 115 VAC)
Battery power supply	
Voltage	24 VDC, +15% / -15%
Current	
LBB 1903/10	1.6 A
LBB 1906/10	3 A
LBB 1912/10, LBB 1914/10	6 A
Performance	
Frequency response	50 Hz to 20 kHz (+1 / -3 dB at -10 dB ref. rated output)
Distortion	<1% at rated output power, 1 kHz
Bass control	-8 / +8 dB at 100 Hz
Treble control	-8 / +8 dB at 10 kHz
Dynamic range	100 dB
Mic input	2 x
Connector 1	5-pin DIN, 6.3 mm phone jack, balanced, with phantom power
Connector 2	3-pin XLR, 6.3 mm phone jack, balanced, with phantom power
Sensitivity	1 mV
Impedance	>1 kohm
S/N (flat at max volume)	63 dB
S/N (flat at min volume/muted)	>75 dB
CMRR	>40 dB (50Hz-20kHz)
Headroom	>25 dB
Speech filter	-3 dB at 315 Hz, high-pass, 6 dB/oct
Phantom power supply	16 V via 1.2 kohm
VOX (input 1 only)	attack time 150 ms; release time 2 s

Mains power supply	
Mic/line input	2 x
Connector 3, 4	3-pin XLR, 6.3 mm phone jack, balanced, with phantom power
Sensitivity	1 mV (mic); 200 mV (line)
Impedance	>1 kohm (mic); >5 kohm (line)
S/N (flat at max volume)	>63 dB (mic); >70 dB (line)
S/N (flat at min volume/muted)	>75 dB
CMRR	>40 dB (50 Hz to 20 kHz)
Headroom	>25 dB
Speech filter	-3 dB at 315 Hz, high-pass, 6 dB/oct
Phantom power supply	16 V via 1.2 kohm (mic)
Music input	1 x
Connector	Cinch, stereo converted to mono
Sensitivity	200 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	Screw terminals
Sensitivity	100 mV to 1 V, adjustable
Impedance	>10 kohm
S/N (flat at max volume)	>65 dB
VOX	50 mV threshold ; 150 ms attack time; 2 s release time
Loop through input	1 x
Connector	Cinch
Nominal level	1 V
Impedance	>10 kohm
Master line output	1 x
Connector	3-pin XLR, balanced
Nominal level	1 V
Impedance	<100 ohm
Tape output	1 x
Connector	Cinch, 2 x mono
Nominal level	350 mV
Impedance	1.5 kohm
Loop through output	1 x
Connector	Cinch
Nominal level	1 V
Impedance	<100 ohm
Loudspeaker output 70/100 V	
Connector	Screw, floating
Power	Max / rated
LBB 1903/10	45 / 30 W

Mains power supply	
LBB 1906/10	90 / 60 W
LBB 1912/10, LBB 1914/10	180 / 120 W
Loudspeaker output 8 ohm	
Connector	Screw, floating
Power	
LBB 1903/10	16 V (30 W)
LBB 1906/10	22 V (60 W)
LBB 1912/10, LBB 1914/10	31 V (120 W)
Power reduction on 24 V	1 dB
Power consumption	
Mains operation max	
LBB 1903/10	100 VA
LBB 1906/10	200 VA
LBB 1912/10, LBB 1914/10	400 VA
24 V operation max	
LBB 1903/10	1.6 A
LBB 1906/10	3 A
LBB 1912/10, LBB 1914/10	6 A
Mechanical	
Dimensions (H x W x D)	100 x 430 x 270 mm (19" wide, 2U high)
Weight	
LBB 1903/10	Approx. 5 kg
LBB 1906/10	Approx. 8.5 kg
LBB 1912/10, LBB 1914/10	Approx. 10.5 kg
Mounting	Standalone, 19" rack
Color	Charcoal
Environmental	
Operating temperature	-10 °C to +45 °C (+14 °F to +113 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%
Acoustic noise level of fan	<48 dB SPL at 1 m (max output)

Ordering Information

LBB 1903/10 Plena Mixer Amplifier 45W/30 W, 100 VA, 4.5 A / 9 A (230 Vac/ 150 Vac)	**LBB1903/10**
LBB 1906/10 Plena Mixer Amplifier 90 W / 60 W, 200 VA, 5 A / 10 A (230 Vac/ 150 Vac)	**LBB1906/10**
LBB 1912/10 Plena Mixer Amplifier 180 W/120 W, 100 VA, 8 A / 16 A (230 Vac/ 150 Vac)	**LBB1912/10**
LBB 1914/10 Plena Mixer Amplifier 180 W /120 W, 100 VA, 8 A / 16 A (230 Vac/ 150 Vac); 2 zone	**LBB1914/10**

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Plena Mixer Amplifier

Security Systems

en

Installation and Operating Manual

LBB 1903/10, LBB 1906/10,
LBB 1912/10, LBB 1914/10

BOSCH

Important safeguards

1 Read instructions - All the safety instructions for use should be read before the system is operated.
2 Retain instructions - The safety instructions and instructions for use should be retained for future reference.
3 Heed warnings - All warnings on the unit and in the operating instructions should be adhered to.
4 Follow instructions - All operating instructions and instructions for use should be followed.
5 Cleaning - Unplug system units from the mains outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
6 Attachments - Do not use attachments not recommended by the product manufacturer as they may cause hazards.
7 Water and Moisture - Do not use this unit near water, for example near a bathtub, washbowl, kitchen sink, or laundry basket, in a wet basement, near a swimming pool, in an unprotected outdoor installation or any area which is classified as a wet location.
8 Accessories - Do not place this unit on an unstable stand, tripod, bracket or mount. This unit may fall, causing serious injury to a person and serious damage to the unit. Use only a stand, tripod, bracket or mount recommended by the manufacturer, or sold with the product. Any mounting of the unit should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.
9 Ventilation - Openings in the enclosure, if any, are provided for ventilation and to ensure reliable operation of the unit and to protect it from overheating. These openings must not be blocked or covered. The unit should not be placed in a built-in installation unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
10 Power sources - Units should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply you plan to use, consult your appliance dealer or local power company. For units intended to operate from battery power, or other sources, refer to the "Installation and User Instructions".
11 Grounding or polarisation - This unit may be equipped with a polarised alternating current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug still fails to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarised plug. Alternatively, this unit may be equipped with a 3-wire grounding type plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type lug.
12 Power-Cord Protection - Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords and plugs, convenience receptacles, and the point where they exit from the appliance.
13 Overloading - Do not overload outlets and extension cords as this can result in a risk of fire or electrical shock.
14 Object and Liquid Entry - Never push objects of any kind into this unit through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the unit.
15 Servicing - Do not attempt to service this unit yourself as opening or removing covers may expose to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
16 Damage Requiring Service - Unplug the unit from the outlet and refer servicing to qualified service personnel under the following conditions:
- When the power-supply cord or plug is damaged.
- If liquid has been spilled, or objects have fallen into the unit.
- If the unit has been exposed to rain or water.
- If the unit does not operate normally by following the instructions for use. Adjust only those controls that are covered by the instructions for use, as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the units to their normal operation.
- If the unit has been dropped or the unit has been damaged.
- When the unit exhibits a distinct change in performance; this indicates a need for service.

