BOSCH

Invented for life

PLN-2AIO120 BGM/Paging System

▸ **All-in-one solution for background music and paging**

▸ **DVD/CD-player for video and audio**

▸ **Supports MP3, JPEG, and multi-format video outputs**

▸ **FM/AM tuner with 10 presets and digital control**

▸ **Dual-zone 120 W mixer amplifier with volume control per zone**

▸ **Selectable priority and VOX switching on microphone input 1**

▸ **Optional 2-tone chime to precede announcements**

▸ **Remote control**

The Plena BGM/paging system is the versatile all-in-one solution to cover all needs for background music (BGM), making announcements and paging people. This high-performance yet affordable unit is very easy to install and operate.

It is typically used in shops, supermarkets, restaurants, bars, schools, canteens, gyms, garages and other places where BGM creates the right atmosphere, and also amplified speech needs to be heard clearly.

Functions

DVD/CD Player

The DVD/CD player provides up to a whole workweek of high quality uninterrupted music playback from a single MP3 DVD. It supports music organized on a disk in multiple folders. The player will automatically search and play all playable formats on a disk, and has repeat mode. Navigation is done on the multi lingual on screen display.

The unit plays normal audio and video DVD/CDs, as well as long-play MPEG2, MP3 encoded CDs. It can also play MP3s and display JPEGs on CD-R, DVD-ROM, DVD-R. MP3-files with bit-rates from 32 kbps to 320 kbps, mono/stereo/joint-stereo, and both continuous bit-rates (CBR) and variable bit-rate (VBR) are supported. Component,

composite, and S-Video connectors are available for video output. The unit plays PAL and NTSC content in progressive scan as well as interleaved.

The disc part of the unit also has a TOSlink optical output that supports S/P DIF as well as DST and Dolby Digital. It is possible to output S/P DIF regardless of the source and choose left/right, surround channels of Low frequency effects on this output.

Basic controls are on the unit itself, while navigation and configuration is done with the remote control and the on screen display. The unit supports most major languages, and it is possible to set regional preference, such as subtitle language preference.

FM/AM Tuner

The digitally controlled FM/AM tuner uses a frequency synthesizer for accurate capture of radio stations and has 10 presets for each waveband to store favorite programs. An auxiliary (music) input and tape output provide connections for external equipment.

Microphone Inputs

The announcement part of the unit has three balanced microphone inputs. Microphone input 1 has a DIN socket on the rear for a priority microphone (e.g. the LBB 1950/00) with selectable priority, a two-tone chime to precede a priority announcement, a speech filter, phantom power. It also has a phone jack connector on the

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front with selectable VOX activation for a dynamic microphone, such as the LBC 2900/15, as well as presets for music ducking level and chime volume. Microphone inputs 2 and 3 have XLR sockets with selectable phantom power, and are mixed with the BGM. All microphone inputs and the music source have their own volume control, with a shared bass and treble tone control and a shared master volume control.

Outputs

The powerful 120 W output section has two transformer-isolated, 100 V constant voltage outputs for driving 100 V-loudspeakers in two separate zones. The 100 V-technique reduces line losses on longer distances and allows easy parallel connection of multiple loudspeakers. Both zones can be selected individually from the front panel, and the output level for each zone can be individually set. Each zone also has a low-voltage output for connecting 8 ohm, transformerless loudspeakers (consumer-type). There is a separate, 100 V call-only output for addressing an area where announcements are necessary, but BGM is not desired. A voltage-free call-active contact is available for overriding local volume controls during priority calls, and for other purposes. An LED meter monitors the output.

Controls and indicators

Front

- Power on/off
- Disc eject key
- Disc previous key
- Disc play key
- Disc next key
- Disc stop key
- Disc display
- Disc repeat key
- Disc pause key
- Tuner memory keys 1-5 and 6-10
- Tuner shift key to select memory 1-5 or 6-10
- Tuner program key
- Tuner scan key
- Tuner FM/AM selection key
- Tuner frequency up/down keys
- Tuner display

Back

- Mains voltage selection
- Chime selection DIP switch
- Phantom power switch

Interconnections

Back

- FM antenna input
- AM antenna input
- Tape output (mono, 2 x)
- Aux input (stereo converted to mono)
- Call only output
- Zone 1 output
- Zone 2 output
- Call active output
- Component video output (3 x)
- Composite video output

- Digital optical output
- Earth connection screw
- Mains connection

Certifications and Approvals

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

Parts Included

Quantity	Component
1	PLN-2AIO120 PLENA BMG/Paging System
1	Power cord
1	Remote control
1	Installation and User Instructions
1	Plena CD

Technical Specifications

Electrical

Mains power supply

Voltage	230/115 VAC, ±10%, 50/60 Hz
Inrush current	8 A @ 230 VAC / 16 A @ 115 VAC
Max power consumption	400 VA
Max/rated output power	180 W / 120 W
Performance	
Frequency response	60 Hz to 18 kHz (+1/-3 dB @ ref. rated output)
Distortion	<1% @ rated output, 1 kHz
Bass control	-8/+8 dB @ 100 Hz
Treble control	-8/+8 dB @ 10 kHz
Mic input	1 x
Connectors	5-pin DIN, balanced, 6.3 mm jack
Sensitivity	1 mV
Impedance	>1 kohm
S/N (flat at max volume)	63 dB
S/N (flat at min volume/ muted)	75 dB
Headroom	25 dB
Speech Filter	-3 dB @ 315 Hz, high-pass, 6 dB/oct
Phantom power supply (on 5-pin DIN)	12 V

Mains power supply

VOX (on 6.3 mm jack)	Attack time 200 ms, release time 2 s, ducking level adjustable
Mic input	2 x
Connector	3-pin XLR, balanced
Sensitivity	1m V
Impedance	>1 kohm
S/N (flat at max volume)	63 dB
S/N (flat at min volume/ muted)	75 Db
Headroom	25 dB
Phantom power supply	12 V
Auxiliary input	
Connector	Cinch, 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
Tuner	
Tuning range FM	87.5 to 108 MHz (Europe, 50 kHz; Asia / USA, 100 kHz)
AM	531 to 1602 kHz(Europe, 9 kHz)
	530 to 1610 kHz(Asia / USA, 10 kHz)
FM sensitivity	2 µV (26 dB S/N)
AM sensitivity	30 µV (20 dB S/N)
Frequency response	30 Hz to 15 kHz (+1 / -3 dB, FM)
Distortion	<1%
S/N	>63 dB (1 mV, FM)
Tuner output	1 x
Connector	Cinch, (RCA) stereo
Nominal level	200 mV
DVD-Player	
Frequency response	20 Hz to 20 kHz (+1/-3 dB)
Distortion	<0.1%
S/N	>96 dB
General	
MP3 bit rates	CBR 32 kbps to 320 kbps and VBR, mono and stereo
Data buffer shock protection	16 MB
DVD/CD player output	1 x
Optical output	TOSlink (PCM, multi channel)
Supported Formats	DVD, CD, (re-)writables MP3, MP4, JPEG
Video outputs	
Component connectors	3 x cinch

Mains power supply

Composite connector	1 x cinch
S-video connector	1 x mini-DIN
General	
Data buffer	8 MB (shock protection)
Lifetime	>10.000 CD play cycles
Max number of titles	999 (MP3), 99 (audio CD)
Tape output	
Connector	Cinch, 2x mono
Nominal level	350 mV
Impedance	1 kohm
Loudspeaker outputs	6 x 2
Connector	Screw, floating
100 V outputs	120 W rated (all zones together)
Zone output attenuation taps	100/70/50/35/25/18 V for 0/-3/-6/-9/-12/-15 dB (120/60/30/15/8/4 W)
8 ohm outputs	18 V (40 W rated per zone)
Call-active	1 x
Connector	Screw
Relay	Voltage free, max 100 V, 2 A
Mechanical	
Dimensions (H x W x D)	144 x 430 x 320 mm (19" wide, 3U high)
Weight	Approx. 11.6 kg
Mounting	Standalone (rack mounting not recommended)
Color	Charcoal
Environmental	
Operating temperature	-10 ºC to +45 ºC (14 ºF to +113 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%
Acoustic noise level of fan	<35 dB SPL at 1 m, temperature controlled

Ordering Information

PLN-2AIO120 BGM/Paging System all-in-one solution to cover background music (BGM), announcements and paging people	**PLN-2AIO120**

Plena All-in-One 120 Watt

BOSCH

Important safeguards

Before installing or operating this product, always read the Important Safety Instructions, which are available as a separate document (9922 141 7014x).
These instructions are supplied together with all equipment that can be connected to the mains.

