

AHUJA®

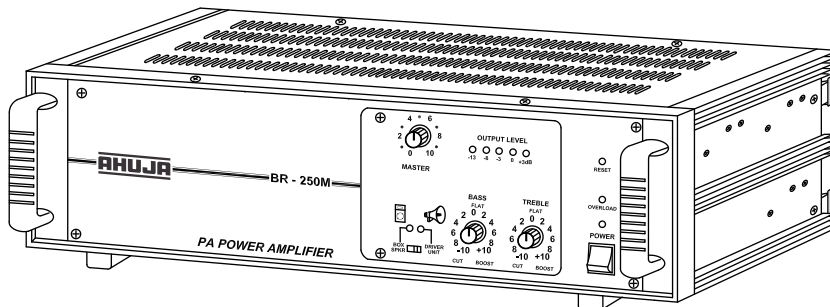
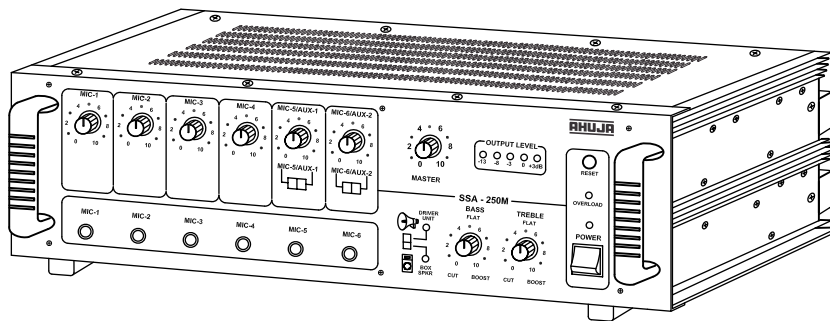
PA AMPLIFIERS

250W RMS / 300W Max.

OPERATION MANUAL

SSA-250[®]M

BR-250M



- ◆ Thank you for purchasing the AHUJA PA 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 PA 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, and the voltage of the external battery, (if applicable) 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.

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.

Cover Strip: The cover strip of the 100V / 70V audio output terminal strip, and of any other high voltage output terminal strip, must be replaced after making connections. Failure to do so may result in exposure to hazardous voltages.

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.

Exposure to Heat: Do not touch the heatsinks while the set is working.

