

Owner's Manual

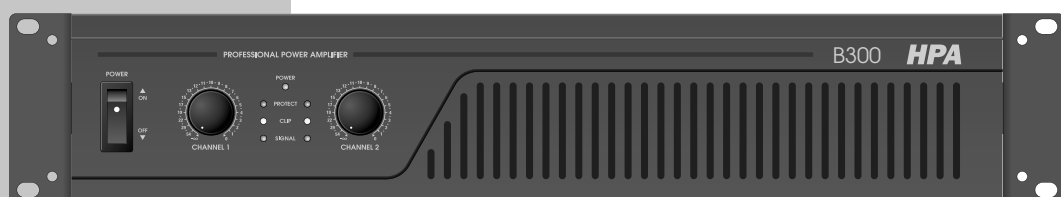
B 300

B 600

B 900

B 1200

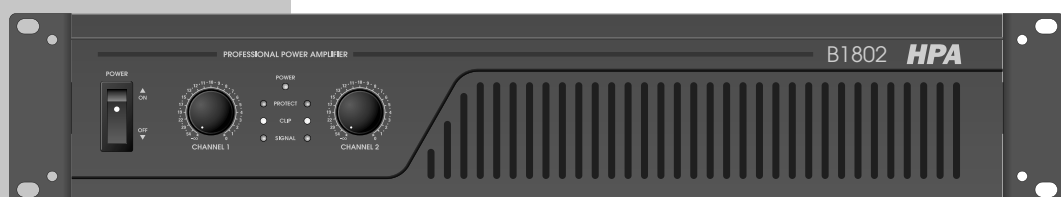
B 1500



B 902

B 1202

B 1802



HPA

WARNING

1. Read these instructions - All the safety and operating instructions should be read before this product is operated.
2. Retain these instructions - The safety and operating instructions should be retained for future reference.
3. Heed all warnings - All warnings on the appliance and in the operating instructions should be adhered to.
4. Follow all instructions - All operating and use instructions should be followed.
5. Do not use this apparatus near water - The appliance should not be used near water or moisture - for example, in a wet basement or near a swimming pool, and the like.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacture'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 plug. A polarized plug has two blades with one wider than the other. A grounding plug has two blades and a third grounding prong. The wide blade or the third prong is 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 the plugs, convenience receptacles, and at the point where they exit from the apparatus.
11. Only use 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 or rack is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug the apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified 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 has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. Please keep the unit in a good ventilation environment.
16. **WARNING:** To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture. The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall not be placed on apparatus.
17. **WARNING:** The mains plug or appliance inlet is used as disconnect device, the disconnect device shall remain readily operable.
18. **Power Sources** – This product should be operated only from the type of power source indicated on the rating label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. For products intended to operate from battery power, or other sources, refer the operating instructions.
19. **Safety Check** – Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.
20. Don't touch conductive parts of output terminals to prevent hazardous electrical shock. The external wiring connected to the terminals requires installation by an instructed person or the use of ready-made leads or cords.
21. This equipment is for commercial & professional use only.
22. This product is in compliance with EU WEEE regulations. Disposal of end of life product should not be treated as municipal waste. Please refer to your local regulations for instructions on proper disposal of this product.
23. To prevent hazardous electrical shock, do not touch the conductive parts of the output terminals. The external wiring connected to the terminals requires installation by a qualified technician or the use of ready made leads or cords.



Protective earthing terminal. The apparatus should be connected to a mains socket outlet with a protective earthing connection.



This lightning flash is intended to alert the user to the presence of non-insulated "dangerous voltage" on the output terminals that may be of sufficient magnitude to constitute a risk of electric shock. The external wiring connected to the terminals requires installation by an instructed person or the use of ready-made leads or cords.



CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN



CAUTION: To reduce the risk of electric shock, do not remove any cover. No user-serviceable parts inside. Refer servicing to qualified service personnel only.



The lightning flash with arrowhead symbol within the equilateral triangle is 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.



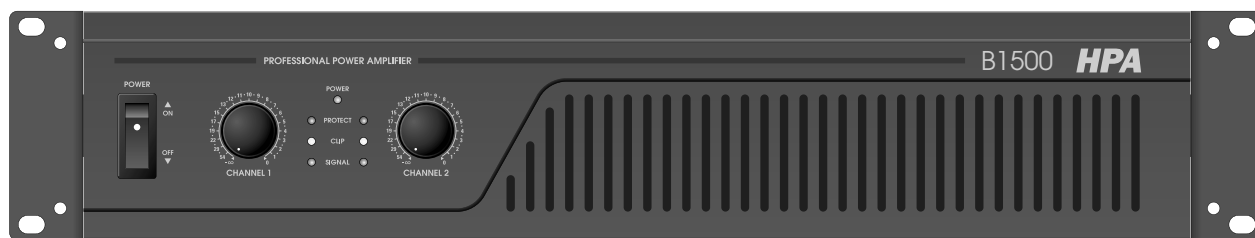
The exclamation point within the equilateral triangle is intended to alert the user to the presence of important operation and maintenance (servicing) instructions in the literature accompanying this appliance.

CAUTION: To prevent electric shock, do not use this polarized plug with an extension cord, receptacle or other outlet unless the blades can be fully inserted to prevent blade exposure.

Table of Contents

Introduction	2
Features	3
Front Panel Controls	4
Rear Panel Controls	5
Protection	7
Setup	8
Speaker Connections	9
Wiring	12
Specifications	13
Block Diagrams	14

Introduction



B 300 / B 600 / B 900 / B 1200 / B 1500 / B 902 / B 1202 / B 1802 PROFESSIONAL AMPLIFIER

Welcome.