Thank you for choosing a Bosch Security Systems product.

Table of contents

1   Introduction

1.1   Purpose

These Installation and User Instructions provide information on installing, configuring, and operating the Plena All-in-One 120 Watt.

1.2   Digital document

The Installation and User Instructions are also available as a digital document in the Adobe Portable Document Format (PDF). All references to pages, figures, tables, etc. in this digital document contain hyperlinks to the referenced locations.

1.3   Intended audience

These Installation and User Instructions are intended for installers and users of a Plena system.

1.4   Alerts

Four types of alerts are used in this manual. The alert type is closely related to the effect that may be caused if it is not observed. These alerts - from least severe effect to most severe effect - are:

- **Note**
  Alert containing additional information. Usually, not observing a note alert does not result in damage to the equipment or personal injuries.
- **Caution**
  The equipment can be damaged if the alert is not observed.
- **Warning**
  Persons can be (severely) injured, or the equipment can be seriously damaged, if the alert is not observed.
- **Danger**
  Not observing the alert can result in death.

1.5   Signs

1.5.1   Note signs

The signs used in combination with Notes provide extra information about the Note. See the following examples:

> **Note**
> General sign for notes.

> **Note**
> Consult the indicated source of information.
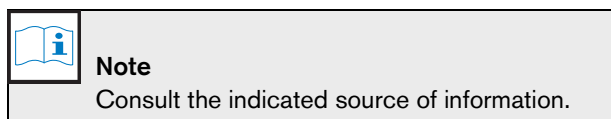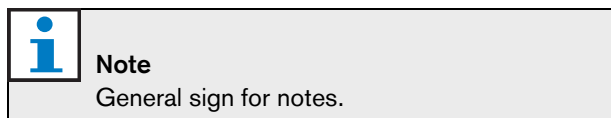
1.5.2   Caution Warnings and Dangers signs

The signs used in combination with Caution, Warnings, and Dangers indicate the type of hazard present. See the following examples:

> **Caution, Warning, Danger**
> General sign for cautions, warnings and dangers.

> **Caution, Warning, Danger**
> Risk of electric shock.

> **Caution, Warning, Danger**
> Risk of electrostatic discharge.
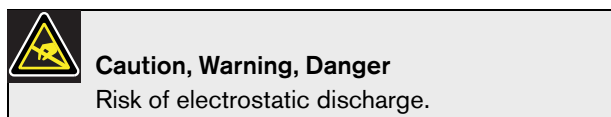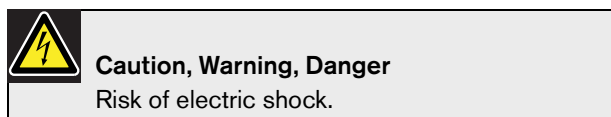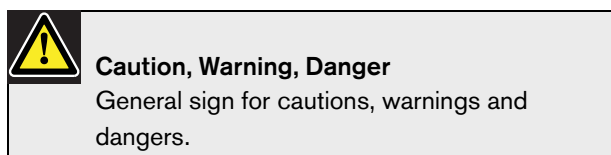
1.6   Conversion tables

In this manual, SI units are used to express lengths, masses, temperatures etc. These can be converted to non-metric units using the following information.

table 1.1: Conversion of units of length

1 in =	25.4 mm	1 mm =	0.03937 in
1 in =	2.54 cm	1 cm =	0.3937 in
1 ft =	0.3048 m	1 m =	3.281 ft
1 mi =	1.609 km	1 km =	0.622 mi

table 1.2: Conversion of units of mass

1 lb =	0.4536 kg	1 kg =	2,2046 lb

table 1.3: Conversion of units of pressure

1 psi =	68.95 hPa	1 hPa =	0.0145 psi

> **Note**
> 1 hPa = 1 mbar.

$$F = \frac{9}{5}\ C + 32$$

$$C = \frac{5}{9}\ (F - 32)$$

2 System overview

2.1 Plena

The Plena All-in-One 120 Watt is part of the Plena product range. Plena provides public address solutions for places where people gather to work, worship, trade, or to relax. It is a family of system elements that are combined to create public address systems tailored for virtually any application.

The range includes:
- mixers
- preamplifiers
- power amplifiers
- a music source unit
- a digital message manager
- a feedback suppressor
- call stations
- an 'All-in-One' system
- a voice alarm system
- a timer
- a charger
- a loop amplifier

The various elements are designed to complement each other thanks to matched acoustical, electrical and mechanical specifications.

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3   Equipment

3.1   Introduction

The Plena All-in-One 120 Watt is the all-in-one solution for making announcements, paging people and playing background music (BGM). It comprises of:

- an integrated 120 W mono mixer amplifier,
- a DVD-player that can play DVDs, audio-CDs, as well as long play MP3-encoded discs), and
- a digitally controlled AM/FM-tuner for receiving radio stations.

Up to three microphones and an auxiliary source signal can be connected to the mixer amplifier and mixed, with priority or VOX switching available for the main microphone. The output signal can be switched to two different zones with individual attenuation control. A third zone receives only priority calls and no music.

See figure 3.1 (on the next page) for a schematic overview of the Plena All-in-One 120 Watt.

3.2   Contents of box

The packaging box contains the following contents:

- PLN-2AIO120 (x1)
- Power cord (x1)
- Remote control (x1)
- AM loop antenna (x1)
- Antenna plug (x1)
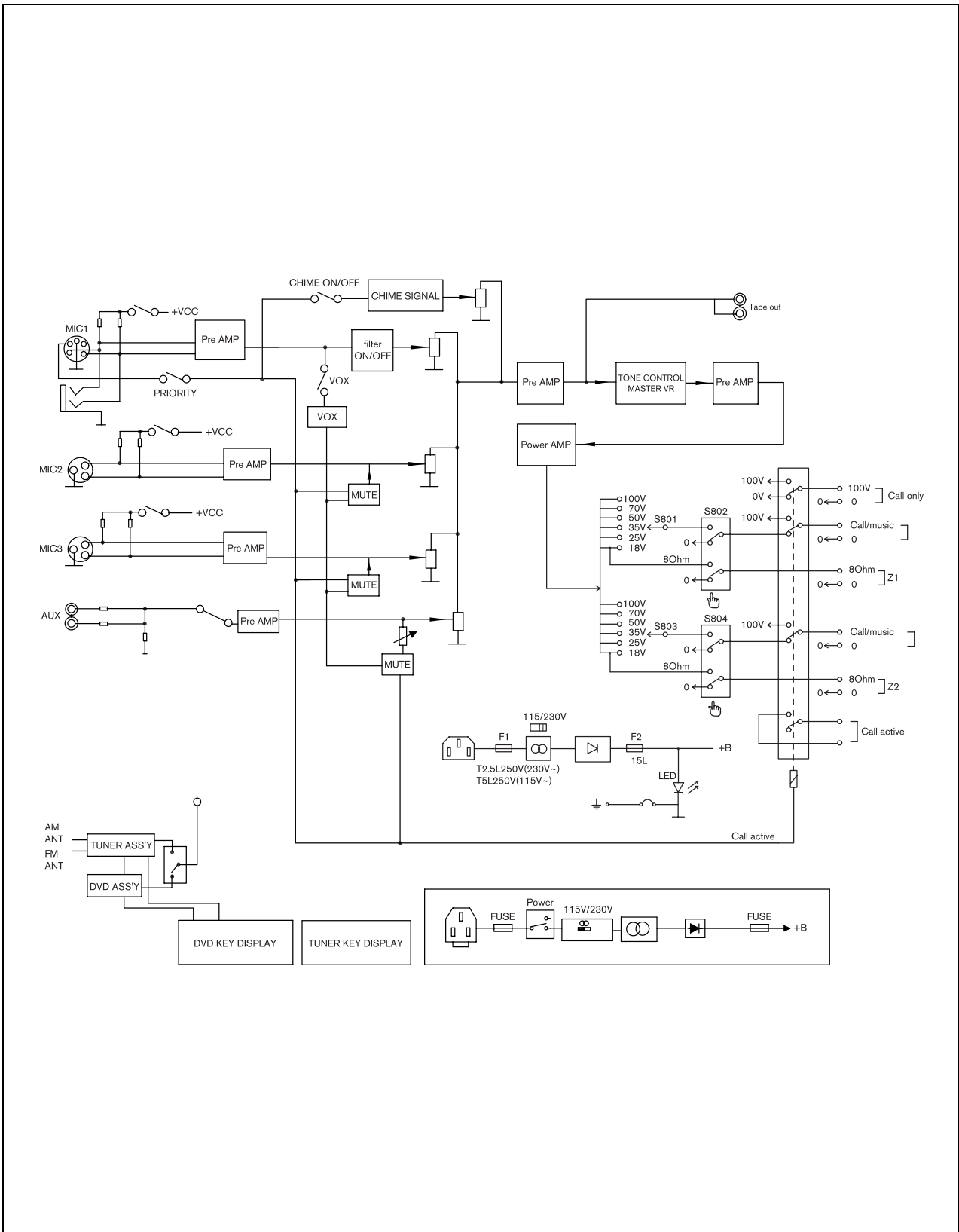- Plena CD with Installation and User Instructions (x1)

