



DX1000MB

BUILT-IN POWER AMPLIFIER

OWNER'S MANUAL



PARK AUDIO II
www.parkaudio2.com



AVIS
RISQUE DE CHOC ELECTRIQUE
NE PAS OUVRIR

CAUTION! The amplifier runs on 230 V AC voltage. Removing the cover will expose you to a potentially dangerous voltage! Do not use the unit if the electrical power cord is frayed or broken. Power is supplied from 230 V AC single-phase grounded 50/60 Hz source!

CAUTION! The amplifier can yield dangerous output voltage! Do not install an energized unit into the speaker system. Do not touch the non-insulated cable parts connected to the unit in operation!

CAUTION! The high sound pressure level of speaker systems generated by high output power delivered by the amplifier may be hazardous to your hearing. Please, take adequate safety precautions.

WARNING! The amplifier yields high output power. The manufacturer shall not be held responsible for any damage to the speakers caused by excessive power from the unit.

WARNING SIGNS:

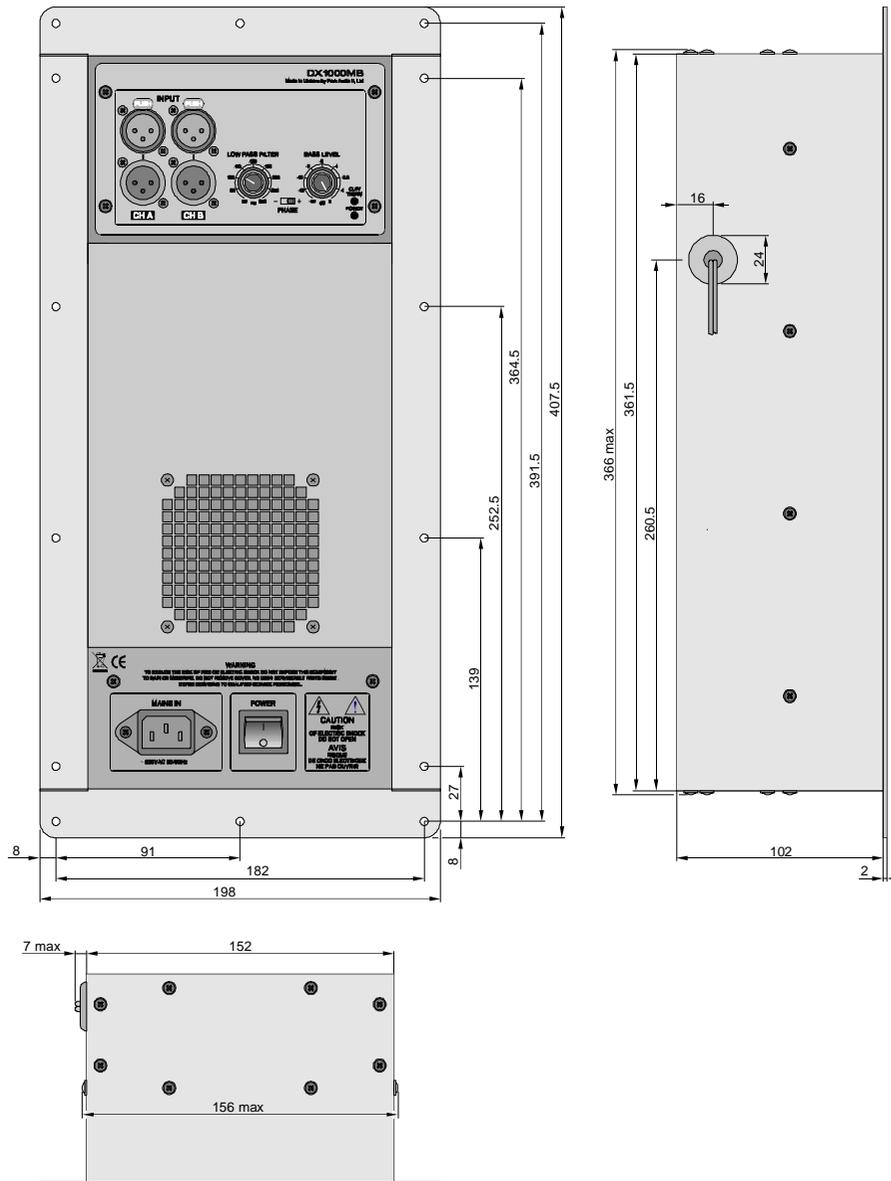


Important information! Intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the Owner's Manual accompanying the product.



Hazardous voltage inside! Intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

DIMENSIONS



INTRODUCTION

DX1000MB built-in power amplifier is intended for use in LF speaker systems (subwoofers).

UNPACKING

The manufacturer's quality control system provides for careful examination of each product before it leaves the factory to ensure its flawless appearance. After unpacking, please, check the unit for any physical damage. In case of damage, please, contact our local dealer. Keep the shipping carton and all packing material, as you may require them for re-shipment of the unit.

ACCESSORIES

- | | |
|-------------------|-------|
| 1. Power cord | 1 ea. |
| 2. Owner's Manual | 1 ea. |
| 3. Warranty | 1 ea. |

DESIGN AND FUNCTIONAL FEATURES

Design

The built-in power amplifier is designed as a mono-block unit. All its components are installed on a single bearing panel placed inside the case which protects the unit and ensures its deep placement into the body of a speaker system.

Power to the built-in power amplifier is supplied via a removable power cord.

The amplifier incorporates:

- power supply source;
- power amplifier;
- input section.

Power Supply Source

Switchable. Made to minimize the weight of the amplifier.

Power Amplifier Schematics

The power amplifier is designed according to Class D technology to deliver high efficiency and least heat. The high switching rate ensures the high sound quality comparable with the best analogue amplifiers.