Congratulation and thank you for the purchasing B Series, a state-of-the-art professional amplifier.

These amplifier are designed to provide a big impact in sound reproduction and to produce the best and highest quality audio at an affordable price. We wish you great enjoyment and satisfaction when using your amplifier, whether you are an installation, or reinforcement engineer.

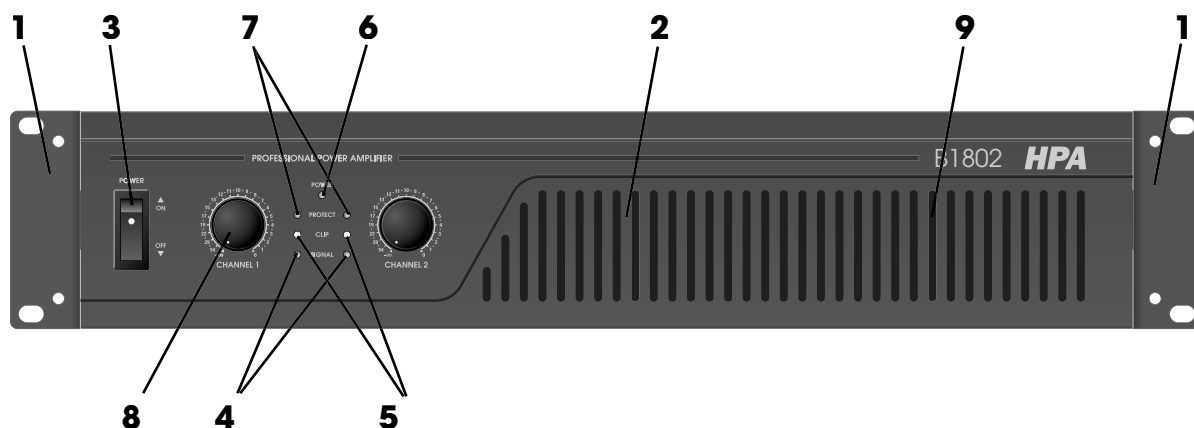
Unpacking and Installation

Although it is neither complicated to install nor difficult to operate your amplifier, a few minutes of your time is required to read this manual for a properly wired installation and becoming familiar with its features and how to use them. Please take a great care in unpacking your set and do not discard the carton and other packing materials. They may be needed when moving your set and are required if it ever becomes necessary to return your set for service. Never place the unit near radiator, in front of heating vents, to direct sun light, in excessive humid or dusty location to avoid damages and to guaranty a long reliable use. Connect your unit with the system components according to the description on the following pages.

Features

- HPA B-Series amplifier delivers the following power ratings.
 - B 300 2 x 100 Watts at 8 ohm, 2 x 150 Watts at 4 ohm
 - B 600 2 x 200 Watts at 8 ohm, 2 x 300 Watts at 4 ohm
 - B 900 2 x 300 Watts at 8 ohm, 2 x 450 Watts at 4 ohm
 - B 1200 2 x 400 Watts at 8 ohm, 2 x 600 Watts at 4 ohm
 - B 1500 2 x 500 Watts at 8 ohm, 2 x 750 Watts at 4 ohm
 - B 902 2 x 200 Watts at 8 ohm, 2 x 300 Watts at 4 ohm and 2 x 450 Watts at 2 ohm
 - B 1202 2 x 300 Watts at 8 ohm, 2 x 450 Watts at 4 ohm and 2 x 600 Watts at 2 ohm
 - B1802 2 x 400 Watts at 8 ohm, 2 x 600 Watts at 4 ohm and 2 x 900 Watts at 2 ohm
- 2-channel, parallel or bridged mono operating modes for flexible application 300 Watts for B 300, 600 Watts for B 600, 900 Watts for B 900 and B 902, 1200 Watts for B 1200 and B 1202, 1500 Watts for B 1500 and 1800 Watts for B 1802.
- Independent input level controls for each channel allow precision adjustments.
- Precise signal and clip LED indicators to monitor performance, allow you to correct for overloading (clipping) condition.
- One-tunnel and two temperature-sensitivity forced-air cooling system to maintain a low temperature working station.
- Balanced XLR or balanced 1/4-inch TRS Combination input connector for each channel.
- 5-way output binding posts or Speaker connectors enable secure operation.
- High-current toroidal transformer for absolute reliability.
- Independent DC thermal and overload protection on each channel automatically protects amplifier and speaker.
- The B series can be mounted in any standard 19" rack.

Front Panel Controls



1. Rack Mounting Ears

Two front panel mounting holes are provided on each mounting ear.

2. Fan Vent

Cool air is flowed through the front fan filters, reducing the temperature of the inside components while forcing the heat out the rear vents. Never block these vents and keep them clean at all time.

3. AC Power Switch

This switch controls the units main power.

4. Signal Indicators

These green LED will illuminate to indicate that a signal is present at the amplifier input, and that the signal is being amplified.

5. Clip Indicators

These yellow LED will illuminate at the clipping threshold. If it lights frequently, you maybe overloading the HPA B-Series and a distorted signal is probably being output. Under heavy clipping activity lower the channel gain controls to reduce the risk of damage to your speakers and amplifier.

6. Active Indicators

These blue LED indicate that AC power is connected and the amplifier is turned on.

7. Protect Indicators

These red LED indicate that the channel is in Protect mode. When the channel goes into protect mode all output for that channel will turn off by output relay. The protect LED will light when

overheating or other severe problem occur. This is to protect any speakers connected to the channel. These LED light for approximately five seconds whenever the A Series is powered on and to fade slowly when the amplifier is powered off. It is normal.