figure 3.1: Schematic overview of the Plena All-in-One 120 Watt

3.3 Controls, connectors and indicators

3.3.1 Front panel

See figure 3.2 for an overview of the controls and indicators.

1 VU-meter (LED's for -20, -6, 0 dB and Power On)
2 DVD pause key
3 DVD eject key
4 DVD mode key
5 DVD previous key (press once to select previous chapter or track; press and hold to fast reverse)
6 DVD play key
7 DVD display
8 DVD next key (press once to select next chapter or track; press and hold to fast forward)
9 DVD stop key
10 Tuner preset memory keys 1-5 and 6-10
11 Tuner display
12 Tuner frequency up/down keys (press once to fine tune; press and hold to search for channels)
13 Tuner FM/AM selection key
14 Tuner scan key
15 Tuner memory key

16 Tuner shift key to select memory 1-5 or 6-10
17 Microphone 1 priority active LED
18 Output attenuator for zone 2
19 Zone 2 selection button
20 Output attenuator for zone 1
21 Zone 1 selection button
22 Master volume control
23 Tone control (bass)
24 Tone control (treble)
25 Music source volume control
26 Music source selection button (DVD/tuner - Aux)
27 Microphone 3 volume control
28 Microphone 2 volume control
29 Microphone 1 input (6.3 mm phone jack socket/balanced)
30 Microphone 1 volume control
31 Power button
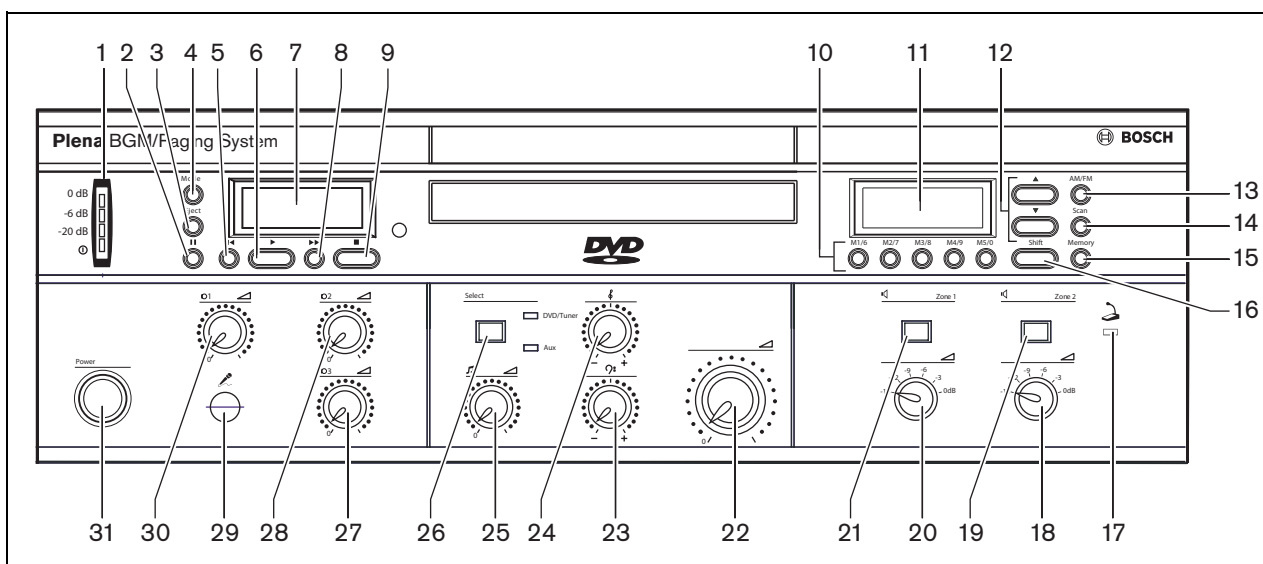
figure 3.2: Front panel

3.3.2   Rear panel

See figure 3.3 for an overview of the connectors and switches:

1   FM antenna input
2   AM antenna input
3   Loudspeaker output terminal strip
4   SPDIF connection
5   Video outputs (composite, component, and S-video)
6   Y/C connector
7   Mains voltage selector (115V/ 230V)
8   Type plate
9   Mains connection (3-pole)

10 Mains fuse
11 Earth connection screw
12 Tape output (for 2x Cinch-connectors)
13 Auxiliary input (for 2x Cinch-connectors)
14 Microphone 3 input (for XLR-connector)
15 Microphone 2 input (for XLR-connector)
16 Microphone 1 input (for 5-pin DIN-connector)
17 Ducking level control (see section 3.4.6)
18 Chime level control
19 Configuration switches (1-7)

figure 3.3: Rear panel

3.4 Installation

3.4.1 Unpack unit

Carefully peel off the protective plastic film on both displays. Do not use sharp or pointed objects in order to avoid scratches. Use your fingernails instead.

3.4.2 Install unit

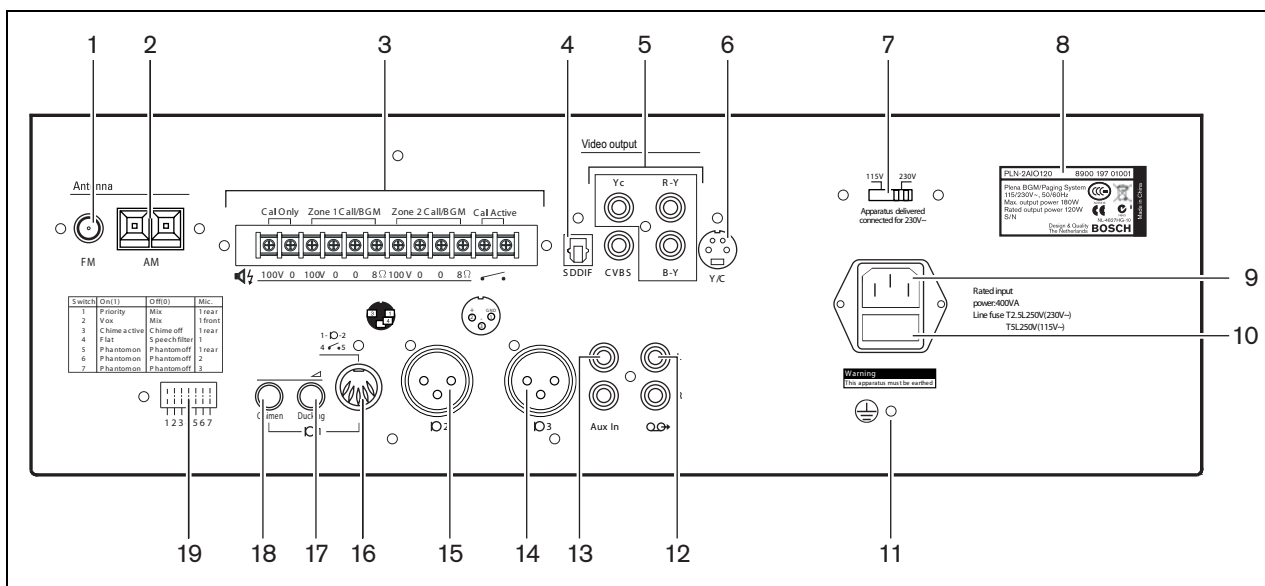The Plena All-in-One 120 Watt unit is intended for table-top use. It can also be put on a shelf, provided that there is a free space of at least 10 cm on both sides of and above the unit to ensure proper ventilation. The unit has a built-in fan that will switch on when the temperature inside the unit rises. Do not put any other equipment directly on top of this unit. The ambient temperature should not exceed 45 °C. Mounting of the unit in 19"-racks is not recommended as often the temperature in these racks will exceed 45 °C.
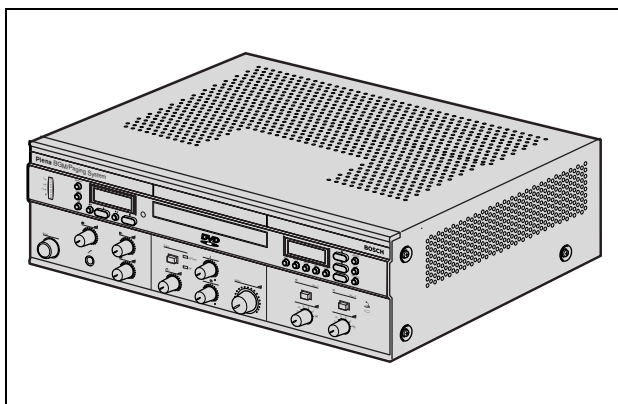
figure 3.4: Installing the Plena All-in-One 120 Watt