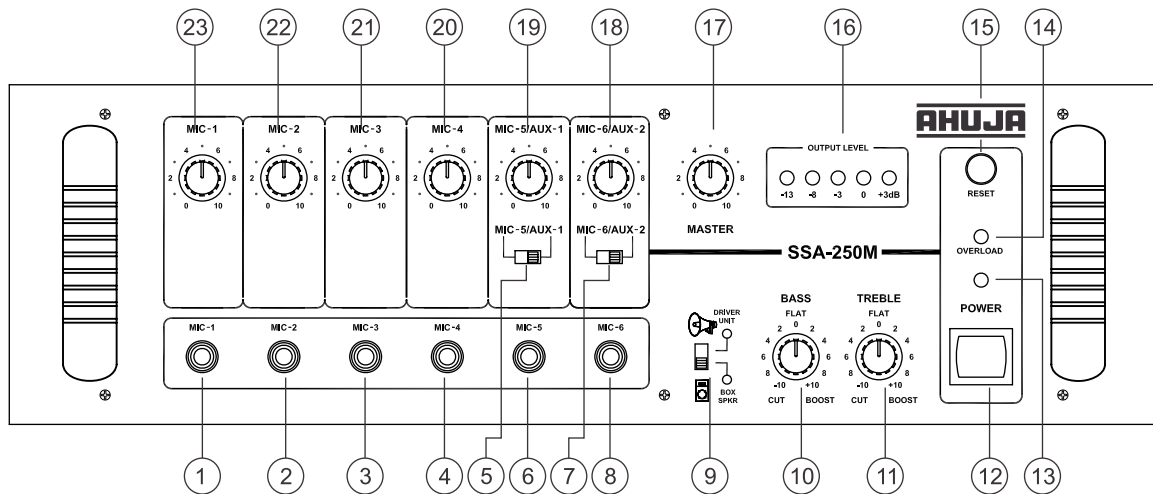
• **Table of Contents**

Contents	Page No.
• Features/General Description of Product	4
• Front Panel Controls & Features (SSA-250®M)	5
• Rear Panel Controls & Features (SSA-250®M)	6
• Front Panel Controls & Features (BR-250M)	7
• Rear Panel Controls & Features (BR-250M)	8
• Interconnections	9
• Speaker Connection Guidelines	12
• Typical Applications	15
• Specifications	20

• **Features/General Description of Product**

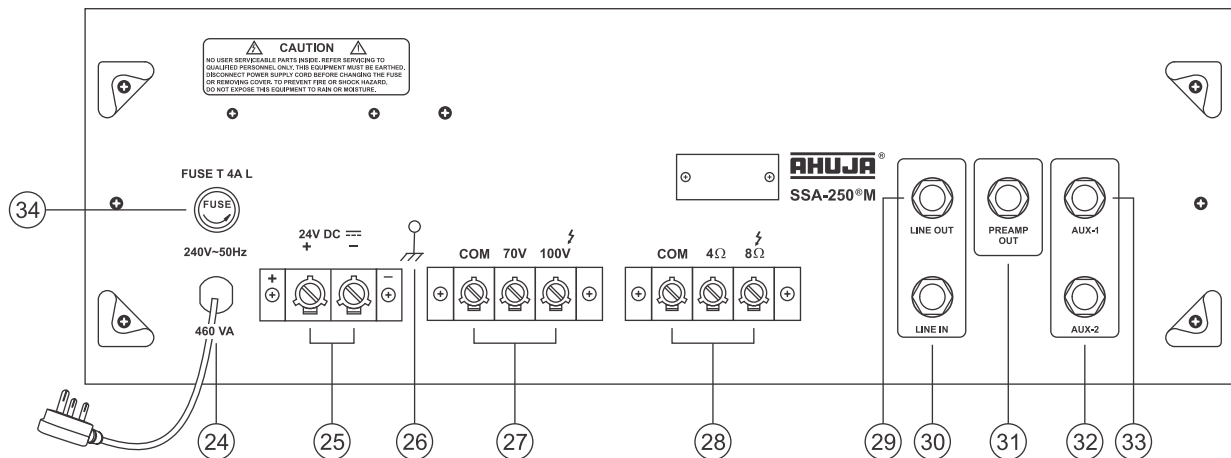
- Designed for use in a wide variety of PA applications.
- SSA-250®M is a 250 Watts Mixer Amplifier with Four Unbalanced Independent Mic inputs and Two Unbalanced Mic Inputs alternate to two Auxiliary inputs.
- SSA-250®M has a Preamp output for recording the program, a Line output for connecting to a Booster Amplifier and a Line input for connecting to an external PA Audio Mixer.
- BR-250M is a 250 Watts Booster Amplifier, which accepts input signals of both 200mV and 1V. It has an Input Sensitivity Selector Switch with the help of which it's input sensitivity can be altered to accept Preamp outputs or Line outputs from other sources.
- BR-250M has two Input jack sockets. One Input jack socket is used to feed an input signal into the amplifier while the second Input jack socket could be used to connect another Booster Amplifier to it for a higher power requirement.
- Box Speaker/ Driver Unit selector switch has been provided for protecting the Driver Unit's diaphragm from unwanted low frequencies. Since Box speakers can reproduce the full spectrum of audio frequencies but Driver Units cannot reproduce very low frequencies, the switch should be positioned to the Driver Unit side when Driver Units, Horns and Column speakers are connected.
- Circuit Protector Device has been provided which safeguards the amplifier against overload and short circuit.
- Provision for automatic changeover from AC to Battery Operation ensuring continuity of program has been provided.
- Protection provided against the reverse polarity of Battery connections.
- Ease of operation, combined with service accessibility has been optimized in the design.