17 Replacement Parts - When replacement parts are required be sure the service technician has used replacement parts specified by the manufacturer or parts which have the same characteristics as the original part. Unauthorised substitutions may result in fire, electric shock or other hazards.
18 Safety Check - Upon completion of any service or repairs to the units, ask the service technician to perform safety checks to determine that the unit is in proper operating condition.
19 Lightning - For added protection of the units during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the cable system. This will prevent damage to the unit due to lightning and power-line surges.

About this manual

This manual provides all the information required to install and operate the unit.

Conventions

Warning
Follow these instructions to prevent personal injury.

Caution
Follow these instructions to prevent damage to the equipment.

Note
Read these instructions for tips and other useful information.

Safety precautions

Warning
Do not open the unit when it is connected to the mains. The unit contains non-insulated parts, which can cause electric shock.

Caution
There are no user-serviceable parts inside the unit. Service must be done by qualified personnel.

Table of contents

1 About the mixer amplifier

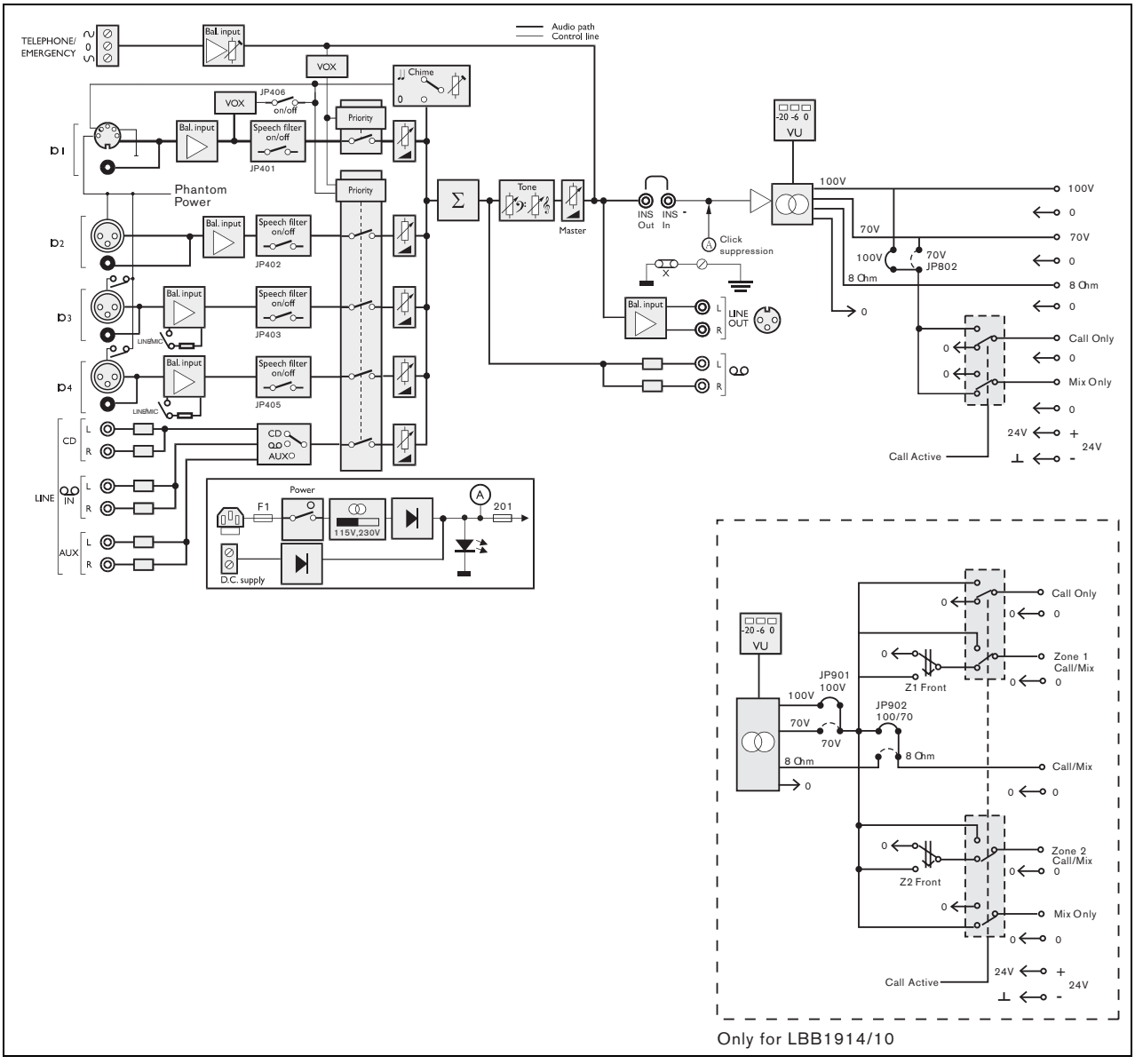

Figure 1.1

The Plena Mixer Amplifier is a mono amplifier for mixing up to 4 microphone signals and (background) music signals. You can adjust the volume of each input separately in order to obtain the correct mix and control the mixed output via the master volume and tone controls. Microphone input 1 can have priority with an optional chime signal, muting other sources. The power amplifier has a direct output for mixed signals and priority announcements, but additionally a priority controlled output relay routes the output to loudspeaker zones that should receive only priority announcements or no priority announcements at all.

1.1 Controls and connections (front)

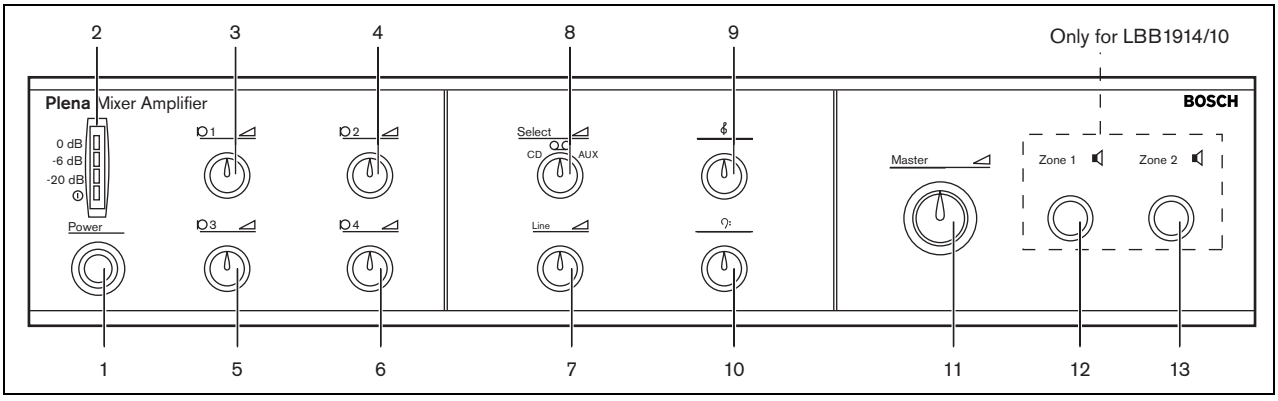

Figure 1.2

1 Power button
2 VU-meter (LED's for -20, -6, 0 dB and Power ON)
3 Input 1 (microphone) volume control
4 Input 2 (microphone) volume control
5 Input 3 (microphone) volume control
6 Input 4 (microphone) volume control
7 Line (music source) volume control
8 Music source selector (CD, tape, AUX)
9 Master tone control (treble)
10 Master tone control (bass)
11 Master volume control (all inputs except emergency)
12 Zone 1 selection button (LBB1914/10 only)
13 Zone 2 selection button (LBB1914/10 only)