3.4.3 Connect unit to mains

⚠️ **Caution**
Potential equipment damage. Before connecting power, always check the voltage selector on the rear panel of the Plena All-in-One 120 Watt.

Make sure the voltage selector (115V/ 230V) is correctly set for the country's main voltage (see figure 3.5). Make sure the power switch (31) on the front of the Plena All-in-One 120 Watt is set to Off - not pushed in. Connect the power cord to the mains connector and plug it into the mains outlet.
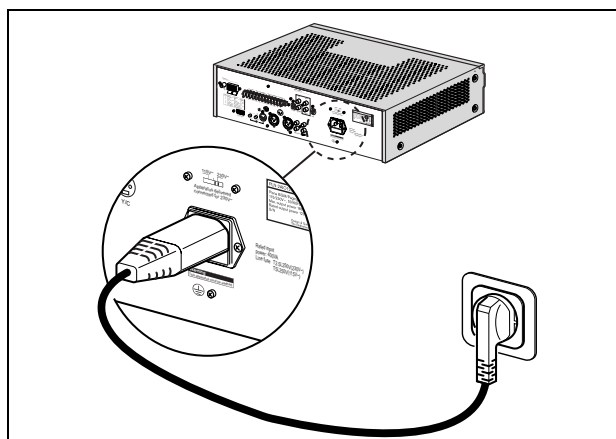
figure 3.5: Voltage selector

3.4.4 External settings and connections

Connect antennas

The FM input must be connected to an antenna or cable network with a COAX cable of 75 Ohm. A connector for the FM input is provided with the unit. The AM input can be connected to the loop-antenna delivered with the unit.

figure 3.6: Connecting antennas

3.4.5 Tuner region selection

⚠️ **Caution**

Potential equipment damage. Before switching on the system, make sure you have read section 3.4.10 "Power", and section 4 "Switch on and off".

To set the tuner region to either ASIA/USA or Europe:
1 Press and hold in:
  • the tuner frequency up/down keys (12).
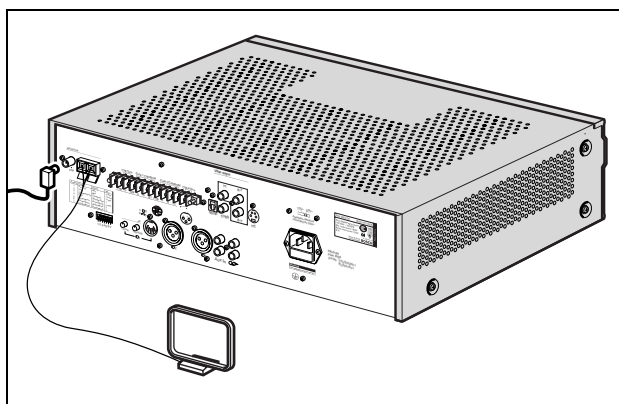 • the tuner memory key (15).
2 Press the power button (31) to switch the system on.
3 Either USA or EUP will be displayed.
4 To toggle between USA or EUP, switch the system off, and repeat from step 1.

3.4.6 Priority/VOX activated microphone

Note: Microphone 1 has different operating modes:

Priority mode

Connect the microphone to the DIN-socket at the rear of the unit and enable the priority mode with configuration switch 1 (set to ON-position). This requires a microphone with a priority switch on contacts 4 and 5 of the 5-pin DIN-connector, such as the table-top microphone LBB 1950. In this mode, microphone 1 will have priority over microphones 2 and 3 and the background music. Activating this microphone will mute the other microphones and the music and will also override zone switching and zone attenuation. Priority announcements will even be heard in deselected zones. This mode is normally used for important (emergency) announcements. You can select a chime signal to precede such a priority call with configuration switch 3, a speech filter with configuration switch 4 and phantom power with configuration switch 5.
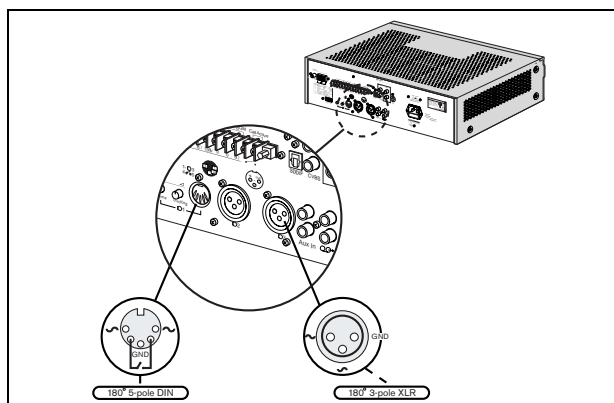

figure 3.7 Priority mode connections

VOX mode

Connect the microphone to the phone jack socket at the front of the unit and enable the VOX mode with configuration switch 2 (set to ON-position). This mode will attenuate the background music or microphones 2 and 3 to a predetermined ducking level as long as you speak into the microphone. Use the ducking level control (17) at the rear of the unit to set the required ducking level (see figure 3.3).

> **ℹ Note**
>
> If the ducking level is set to maximum, the music volume will be fully attenuated; If the ducking level is set to minimum, the VOX mode will operate as a mixer.

The VOX mode is normally used with hand-held microphones such as the LBC 2900/15 for making casual announcements, temporarily surpressing the music. Background music and announcements will be heard in the selected zones. The front connection for microphone 1 does not have phantom power for electret or condenser microphones, so a dynamic microphone must be used. A chime is not available in this mode, but you can select the speech filter via configuration switch 4.