• Front Panel Controls & Features (SSA-250®M)



1. **MIC-1 Input Jack Socket**
For accepting unbalanced signal from a low impedance microphone.
2. **MIC-2 Input Jack Socket**
3. **MIC-3 Input Jack Socket**
4. **MIC-4 Input Jack Socket**
5. **MIC-5/AUX-1 Selector Switch**
6. **MIC-5 Input Jack Socket**
7. **MIC-6/AUX-2 Selector Switch**
8. **MIC-6 Input Jack Socket**
9. **BOX SPEAKER / DRIVER UNIT Selector Switch**
10. **BASS Control**
For attenuating or boosting the signal level of low frequencies.
11. **TREBLE Control**
For attenuating or boosting the signal level of high frequencies.
12. **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.
13. **POWER LED**
This LED glows when the amplifier is switched ON.
14. **OVERLOAD LED**
This LED glows when the circuit protector trips.
15. **RESET button**
This button pops out when the circuit protector trips. Rectify the cause and press the RESET button for resetting normal operation of the amplifier.
16. **LED Array**
This indicates the output level of the amplifier.
17. **MASTER Volume Control**
For adjustment of the overall volume level from the amplifier.
18. **MIC-6/AUX-2 Volume Control**
19. **MIC-5/AUX-1 Volume Control**
20. **MIC-4 Volume Control**
21. **MIC-3 Volume Control**
22. **MIC-2 Volume Control**
23. **MIC-1 Volume Control**

• Rear Panel Controls & Features (SSA-250[®]M)



24. 3 CORE AC MAINS CABLE WITH PLUG

25. BATTERY Terminal Block

For connecting two 12V Car Batteries in series (which becomes 24V) as standby power source.

26. EARTH Terminal

27. SPEAKER Terminal Block (70V, 100V)

For connecting speakers with 100V line matching transformers.

28. SPEAKER Terminal Block (4 and 8 ohm)

For connecting low impedance speakers.

29. LINE Output Jack Socket

For connecting to a booster amplifier to obtain combined higher power output.

30. LINE Input Jack Socket

For connecting inputs such as a CD Player. Also for connecting an external Mixer to enhance the number of inputs.

31. PREAMPLIFIER Output Jack Sockets

For connecting to the AUX input of another amplifier or a cassette recorder for recording purpose.

32. AUX-2 Input Jack Socket

For accepting an unbalanced signal from an auxiliary source like a Tuner, Cassette Player, Echo or Audio Mixer etc.

33. AUX-1 Input Jack Socket

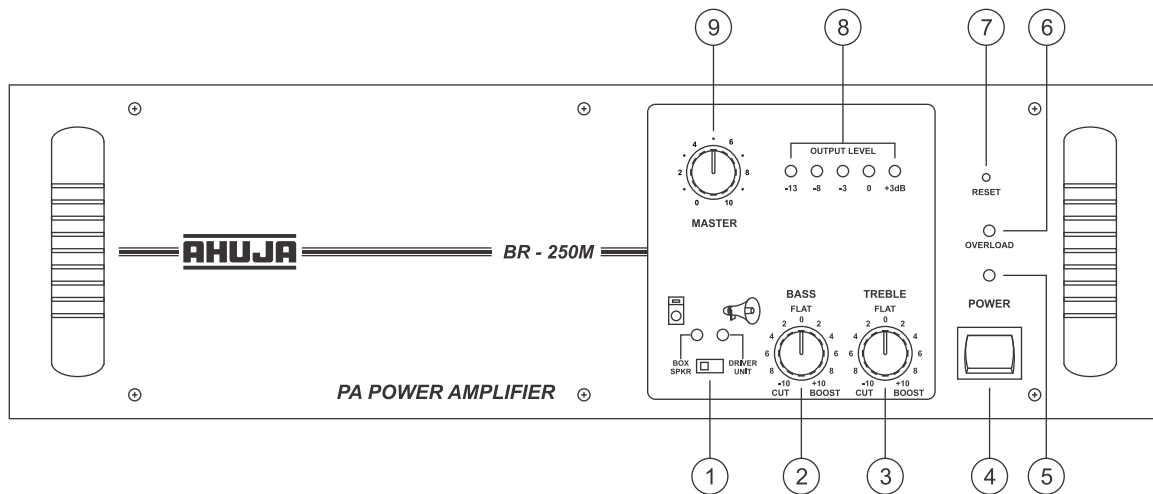
34. AC MAINS FUSE Rating 4 AMP 250V (T 4A L)