Cooling System

The amplifier is cooled down with a fan. The cooling system ensures reliable cooling within the whole operating temperature range (5 to 35°C). The cooling system is a double-mode system which ensures smooth cooling intensity rate switching in the fan-ON mode. At a normal temperature and low output level the fan is OFF, thus generating no noise. When the amplifier is set to deliver a high output power, as well as when the ambient temperature is higher than normal and when the heat sink becomes too hot, the fan goes ON, and the cooling intensity rate changes smoothly as the temperature rises.

Overload and Short-Circuit Protection

This protective system becomes active in case of short-circuited output or overload caused by reduced load impedance. It disables the output signal of the respective channel for 0.5 second and then the amplifier gradually resumes its delivery.

DC Output Protection

The amplifier's schematics precludes transit of any clicks or noise during the power-on/off transition process. Moreover, the amplifier protects the speaker system where it is installed against damage by DC voltage or powerful LF fluctuations in case of their occurrence on the output of the amplifier. In this case its power source goes off and all LEDs go off too, including the POWER LED.

The power amplifier can be restarted by consecutive switching OFF and ON with the POWER key. If the DC is an occasional problem (which is unlikely) the amplifier goes ON and resumes its normal functioning. If, otherwise, the DC output problem persists through the fault of the amplifier, then upon switching, the amplifier goes ON but in a short while the DC output protection system disables the power supply source.

SPECIFICATIONS

| | |
|--|--|
| Output Power: | 1000 W (8Ohm, 100Hz, 230V) |
| Peak Output Power: | 1200 W (8Ohm, 10ms, 230 V) |
| Frequency Response*: | 45 Hz – 80...350 Hz (1000W, 8Ohm) |
| Total Harmonic Distortion: | 0.05 % (45Hz - 350Hz, 8Ohm) |
| Slew Rate: | 20 V/μs (LF filter disabled) |
| Damping Factor: | over 200 (100Hz, 8Ohm) |
| Signal-to-Noise Ratio: | 98 dB (unweighted) |
| Sensitivity: | 775 mV |
| High-pass Filter Cutoff Frequency: | 45 Hz (basic model) |
| High-pass Filter Slope: | 24 dB/oct |
| Low-pass Crossover Filter Cutoff Frequency: | 80 – 350 Hz |
| Crossover Low-pass Filter Slope: | 12 dB/oct |
| Power Requirements: | AC 230V, 50/60 Hz |
| Weight: | 4 kg |
| Dimensions: | 198 mm (width) 407.5 mm (height) 104 mm (depth) |