1.2 Controls and connections (rear)

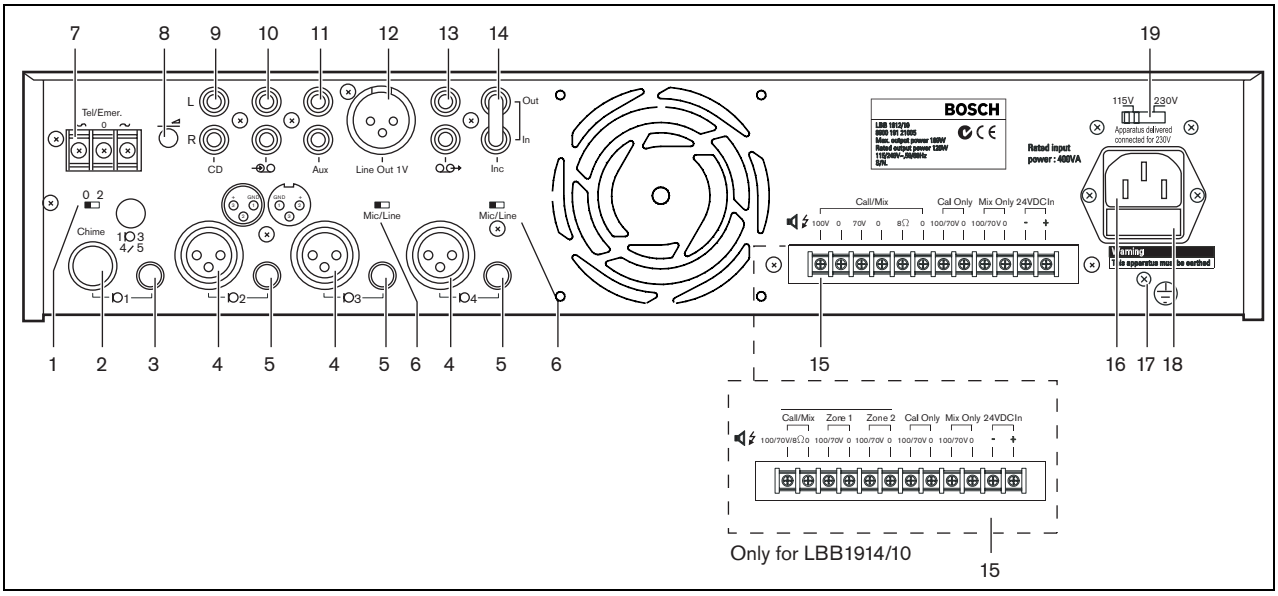

Figure 1.3

1 Chime ON/OFF switch
2 Priority microphone input (5-pole DIN/balanced with Phantom power)
3 Input 1 microphone input (6.3 mm phono jack/ balanced with Phantom power)
4 Microphone input (XLR/balanced with Phantom power in microphone mode)
5 Microphone input (6.3 mm phono jack/balanced)
6 Input Mic./Line switch
7 Emergency connection input terminals
8 Emergency volume pre-set
9 CD input (2x phono connectors)
10 Tape input (2x phono connectors)
11 Auxiliary input (2x phono connectors)
12 Line output (XLR)
13 Tape output (2x phono connectors)
14 Insertion input/output (2x phono connectors)
15 Loudspeaker output terminals and 24 Vdc power supply terminals
16 Mains connector (3-pole)
17 Earth connection screw
18 Mains fuse
LBB1903 T1A (230 Vac) / T2A (115 Vac)
LBB1906 T1.6A (230 Vac) / T3.15A (115 Vac)
LBB1912 T2.5A (230 Vac) / T5A (115 Vac)
LBB1914 T2.5A (230 Vac) / T5A (115 Vac)
19 Mains voltage 115/230 V switch