When no priority or VOX mode has been selected, microphone 1 will just mix with the background music or the other microphones to the selected zones.
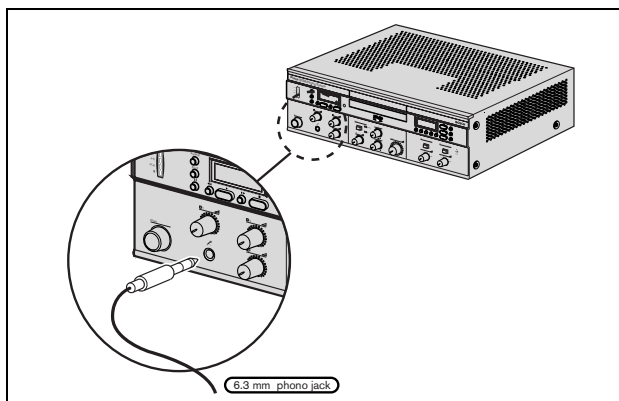
figure 3.8: VOX mode connections

3.4.7 Microphones 2 and 3, auxiliary inputs and tape output
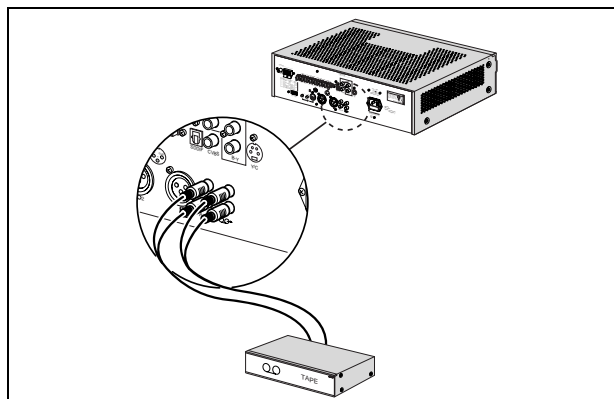
figure 3.9: Microphones 2 and 3, auxiliary inputs and tape output

- Connect microphones 2 and 3 to the rear XLR-sockets. Enable phantom power for these microphones with configuration switches 6 and 7, if you use electret or condenser microphones. These microphones just mix with the background music
- Connect an auxiliary music source, such as a tape/cassette recorder or the audio signal of a DVD player, to the auxiliary Cinch-sockets on the rear. Stereo signals will be converted to mono.
- The tape output sockets may be used for connection to a tape/cassette recorder to record microphone and background music signals. Both sockets provide the same mono signal.

3.4.8   Loudspeakers
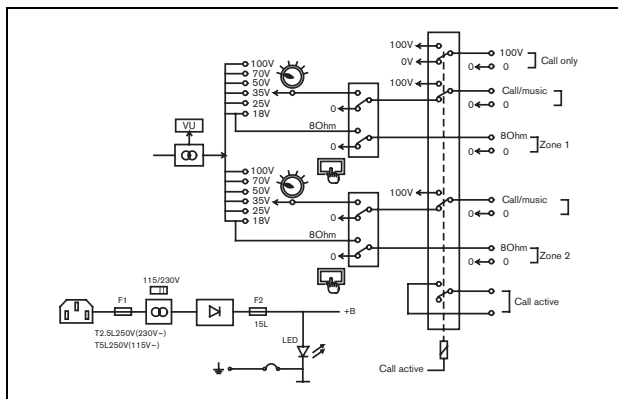
figure 3.10: Connecting loudspeakers
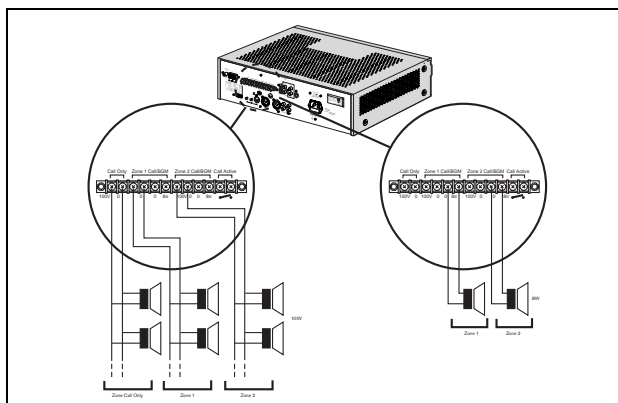
figure 3.11: Connecting loudspeakers

Loudspeakers are connected via screw terminals, behind a removable plastic cover for safety. This Plena System Amplifier has a very flexible output configuration, allowing for different groups of loudspeakers.

- Connect 100 V-loudspeakers for zone 1 to the 100 V-/0-terminals of zone 1. The selection button and the output attenuator for zone 1 (both on the front panel) control this output. If a low impedance loudspeaker is used for zone 1, connect it to the 8 Ohm- / 0-terminals of zone 1, but now the output level will not be affected by the attenuator.
- Proceed in the same way for zone 2.
- Connect 100 V-loudspeakers that should receive only priority announcements from microphone 1 to the Call Only 100 V- /0-terminals. For this, the priority mode must be enabled (see section 3.4.6).

The Call Active terminals provide voltage free relay contacts. This contact is closed as long as a priority call is active. This contact may be used for overriding remote volume controls or other purposes. It is switched together with the Call Only loudspeaker zone.

> **ⓘ Note**
>
> Ensure that the loudspeakers are wired in phase by connecting the 0-terminals of the loudspeakers in the same zone together to the amplifier 0-terminall.

> **⚠ Caution**
>
> Connect 100 V-loudspeakers in the same zone just in parallel, but take care that the total power of the
> loudspeakers, i.e. the load, does not exceed the 120 W power rating of this Plena unit.

> **⚠ Caution**
>
> It is not recommended to use both low impedance loudspeakers and 100 V-loudspeakers simultaneously. Multiple low impedance loudspeakers should be connected in series or parallel so that the total impedance is more than 8 Ohms.

3.4.9 Internal settings
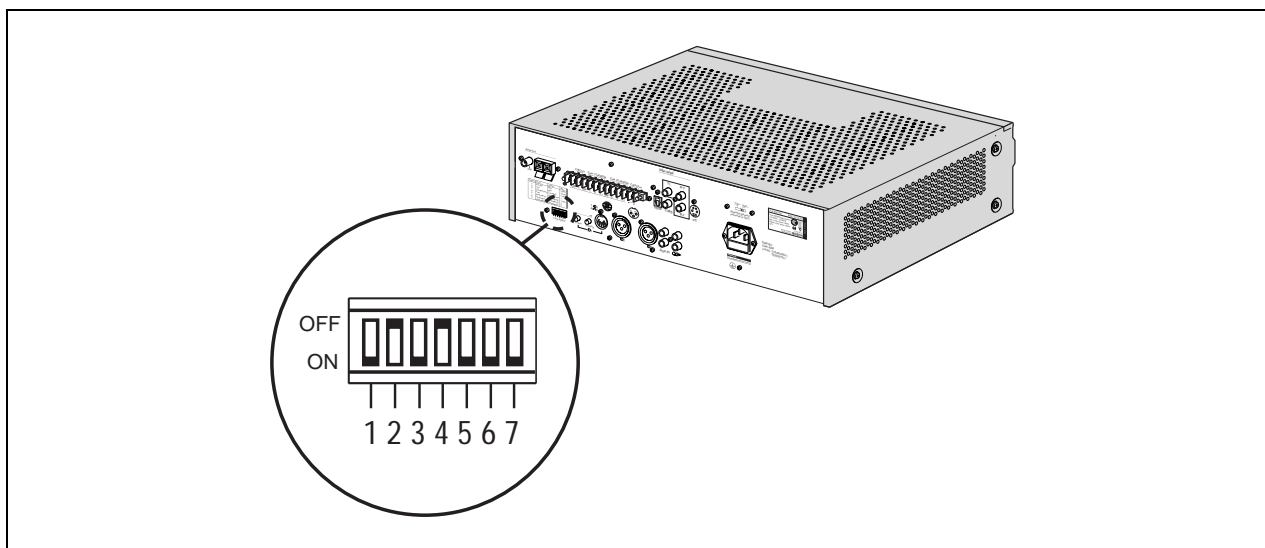
figure 3.12: Internal settings with the help of the configuration switches

Switch	ON (1)	OFF (0)	Microphone	Function
1	Priority	Mix	1 (rear)	Selects whether microphone 1, connected to the rear DIN-socket, will have priority over microphones 2 and 3 and the background music. This will mute these microphones and the music and will also override zone switching and zone attenuation. Closing contacts 4 and 5 will activate priority.
2	Vox	Mix	1 (front)	Selects whether microphone 1, connected to the front 6.3 mm phone jack socket, will be VOX activated. As VOX activated microphone, microphone 1 will attenuate the background music or microphones 2 and 3 to a preset ducking level as long as you speak into the microphone.
3	Chime active	Chime off	1 (rear)	Selects whether a chime signal will precede a priority call, started by microphone 1, upon closure of contacts 4 and 5 of the rear DIN-socket. Additionally, the chime level control allows for setting the volume of the chime.
4	Flat	Speech filter	1	Selects a flat frequency response for microphone 1 or activates a speech filter, that improves intelligibility by attenuating the low frequencies.
5	Phantom on	Phantom off	1 (rear)	Switches the phantom power supply for microphone 1 (DIN-connection only). Phantom power should be switched on for condenser or electret microphones (e.g. LBB 1950) and switched off for dynamic microphones.
6	Phantom on	Phantom off	2	Switches the phantom power supply for microphone 2.
7	Phantom on	Phantom off	3	Switches the phantom power supply for microphone 3.