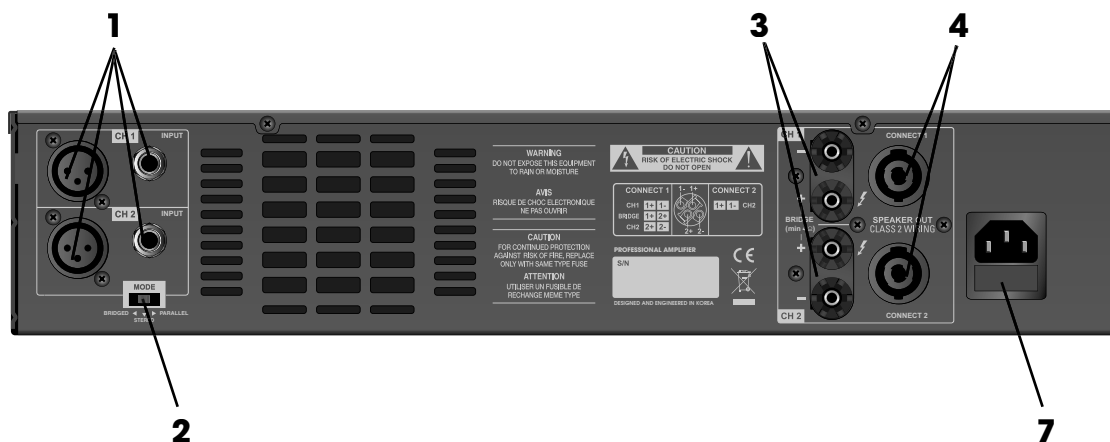
8. Channel input level control

These two 21-position detented controls adjust input level for their respective amplifier channels. In Bridged Mono Mode, only channel 1 input level control are used to adjust signal level. In Parallel Mode, both input level control are used to adjust signal level for their respective amplifier channels. At their fully counter-clockwise position, the signal is attenuated by more than 80dB. At their fully clockwise position, the signal is at unity gain. When 0 dBu of signal arrives at the input jacks and the Channel input level controls are set to their fully clockwise position, the A Series delivers full power output.

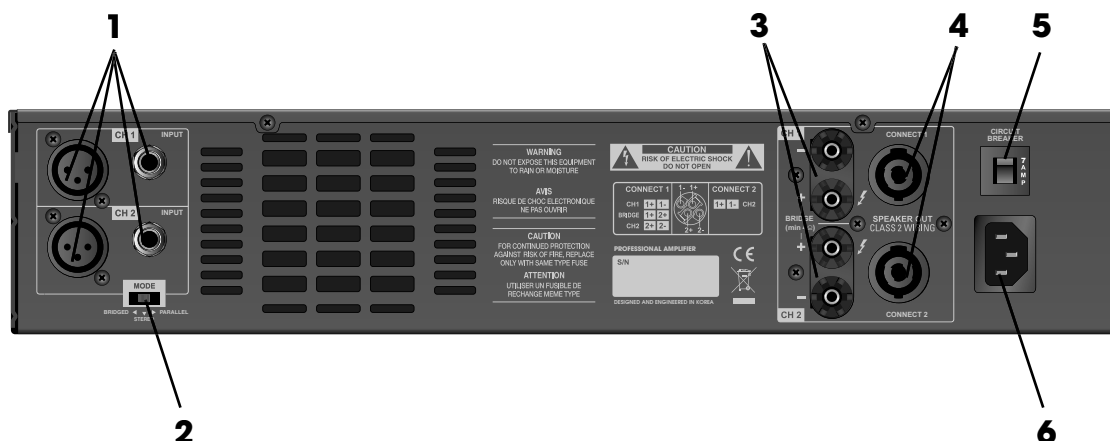
9. Fan

This is a variable speed cooling fan. Cooling air enters the amplifier through the fan ports located on front of the amplifier chassis, Be sure not to block these ports when installing the amplifier or other associated equipment.

Rear Panel Controls



[B 300 / B 600 / B 900]



[B 1200 / B 1500 / B 902 / B 1202 / B 1802]

1. Input connectors

Connect the input source to these electronic balanced Combination connectors using either XLR or 1/4" TRS plugs. The 1/4" TRS and XLR plug configured as follows : Pin 2 (Tip) hot, Pin 3 (Ring) cold, and Pin 1 (Sleeve) ground. We recommend the use of balanced three-conductor cabling wherever possible. Unbalanced two-conductor 1/4" plugs can also be inserted into these inputs, but you will get better signal quality and less outside noise and hum if you use balanced lines. Stereo signal should be connected to both the Channel 1 and Channel 2 input jacks ; however ; when operating the B Series in Bridged Mono or Parallel modes, use the Channel 1 input jack only.

2. Bridge / Stereo / Parallel switch

This switch changes the amplifier operating mode from either stereo or mono bridged or parallel. You can place this switch in "STEREO" position (center) for normal stereo operation. When placed in "PARALLEL" position, the channel 1 input signal is routed to the power amplifier of both channel. When placed "BRIDGED" position, the channel 1 input signal only is routed to both amplifiers again. In this mode the channel 2 input is ignored.

3. 5-way Binding Post

Connect each channel of the B Series to 4 ohms or 8 ohms loudspeakers. Two pairs of 5-way binding posts are provided for each

channel, so that paralleling of speakers is possible. Connection to the binding posts can be made with bare wire, banana plugs, or spade lug terminations. Make connections to both the Channel 1 and Channel 2 terminals for Stereo or Parallel Mode, or a single connection across the red terminals only of Channel 1 and Channel 2 for Bridged Mono Mode.