Note:

* The basic model frequency response which can vary depending on the filter frequency settings.

TROUBLESHOOTING

No Sound Signal on the Output

POWER LED is OFF:

- *power cable is damaged;*
- *no power.*

POWER LED is ON while CLIP/THERM LED is OFF:

- *no input signal;*
- *input level knobs are set to minimum position.*

POWER and CLIP/THERM LEDs are ON:

- *load impedance is too low, or short-circuited load;*
- *active overheating protection.*

The problem may be caused by the input signal source. Try disconnecting the input signal and check the result.

Sound Distortion

- *applied input signal is distorted before it gets to the amplifier;*
- *high input signal;*
- *speakers are damaged.*

Thermal Protection

The thermal protection system ensures the amplifier's reliable and faultless operation in case of overheating. The fan is completely OFF until the temperature of the heat sink reaches 50°C. When the heat sink temperature exceeds 50°C, the cooling fan goes ON at its least speed. Any further rise of temperature results in a smooth increase of the cooling intensity rate up to 70°C. At the same time, when the temperature rises to 65°C, the built-in optoelectronic Clip-limiter becomes active reducing the input signal level on the amplifier input without distorting the sound. In this case, the thermal protection LED becomes slightly lit (dim). The higher the temperature, the lower signal level, the brighter is the LED.

The signal may be cut off only in case of the fan breakdown or blocked air flow. If this is the case, the thermal protection system disables the input signal when the heat sink temperature has reached 85°C, this state being indicated by the CLIP/THERM LED.

The amplifier resumes its operation in the reverse order as soon as has cooled down, gradually regaining its amplification level up to the set value.

Soft Signal Start

This feature ensures smooth signal volume increase on power-on and on resumption of operation of the unit after an alarm condition to avoid any undesirable impact on the loudspeakers.

Indication

The indication consists of two LEDs, one of which indicates the power on condition, and the other the overload condition and thermal protection active condition.

Input Section

The input section incorporates:

- two line input (XLR female);
- two line output (XLR male);
- low-pass filter control knob;
- output signal phase slide switch.

The amplifier inputs are balanced.

The line input and output connectors are parallel, i.e. the contacts of the output connector match the respective contacts of the input connector. This allows to use the amplifier as a signal patching unit (e.g. for supplying the signal to active satellite speaker systems), while the unit itself amplifies the summed signal taken from both inputs.

The level control knob is used to adjust the level of the signal supplied to the amplifier.

The low-pass filter control knob allows to set the upper frequency limit of the amplifier bandwidth (between 80 Hz and 350 Hz).

The output signal phase slide switch is provided for 180° reversing of the signal phase in order to achieve the best compatibility of the sound signal phase of the subwoofer (in which this amplifier is installed) with other loudspeakers within the same sound reproduction system.

The Cutoff and Crossover Filters

The amplifier incorporates:

- high-pass fourth-order cutoff filter (signal slope – 24dB/oct.);
- fine-adjustable second-order low-pass crossover filter (signal slope – 12dB/oct.).

The high-pass fourth-order cutoff filter is used for elimination of signal LF components which cannot be reproduced by the speaker system.

The basic model has the high-pass cutoff filter set to 45 Hz.

The low-pass crossover filter is used to limit the amplified frequency range to be compatible with the subwoofer application.

