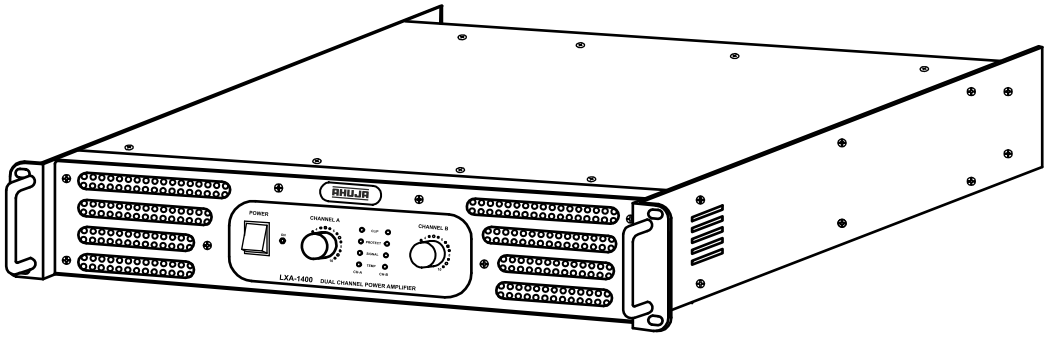
OPERATION MANUAL

AHUJA®

Dual Channel Power Amplifier

675W + 675W RMS

LXA-1400



- Thank you for purchasing the AHUJA Dual Channel Power Amplifier.
- Please read this manual thoroughly before making connections and turning on the power. Following the instructions in this manual will enable you to obtain optimum performance from your new AHUJA Dual Channel Power Amplifier.
- Please retain this manual for future reference.

• Safety Instructions

Read the Instructions: Please read all the instructions in this section carefully before installation or use of the product. All the safety instructions must be followed.

Retain the Instructions: Please retain this Instruction Manual for future reference.

This symbol, wherever it appears, alerts you to the presence of uninsulated hazardous voltage that may be sufficient to constitute a risk of electric shock. External wiring to any terminal marked with this symbol must be done by a trained and instructed person only.

This symbol, wherever it appears adjacent to a component, alerts you that the concerned component can only be replaced by another of the exact same specifications.

WARNING

- To reduce the risk of electric shock, do not remove the top cover. No user serviceable parts inside. Refer all servicing to qualified personnel only.
- Before replacing any fuse, make sure the set is switched off and disconnected from the AC mains or any other power source. Replace a fuse only with another of exactly same specification.

CAUTIONS

Water & Moisture: To reduce the risk of fire or electrical shock, do not expose this set to rain or moisture. Do not use this set near water or in a wet location. Do not keep any object filled with liquid, such as a vase, on top of this set. Do not insert or remove the AC mains plug with wet hands.

Power Source: The voltage & frequency of the AC mains supply, to which this set can be connected, is marked on the rear panel of the set. Do not connect this set to any power source other than those specified on the rear panel.

Power Cord Protection: Do not cut, kink, damage or modify the AC power cord supplied with this set. Keep the AC power cord away from heaters and harmful chemicals. Do not keep any heavy object on the power cord.

Operation on Generator: When operating this set on a generator, make sure the set is switched off till the generator voltage has stabilized.

Ventilation: This set should be situated so that its location or position does not interfere with its proper ventilation. Do not cover the ventilation holes / slots. Do not insert or drop anything into the ventilation holes / slots. Do not insert a finger or any object through the slots in the rear panel for the fan.

Stability: This set must be kept in a stable and flat horizontal position, and never in a tilted position. Do not place this set on an unstable stand, tripod, bracket or mount. Do not use attachments which are not supplied or explicitly recommended by the manufacturer.

Earthing: This set must be earthed properly before use. A wire from the Earth terminal on the rear panel must be connected to electrical earth.

Cleaning: Disconnect this equipment from the AC mains and external battery before cleaning. Clean with a damp cloth, but do not allow any liquid to enter the set. Do not clean with liquids or aerosols.