4. Speakon output connectors

You can use these to connect each channel of A Series to 8 ohms or 4 ohms loudspeakers. Using Speakon speaker cables, make connections to both the channel 1 and channel 2 connectots for Stereo or Parallel Mode, or to the Bridged mode connector for Bridged Mono Mode.

5. Circuit breaker

The breaker acts in place of common discardable fuses. This circuit breaker will trip if there is a fault with the main voltage or if maximum output is exceeded. Simply depress the circuit breaker and power up the unit again.

6. AC input

(B 1200 / B 1500 / B 902 / B 1202 / B 1802)

IEC connector for AC power cable. Connect the supplied heavy-gauge 3-pin IEC power cable.

7. AC inlet

(B 300 / B 600 / B 900)

This Ac intel allows replacing fuse conveniently please make sure the value of fuse before replacement.

Protection

Every model in the B Series incorporates protection features. The HPA B-Series front panel Protection LED indicates the activity of the relay speaker connection circuitry in each channel. When the protection LED turn on, this circuitry is active, and all connected speakers are muted.

Initial power-up ; For approximately five seconds after initial power-up, the protection circuitry is activated and the speaker outputs are muted. If everything is operating normally, you will hear an audible click at the conclusion of this brief period, as the protection circuitry is deactivated and the B Series begins delivering signal to connected speakers. It is normal for the Protection LED to fade gradually after the amplifier is powered off.

Thermal Protection ; Abnormally high heat sink temperatures will engage the Protect circuitry for the overheating channel only. An output relay disconnects the speakers until normal temperature range is restored. During this time, the Protect LED will light.

To guard against this problem, make sure the B Series receives adequate ventilation on all sides and that both the front and rear panels are unobstructed. If the power transformer gets too hot, its thermal switch will disconnect all of the secondary power and disconnect both channel outputs.

Short circuit ; If output is shorted due to faulty wiring, the thermal circuitry will automatically protect the amplifier. If this will occur, the load will be disconnected by thermal protection circuitry (also output relay opens).

DC Voltage Protection ; If an amplifier channel detects DC voltage at speaker output, the output relay immediately open to prevent speaker damage.

Subsonic Frequency Protection ; Built-in High Pass Filter provides subsonic frequency protection for each channel.

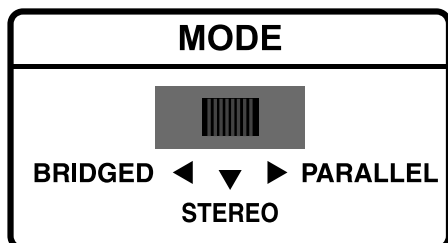
Current limiting Protection ; At the amplifier's full power limit, or clipping point, the limiter circuitry will be activated. This is indicated by illumination of the Clip LED. The channel gain is automatically reduced, protecting the speakers from the high power. This circuitry may be

activated by uncontrolled feedback, oscillations, improper equipment gain setting. And this circuitry is virtually transparent in operation and full signal bandwidth is maintained.

Any time the Protection LED lights up (except for initial power-up during approximately five seconds), there is reason to be concerned. If this occurs, turn the amplifier off immediately and check carefully all wiring and external equipments in order to locate and correct the condition.

Setup

Mode Select



Stereo Mode

In stereo mode, both channels operate independently, with their input gain controls. Signal at channel 1's input produces output at channel 1, while signal at channel 2's input produces output at channel 2's output. Recommended minimum nominal load impedance for stereo operation is 2 ohms per channel.

Parallel Mode

When set to Parallel mode, a signal applied to channel 1's input will be amplified and appear at outputs for both channel 1 & 2. With set to parallel. The parallel mode is well-suited for applications in which driving two speakers with the same signal but with separate amplification.

Bridged Mono Mode

Bridged mono mode straps both amplifier channels together to make a very powerful, single-channel monaural amplifier. One channel "pushes" and the other channel "pulls" equally, doubling the power over that of either channel alone. Therefore the voltage is doubled, the peak power is quadrupled, and program power is roughly three times as high as that of the individual channel. Signal is applied to the channel 1 input only and channel 1 input gain control is used to adjust signal level. The input gain control belonging to channel 2 are not used.

Note : See speaker connections in detail in the following pages.

Use extreme caution when operating the amplifier in Bridged Mono Mode. Never ground either side of the speaker cable when the amplifier is in Bridged Mono Mode ; the speaker load must "float" away from the amplifier chassis.

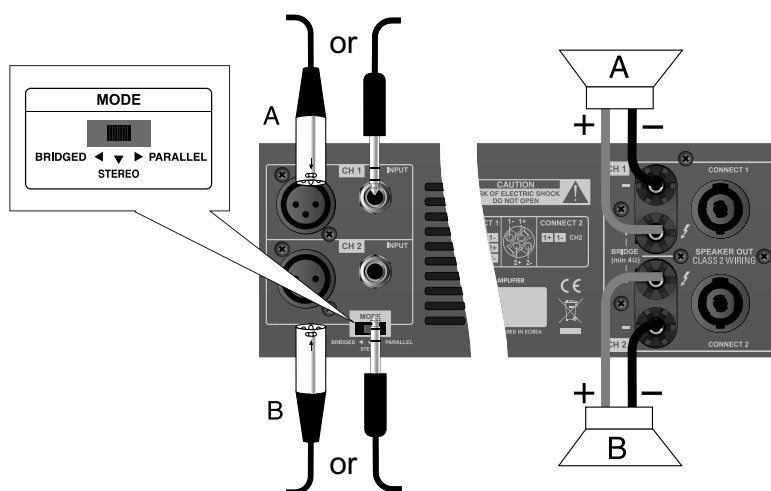
Speaker Connections

Speakers can be connected to the amplifier in three ways, as shown below. Note that speaker impedance will vary according to the connection method and the number of speakers. Please be sure that your speaker's impedance is not less than the relevant minimum value indicated below.