2 Internal settings

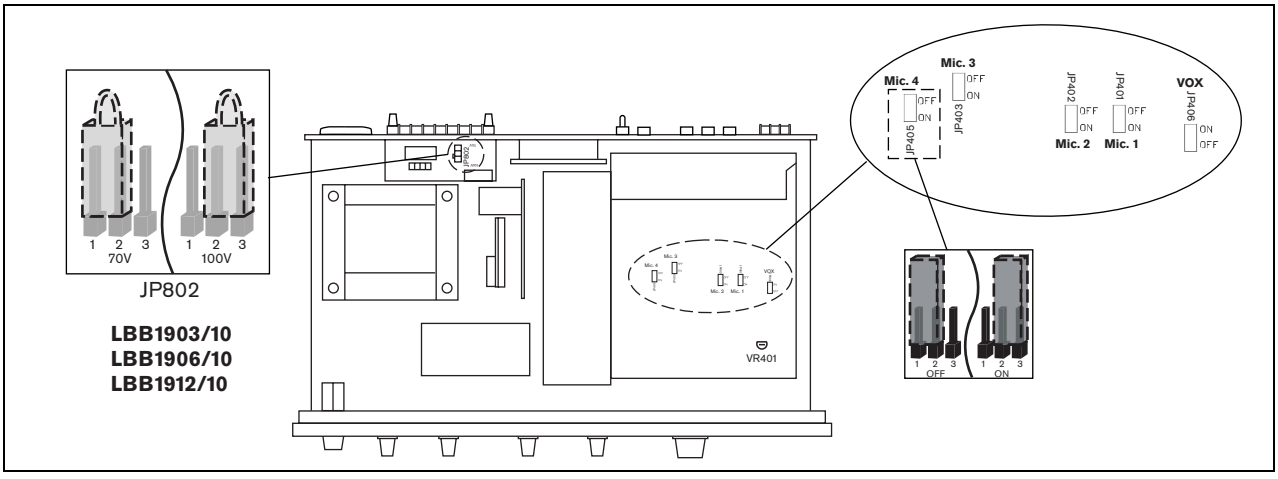

Figure 2.1

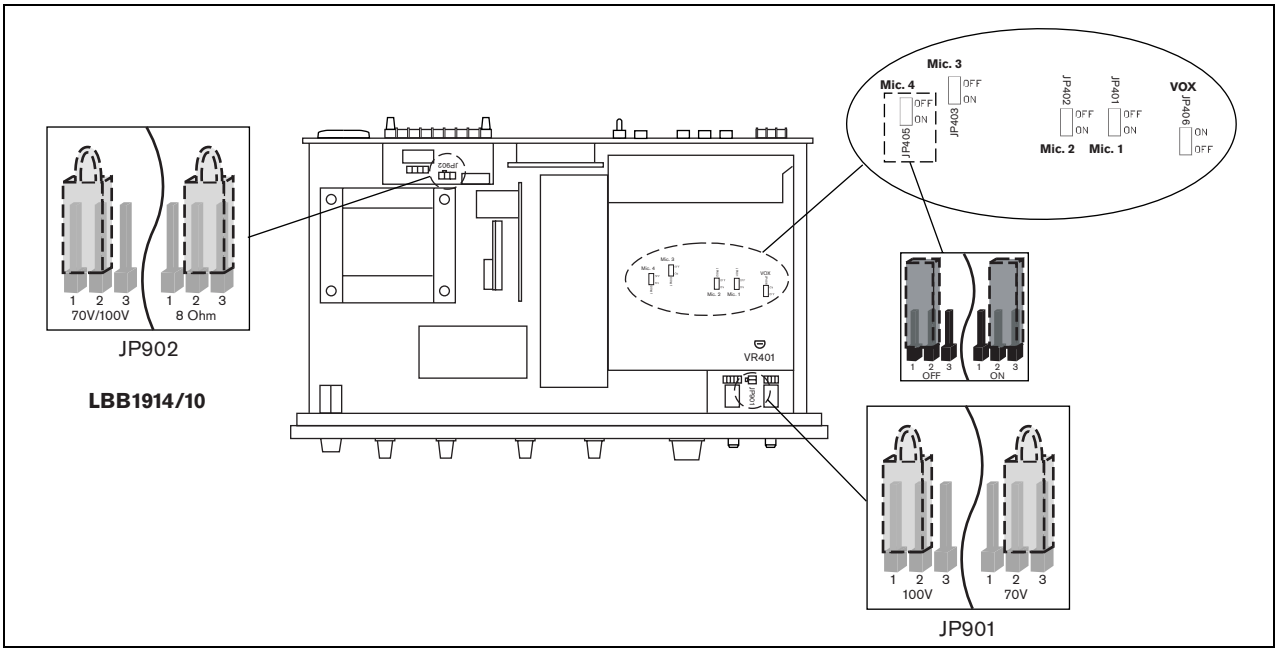

Figure 2.2

2.1 Setting the VOX for microphone input 1

Input 1 has the option of a voice-controlled priority (VOX), which will overrule all other inputs when it recognizes a voice signal. To activate this function, set the VOX-jumper (JP406) to ON.

2.2 Setting the speech filters

The speech intelligibility can be improved by cutting off the lower frequencies of the signal. To activate this filter for each microphone input, set the respective filter jumper (JP401 for input 1, JP402 for input 2, JP403 for input 3 and JP405 for input 4) to ON.

2.3 Setting the chime volume

Adjusting the potentiometer VR401 changes the volume of the chime attention signal, preceding a priority call. Be careful not to adjust VR701; this is a power amplifier factory adjustment.

2.4 Setting the output voltage for LBB1903, LBB1906 and LBB1912

Direct outputs for 70 V, 100 V and low impedance (8 Ohm) loudspeakers are provided. Jumper JP802 sets the Call Only and Mix Only outputs to 70 V or 100 V output. These outputs are controlled by a priority relay. The Call Only output only provides priority announcements, while the Mix Only output just provides the mixed signals and switches off at priority calls.

2.5 Setting the output voltage for LBB1914

Jumper JP901 sets the Call/Mix, Zone 1, Zone 2, Call Only and Mix Only outputs to 70 V or 100 V output. Setting JP902 can also set the direct Call/Mix output to 8 Ohm for low impedance loudspeakers. The Call Only and Mix Only outputs are controlled by a priority relay. The Call Only output only provides priority announcements, while the Mix Only output just provides the mixed signals and switches off at priority calls. The zone selection buttons control the outputs of Zone 1 and 2, but priority announcements are always routed to these zones.

3 Installation in rack

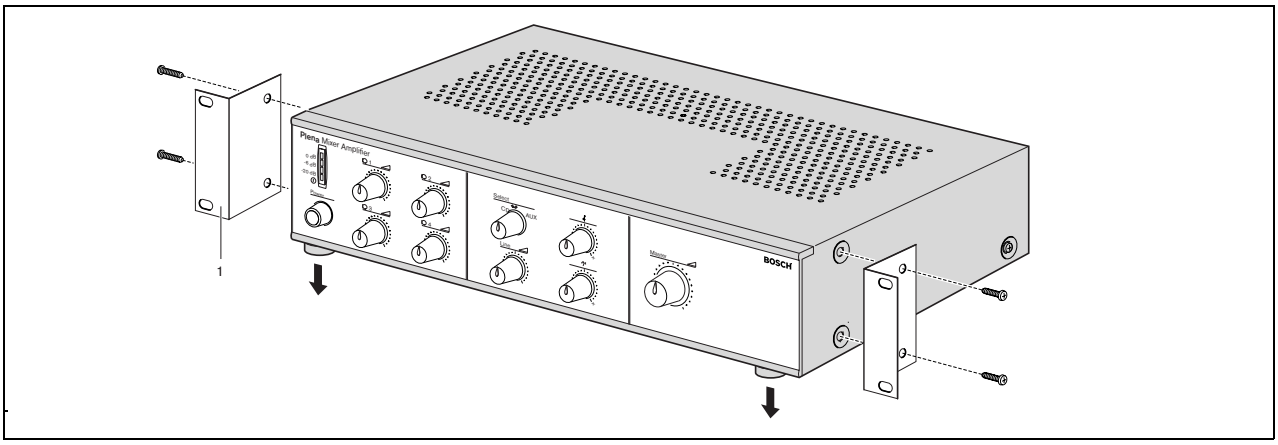

Figure 3.1

The mixer amplifier is delivered for tabletop use, but you can mount it in a 19" rack.
If you mount the amplifier in a rack, you must:

- ensure that the unit does not exceed the overheating temperature (45 °C ambient).
- use the mounting brackets which can be ordered by Bosch (LBC 1901/00).
- remove the 4 feet from the bottom of the unit. Without the feet the unit is 2U high.

4 External settings and connections

4.1 Connect the DC supply (battery)

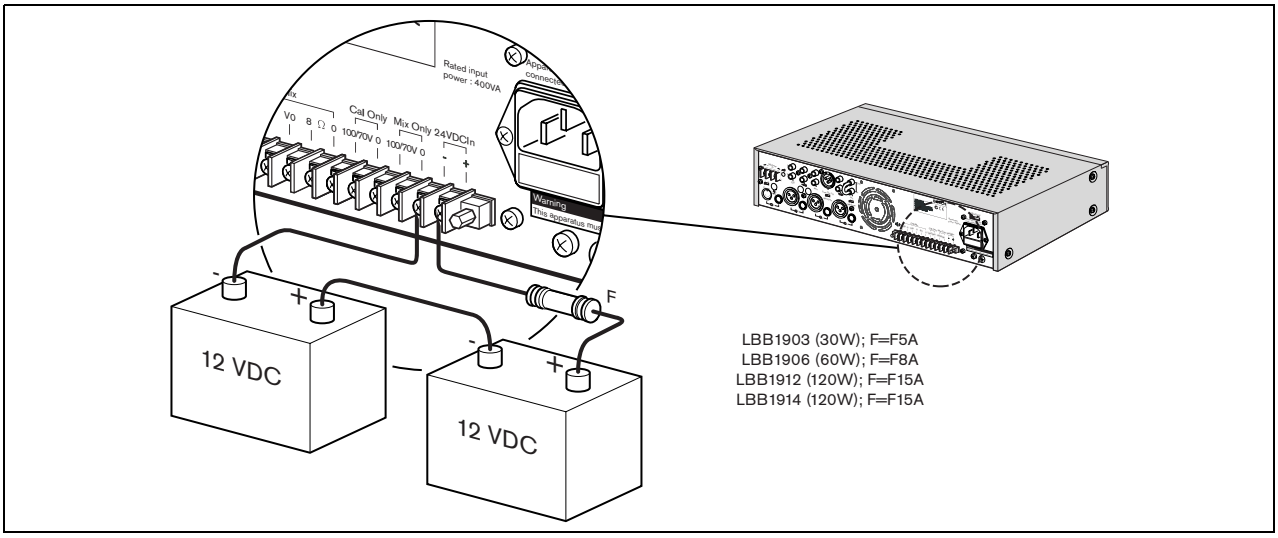

Figure 4.1

The mixer amplifier has a 24 Vdc input (terminal screw), which you can use to connect a back up power supply, e.g. batteries. You can earth the unit to increase the electrical stability of the system.

