

User Manual



POWERPLAY PRO-8 HA8000/PRO-XL HA4700

8/4-Channel High-Power Headphones Mixing and
Distribution Amplifier

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EN Important Safety Instructions

Terminals marked with this symbol carry electrical current of sufficient magnitude to constitute risk of electric shock.

Use only high-quality professional speaker cables with ¼" TS or twist-locking plugs pre-installed. All other installation or modification should be performed only by qualified personnel.



This symbol, wherever it appears, alerts you to the presence of uninsulated dangerous voltage inside the enclosure - voltage that may be sufficient to constitute a risk of shock.



This symbol, wherever it appears, alerts you to important operating and maintenance instructions in the accompanying literature. Please read the manual.

**Caution**

To reduce the risk of electric shock, do not remove the top cover (or the rear section). No user serviceable parts inside. Refer servicing to qualified personnel.

**Caution**

To reduce the risk of fire or electric shock, do not expose this appliance to rain and moisture. The apparatus shall not be exposed to dripping or splashing liquids and no objects filled with liquids, such as vases, shall be placed on the apparatus.

**Caution**

These service instructions are for use by qualified service personnel only. To reduce the risk of electric shock do not perform any servicing other than that contained in the operation instructions. Repairs have to be performed by qualified service personnel.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11. Use only attachments/accessories specified by the manufacturer.



12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid

injury from tip-over.

13. Unplug this apparatus during lightning storms or when unused for long periods of time.

14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

15. The apparatus shall be connected to a MAINS socket outlet with a protective earthing connection.

16. Where the MAINS plug or an appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable.



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LIMITED WARRANTY

For the applicable warranty terms and conditions and additional information regarding MUSIC Group's Limited Warranty, please see complete details online at www.music-group.com/warranty.

LEGAL DISCLAIMER

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1. Introduction

Congratulations! With the BEHRINGER POWERPLAY PRO, you have acquired a high-end headphone amplifier. Both POWERPLAY PRO units were developed with the most demanding applications in mind: professional recording, radio and television studios, as well as CD/digital sound production. They were developed as benchmark units for judging mixdown quality as well as distribution amplifiers for flexible playback applications in studio environments.

Balanced inputs and outputs

Both BEHRINGER POWERPLAY PROs feature electronically servo-balanced inputs and outputs. The servo function automatically recognizes when unbalanced pins are assigned. It internally modifies the nominal signal level, thus preventing any occurrence of signal level difference between inputs and outputs (6 dB correction).

- ◆ The following user's manual is intended to familiarize you with the unit's control elements, so that you can master all the functions. After having thoroughly read the user's manual, store it at a safe place for future reference.

1.1 Before you get started

The POWERPLAY PRO was carefully packed at the assembly plant to assure secure transport. Should the condition of the cardboard box suggest that damage may have taken place, please inspect the unit immediately and look for physical indications of damage.

- ◆ Damaged units should NEVER be sent directly to us. Please inform the dealer from whom you acquired the unit immediately as well as the transportation company from which you took delivery of the unit. Otherwise, all claims for replacement/repair may be rendered invalid.

1.1.1 Initial operation

Please make sure the unit is provided with sufficient ventilation, and never place the POWERPLAY PRO on top of an amplifier or in the vicinity of a heater to avoid the risk of overheating.

- ◆ Before plugging the unit into a power socket, please make sure you have selected the correct voltage:

The fuse compartment near the power plug socket contains three triangular markings. Two of these triangles are opposite one another. The voltage indicated adjacent to these markings is the voltage to which your unit has been set up, and can be altered by rotating the fuse compartment by 180°. ATTENTION: This does not apply to export models that were for example manufactured only for use with 120 V!

- ◆ If you alter the unit's voltage, you must change the fuses accordingly. The correct value of the fuses needed can be found in the chapter "TECHNICAL DATA".
- ◆ Faulty fuses must be replaced with fuses of appropriate rating without exception! The correct value of the fuses needed can be found in the chapter "TECHNICAL DATA".

Power is delivered via the cable enclosed with the unit. All required safety precautions have been adhered to.

- ◆ Please make sure that the unit is grounded at all times. For your own protection, you should never tamper with the grounding of the cable or the unit itself.

1.2 Warranty

Please take a few minutes and send us the completely filled out warranty card within 14 days of the date of purchase. You may also register online at www.behringer.com. The serial number needed for the registration is located at the top of the unit. Failure to register your product may void future warranty claims.