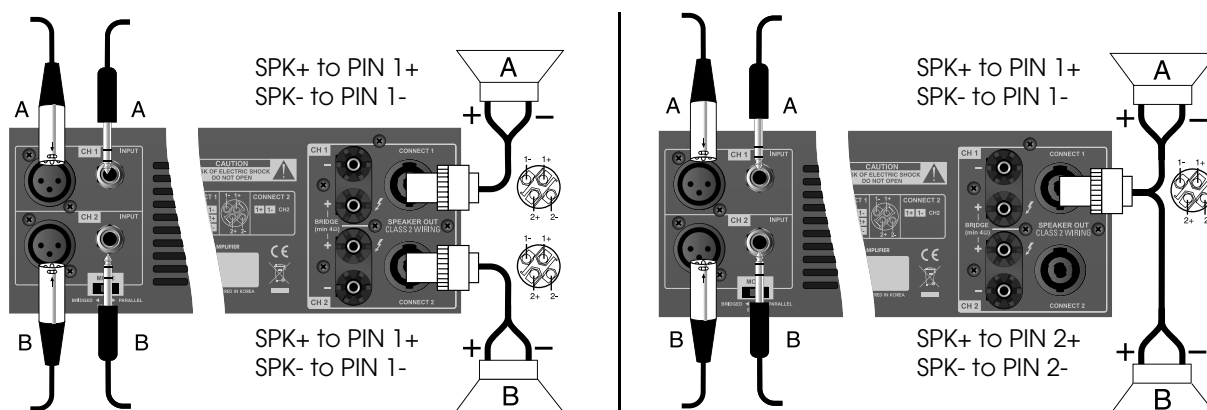
Stereo Mode

Set the Mode switch to STEREO to use the unit as a stereo amplifier. The volume controls on the front panel (A and B) let you control the volume of each channel independently.

5-way binding post



Speakon connector



Minimum speaker impedance:

B 300 / B 600 / B 900 / B 1200 / B 1500 : 4Ω

B 902 / B 1202 / B 1802 : 2Ω

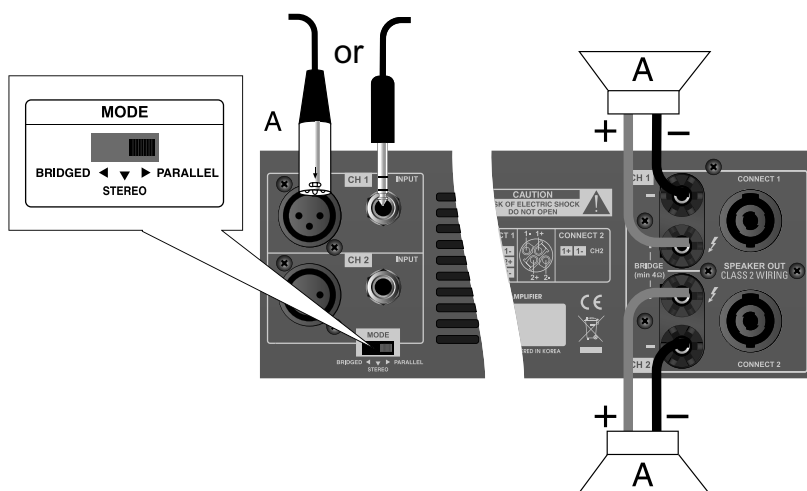
WARNING: Use of Stereo mode with speaker load of less than 4 ohms in B 300 / B 600 / B 900 / B 1200 / B 1500 and 2 ohms in B 902 / B 1202 / B 1802 can result in severe damage to unit due excessive heat an current limiting and will void you warranty!

Parallel Mode

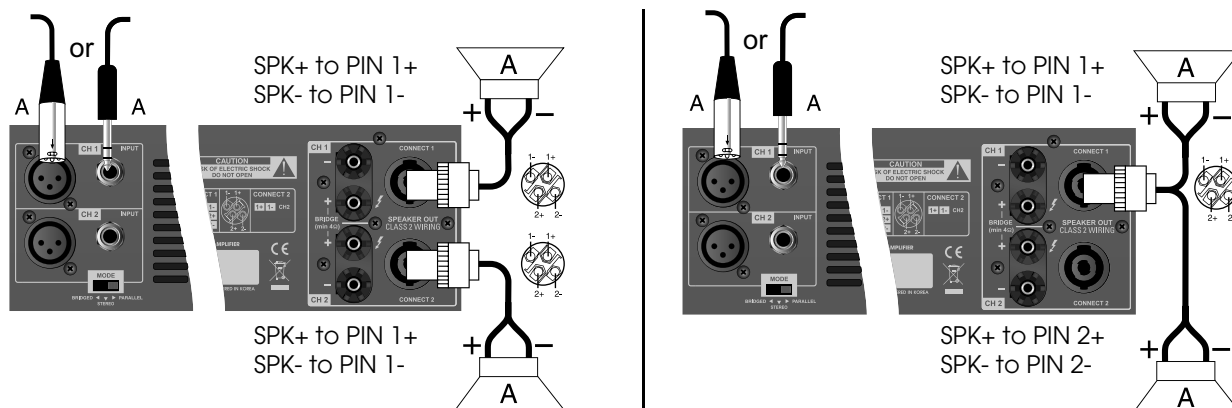
Set the Mode switch to PARALLEL to use the unit as a two-channel mono amplifier. The volume controls on the front panel (A and B) let you control the volume of each channel independently.