3.4.10 Power

1 Make sure the power switch (31) on the front of the Plena All-in-One 120 Watt is set to off - not pushed in (see figure 3.2).

2 Make sure the master volume control is turned down and the zones volume controls are set to 0 dB.

> ⚠️ **Caution**
>
> Potential equipment damage. Before connecting the mains lead, always check the voltage selector on the rear panel of the Plena All-in-One 120 Watt.

3 Make sure the voltage selector (115V/ 230V) is correctly set for the country's main voltage (see figure 3.13).

4 Make sure the mains lead is connected to the Plena All-in-One 120 Watt and to the power supply (see figure 3.13).
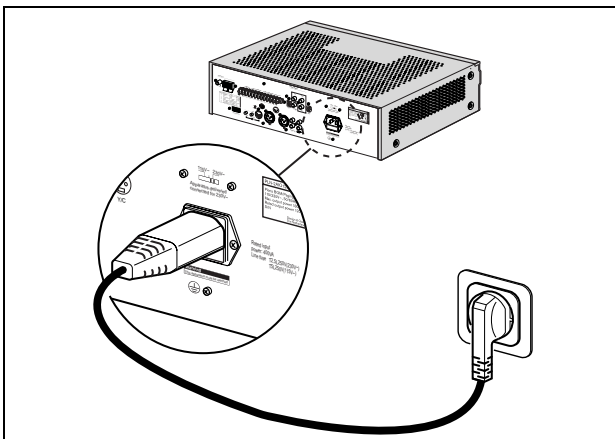
figure 3.13: Voltage selector and mains lead

4   Switch on and off

4.1   Switch on

⚠️ **Caution**

Potential equipment damage. Before applying power, always check the voltage selector on the rear panel of the Plena All-in-One 120 Watt.

1   Make sure the voltage selector (115V/ 230V) is correctly set for the country's main voltage (see figure 4.1).

2   Set the power switch (31) on the front of the Plena All-in-One 120 Watt to On - pushed in (see figure 3.2).

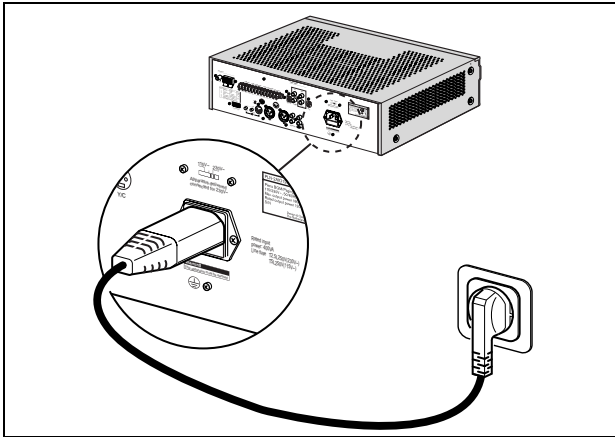*figure 4.1: Voltage selector*

4.2   Switch off

Set the power switch (31) on the front of the Plena All-in-One 120 Watt to Off - not pushed in (see figure 3.2).

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5   Operation

5.1   Operation of mixer amplifier

The volume controls on the Plena All-in-One 120 Watt are not motor driven. This means that when the volume is adjusted using the volume keys on the remote control, the volume controls on the system will remain in the same position. In general, to set-up the system for the optimum signal-to-noise ratio, the master volume on the Plena All-in-One 120 Watt should be set to low, and the volume plus key on the remote control should be used to increase the volume.

5.1.1   Source selection

• Use the input volume controls (30, 28, 27 and 25) to balance the sound level of the microphone inputs and the background music.
• Use the music source selection button (26) to select the built-in DVD-player/tuner or an auxiliary source. If the auxiliary source is selected, the DVD-player and the tuner are switched off. If the DVD-player/tuner is selected, the DVD-player will be active as long as it is playing. If the DVD-player stops, the tuner will take over automatically.

5.1.2   Volume and tone control

• Use the master volume control (22) to control the volume of the music/microphone mix.
• The bass and treble tone controls (23 and 24) affect the microphones as well as the music.

5.1.3   Zone selection

• Use the output attenuators (20 and 18) to balance the sound level in zones 1 and 2, respectively.
• Use the zone selection buttons (21 and 19) to switch a zone on or off. The priority microphone active LED (17) indicates that a priority call is active. Such a priority call overrides the zone selection and attenuation settings. A priority call addresses all zones with 0 dB attenuation.
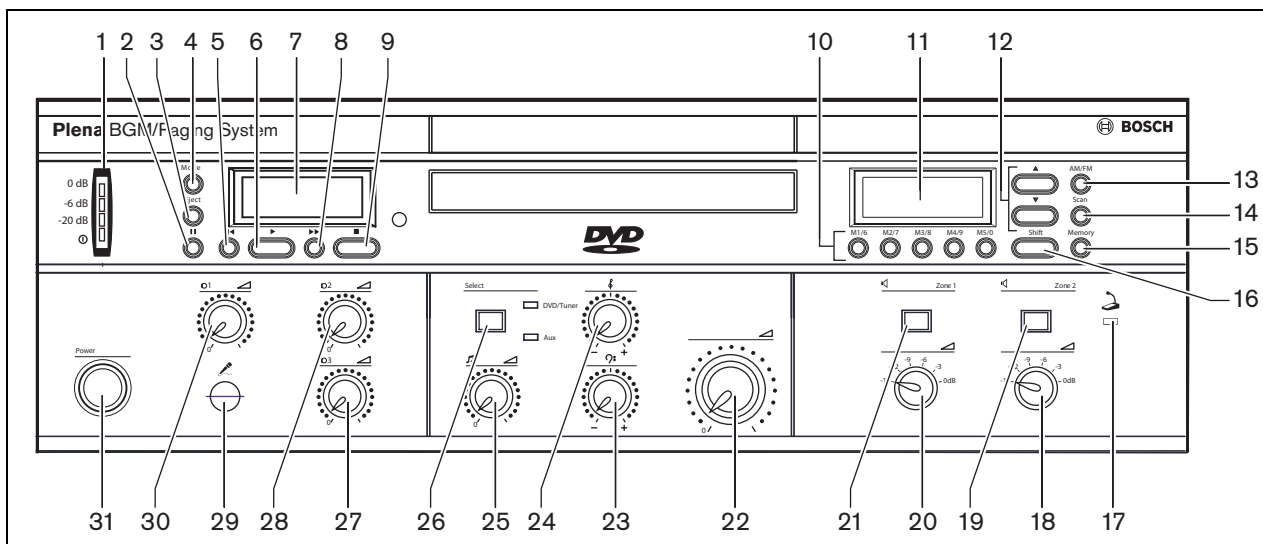

figure 5.1: Front panel

5.2 Operation of tuner

5.2.1 Station selection

• Use the tuner FM/AM selection key (13) to choose between FM and AM reception.
• Use the tuner frequency up/down keys (12) to select the required frequency (press once to fine tune; press and hold to search for channels).

5.2.2 Programming

• Save the selected radio station as a preset by pressing the tuner memory key (15).
• Press the tuner preset memory keys M1/6 to M5/10 (10) for memory positions 1 to 5.

Or

• Press the tuner program key (15), the tuner shift key (16) and the tuner preset memory keys M1/6 to M5/10 (10) for memory positions 6 to 10.
• The tuner display (11) shows 'MEMORY' during this process. Both for AM and FM, 10 presets are available.

Saved presets are selected by pressing the tuner memory keys M1/6 to M5/10 (10) or by pressing the tuner shift key (16) followed by M1/6 to M5/10. For easy selection, pressing the tuner scan key (14) monitors the presets by selecting all 10 presets sequentially for 5 seconds.