This protects the amplifier from any excessive current flow.

CAUTION

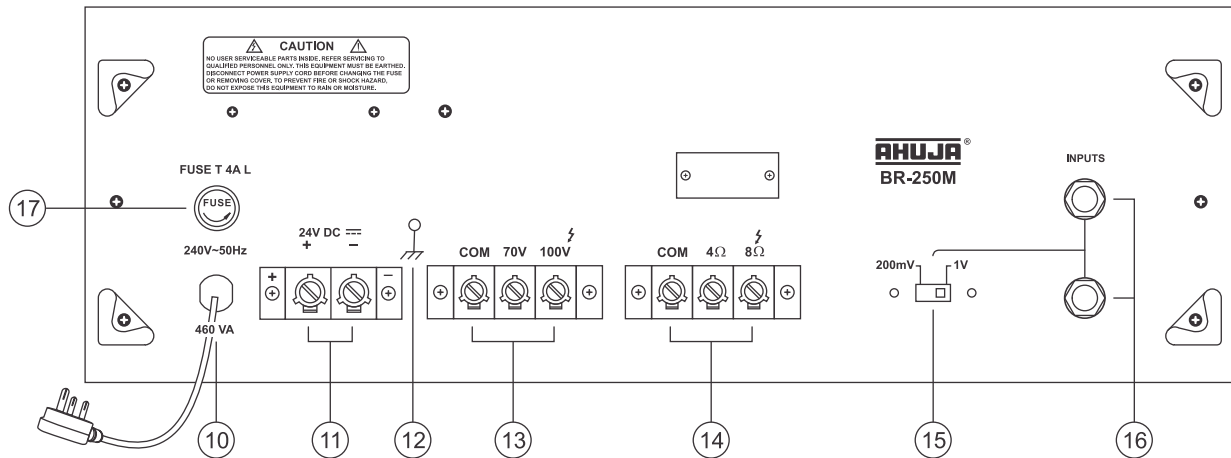
- The equipment must be earthed properly before operating it to avoid electric shock. A wire from the Earth Terminal must be connected to electrical earth for safe operation.

• Front Panel Controls & Features (BR-250M)



1. **BOX SPEAKER / DRIVER UNIT Selector Switch**
2. **BASS Control**
For attenuating or boosting the signal level of low frequencies.
3. **TREBLE Control**
For attenuating or boosting the signal level of high frequencies.
4. **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.
5. **POWER LED**
This LED glows when the amplifier is switched ON.
6. **OVERLOAD LED**
This LED glows when the circuit protector trips.
7. **RESET button**
This button pops out when the circuit protector trips. Rectify the cause and press the RESET button for resetting normal operation of the amplifier.
8. **LED Array**
This indicates the output level of the amplifier.
9. **MASTER Volume Control**
For adjustment of the overall volume level from the amplifier.

• Rear Panel Controls & Features (BR-250M)



10. 3 Core AC Mains Cable with plug

11. BATTERY Terminal Block

For connecting two 12V Car Batteries in series (which becomes 24V) as standby power source.

12. EARTH Terminal

13. SPEAKER Terminal Block (70V, 100V)

For connecting speakers with 100V line matching transformers.

14. SPEAKER Terminal Block (4 and 8 ohm)

For connecting low impedance speakers.

15. Input Sensitivity Selector Switch

16. Input Jack Sockets

Two parallel input jack sockets are provided & either can be connected for inputs/outputs from an amplifier or a mixer or connecting to a second booster amplifier and so on to next booster to get additional combined high power output for a large installation.