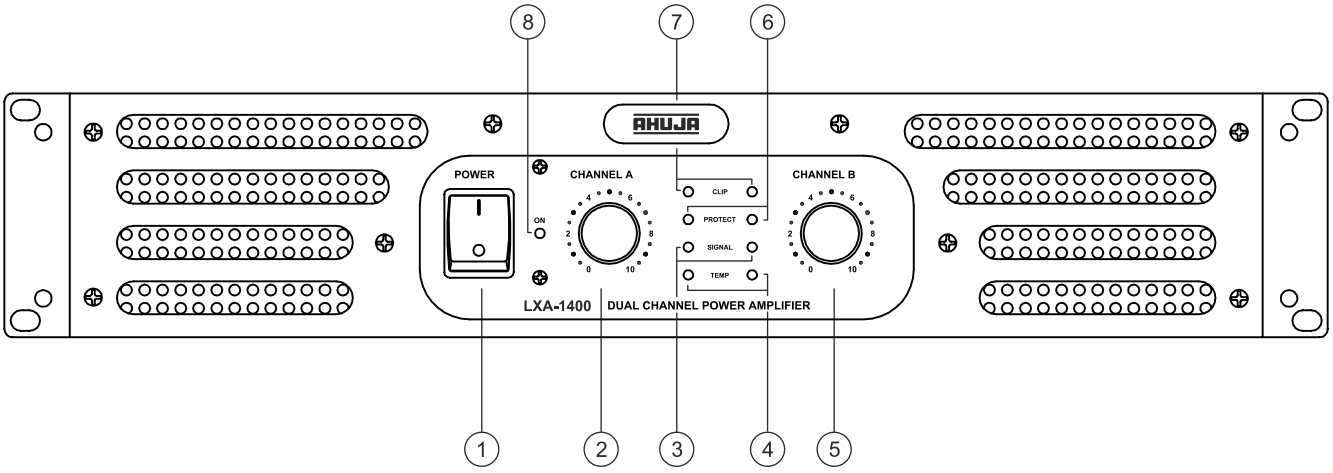
• Table of Contents

Contents **Page No.**

• Features/General Description of Product

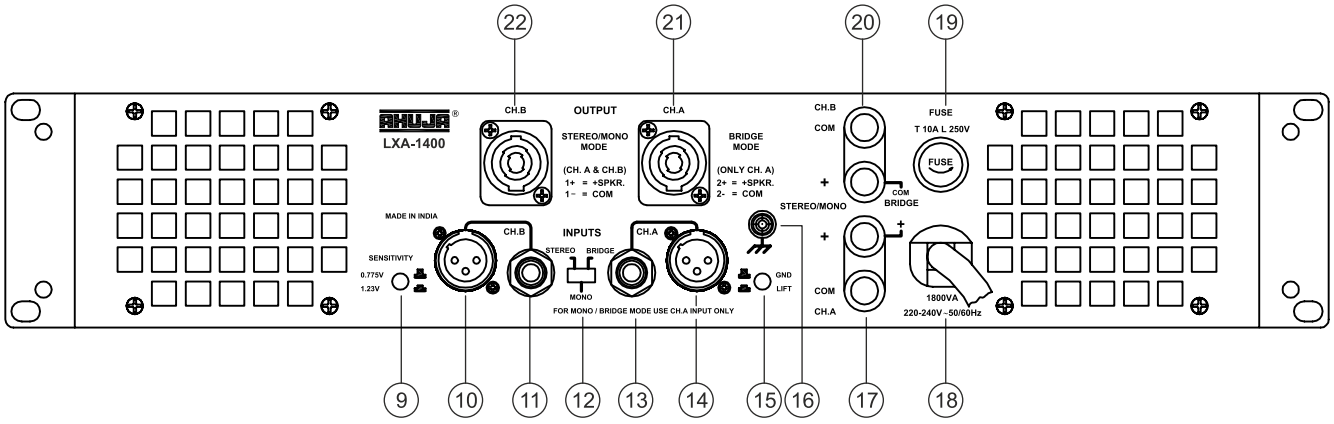
- Rugged & 19" rack mountable chassis.
- High current torroidal transformer which provides excellent regulation and minimises hum & noise.
- Low THD and high damping factor for excellent sound quality.
- Extensive protection circuits for Temperature (transistors and transformer), Overload, DC, RFI and Output short circuit.
- Indicator LEDs for Signal, Clip, Temperature (output devices and transformer), and PROTECT which is due to fault and overload conditions.
- Output termination on Dual Connectors (Speakon 4-way & Heavy duty Binding Post) for each channel.
- Limiter circuit protects the amplifier and speaker from being over driven because of high input signal level.
- Balanced / Unbalanced input signal through parallel XLR and 6.3mm (¼") stereo phone jack in both channels.
- Slide switch selection of Mono / Stereo / Bridge Mode provided at rear panel.
- Push switch on rear panel to choose between two alternate input sensitivities.
- Ground Lift switch provided on rear panel to eliminate unwanted ground loops, which can some times cause hum.

• Front Panel Controls & Features



1. **POWER Switch**
   Push the top part of the knob to switch the amplifier ON. Push the bottom part of the knob to switch the amplifier OFF.
2. **Volume Control for Channel A**
   When used in Stereo & Mono mode, it adjusts the volume level of channel A. While in Bridge mode, it adjusts the volume level of both the channels A & B.
3. **Signal Indicator LEDs for Channel A & B**
   Indicates the presence of signal at the input stage.
4. **Temperature Indicator LEDs Channel A & B**
   Glowing of this LED indicates excessive temperature of the transistors of respective Channels A or B. The built-in circuit mutes the input signal. And amplifier will go into protect mode. Temp LED will glow till the amplifier cools down to normal temperature.
5. **Volume Control for Channel B**
   To be used in Stereo and Mono mode for adjusting the volume level of channel B.
6. **Protect Indicator LEDs Channel A & B**
   One separate orange LED provided for each of the two channels A & B. These LEDs glow when the output is shorted, or there is DC offset, the input is over driven or output is overloaded.
7. **CLIP Level LEDs**
   One separate red LED provided for each of the two channels A & B. Continuous glow of LEDs indicates that there is excessive signal being fed to the input of the amplifier resulting in clipped and distorted output levels.
8. **Power LED**
   This LED glows when the amplifier is switched ON.

• Rear Panel Controls & Features



9. **Input Sensitivity Selector Switch**
   This switch is to select sensitivity to either 775mV or 1.23 Volts.

10. **XLR INPUT for Channel B**
    This XLR connector takes the balanced / unbalanced signals for driving channel B. Inputs can be wired as per fig. 1 & 2 *(Input Connections for Balanced and Unbalanced Mode).*

11. **6.3 mm (¼") Jack Input for Channel B**
    The stereo jack connector accepts the balanced / unbalanced signals to drive the channel B. Inputs can be wired as per fig. 1 & 2 *(Input Connections for Balanced and Unbalanced Mode).*

12. **STEREO / MONO / BRIDGE Selector Switch**
    This slide switch is used to operate the unit in stereo, mono or bridge mode.

13. **6.3 mm (¼") Jack Input for Channel A**
    The stereo jack connector accepts the balanced / unbalanced signals to drive the channel A when used in stereo mode and channel A & B when used in mono and bridge mode operation. Inputs can be wired as per fig. 1 & 2 *(Input Connections for Balanced and Unbalanced Mode).*

14. **XLR INPUT for Channel A**
    This XLR connector takes the balanced / unbalanced signals to drive the channel A in stereo mode and channel A & B if used in mono and bridge mode operations. Inputs can be wired as per fig. 1 & 2 *(Input Connections for Balanced and Unbalanced Mode).*

15. **Ground Lift Switch**
    Normal position is grounded. Some times in large installations to remove double looping of ground it is required to lift the DC ground. Pressed switch indicate the ground lift position. Use of this switch may be required in some situation to eliminate hum.

16. **Earth Terminal**
    To earth the chassis.

17. **Output Terminal for Channel A**
    This Binding Post terminal is in parallel to Pin 1+ & 1- of speakon connector for channel A and may be used when speakon plugs are not available.

    Note: For BRIDGE mode applications, it is recommended to **use speakon connectors only**. If however binding terminal post are to be used for BRIDGE mode then connect the positive (+) of the speaker to the positive (+) of Red Binding Post for channel A and the negative (-) of the speaker to the positive (+) Red binding post for channel B.

18. **3 Core AC Mains Cable with Plug**

19. **AC Mains Fuse (Rating 10AMP T 10A L 250V)**
    This protects the amplifier from any excessive current flow.

20. **Output Terminal for Channel B**
    This Binding Post terminal is parallel to Pin 1+ & 1- of speakon connector for channel B.