> **ℹ Note**
>
> The FM tuner mutes the noise between radio stations. This means that the output is muted when the tuner is not tuned to a radio station. To turn this feature off, press and hold the tuner frequency up/down keys (12) and the tuner shift key during power up.
> To turn this feature on again, repeat this procedure.

5.3 Operation of DVD-player

5.3.1 Playback and track selection

After inserting a disc (CD or DVD), the DVD-player will detect the type of disc and either display information on the DVD display or TV screen.

• If an audio CD is loaded, the number of tracks on the CD will be shown on the DVD display.
• If a disc is loaded containing MP3s or JPEGs, a directory structure will be shown on the TV screen.
• If a DVD is loaded, the DVD menu will be shown on the TV screen.

The loading of some discs may take longer, depending on the number of files and subdirectories on the disc.

The Plena All-in-One 120 Watt will read the data on the CD depending on the type of CD loaded:
Mixed mode CD (normal CD with additional CD-ROM content). Only the CD-ROM content is read. The normal CD portion is not read.
CD extra CD (normal CD with additional CD-ROM content). Only the audio content is read. The data portion is not read.

For track selection proceed as follows:
• Shortly press the DVD previous key (5) and/or the DVD next key (8) to select the chapter or track. Prolonged pressing results in fast reverse or fast forward.
• Use the DVD play key (6) to start playing.
• Use the DVD pause key (2) to pause playing.
• Use the DVD stop key (9) to stop playing.
• Use the DVD eject key (3) to eject the disc.

> **ℹ Note**
>
> If fast forward is pressed on the unit, it will only fast forward while the key is held in; the unit will start to play as soon as the key is released. If fast forward is pressed on the remote control, the unit will continue to fast forward until the play key is pressed.

By repeatedly pressing the mode key (4) you can select the following modes:

- Repeat all tracks. The display shows ⊂⊃ and the monitor shows [rep. ALL].
- Switch off the repeat function. The monitor shows [rep. OFF].
- Repeat the current track. The display shows '1' and the monitor shows [rep. 1].
- Repeat the current folder. The display shows ⊂ and the monitor shows [rep. DIR].

> **i** **Note**
>
> If a DVD was loaded, repeating the current folder results in a repetition of the current segment.

5.4 Creation of MP3 CD-Rs

Use the Musicmatch software (provided with the Plena bonus CD) to create your own MP3 CD-R's (CD-ROM's). For more information on Musicmatch see: www.musicmatch.com

Constant MP3-bit rates (CBR) of 32 - 320 kbps are supported, as well as variable bit rate (VBR) files. In general 128 kbps is used for MP3s. If 160 kbps or 65% VBR is used, better quality can be achieved.

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6 Remote control

6.1 Overview of controls

1 Setup key (see "Setup" on page 27)
2 DVD eject key
3 DVD chapter and CD track selection keys 1-9
4 DVD chapter and CD track selection key 0
5 DVD chapter and CD track selection key 10+
6 DVD next key, selects next chapter or page (6 tracks)
7 Multi-functional DVD keys (left/right):
   • DVD and CD next keys
   • Setup navigation keys (see page 27)
8 Enter key (for confirming settings)
9 Fast forward key
10 Multi-functional DVD keys (up/down):
   • DVD and CD next keys
   • Setup navigation keys (see page 27)
11 DVD pause key
12 DVD play key
13 Volume plus key
14 Volume minus key
15 Tuner preset memory keys 4/9
16 Tuner preset memory keys 3/8
17 Tuner AM/FM selection key
18 Tuner memory key
19 Tuner scan key
20 Tuner frequency down key (press once to fine tune; press and hold to search for channels)

21 Tuner frequency up key (press once to fine tune; press and hold to search for channels)
22 Tuner shift key
23 Tuner preset memory keys 5/0
24 Tuner preset memory keys 2/7
25 Tuner preset memory keys 1/6
26 OSD key
27 DVD Zoom key (enlarges the picture on the TV screen. Use the multi-functional keys (7 and 10) to move the zoom area on the screen)
28 DVD stop key
29 Fast reverse key
30 DVD previous key, select previous chapter or page (6 tracks)
31 Volume mute key
32 Subtitle key (shows or hides subtitles)
33 DVD menu key (displays the content menu of the DVD)
34 DVD mode key
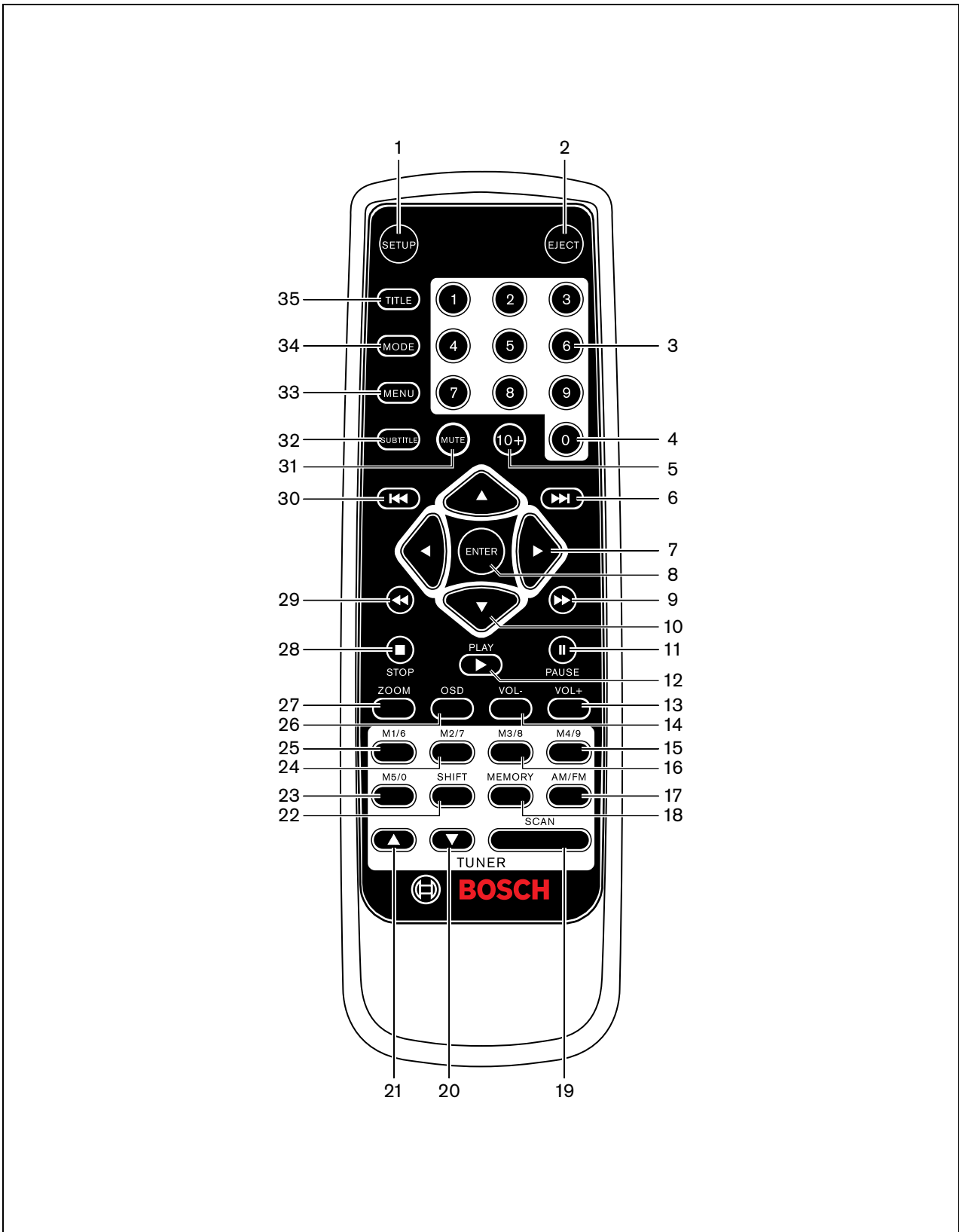35 DVD title key (displays the title menu of the DVD)

figure 6.1: Overview of remote control

6.2   Setup

This section gives information on the setup options. Press the setup key on the remote control to enter the setup menu. The "System Setup" page will be displayed. See figure 6.2.
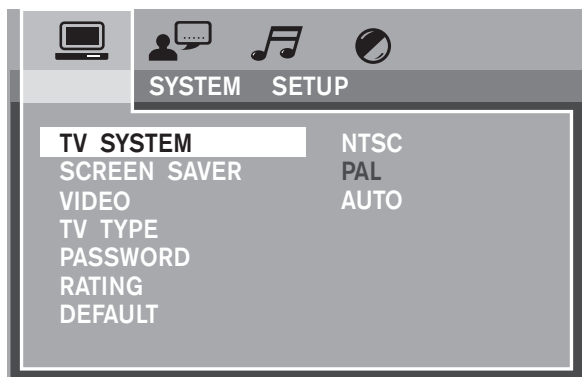
figure 6.2: System setup page