Caution
The connection cable must have an in-line fuse. Use the type of fuse as mentioned in the illustration.

4.2 Priority microphone

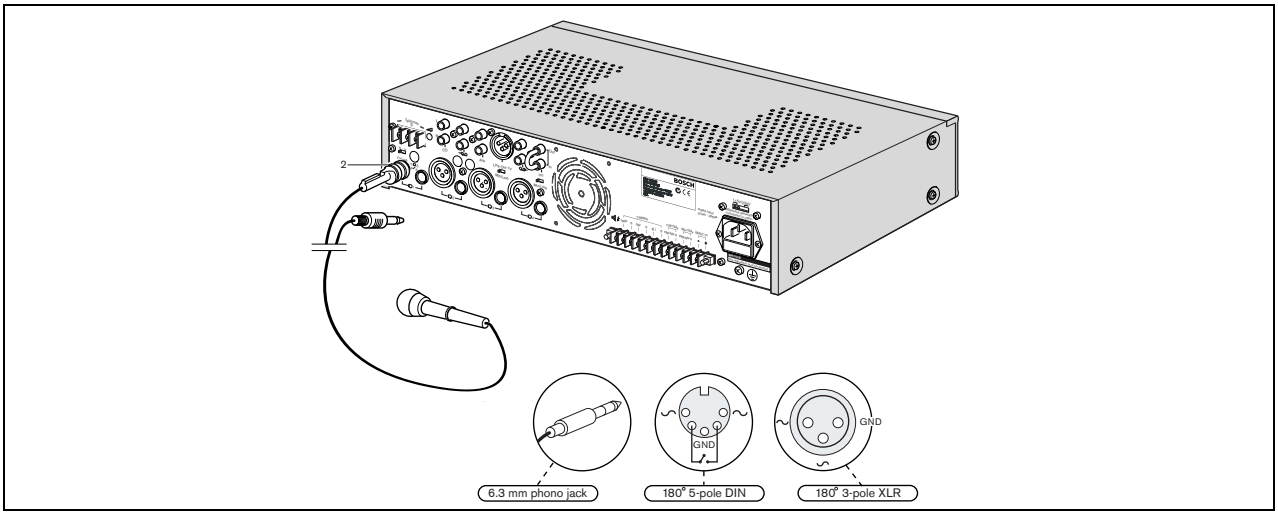

Figure 4.2

Microphone 1 input has a 5-pole DIN (for a 3 or 5-pole DIN microphone) and a 6.3-mm phone jack connector wired in parallel. Only when connecting a microphone with a priority contact on pin 4 and 5 of the 5-pole DIN connector (2), this input has priority over all inputs except the emergency input. This microphone input can be included with a voice controlled circuit (VOX) which will overrule all the other input signals. How to activate the VOX is described in §2.1.

Note
Only use one of the two connection possibilities of each microphone input.

4.3 Chime ON/OFF-switch

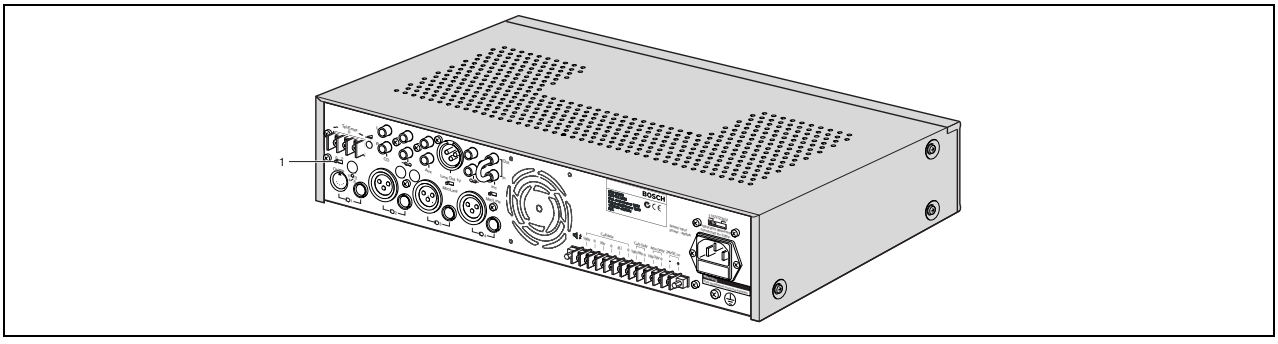

Figure 4.3

Depending on the position of the chime ON/OFF-switch (1), switching on microphone 1 will activate the chime. The default chime volume is -8 dB (40 V), which will be sufficient in most applications. The volume can be altered using the potentiometer VR401 on the main PCB of the unit (see §2.3).

Note
Only when connecting a 5-pole DIN microphone to the 5-pole DIN connector of microphone input 1 the chime can be activated.

4.4 Microphone inputs

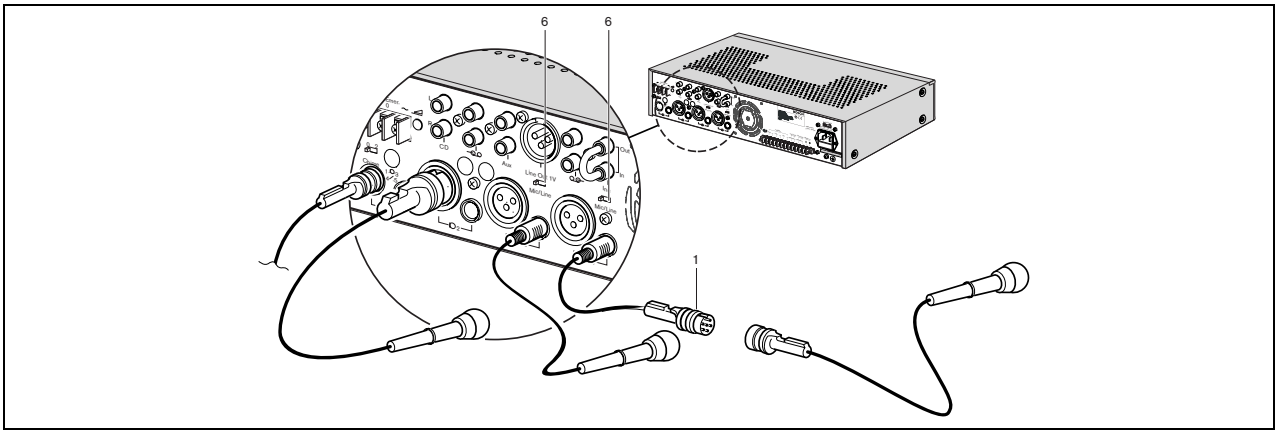

Figure 4.4

Dependent on the microphone choose between the XLR with Phantom power and the 6.3 mm phono jack connector. Use an extension cable (1) if necessary. When using input 3 or 4 to connect microphones, set the switches (6) to Mic. When using these inputs as line-inputs, set the switches (6) to Line. To cut-off the lower frequencies of the signal, activate the speechfilters on the PCB (see §2.2).