The cutoff point of the low-pass filter can be set by the control knob within the range of 80Hz to 350 Hz.

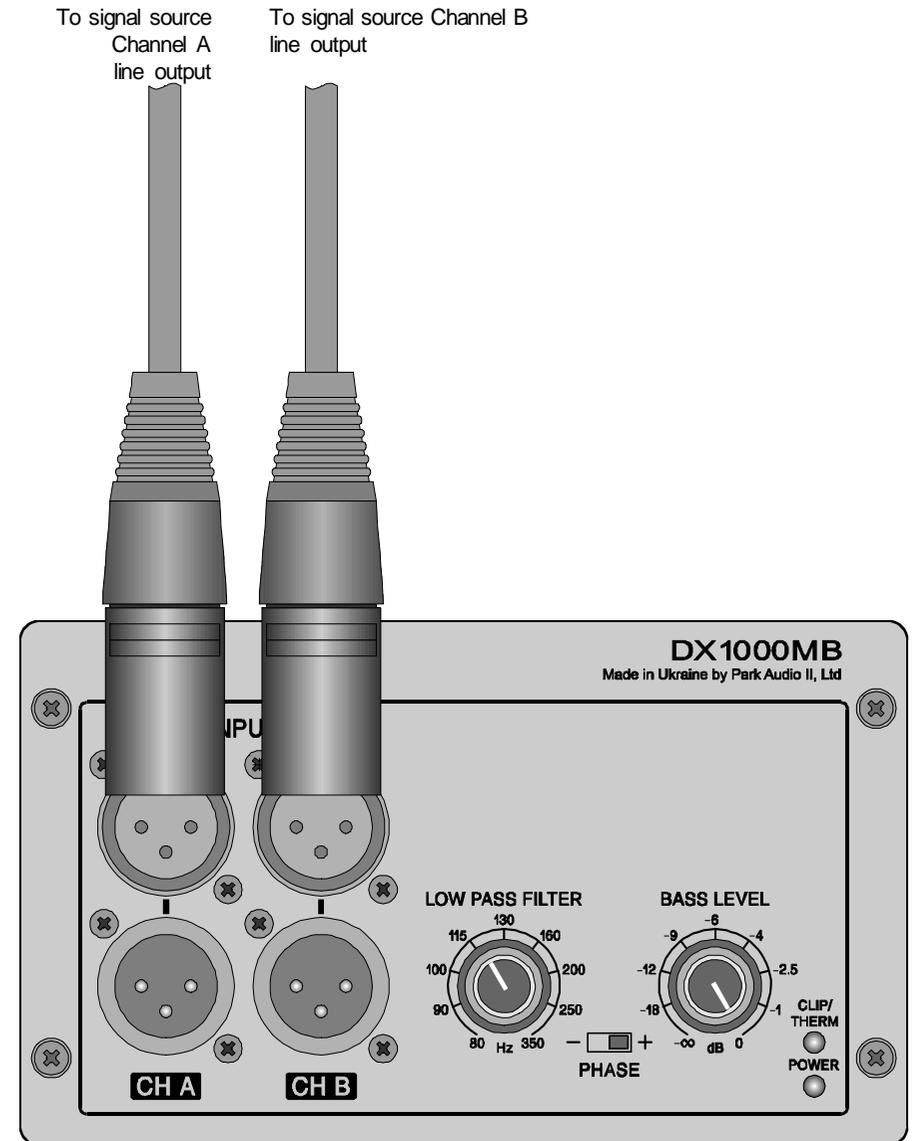
Built-in Parametric EQ

The EQ provides the parametric correction of the amplifier frequency response.

The correction is effected in three points with adjustment of the respective Q value and boost/cut parameters. The EQ is preset by the manufacturer as requested by the customer.

The customer-required parameters are shown on the label pasted on the amplifier casing.