Use the left and right navigation keys (7) to select the various setup pages. The following pages are available:

*   System Setup Page   (see page 28)

*   Language Setup Page   (see page 29)

*   Audio Setup Page   (see page 30)

*   Video Setup Page   (see page 31)

Once you have selected a page, use the up and down navigation keys (10) to scroll through the menu settings. Stop at the setting you want to change, and then use the right navigation key to jump to the settings options column. Once inside this column, use the up and down navigation keys to select the option of your choice, and then press the Enter key (8) to confirm the setting.

Tip: Use the left navigation key to scroll back through the menus and return to the icons at the top of the page.

> **i** **Note**
> When an option is selected, it is displayed in the "Current settings" column (second column in the table), and also highlighted in the "Setting options" column (third column in the table).

Click the menu button to exit the setup menu. See the following tables for an overview of all setup pages.

The recommended setting for a wide screen monitor is 16:9. The recommended setting for a 4:3 monitor is 4:3 full. This will ensure that all information including subtitles is visible. See section 6.2.1, System setup page.

> **i** **Note**
> The monitor type will also determine the effect that these settings will have.

6.2.1   System setup page

> ℹ️ **Note**
> The layout of some screens may differ depending on the country.

Setting	Current setting (example only)	Setting options	Comments
TV SYSTEM	PAL	NTSC	
		PAL	
		AUTO	
SCREEN SAVER	OFF	ON	
		OFF	
VIDEO	YUV INTERLACE	YUV INTERLACE	Note: If no picture is displayed after selecting this option, press the P-SCAN key on the remote control to switch the TV mode to the correct setting for your TV.
		P - SCAN	Note: If no picture is displayed after selecting this option, press the P-SCAN key on the remote control to switch the TV mode to the correct setting for your TV.
		S-VIDEO	S-video format. Use a dedicated S-video cable.
TV TYPE	4:3PS	4:3PS	Pan Scan. This zooms in for a part of the screen and stretches the screen slightly.
		4:3LB	Letter Box. The entire picture is shown, with bars above and below the screen.
		16:9	
PASSWORD			Sets the password for "RATING" settings. The default password is "0000".
RATING	1 KID SAF	1 KID SAF	
		2 G	
		3 PG	
		4 PG 13	
		5 PGR	
		6 R	
		7 NC 17	
		8 ADULT	
DEFAULT		RESET	Loads the factory default settings.

6.2.2   Language setup page

Setting	Current setting (example only)	Setting options	Comments
OSD LANGUAGE	ENGLISH	ENGLISH	
		SPANISH	
		GERMAN	
		FRENCH	
		ITALIAN	
		PORTUGUESE	
		DUTCH	
		CHINESE	
AUDIO LANG	ENGLISH	ENGLISH	Determines the default language for DVD menus. E.g.: If "FRENCH" is selected, the French audio will automatically be chosen each time a DVD with French audio is inserted.
		SPANISH	
		GERMAN	
		FRENCH	
		ITALIAN	
		PORTUGUESE	
		DUTCH	
		CHINESE	
SUBTITLE LANG	ENGLISH	Same languages as for "AUDIO LANG"	See "AUDIO LANG".
MENU LANG	ENGLISH	Same languages as for "AUDIO LANG"	See "AUDIO LANG".

6.2.3 Audio setup page

Setting	Current setting (example only)	Setting options	Comments
AUDIO OUT	SPDIF / PCM	SPDIF / OFF	The optical output is turned off.
		SPDIF / RAW	The digital optical output is the same as the disc content (PCM, DTS, etc.).
		SPDIF / PCM	When selected, all audio content that is compatible with the PLN-DVDT is converted into a 44.1 kHz 16 bit PCM-signal. This ensures maximum compatibility.

6.2.4   Video setup page

Setting	Current setting (example only)	Setting options	Comments
BRIGHTNESS	Mid	0 through 12	Press the Enter key to access the brightness settings. Use the left and right navigation keys to set the brightness, and then press the Enter key to confirm the setting.
CONTRAST	Mid	0 through 12	Press the Enter key to access the contrast settings. Use the left and right navigation keys to set the contrast, and then press the Enter key to confirm the setting.
HUE	Mid	-6 through 6	Press the Enter key to access the hue settings. Use the left and right navigation keys to set the hue, and then press the Enter key to confirm the setting.
SATURATION	Mid	0 through 12	Press the Enter key to access the saturation settings. Use the left and right navigation keys to set the saturation, and then press the Enter key to confirm the setting.
SHARPNESS	Mid	0 through 8	Press the Enter key to access the sharpness settings. Use the left and right navigation keys to set the sharpness, and then press the Enter key to confirm the setting.

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7   Technical data

7.1   Electrical

Mains voltage	230/115 Vac, ±10%, 50/60 Hz
Max mains power consumption	400 VA
Max/rated output power	180 W/120 W

7.2   Performance

Frequency response	60 Hz - 18 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

7.3   Inputs

Input 1 (5-pin DIN, 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
Headroom	25 dB
Speech filter	-3 dB @ 315 Hz, high-pass, 6 dB/oct
Phantom power supply (on 5-pin DIN only)	12 V
VOX (on 6.3 mm phone jack)	trigger level 0.4 mV
	attack time 200 ms
	release time 2 s
	ducking level adjustable

Input 2 and 3 (3-pin XLR, 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
Headroom	25 dB
Phantom power supply	12 V

Auxiliary 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

7.4   Tuner

Tuning range

FM	87.5 - 108 MHz (EUROPE, 50 kHz)
	87.5 - 108 MHz (ASIA/AMERICA, 100 kHz)
AM	531 - 1602 kHz (EUROPE, 9 kHz)
	530 - 1610 kHz (ASIA/AMERICA, 10 kHz)

Sensitivity

FM	2 μV (26 dB S/N)
AM	30 μV (20 dB S/N)

Performance

Frequency response	30 Hz - 15 kHz (+1/-3 dB, FM)
Distortion	<1%
S/N	> 63 dB (1 mV, FM)

7.5 DVD player

Audio CD

Frequency response	20 Hz - 20 kHz (+1/-3 dB)
Distortion	<0.1%
S/N	>80 dB

MP3 CD/CD-R

Supported bit rates	CBR 32 kbps - 320 kbps and VBR, mono and stereo

General

Data buffer (shock protection)	8 MByte
Lifetime	>10.000 CD play cycles
Memory for track selection	999 tracks (MP3), 99 tracks (audio CD)

7.6 Outputs

Tape output (Cinch, 2x mono)

Nominal level	350 mV
Impedance	1 kOhm

Loudspeaker outputs

100 V outputs	120 W rated (all zones together)
Zone output attenuation taps	100/70/50/35/25/18 V for 0/-3/-6/-9/-12/-15 dB
8 Ohm outputs	18 V (40 W rated per zone)

Call active relay

Contacts	voltage free, max 100 V, 2 A

7.7 Environmental conditions

Operating temperature range	+5 to +45 °C
Storage temperature range	-25 to +55 °C
Relative humidity	<95%

7.8 General

EMC emission	acc. to EN 55103-1
EMC immunity	acc. to EN 55103-2
Safety	acc. to EN 60065
Acoustic noise level of fan	<35 dBSPL @ 1 m, temperature controlled
Dimensions	144 x 430 x 320 mm (19" wide, 3U high)
Weight	approx. 11.6 kg
Rack building	not recommended

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