1.3 The user's manual

This user's manual has been written in such a way to enable you an overview over the control elements of the unit and offers at the same time detailed information about possible applications. To facilitate quick look-ups, control elements have been described in groups depending on their function. Should you need detailed information about specific topics not covered in this manual, please visit our website at www.behringer.com. For example, additional information about power amps and effects processors is found there.

ATTENTION!

- ◆ We would like to bring your attention to the fact that extremely loud sound levels may damage your hearing as well as your headphones. Please lower all OUTPUT LEVEL knobs leftwards before powering up the unit.

2. Control Elements

This chapter contains descriptions of various control elements of your POWERPLAY PRO. All controls and connections are discussed in detail. Additionally, useful advice about their possible applications is also given.

The HA8000 has eight independent amplifiers for connecting headphones, while the HA4700 has four. The latter has several additional features not found in the HA8000 due to space considerations. The differences between the two units are explained in detail in the text sections that follow.

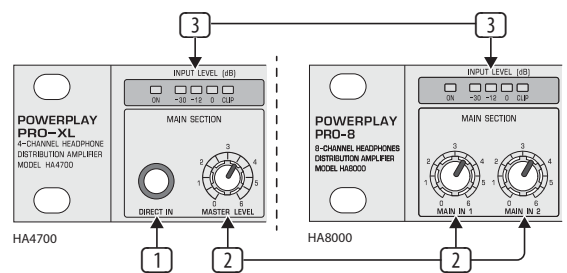


Fig. 2.1: Input section

- 1 The DIRECT IN socket is used to feed in additional stereo signals. In the case of the HA4700, the signal brought in via the DIRECT IN input has the same priority as the MAIN signal. The HA8000 has a separate DIRECT INPUT connector for each channel (14) (see fig. 2.3). In the case of this model, the MAIN signal being fed in is automatically interrupted when the said input is in use.
- 2 The MASTER LEVEL control governs the level of the input signal that is fed through the MAIN INPUT connectors on the back or through the DIRECT IN connector.

The HA8000 features two level controls (MAIN IN 1 / MAIN IN 2), so that two separately controllable input signals can be connected. You select which of the two signals is monitored by using the IN 1 / IN 2 switches (14) in the respective channel sections.

- 3 The 4-digit INPUT LEVEL display informs you about the input level signal and displays it in the range between -30 and 0 dB. When the unit is powered on, the ON LED lights up. You achieve the best input signal quality when its level is at the highest level just before it starts distorting. The clip LED should light up only during the highest signal peaks.