17. AC MAINS FUSE Rating 4 AMP 250V (T 4A L)

This protects the amplifier from any excessive current flow.

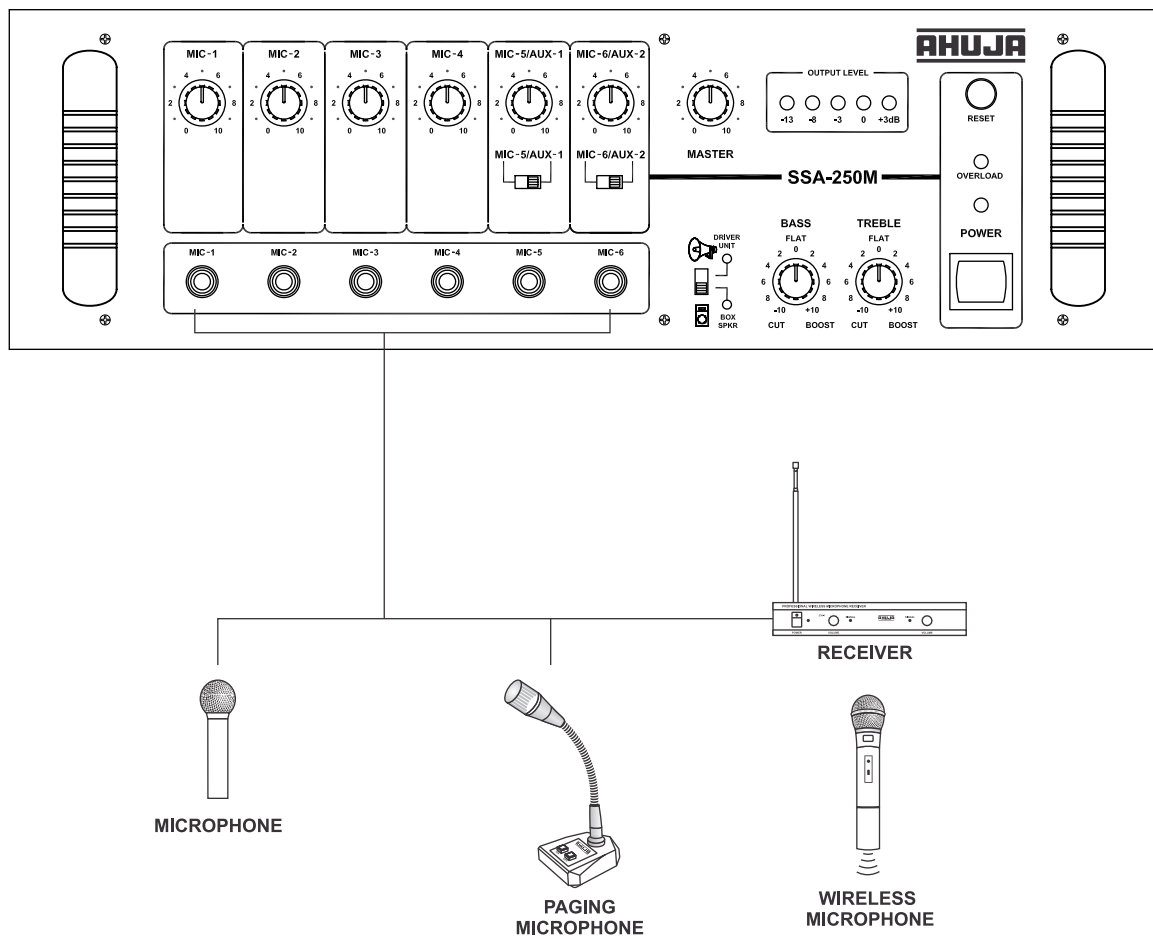
CAUTION

- The equipment must be earthed properly before operating it to avoid electric shock. A wire from the Earth Terminal must be connected to electrical earth for safe operation.