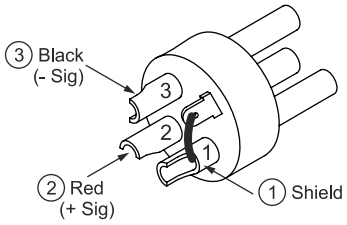
21. **Speakon Connector for Channel A Output**
    In STEREO / MONO mode amplified signal is available at Pin 1+ & 1- of speakon connector. The output speakon connectors should be wired as per fig. 3 *(Output Connectors for Stereo / Mono Mode)*. In BRIDGE mode the output is taken from Pin 2+ and 2- of speakon connector. Output speakon connectors to be wired as per fig. 4 *(Output Connections for Bridge Mode).*

22. **Speakon Connector for Channel B Output**
    Amplified signal is available at Pin 1+ & 1- of speakon connector. The output speakon connectors should be wired as per fig. 3 *(Output Connectors for Stereo / Mono Mode)*.

• Input - Output Connections

Fig. 1 Input Connections - Balanced Mode

3 Pin Male XLR



6.3 mm (¼") Stereo Phone Plug

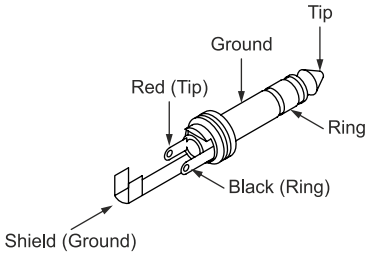
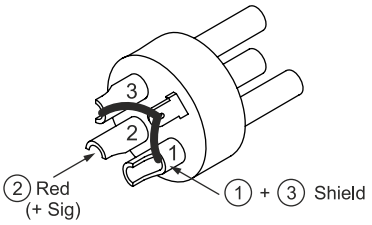


Fig. 2 Input Connections - Unbalanced Mode

3 Pin Male XLR



6.3 mm (¼") Mono Phone Plug

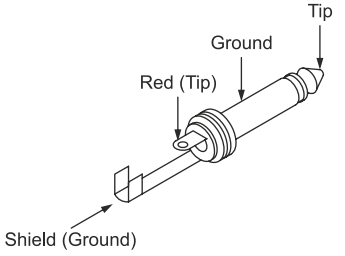
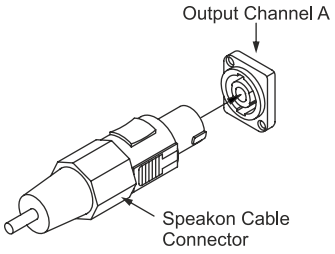
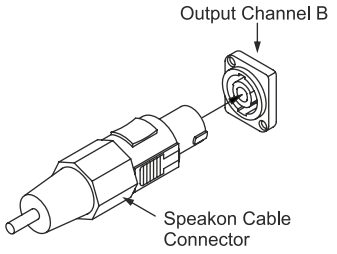


Fig. 3 Output Connections - Stereo / Mono Mode





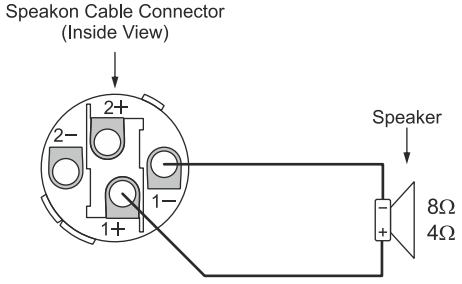
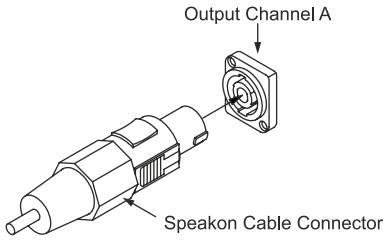
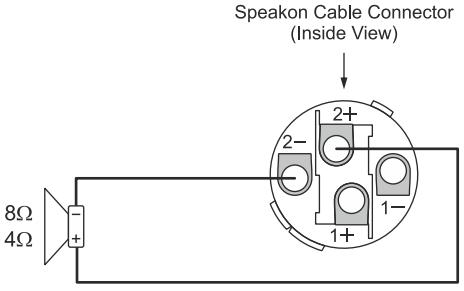
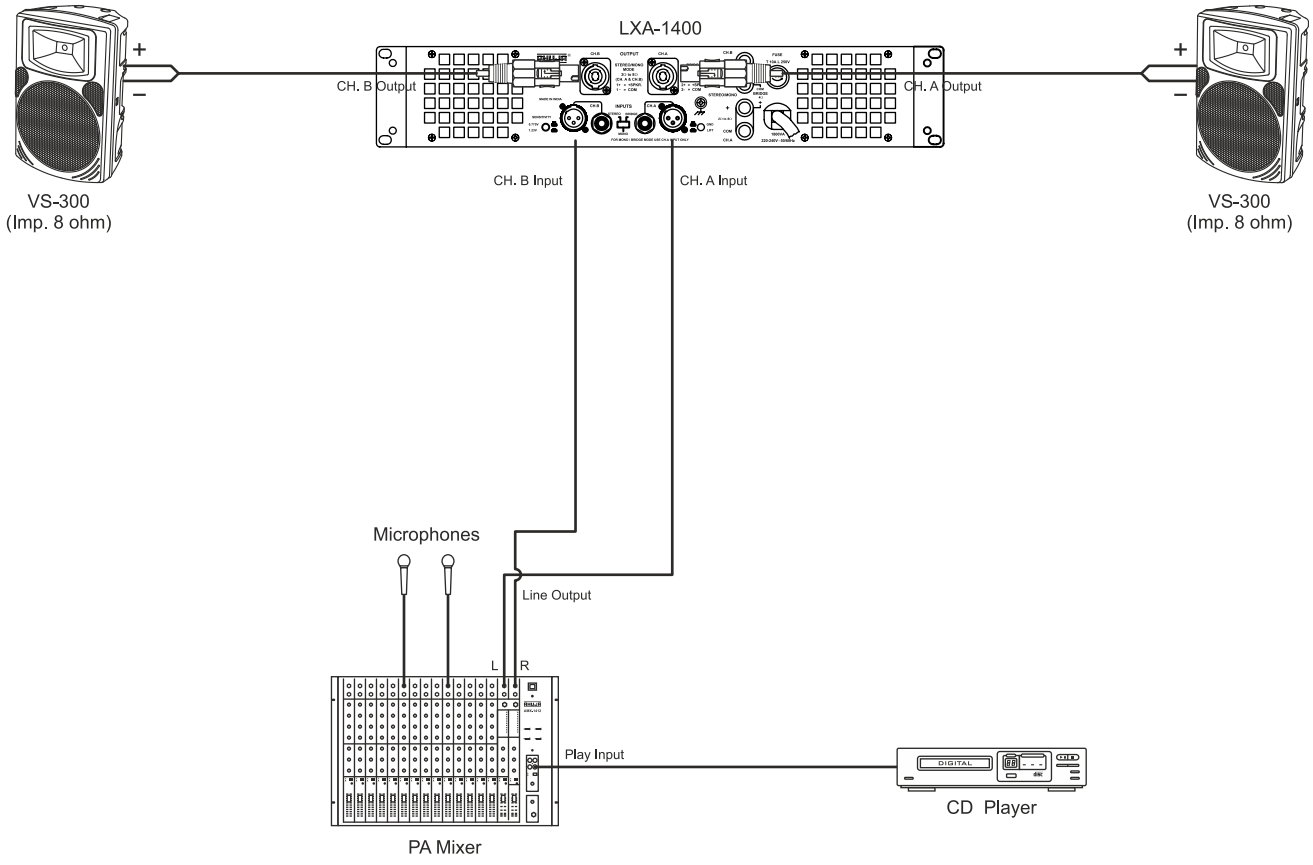