4.5 Emergency input

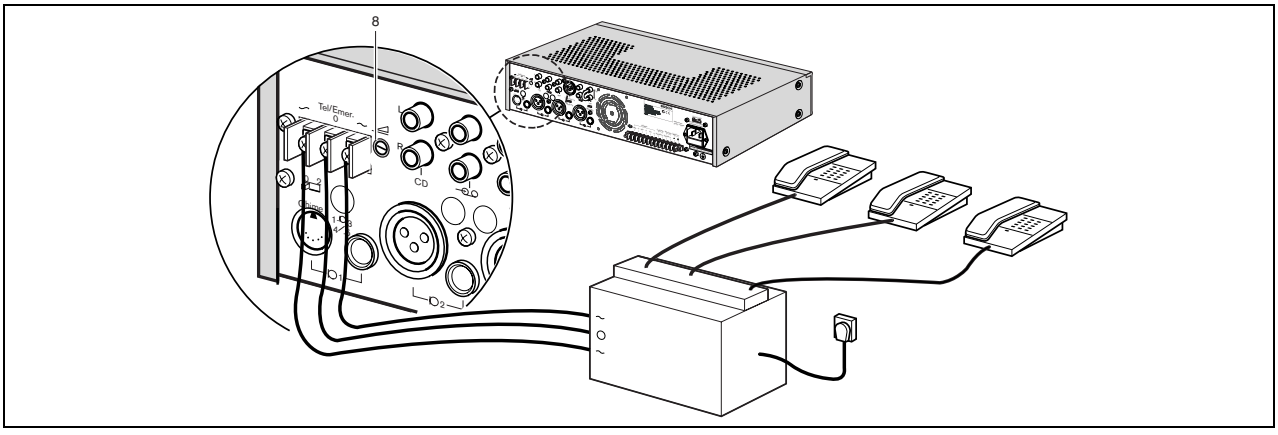

Figure 4.5

The emergency input is for emergency announcements/signals and obviously has the highest priority (all other inputs are overruled). The emergency volume -which cannot be affected by the master volume control (11) - can be set at 8, using a screwdriver. It can not be set to zero.

Caution
A connection to a telephone network must always be made via a telephone coupler that provides adequate isolation between the telephone network (PBX) and the Plena system. The telephone coupler must also meet all relevant requirements for this type of communication equipment as imposed by law and/or responsible telecommunication organisations in the country of use. Never try to make a direct connection between the telephone network and the mixer amplifier.

4.6 Music source inputs

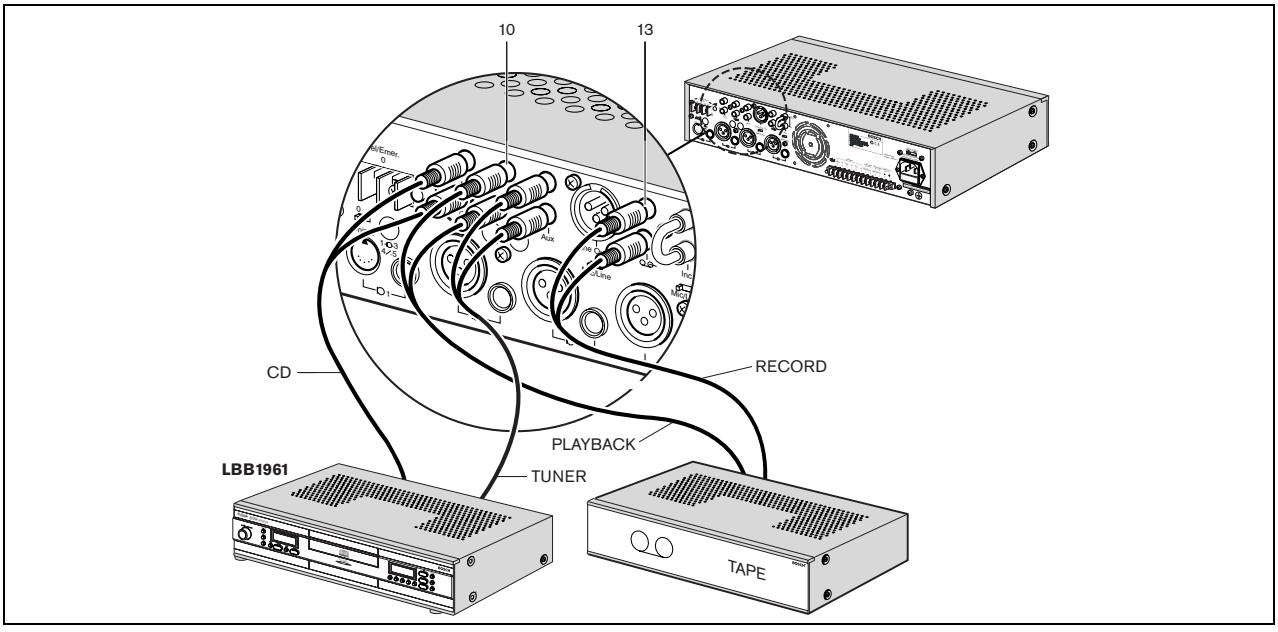

Figure 4.6

When using a CD player, tape recorder or tuner for background music, connect the line-out connectors of the music source to the appropriate line-in connectors of the mixer amplifier (e.g. the tape recorder must be connected to the tape source input (10)). When using a tape recorder to record the output of the amplifier, connect the line-in connectors of the tape recorder to the line-out connector (13) of the mixer amplifier.

4.7 Connecting the line output

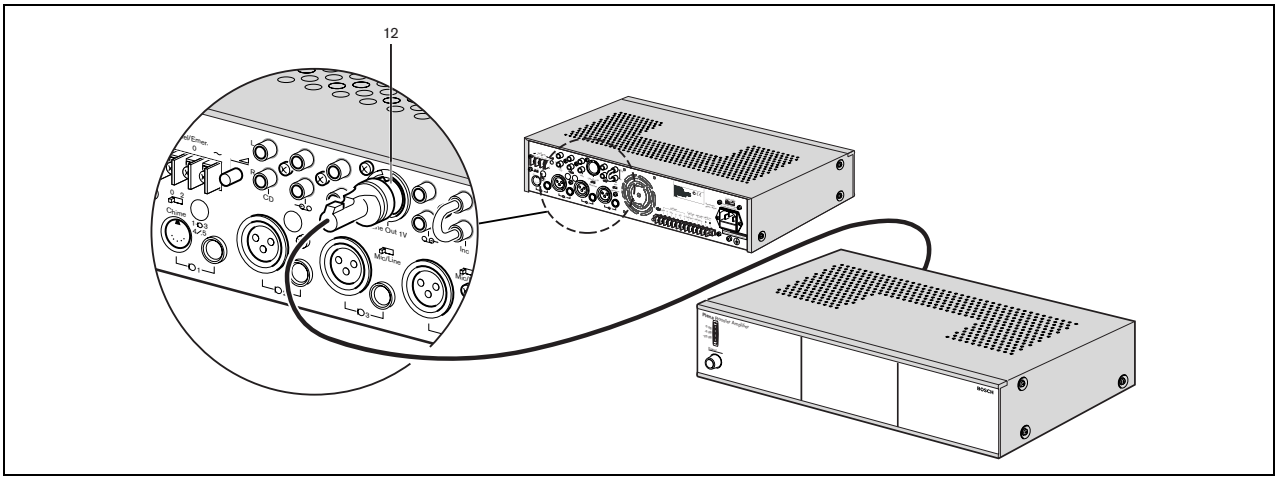

Figure 4.7

The line output (12) is an output for connecting additional PA amplifiers (such as the Plena Booster Amplifiers).