Note: In this case, the loads for A and B are connected directly in the amplifier. Make sure not to input any signal to the B terminal.

5-way binding post



Speakon connector



Minimum speaker impedance:

B 300 / B 600 / B 900 / B 1200 / B 1500 : 4Ω

B 902 / B 1202 / B 1802 : 2Ω

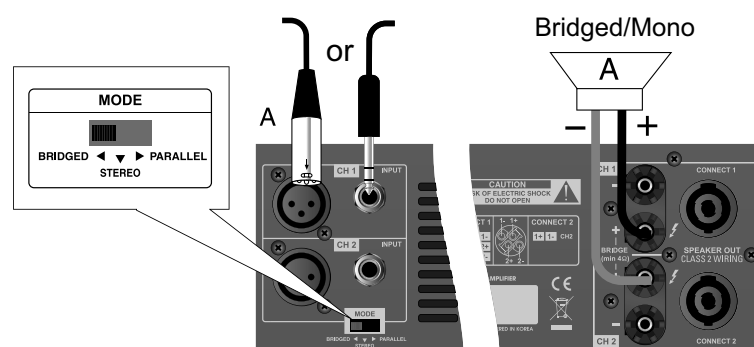
WARNING: Use of Parallel mode with speaker load of less than 4 ohms in B 300 / B 600 / B 900 / B 1200 / B 1500 and 2 ohms in B 902 / B 1202 / B 1802 can result in severe damage to unit due excessive heat an current limiting and will void you warranty!

Bridged Mode (use as high-power mono amplifier)

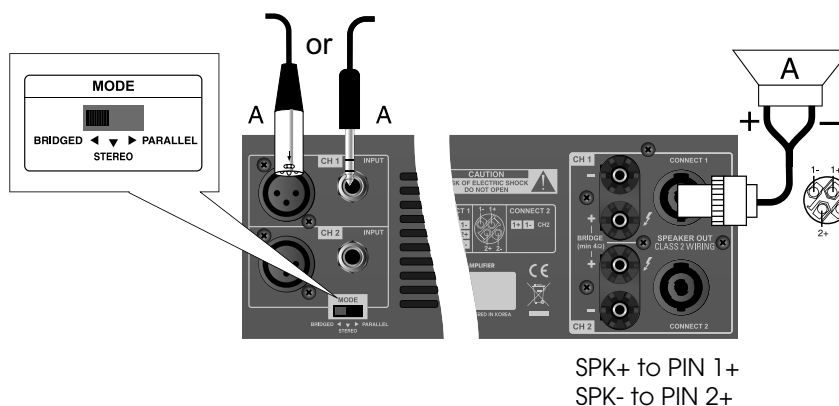
Set the mode switch to BRIDGED to use the unit as a high power mono amplifier. The volume control A on the front panel A lets you control the volume.

Note: In this case, the loads for A and B are directly connected in the amplifier. Make sure not to input any signal to the B terminal.

5-way binding post



Speakon connector



Minimum speaker impedance:

B 300 / B 600 / B 900 / B 1200 / B 1500 : 8Ω

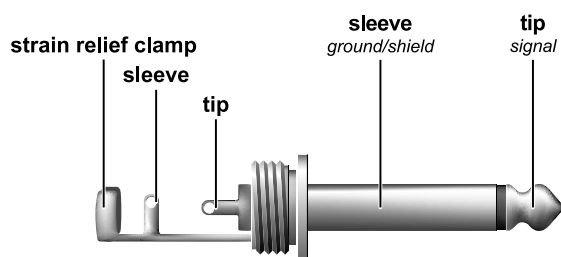
B 902 / B 1202 / B 1802 : 4Ω

WARNING: Use of Bridged mode with speaker load of less than 8 ohms in B 300 / B 600 / B 900 / B 1200 / B 1500 and 4 ohms in B 902 / B 1202 / B 1802 can result in severe damage to unit due excessive heat an current limiting and will void you warranty!

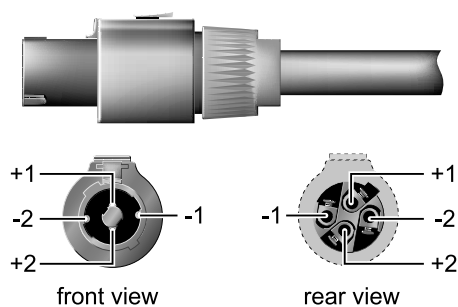
Wiring

These are several ways to interface the B series amplifier to support a variety of applications. The B series features balanced inputs and outputs, so connecting balanced and unbalanced signals is possible.

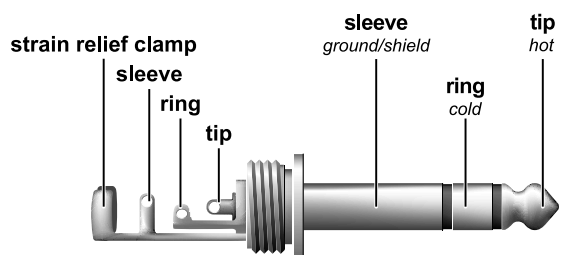
Unbalanced 1/4" Connector



Speakon® Output Connector

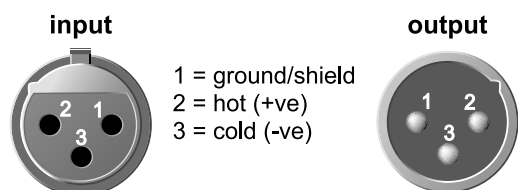


Balanced TRS 1/4" Connector



For connection of balanced and unbalanced plugs, ring and sleeve have to be bridged at the stereo plug.