Fig. 4 Output Connections - Bridge Mode





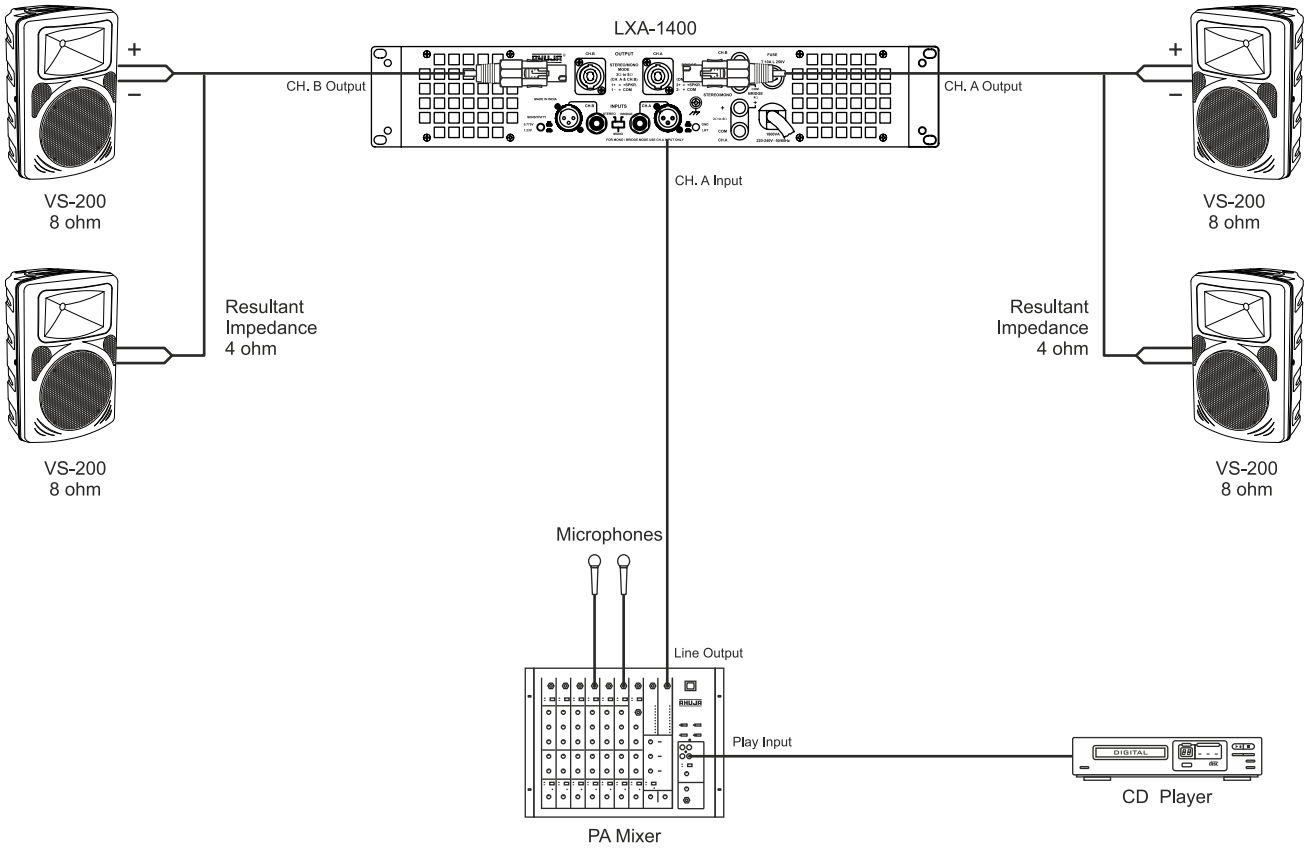
Stereo Mode Configuration



In STEREO mode, both channels A & B are fully independent of each other. The balanced / unbalanced inputs can be connected either to a stereo signal source or two independent mono signal sources. Each channel can separately drive loudspeaker loads of 8 ohm or 4 ohm.

- Connect the Left and Right outputs of a mixer to channel A and B inputs of the amplifier respectively. Inputs can be wired as per fig. 1 & 2 *(Input Connections for Balanced and Unbalanced Mode)*.
- Connect a speaker system VS-300 (4 ohm) on the Binding Post terminal of each channel. It is recommended to use the speakon connectors and wire these as per fig. 3 *(Output Connections for Stereo / Mono Mode)*.
- To select STEREO mode, keep the slide switch, provided at rear panel, in STEREO position.
- Adjust the individual volume controls of each channel on the front panel to obtain the desired output level.
- The signal indicator LEDs glow to indicate the presence of signal at the output terminals.