2.1 Front panel

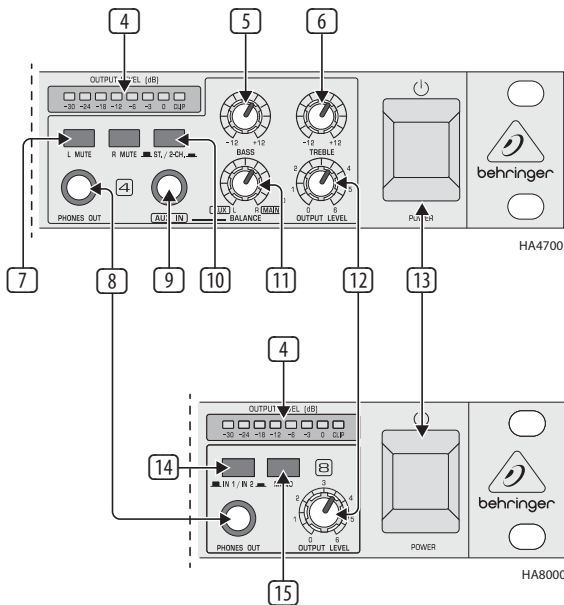


Fig. 2.2: Individual headphones amplifier sections

- 4 The 8-digit OUTPUT LEVEL display informs you about the output signal level of each individual channel, and displays it in the range between -30 and 0 dB. When the clip LED lights up, lower the amount of gain applied to the individual channels to avoid distortion.
- 5 The BASS control (HA4700 only) attenuates or boosts the low frequency portions of the signal (+/-12 dB).
- 6 The TREBLE control (HA4700 only) attenuates or boosts the high frequency portion of the signal (+/-12 dB).
- 7 The L MUTE and R MUTE switches allow you to mute the respective input signal, so that only the remaining input signal is audible (HA4700 only).
- 8 The PHONES OUT connector is connected in parallel to the output connectors 18 located on the rear, presenting an easily accessible additional monitor option for individual channels. This function is particularly helpful when the unit is permanently installed in a rack.
- 9 The AUX IN input is used to mix an additional input signal into the MAIN IN or DIRECT IN connectors (HA4700 only). Should you want to use this option on a mono signal, we recommend using the ST./2-CH. switch (position 2-CH, depressed) in order to hear the signal in both ears.
- 10 The ST./2-CH. switch is used to alternate whether input signals are audible in stereo (not depressed: ST.) or in mono (depressed: 2-CH.) The HA8000 features a MONO switch instead of a ST./2-CH. switch 15
- 11 The BALANCE control (HA4700 only) regulates the stereo image of input signals, provided that the AUX IN input of one of the amp sections is not already in use. When the AUX IN section already has a signal assigned to it, the BALANCE control governs the ratio between MAIN IN (DIRECT IN) and AUX IN signal.

The HA8000 does not feature a BALANCE control.

- 12 Headphones volume of the individual amp sections is regulated using the OUTPUT LEVEL control. Both the left and the right channel are regulated simultaneously.
- 13 The POWER switch powers the POWERPLAY PRO on. You should always make sure that the POWER switch is in the "Off" position when initially connecting the unit to the mains.
- ◆ Please take note: Merely switching the unit off does not mean that it is fully disconnected from the mains. When not using the unit for prolonged periods of time, please unplug the unit's power cord from the power outlet.
- 14 The MAIN IN 1 or MAIN IN 2 input signal is selected by using the IN 1 / IN 2 switch. When the DIRECT INPUT of the channel has a signal assigned to it, you can hear the said signal only (HA8000 only).
- 15 When you depress the MONO switch (HA8000 only), the signal is played in mono. Singers in particular appreciate this function because a mono signal is much less distracting to listen to than a comparable stereo signal. A mono signal makes spacial orientation during live performances easier.

2.2 Rear panel

- 16 Power is supplied via an IEC connector. The matching cable is provided with the unit.
- 17 FUSE COMPARTMENT 1 VOLTAGE SELECTION. Before connecting the unit to a power outlet, please make sure that the selected voltage matches your local voltage. When replacing fuses, please make sure that you always use fuses of the same type. Some units allow for switching between 230 V und 120 V. Please note: when connecting a unit intended for the European market to a 120 V power outlet, you must also replace the factory fuse with a higher-value fuse.
- 18 The HEADPHONE OUT connectors of the individual amp sections are also used for connecting headphones (HA8000: PHONES OUTPUT). The HA4700 features two additional headphones connectors per channel located on the rear; the HA8000 has one.

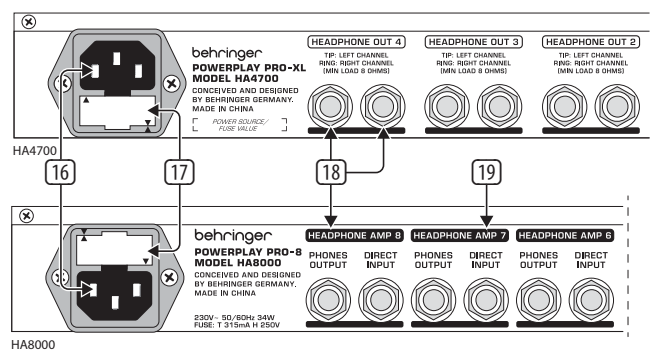


Fig. 2.3: Mains supply, fuses compartment and headphone outputs

- 19 Various input signals can be connected to the HA8000 by utilizing a separate DIRECT IN connection for each amp section, located on the rear. If a signal is fed into this connector, both MAIN IN signals will be muted.
- 20 These are the MAIN OUT connectors of the HA4700. The respective jacks and XLR connectors are wired in parallel. Via these connectors, you can link as many headphone amps as desired to allow for connection of additional headphones. The HA8000 has no MAIN OUT connectors. To connect additional units on a per-need basis, you can use HA8000's PHONES OUTPUT connectors.