4.8 Connecting loudspeakers

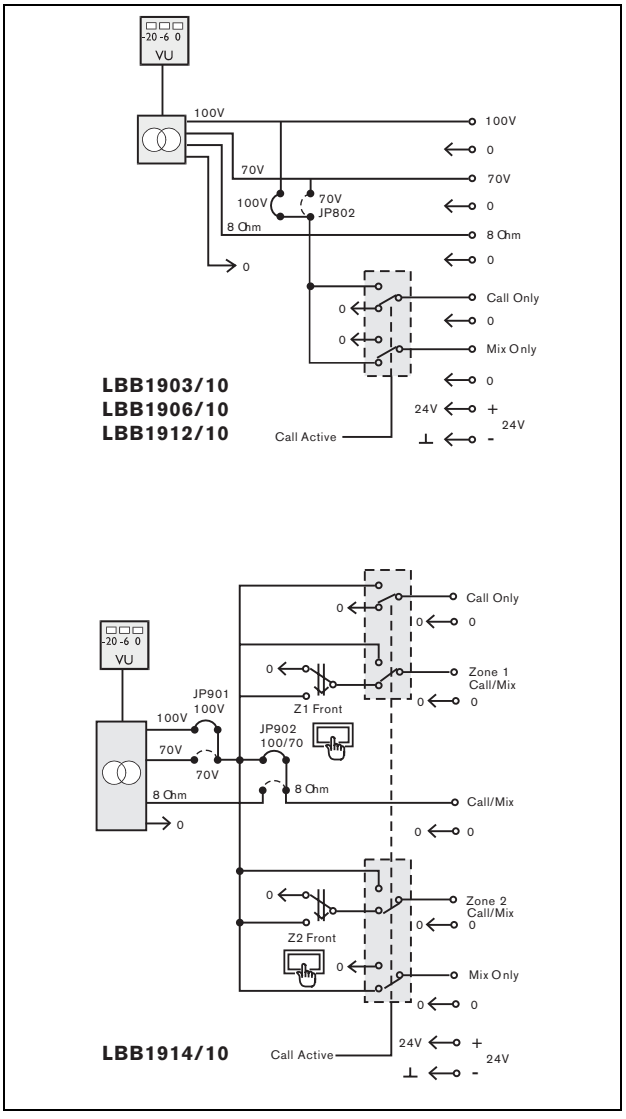

Figure 4.8

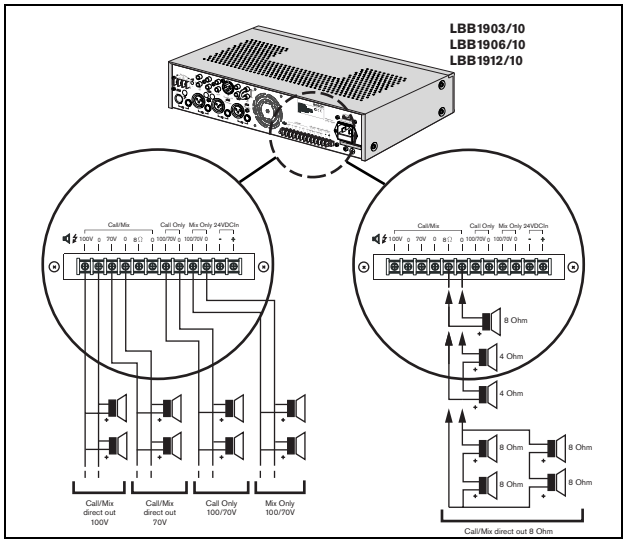

Figure 4.9

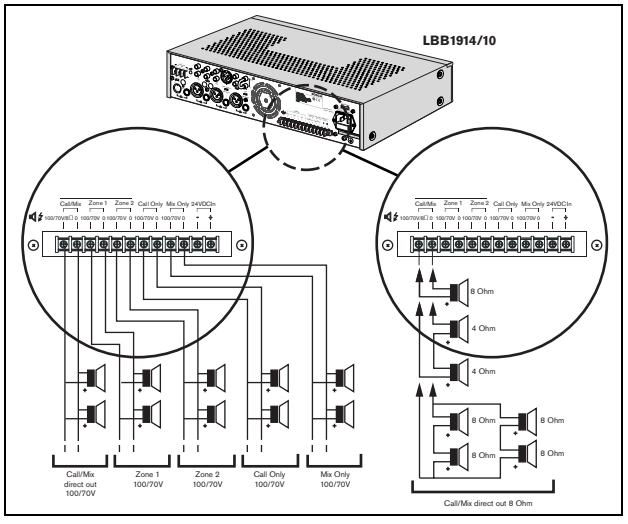

Figure 4.10

4.8.1 Constant voltage loudspeakers

The mixer amplifier can drive 100 V constant voltage loudspeakers at full power (100 V) or half power (70 V). Connect the loudspeakers in parallel and check the loudspeaker polarity for in-phase connection. The summed loudspeaker power should not exceed the rated amplifier power. Ensure that the jumper(s) for loudspeaker voltage selection is / are properly set (see §2.4).

You can use the Call Only output for 3-wire remote volume control override. In this case, ensure that the selected voltage for the Call Only output is the same as for the direct output or the zone outputs.

4.8.2 Low impedance loudspeakers

Connect low impedance loudspeakers to the 8 Ohm/0 terminals. This output can deliver the rated output power into an 8 Ohm load. Connect multiple loudspeakers in a series/parallel-arrangement to make the combined impedance 8 Ohm or higher. Check the loudspeaker polarity for in-phase connection. Ensure that the jumper(s) for loudspeaker voltage selection is / are properly set (see §2.5).

4.9 Mains connection

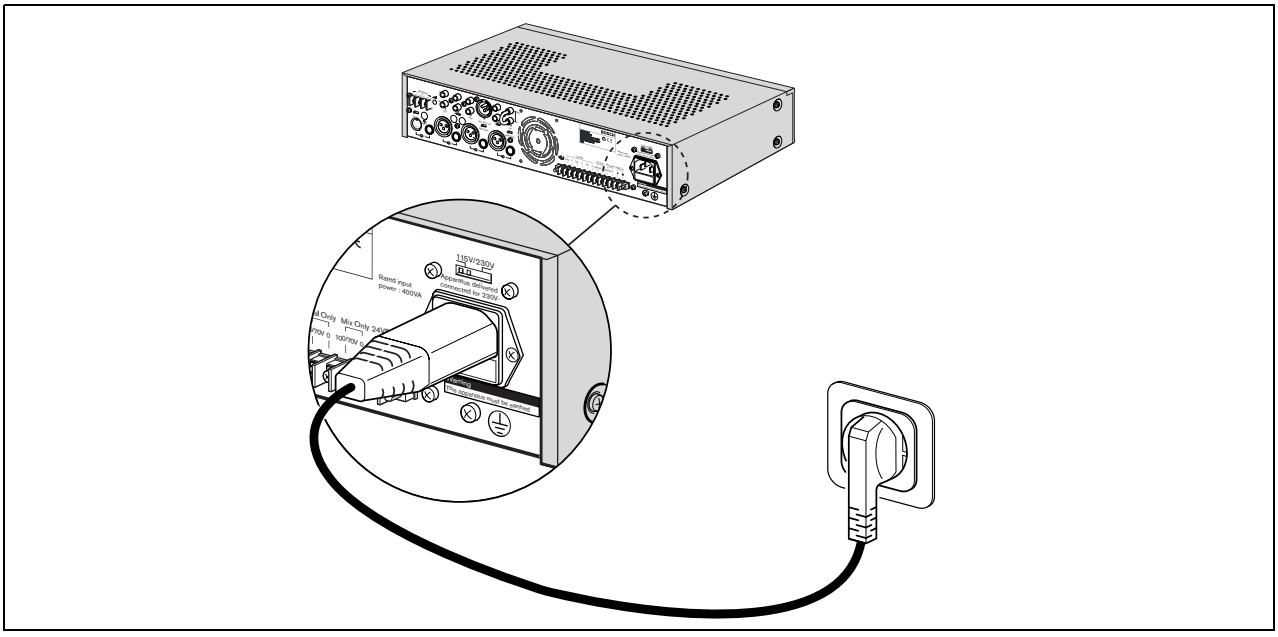

Figure 4.11

Use the supplied mains cord to connect the system to the mains supply.