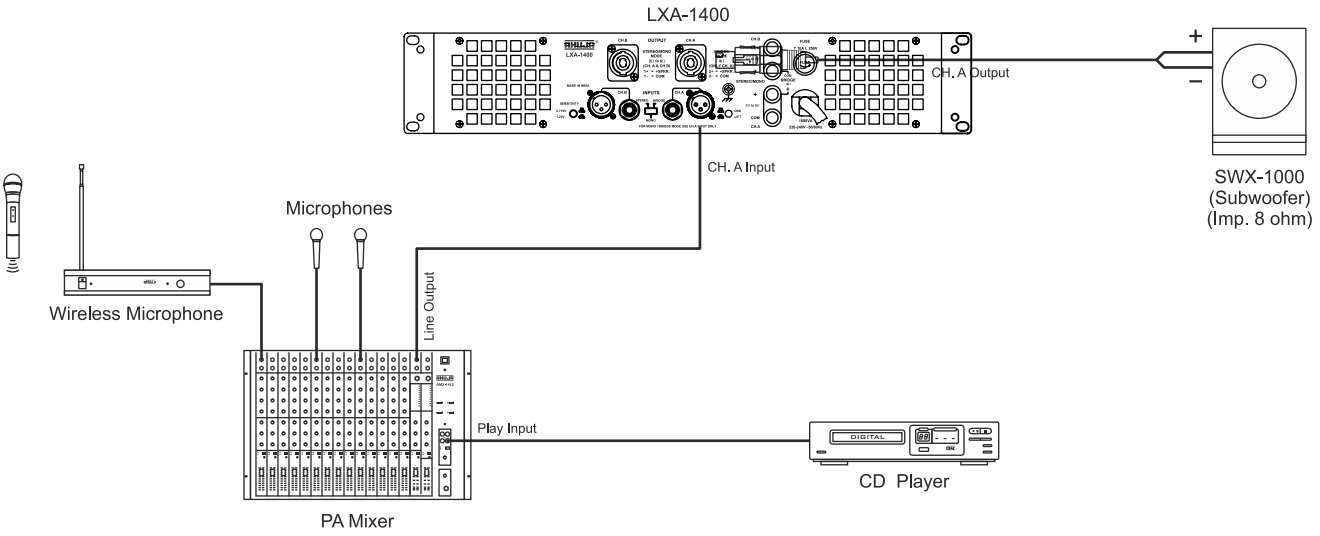
Mono Mode Configuration



When operating in MONO mode, the signal source should be connected to the balanced / unbalanced input of **channel A only**. Both channels provide similar output to their respective loudspeakers. Each channel can separately drive loudspeaker loads of 8 ohm or 4 ohm.

- Connect the line output of a mixer to channel A input of the amplifier. Input can be wired as per fig. 1 & 2 *(Input Connections for Balanced and Unbalanced Mode)*.
- Connect a speaker system 2xVS-200 on the output terminal of each channel. It is recommended to use the speakon connectors and wire these as per fig. 3 *(Output Connections for Stereo / Mono Mode)*. (Resultant impedance of 2xVS-200 is 4 Ohm).
- To select MONO mode, keep the slide switch, provided at rear panel, in MONO.
- The desired output levels of channels A & B are adjustable by respective volume controls of channel A & B.
- The signal indicator LEDs glow to indicate the presence of signal at the output terminals.

Bridge Mode Configuration



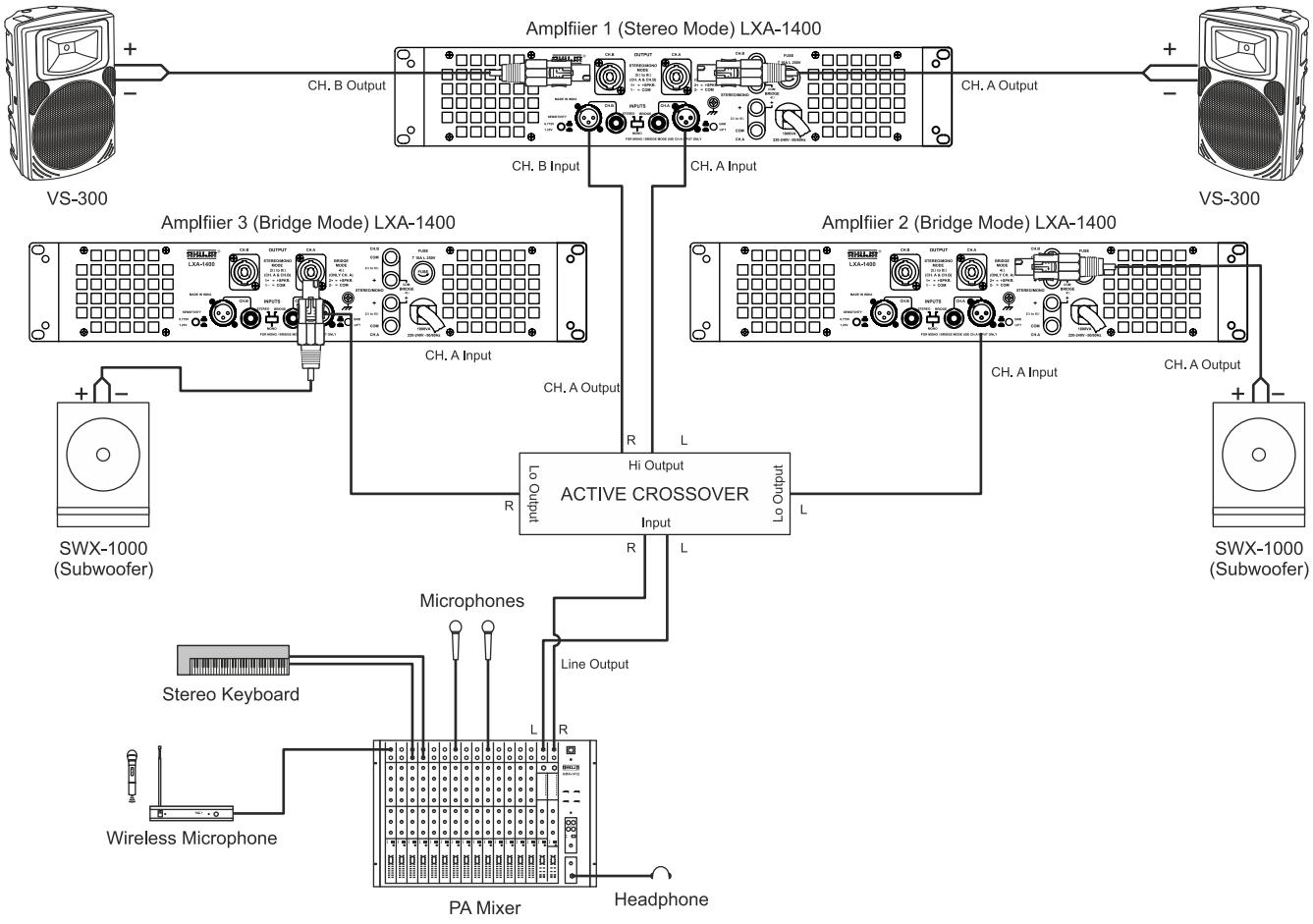
For BRIDGE mode operation, the signal source should be connected to the balanced / unbalanced input of **channel A only**. This mode provides the combined power output of both channels for connecting a single loudspeaker load. The combined loudspeaker load **should not go below 8 ohm.**