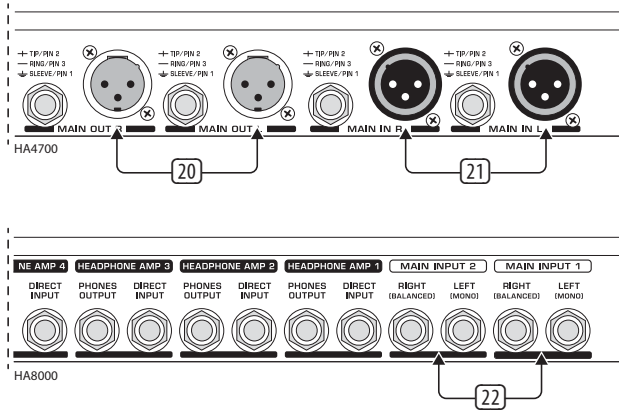


Fig. 2.4: MAIN IN and MAIN OUT connectors

- 21 The MAIN IN connectors of the HA4700 come as balanced ¼" TRS and XLR connectors.
- 22 The HA8000 features only ¼" TRS connectors for MAIN INPUT 1 and MAIN INPUT 2.

3. Application Guidelines

3.1 Using the MAIN IN connectors

Connect a program source with the MAIN IN connectors located on the rear, and connect your headphones to an amp section of your choice. Set the MASTER LEVEL and BALANCE controls (HA4700) in the center position. The MASTER LEVEL control is used to lower or raise the volume level of all headphones which receive signals via the MAIN IN inputs and/or the DIRECT IN input. In the case of the HA8000, MAIN IN controls 1 and 2 regulate the input level of two separate input signals. The individual OUTPUT LEVEL controls are used for adjusting the desired channel volume only.

3.2 AUX IN inputs (HA4700 only)

As a general rule, the AUX IN inputs are used to add an extra input signal to the main signal, whereby the respective BALANCE control regulates the relative ratio of those signals to one another.

This way, you can for example effortlessly record vocals and feed in an already existing playback using your POWERPLAY PRO-XL HA4700. The playback signal is fed through the MAIN IN inputs, and the preamplified vocal signal is fed into the AUX IN connector. The respective BALANCE control should be set up in such a way that the singer gets a perfectly matched mix between the playback and the vocals, whereby the OUTPUT LEVEL control regulates the overall volume.

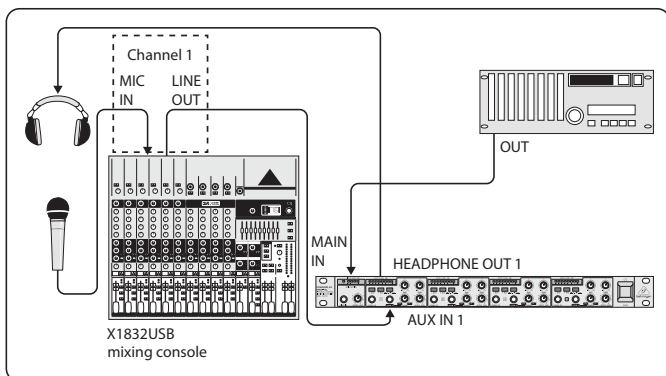


Fig. 3.1: Playback application in a studio

In addition to the usage of all channels via the MAIN input, each of the four amplifiers can also be used fully independently. To this end, you may also use the AUX IN inputs in conjunction with the BALANCE controls. When the BALANCE control is turned to the left ("AUX" position), the MAIN signal is faded out, and the AUX IN signals are fed into their respective amplifiers. Using individual amplifiers separately lets you provide individual mixes to up to four musicians.

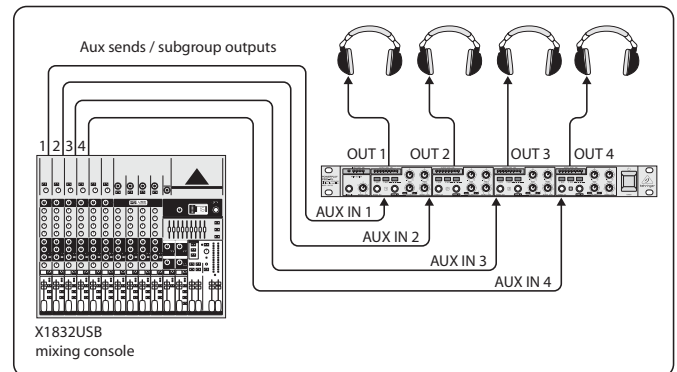


Fig. 3.2: Monitor live application

3.3 Using the DIRECT IN connector

The DIRECT IN connector (HA4700) is located on the left side of the front section. For example, you can use this connector to provide musicians with the signal of a DAT recorder or CD player. The HA8000 has a separate DIRECT IN connector for each amplifier (located on the rear). In the case of the HA8000, allocating a signal to this connector mutes the MAIN IN signal. The input level must be externally set in this case. This way, you can use each amplifier section for a separate headphone signal.