XLR Balanced Wiring Guide



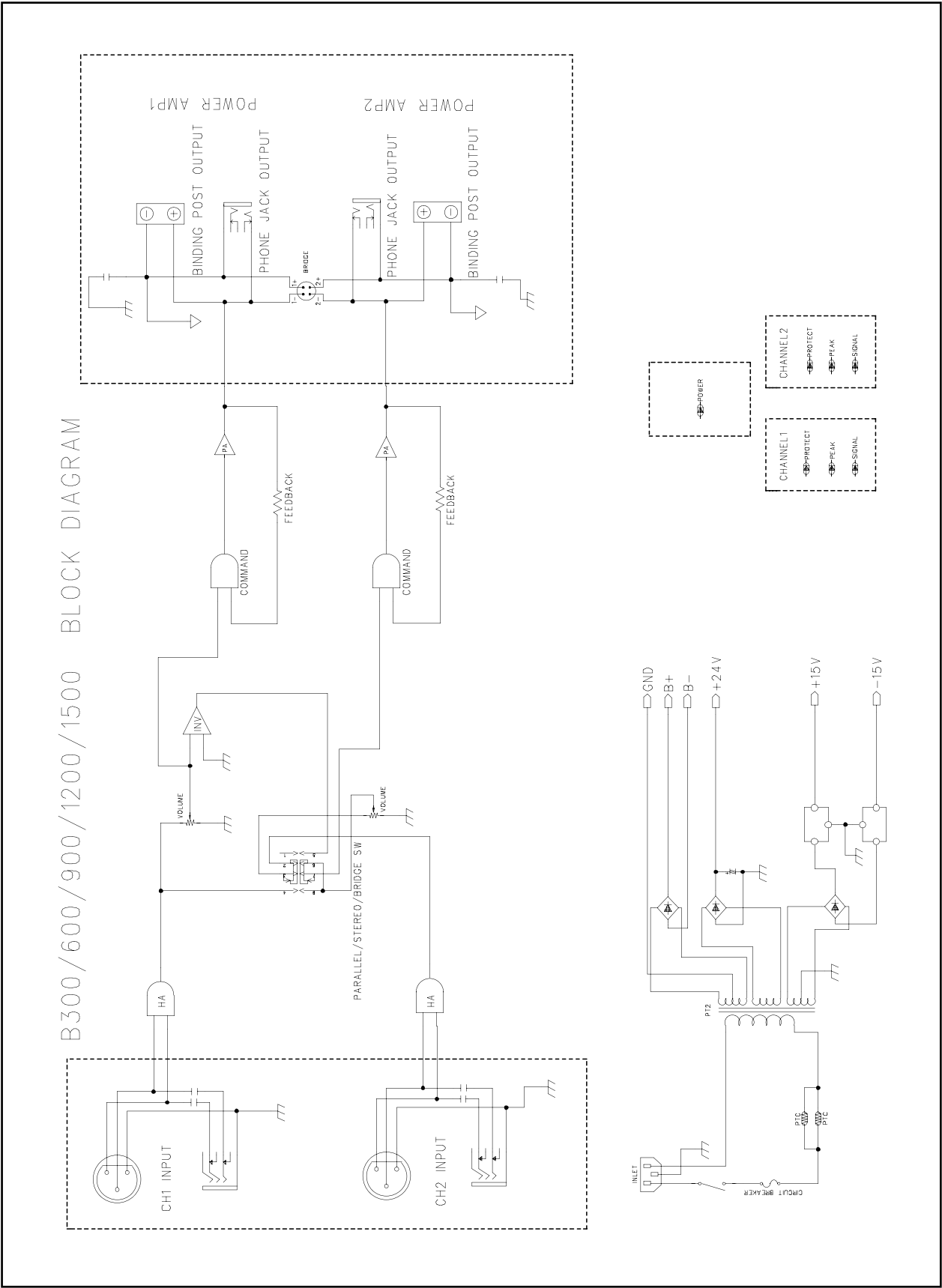
For unbalanced use pin 1 and pin 3 have to be bridged