- Connect the line output of a mixer to channel A input of the amplifier. Input can be wired as per fig. 1 & 2 *(Input Connections for Balanced and Unbalanced Mode)*.
- Connect a speaker system SWX-1000 (Imp 8ohm) on the speakon output of channel A only. It is recommended to use the speakon connectors and wire these as per fig. 4 *(Output Connections for Bridge Mode).*
- If however binding post are to be used for bridge mode then connect the positive (+) of the loudspeaker to the positive (+) of Red Binding Post for channel A and the negative (-) of the loudspeaker to the positive (+) of Red Binding Post for channel B.
- To select bridge mode, keep the slide switch, provided at rear, in BRIDGE position.
- The desired output levels of both the channels are adjustable by volume control of channel A only.
- The signal indicator LEDs glow to indicate the presence of signal at the input terminals.

Tips for Safe Operation

- The amplifier must be connected to an AC earthed mains outlet that can deliver the maximum power required. The use of extension cables or adaptors should be avoided as this can jeopardize correct current delivery to the amplifier.
- All connections must only be carried out or changed with the amplifier switched OFF.
- Ensure proper impedance matching while in use for BRIDGE mode applications. For continuous safe operation, resultant impedance of the speakers **8 ohm is recommended.**
- Use of cable 40 / 36 or thicker is recommended to prevent power losses.
- The level of input signal should not exceed the specified input sensitivities. Excessive input signal levels result in over driving of input circuit which leads to saturated / distorted output at speaker terminals.
- Do not operate the amplifier with continuously blinking CLIP LED. The respective volume control of the channels must be adjusted so that the output level does not clip and distort.
- Do not obstruct the front or sides of the amplifier for necessary intake of air.

Stereo Mix Plus Subwoofers



- Connect the Left and Right outputs of the Audio mixing console to the respective inputs of the Active Crossover.
- Connect the Left and Right High frequency output of the active crossover to the respective input channels A & B of amplifier 1. Inputs can be wired as per fig. 1 & 2 *(Input Connections for Balanced and Unbalanced Mode)*.
- One number of full range loudspeaker system VS-300 can be connected to each of the output channels of amplifier 1. The output speakon connectors should be wired as per fig. 3 *(Output Connections for Stereo / Mono Mode)*.
- Amplifier 1 will be used in stereo mode. Keep the slide switch of amplifier 1 in stereo position.
- Feed the Left Low frequency output signal of the crossover to the channel A input of amplifier 2. Similarly feed the Right Low frequency output signal of the crossover to the channel A input of amplifier 3. Inputs can be wired as per fig. 1 & 2 *(Input Connections for Balanced and Unbalanced Mode)*.
- One no. each of high powered subwoofer system SWX-1000 can be connected to the channel A outputs of amplifiers 2 and 3. Output speakon connectors to be wired as per fig. 4 *(Output Connections for Bridge Mode)*.
- The speakon is the preferred choice for connections, but if the output connections are to be made on terminal strips for bridge mode applications, then (+) of the speaker should be wired on (+) Red terminal of channel A output and (-) of the speaker should be wired on (+) terminal Red of the channel B output.
- Amplifiers 2 and 3 will be used in bridge mode. Keep the slide switch of amplifiers 2 and 3 to BRIDGE position to activate bridge mode.
- Finally adjust the volume control of channel A & B in amplifier 1 to control the level of their respective VS-300.
- Also, adjust the volume control of channel A in amplifiers 2 and 3 to control the levels of their respective SWX-1000s.

NOTE: Do not allow these amp's CLIP LED to glow continuously reduce the input signal level if this happens.

• Protections & Installations

Thermal Protections

Output Devices

Due to excessive heating of output devices, the thermal protection circuits bring the audio signal to mute status. Onset of thermal protection circuit is indicated by glowing of TEMP LEDs (yellow) in each channel. To restore normal operating conditions, it is recommended to switch off the amplifier and rectify the cause of overheating.

Transformer

Due to excessive heating of the transformer also, the thermal protection circuits bring the audio signal to mute status. Onset of thermal protection circuit is indicated by glowing of (yellow). To restore normal operating conditions, it is recommended to switch off the amplifier and rectify the cause of overheating.

DC, RFI Protection

Inbuilt circuits are provided to protect the loudspeakers from any offset DC voltages. Also sufficient suppression filters at primary and secondary power supplies have been inbuilt, to overcome RF interferences.

Overload / Short Circuit Protection

Protection circuit is provided in both channels for the safety of output devices in case of overloading or mismatching of impedances at outputs. This circuit brings the input signals to mute condition till reset buttons of the respective channels are pressed.

Fuses

a. 1 × 10A fuse for AC mains.
b. 4 × 10A fuses for +ve and -ve DC supply.
c. 4 × 2A fuses for ±1 A regulated power supplies.