Note
If necessary set the switch 115/230 V to the required voltage using a sharp object, e.g. a small screwdriver.

5 Operation of mixer amplifier

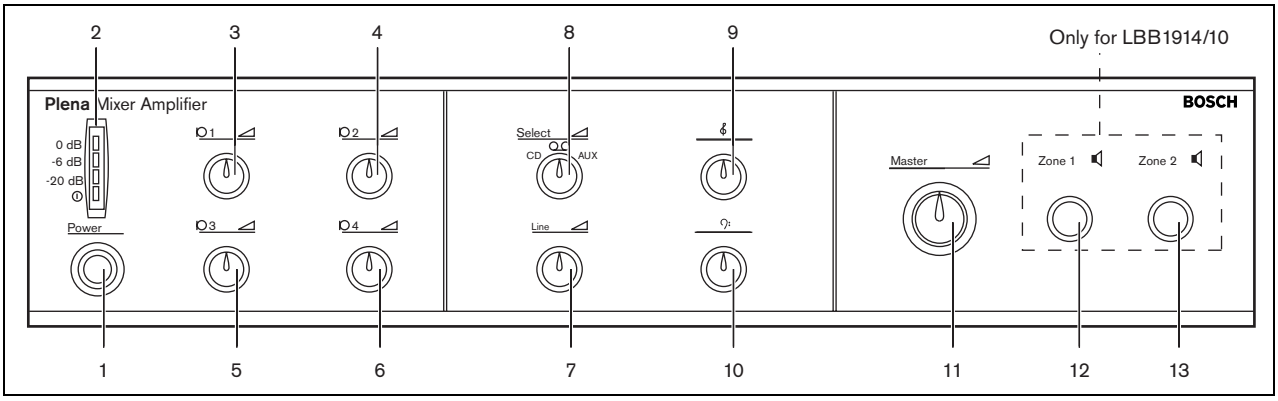

Figure 5.1

5.1 Source selection

- Use the music source selector (8) to select one of the connected music sources.
- Use the input volume controls (3, 4, 5, 6 and 7) to balance the sound level of the microphone inputs and the background music.

5.2 Volume and tone control

- Use the master volume control (11) to control the volume of the music/microphone mix.
- The treble and bass tone controls (9 and 10) affect the microphones as well as the music.

5.3 Zone selection (LBB1914/10 only)

- Use the zone selection buttons (12 and 13) to route the music/microphone mix from the amplifier output to loudspeaker zone 1 and/or loudspeaker zone 2. Priority announcements, however, are always routed to both zones, irrespective of the position of the zone selection buttons.

6 Technical data

6.1 Electrical

Mains voltage	230/115 Vac, ±10%, 50/60 Hz
Max mains power consumption	
LBB1903/10	100 VA
LBB1906/10	200 VA
LBB1912/10, LBB1914/10	400 VA
Max mains inrush current	
LBB1903/10	4.5 A/9 A (230/115 Vac)
LBB1906/10	5 A/10 A (230/115 Vac)
LBB1912/10, LBB1914/10	8 A/16 A (230/115 Vac)
Battery voltage	24 Vdc, +20%/-10%
Max battery current	
LBB1903/10	1.6 A
LBB1906/10	3 A
LBB1912/10, LBB1914/10	6 A

6.2 Performance

Frequency response	50 Hz - 20 kHz (+1/-3 dB @ -10 dB ref. rated output)
Distortion	< 1% @ rated output, 1 kHz
Bass control	-8/+8 dB @ 100 Hz
Treble control	-8/+8 dB @ 10 kHz

6.3 Inputs

Input 1 (5-pin DIN, balanced with phantom power, 6.3 mm phone jack)

Input 2 (3-pin XLR, balanced with phantom power, 6.3 mm phone jack)

Sensitivity	1 mV
Impedance	> 1 kOhm
S/N (flat at max volume)	63 dB
S/N (flat at min volume/muted)	> 75 dB
CMRR	> 40 dB (50 Hz - 20 kHz)
Headroom	> 25 dB
Speech filter	-3 dB @ 315 Hz, high-pass, 6 dB/oct
Phantom power supply	16 V via 1.2 kOhm
VOX (input 1 only)	attack time 150 ms release time 2 s

Input 3 and 4 (3-pin XLR, balanced with phantom power, 6.3 mm phone jack)

Sensitivity	1 mV (microphone), 200 mV (line)
Impedance	> 1 kOhm (microphone) > 5 kOhm (line)
S/N (flat at max volume)	63 dB (microphone), 70 dB (line)
S/N (flat at min volume/muted)	75 dB
CMRR	> 40 dB (50 Hz - 20 kHz)
Headroom	> 25 dB
Speech filter	-3 dB @ 315 Hz, high-pass, 6 dB/oct
Phantom power supply	16 V via 1.2 kOhm (microphone)

Music input (Cinch, stereo converted to mono)

Sensitivity	200 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 (Screw, balanced)

Sensitivity	100 mV - 1 V adjustable
Impedance	> 10 kOhm
VOX	threshold 50 mV attack time 150 ms release time 2 s
S/N (flat at max volume)	> 65 dB

Interconnection (Cinch)

Nominal level	1 V
Impedance	> 10 kOhm

6.4 Outputs

Master output 1 (3-pin XLR, balanced)

Nominal level	1 V
Impedance	< 100 Ohm

Tape output (Cinch, 2x mono)

Nominal level	350 mV
Impedance	1.5 kOhm

Interconnection (Cinch)

Nominal level	1 V
Impedance	< 100 Ohm

Loudspeaker outputs (Screw, floating)

Max/rated output power 70/100 V	
LBB1903/10	45 W/30 W
LBB1906/10	90 W/60 W
LBB1912/10, LBB1914/10	180 W/120 W
8 Ohm output	
LBB1903/10	16 V (30 W)
LBB1906/10	22 V (60 W)
LBB1912/10, LBB1914/10	31 V (120 W)
Output power @ 24 V battery operation	-1 dB ref. rated power

6.5 Environmental conditions

Operating temperature range	-10 to +45 °C
Storage temperature range	-40 to +70 °C
Relative humidity	< 95%

6.6 General

EMC emission	acc. to EN 55103-1
EMC immunity	acc. to EN 55103-2
Acoustic noise level of fan	< 40 dB SPL @ 1 m (LBB1912/10 and LBB1914/10 only)
Dimensions	100 x 430 x 270 mm (19" wide, 2U high)
Weight	
LBB1903/10	approx. 5 kg
LBB1906/10	approx. 8.5 kg
LBB1912/10, LBB1914/10	approx. 10.5 kg
19" mounting brackets	LBC1901/00 (to be ordered separately)

For more information visit
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