3.4 Mono mode

Stereo signals can often have an irritating effect in certain monitoring applications, especially when performing live. These negative effects are particularly apparent when both channels show great channel separation, i.e. a different information content coupled with varying volume levels. The ST./2-CH. switch (HA8000: the MONO switch) allows coupling the left and the right channels into a single mono signal, without needing a "Y"-adapter or a special cable.

3.5 MUTE function (HA4700 only)

When the ST./2-CH. switch is depressed, the unit is running mono. By depressing either one of the MUTE switches, the respective input's signal (i.e. either the left or the right input) is muted, while the signal not being muted can be heard on BOTH (left and right) headphone outputs. This allows you to feed two different program sources yet be able to listen to only one of them on a per-need basis.

3.6 Connecting multiple headphones

The HA4700 features three headphones connectors altogether, while the HA8000 has two. You can connect multiple headphones to an amp simultaneously, provided that the minimal output load impedance of the amp does not fall below 8 Ohms. In the case of the HA8000, the minimal output load impedance is 100 Ohms per amp.

- ◆ When connecting two headphones, individual headphones should not have impedance lower than 16 Ohms; when connecting three headphones, individual headphones should not have impedance lower than 24 Ohms (HA4700). When connecting two headphones to the HA8000, the impedance of individual headphones should not fall below 200 Ohms.

Even though going under the above mentioned minimal impedances does not cause defective operation, you may experience a quality loss audible as lowered performance and distortion.

4. Audio Connections

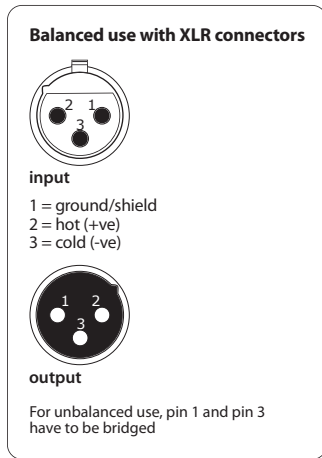


Fig. 4.1: XLR connector

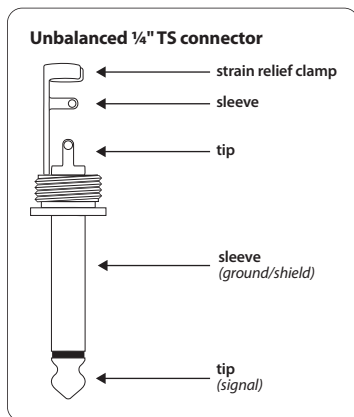


Fig. 4.2: 1/4" TS connector

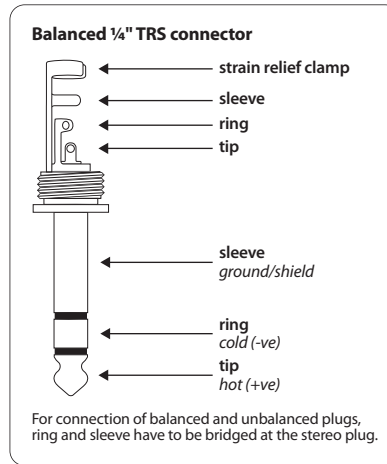


Fig. 4.3: 1/4" TRS connector

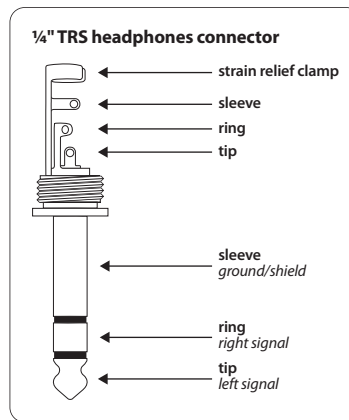


Fig. 4.4: 1/4" TRS connector for headphones operation

⚠ Please assure that the unit is installed and operated only by people with an understanding of the unit's functions. During and after the installation always make sure that those handling the unit are themselves properly grounded. Failure to do so may cause undesirable or faulty operation through electrostatic discharge.