19" Rack Installation

- The amplifier is designed for use in a standard 19"rack with height of 2U units.
- In order to provide sufficient support base to the heavy amplifier, it is essential to use the 19" rack system with side support channels.
- The installed amplifier, therefore, is well supported by the side support channels as well as rigidly fixed on to the rack through the two rack mount side brackets duly fitted with 'U' type handles, as shown in the figure below:

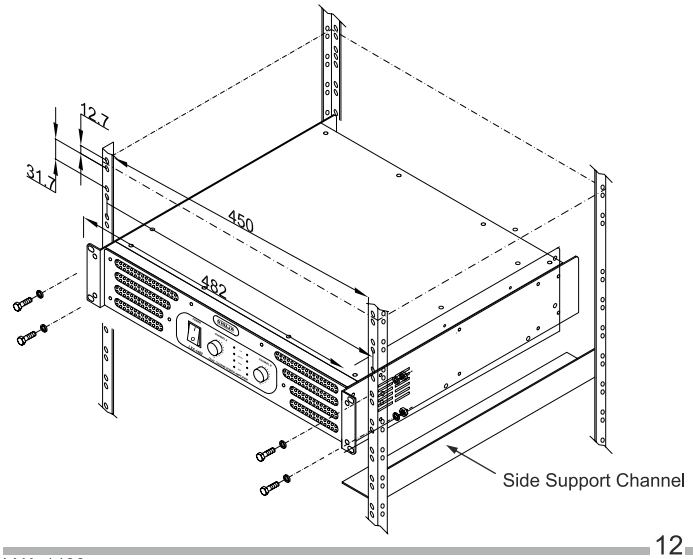
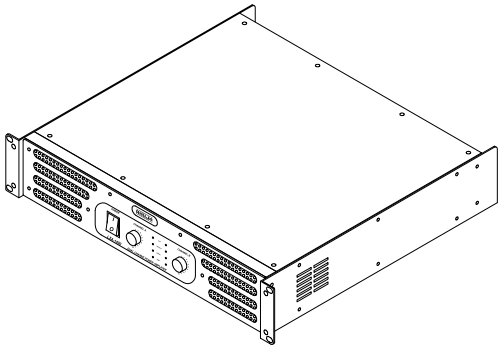


Table Top Usage

- The 'U' handles are helpful in easy portability of the amplifier for table top usage.



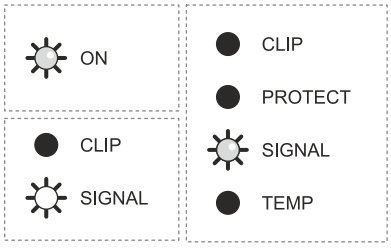
• Trouble Shooting

Key to LED symbols:

GLOWING BLINKING OFF

Condition: Normal operation

Indication:

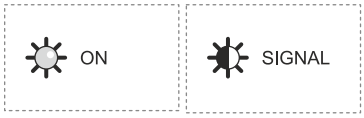


Possible Reason:

- The amplifier is in normal operation.

Condition: Low output

Indication:

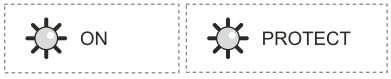


Possible Reason:

- Check if the level of the input signal is too low.
- Check the signal source is operating and the input cable is intact.
- The channel volume control setting is not at desired level.

Condition: No Sound

Indication:

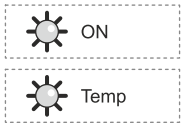


Possible Reason:

- The amplifier goes in mute mode due to excessive input signal, speaker impedance mismatch or output short circuit.
- Check the speaker impedance and speaker wiring for stray strands or breaks in the insulation.
- To restore normal operation, switch OFF the amplifier and switch ON after few sec.

Condition: No Sound

Indication:

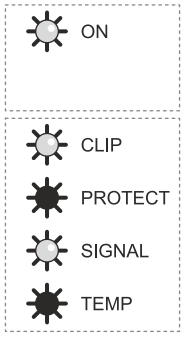


Possible Reason:

- The amplifier goes in mute mode due to output short circuit, overloading or poor ventilation resulting into the rise in temperature either of output devices or power transformer as indicated by respective LEDs to unsafe region.
- Switch off the amplifier to cool down.
- Check if the fan is working, proper ventilation is provided and output connections are as recommended.
- To restore normal operation, turn down the volume control, switch OFF the set than switch ON after few sec., increase the volume control for desired output.

Condition: Distorted Sound

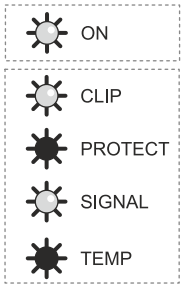
Indication:

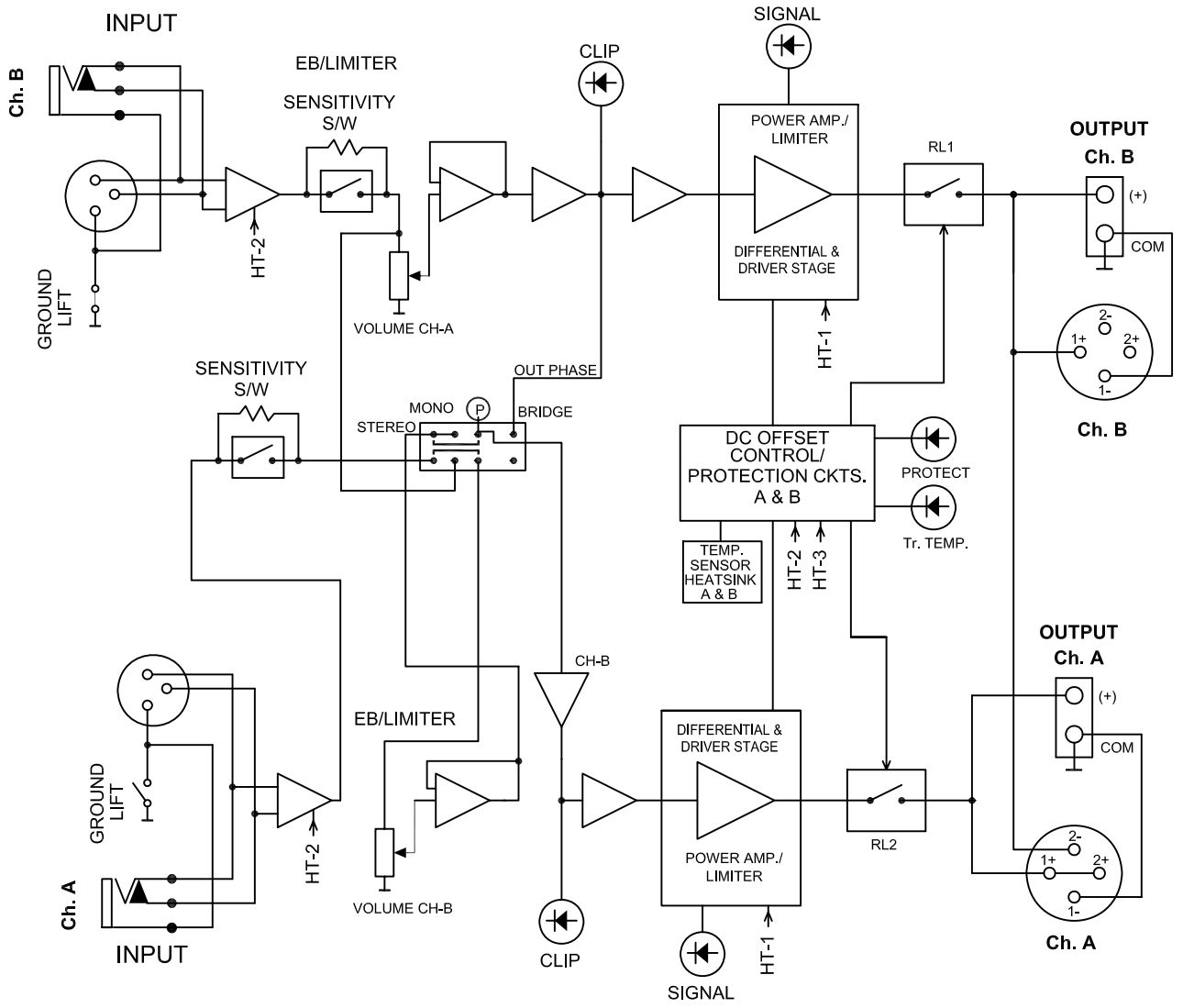


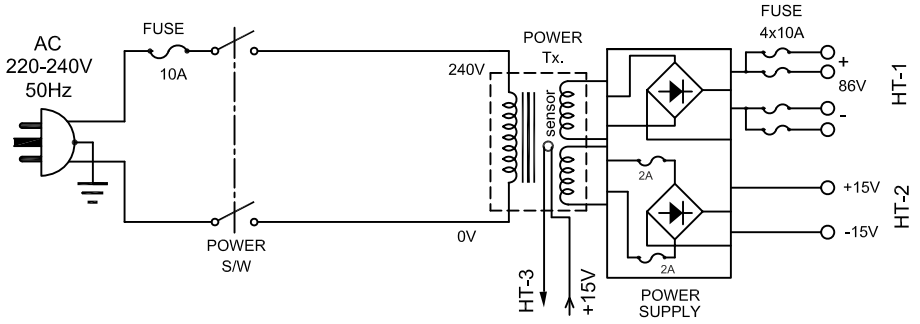
Possible Reason:

- The input signal level may be too high. So turn down the amplifier level controls.
- Check the level of signal from input source. If it is high then reduce the input signal level.
- The amplifier should never be operated at a level which causes the clip LEDs to illuminate constantly.
- Similar conditions are possible in MONO and BRIDGE mode also.

• Trouble Shooting...

Condition: Either low or no sound	
Indication:  	**Possible Reason:** ■ This could be due to wrong speakon connections or faulty speaker. ■ Check the output speakon connections as per fig. 4 *on page no. 7 (Output Connections for Bridge Mode)*.
Condition: Hum	
	Possible Reason: ■ Move cabling and signal sources to identify the problem areas in the system. Cables with faulty shielding are a frequent entry point for hum. ■ In the situations where the hum is present in the installations due to close looping of ground, use ground lift to remove ground loop.
Condition: Hiss	
	Possible Reason: ■ Unplug the amplifier input to confirm whether the hiss is coming from the source or a device upstream. The erratic or popping noises indicate an electronic fault in the offending unit.


INPUT
Ch. B
EB/LIMITER
SENSITIVITY S/W
CLIP
SIGNAL
POWER AMP./ LIMITER
DIFFERENTIAL & DRIVER STAGE
RL1
OUTPUT Ch. B
(+)
COM
2-
1+
2+
1-
Ch. B
GROUND LIFT
HT-2
VOLUME CH-A
HT-1
SENSITIVITY S/W
OUT PHASE
MONO
STEREO
P
BRIDGE
DC OFFSET CONTROL/ PROTECTION CKTS. A & B
PROTECT
Tr. TEMP.
TEMP. SENSOR HEATSINK A & B
HT-2
HT-3
OUTPUT Ch. A
CH-B
EB/LIMITER
DIFFERENTIAL & DRIVER STAGE
POWER AMP./ LIMITER
RL2
GROUND LIFT
HT-2
VOLUME CH-B
Ch. A
INPUT
CLIP
SIGNAL
HT-1


AC 220-240V 50Hz
FUSE 10A
POWER S/W
POWER Tx.
240V
0V
sensor
FUSE 4x10A
+
86V
-
HT-1
2A
+15V
-15V
HT-2
2A
HT-3
+15V
POWER SUPPLY

• Specifications

Model		LXA-1400
Continuous Rated Power		
Stereo/Mono	8Ω	2 × 250W RMS
	4Ω	2 × 475W RMS
	2Ω	2 × 675W RMS
Bridged Output	8Ω	950W RMS
	4Ω	1350W RMS
THD + N		< 1.0%
Frequency Response (-1dB)		20-20,000Hz
Power Bandwidth (0.5% THD)		20-20,000Hz
Input Sensitivity		0dBm (775mV)/1.23V (selectable)
Input Impedance		10k Unbalanced, 20k Balanced
S / N Ratio		> 95dB
Channel Separation		> 65dB at 1kHz
Damping Factor (8Ω)		> 500
Slew Rate		35V/µs
Protections		Temperature, DC, RFI, Short Circuit, Overload, Built-in Limiter AC: Fuse 10Amp. (T 10A L); ± DC: Fuse 2 x 10Amp. (T 10A L) for each zone ± DC: Fuse 2 x 2Amp. (for fan supply)
Input Connectors		2 × XLR, Stereo Phone Jack 6.3mm
Output Connectors		Speakon 4-Way, Heavy duty Binding Post for each channel
Cooling		Variable Speed DC Fan with Temperature Sensing
Front Panel Controls		2 × 21 step level Attenuators
Indicators		Power ON Signal, Clip, Temperatures, Protect (Ch. A & B)
Power Consumption (Rated)		1800VA @ 220-240V 50/60Hz
Dimensions		W482 × H113 × D460mm
Weight		14.70kg Approx.

• Design and Specifications are subject to change without notice owing to continuous product upgradation.
• Technical specifications are subject to production tolerances.

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