Specifications

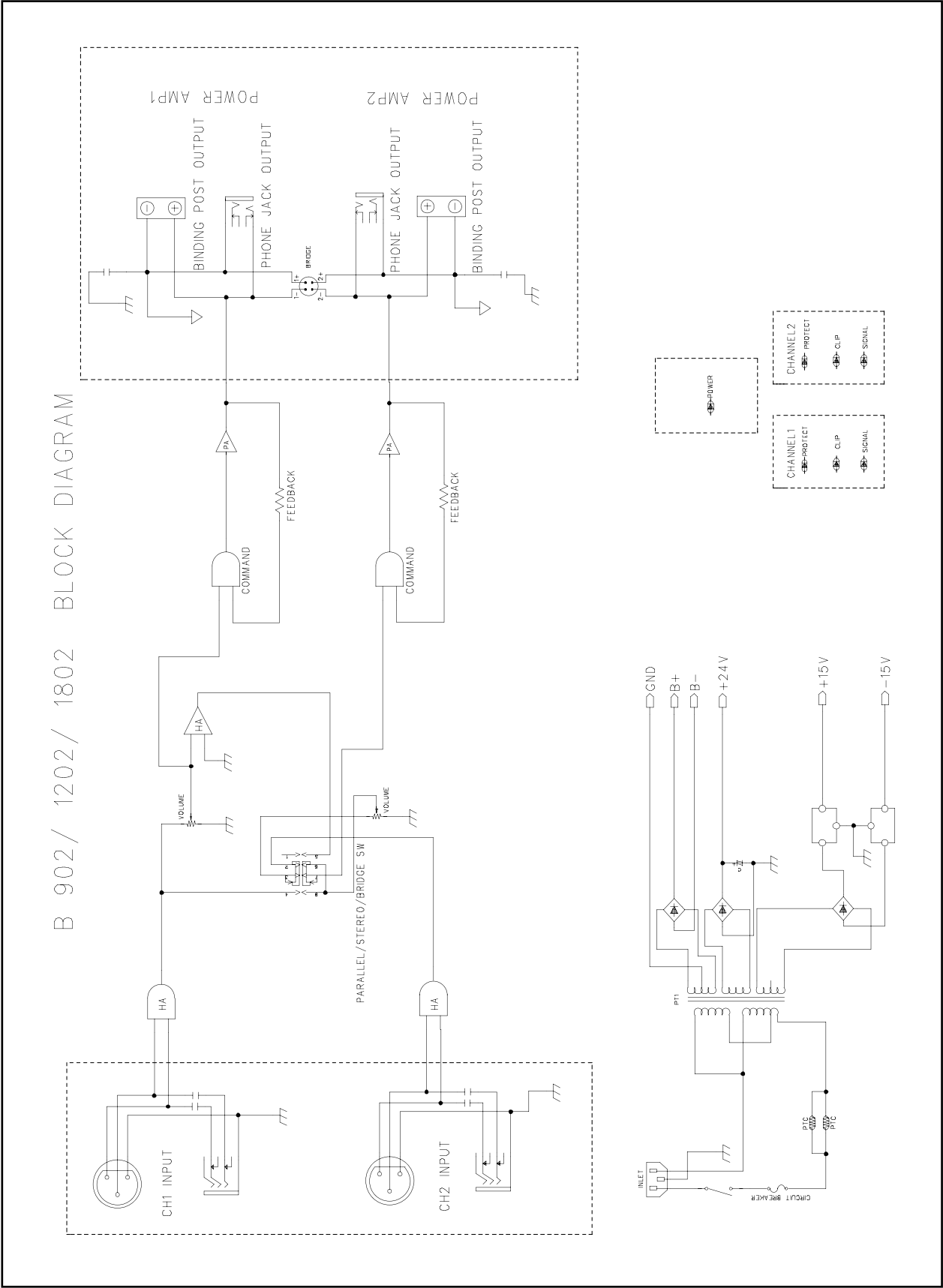
	B 300	B 600	B 900	B 1200	B 1500	B 902	B 1202	B 1802
Output Power	Stereo Both Channel Driven							
8 ohms	100 W	150 W	225 W	300 W	375 W	180 W	300 W	400 W
4 ohms	150 W	300 W	450 W	600 W	750 W	300 W	450 W	600 W
2 ohms	-	-	-	-	-	450 W	600 W	900 W
Output Power	Bridged Mono							
8 ohms	300 W	600 W	900 W	1200 W	1450 W	600 W	900 W	1200 W
4 ohms	-	-	-	-	-	900 W	1200 W	1800 W
Signal to Noise Ratio (20 Hz ~ 20k Hz)	95 dB	98 dB	98 dB	100 dB	100 dB	95 dB	102 dB	102 dB
Input sensitivity @8 ohms	4 dBu	4 dBu	4 dBu	4 dBu	4 dBu	4 dBu	4 dBu	4 dBu
Voltage Gain	26 dB	30 dB	30 dB	33 dB	33 dB	30 dB	30 dB	33 dB
Output Circuitry	AB	AB	AB	AB	AB	AB	AB	AB
Current Consumption	115Vac/230Vac							
@ 1/8 power @4 ohms	1.2 A/0.5 A	3.1 A/1.5 A	4.1 A/2 A	5 A/2.4 A	7 A/3.6 A	3 A/1.5 A	4.1 A/2 A	6 A/3 A
@ 1/3 power @4 ohms	2.5 A/1.1 A	4.5 A/2.3 A	6 A/2.8 A	8 A/4 A	8.5 A/4.3 A	4.5 A/2.3 A	6 A/2.8 A	8.5 A/4.2 A
@ Rated power @4 ohms	3.5 A/1.7 A	7.2 A/3.5 A	9 A/4.7 A	12 A/6.1 A	15 A/7.8 A	7.5 A/3.7 A	9 A/4.7 A	14 A/6.8 A
Distortion								
20 Hz-20k Hz Half Power	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
1k Hz Rated Power	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Frequency Response	0/-0.5dB ; 20Hz-20KHz							
Input Impedance	15Kohm Unbalanced, 30Kohm Balanced							
Input Clipping	22dBu (10Vrms)							
Cooling	Continuously variable speed, Front to rear							
Connectors (each)								
Input	Active balanced combo (XLR and 1/4" TRS common use)							
Output	5-way Binding post and Speakon							
Control								
Front	AC power switch, Channel 1 and 2 volume							
Rear	Mode selector switch							
Protection	Short circuit, Thermal, Current limit, DC offset, Current inrush, Turn on / Turn off muting							
Power requirements	100 / 115 / 220 / 230 / 240Vac, 50/60Hz							
Dimensions (W × H × D)	416×185×557mm							
Net Weight	12.57Kg	15.18Kg	14.26Kg	15.73Kg	16.17Kg	15.39Kg	15.24Kg	16.93Kg

Necessary modifications are carried out without notice.

Block diagrams



Block diagrams



Necessary modifications are carried out without notice.