5. Specifications

POWERPLAY PRO-8 HA8000

Audio Inputs

MAIN IN	HF filtered, servo balanced ¼" TRS connectors
Input impedance	40 kΩ balanced, 20 kΩ unbalanced
Max. input level	16 dBu balanced and unbalanced
CMRR	typically 40 dB, >55 dB @ 1 kHz
AUX IN	—
Input impedance	—
Max input level	—
DIRECT IN	¼" TRS connector (stereo)
Input impedance	15 kΩ

Audio Outputs

MAIN OUT	—
PHONES OUTPUT	¼" TRS connector (stereo)

Power Amplifier

Max. output power	+24 dBm (load impedance 100 Ω)
Min. output load impedance	100 kΩ

System Specifications

Frequency response	10 Hz to 150 kHz, +/-3 dB
Noise	22 Hz to 22 kHz >90 dB @ 0 dBu
Dynamic range	22 Hz to 22 kHz: 110 dB
Distortion (THD)	0.006 % typ. @ +4 dBu, 1 kHz, Gain 1

Function Controls

Input level	variable
Balance per channel	—
Output level per channel	variable
Treble	—
Bass	—

Function Switches

Stereo/2-Channel	—
Main in 1 / Main in 2	switches between MAIN Input 1 and MAIN Input 2
Left mute	—
Right mute	—
Mono	switches this section to mono

Displays

Input Level	4-digit LED-display: -30/-12/0 dB/CLIP
Output Level	8-digit LED-display: -30/-24/-18/-12/-6/-3/0 dB/CLIP

Power Supply

Mains voltage

USA/Canada	120 V~, 60 Hz
U.K./Australia	230 V~, 50 Hz
Japan	100 V~, 50 - 60 Hz
General export model	120/230 V~, 50 - 60 Hz
Power consumption	30 W
Fuses	100 - 120 V ~: T630 mA H, 220 - 240 V ~: T 315 mA H
Mains connection	Standard IEC receptacle

Dimensions/Weight

Dimensions (H x D x W)	approx. 44.5 x 483 x 217 mm approx. (1.75 x 19 x 8.5")
Weight	approx. 2.6 kg (5.7 lbs)

POWERPLAY PRO-XL HA4700**Audio Inputs**

MAIN IN	HF-filtered, servo-balanced XLR- and ¼" TRS connectors
Input impedance	40 kΩ balanced, 30 kΩ unbalanced
Max. input level	16 dBu balanced and unbalanced
CMRR	typically 40 dB, >55 dB @ 1 kHz
AUX IN	¼" TRS connector (stereo)
Input impedance	5 kΩ
Max input level	+22 dBu
DIRECT IN	¼" TRS connector (stereo)
Input impedance	15 kΩ

Audio Outputs

MAIN OUT	XLR- and ¼" TRS connectors, balanced
PHONES OUTPUT	¼" TRS connector (stereo)

Power Amplifier

Max. output power	+24 dBm (load impedance 100 Ω), +21 dBm (load impedance 8 Ω)
Min. output load impedance	8 kΩ

System Specifications

Frequency response	10 Hz to 150 kHz, +/-3 dB
Noise	22 Hz to 22 kHz >90 dB @ 0 dBu
Dynamic range	22 Hz to 22 kHz: 110 dB
Distortion (THD)	0.006 % typ. @ +4 dBu, 1 kHz, Gain 1

Function Controls

Input level	variable
Balance per channel	mix between Aux and Main signals / balance between right and left channel
Output level per channel	variable
Treble	cutoff frequency: 6 kHz; range +/- 12 dB
Bass	cutoff frequency: 200 Hz, range +/- 12 dB

Function Switches

Stereo/2-Channel	switches between stereo mode and 2-channel mode
Main in 1 / Main in 2	—
Left mute	mutes the left signal of the respective channel
Right mute	mutes the right signal of the respective channel
Mono	—

Displays

Input Level	4-digit LED-display: -30/-12/0 dB/CLIP
Output Level	8-digit LED-display: -30/-24/-18/-12/-6/-3/0 dB/CLIP

Power Supply**Mains voltage**

USA/Canada	120 V~, 60 Hz
U.K./Australia	230 V~, 50 Hz
Japan	100 V~, 50 - 60 Hz
General export model	120/230 V~, 50 - 60 Hz

Power consumption	34 W
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Fuses	100 - 120 V ~: T630 mA H, 220 - 240 V ~: T315 mA H
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Mains connection	Standard IEC receptacle
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Dimensions/Weight

Dimensions (H x D x W)	approx. 44.5 x 483 x 217 mm approx. (1.75 x 19 x 8.5")
Weight	approx. 2.5 kg (5.5 lbs)

BEHRINGER is constantly striving to maintain the highest professional standards. As a result of these efforts, modifications may be made from time to time to existing products without prior notice. Specifications and appearance may differ from those listed or illustrated.



We Hear You