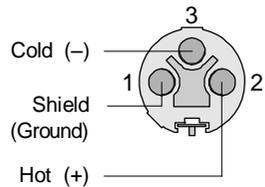
LINKING OF INPUT SIGNAL TO AMPLIFIER



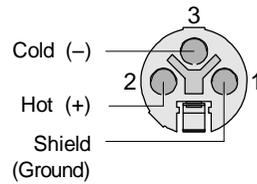
INPUT CONNECTORS

Use XLR (male) connectors for the inputs and XLR (female) connector for the line outputs. See the wiring on the Figure below.

Balanced Input Cable Wiring
(XLR male)



Balanced Line Output Connection
Cable Wiring (XLR female)



AC POWER REQUIREMENTS

The unit is supplied with a three-conductor grounded AC power cord, and should be plugged into a standard 3-wire grounded electrical outlet which supplies 230 V AC 50/60 Hz.

In the event of line voltage sag, the unit will continue to operate normally, albeit with less power.

The actual AC current consumption by the amplifier depends on the audio signal level and the load impedance.

For typical audio program material with the amplifier driving both channels just peaking at the clipping level, the AC line current capacity of 2 A is recommended for system design purposes.

INSTALLATION INTO A SPEAKER SYSTEM

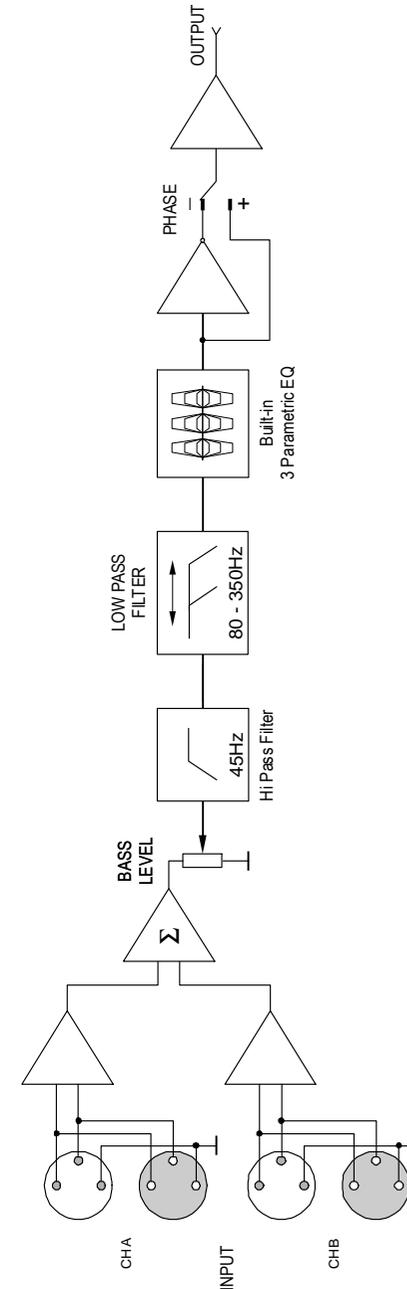
Insert the amplifier into the cutout in the rear panel of a speaker system.

For installation of the amplifier we recommend a cutout of the following size:

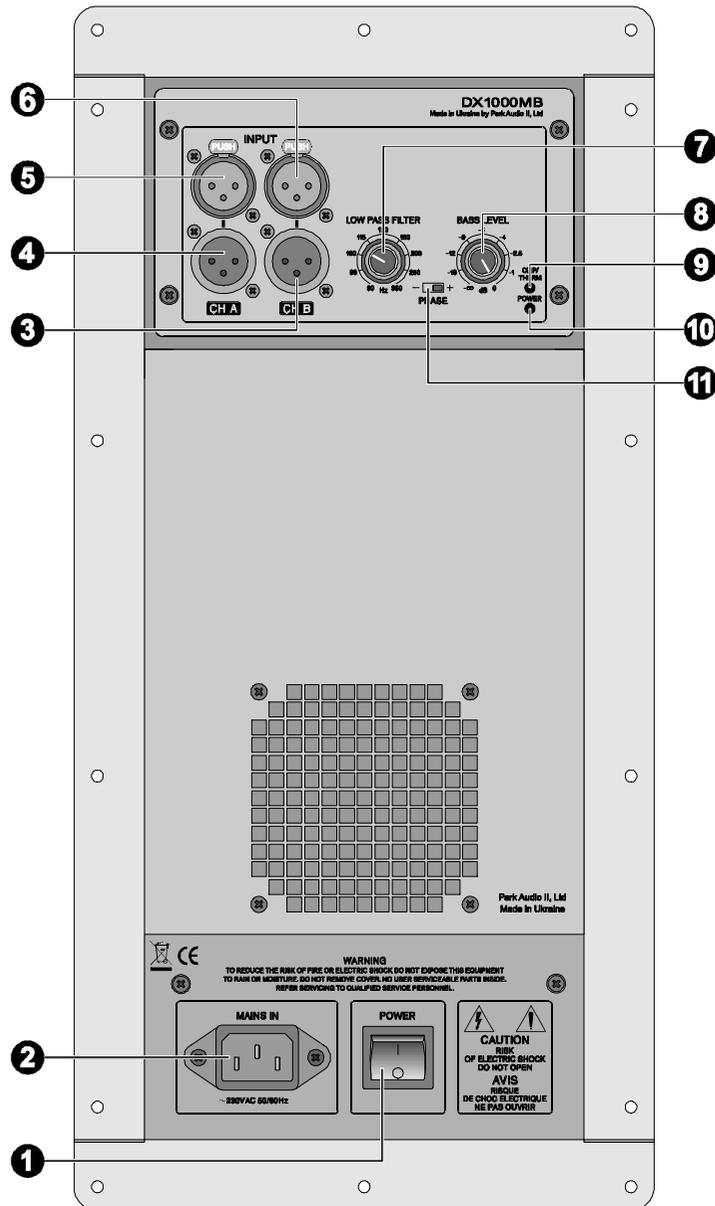
- height 369mm;
- width 158mm.

The amplifier is designed to be operated under permanent vibration conditions and does not require special tight sealing of the compartment where the unit is to be installed. However, to improve the sound quality of the speaker system, the manufacturer recommends to install the amplifier into a compartment enclosed from the inner space of the speaker system.

DX1000MB BLOCK DIAGRAM



DX1000MB CONTROLS AND CONNECTORS



- ❶ **POWER** – power switch.
- ❷ **AC 230V 50/60 Hz** – power cable socket.
ATTENTION! The power to the amplifier is supplied from single-phase AC power mains with protective grounding. To connect the amplifier to a wall outlet, first insert the power cord into the power cord socket and then plug it into the wall outlet.
- ❸ Channel B line output (XLR male): parallel to Channel B input.
- ❹ Channel A line output (XLR male): parallel to Channel A input.
- ❺ Channel A input (XLR female)*.
- ❻ Channel B input (XLR female) *.
- ❼ **LOW PASS FILTER** – low-pass filter cutoff point knob: sets the bandwidth upper frequency (80 Hz ... 350 Hz).
- ❽ **BASS LEVEL** – input level control knob.
Used to adjust the level of the input signal applied to the power amplifier.
- ❾ **CLIP / THERM** – overload/thermal protection LED
Indicating:
 - overload condition characterized by sound distortion and optoelectronic clip-limiter active mode;
 - thermal protection active condition. (See: Thermal Protection above).
- ❿ **POWER LED**.
In case of active DC protection system, the LED goes off.
- ⓫ **PHASE** – output signal phase slide switch. Used to set the required phase of the output signal:
 - + – signal phase unchanged;
 - – – signal phase 180° reversed.

Note:

* The unit amplifies the summed signal taken from the Channel A and Channel B inputs.