• Interconnections

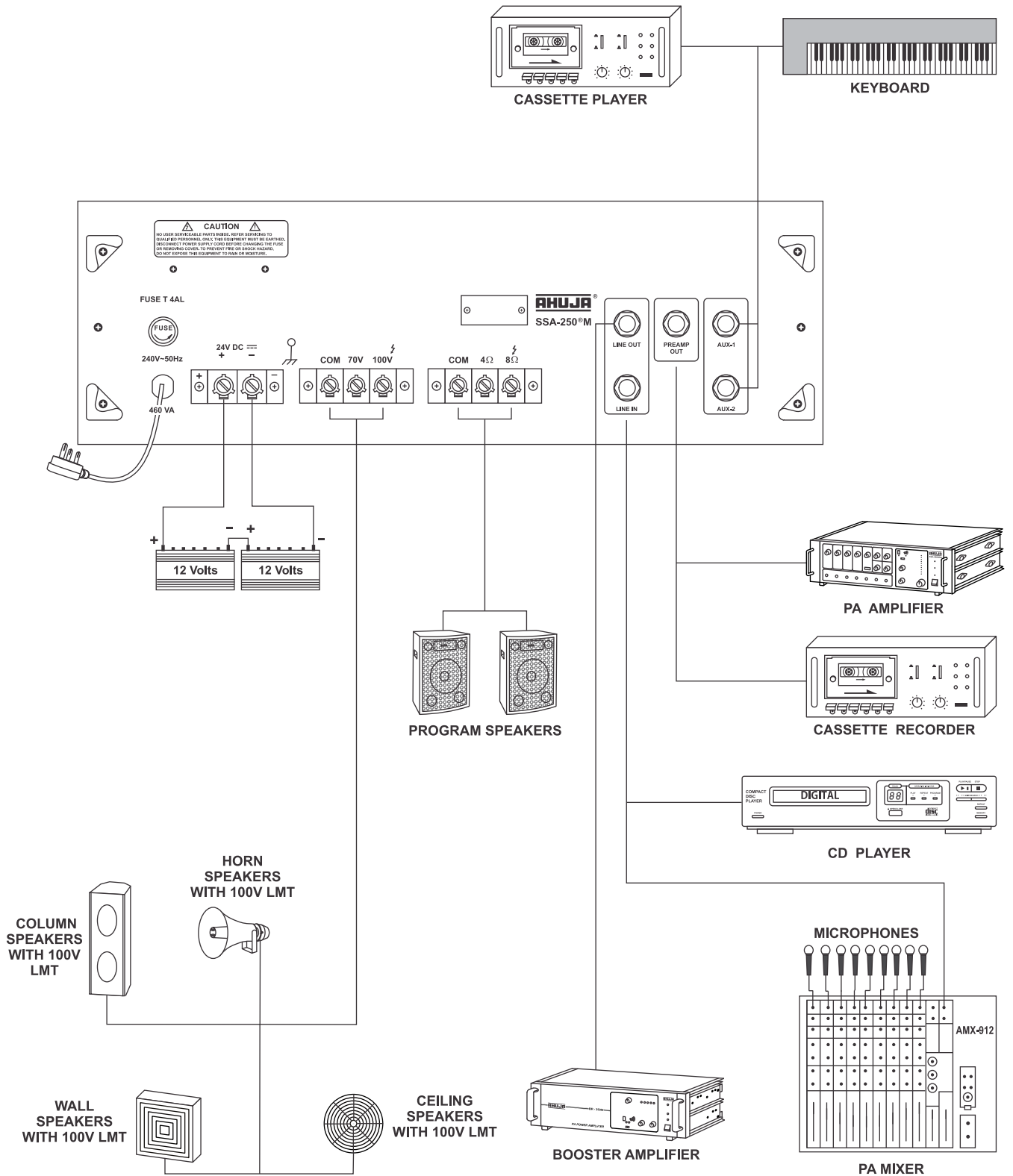
- The amplifier can be placed as a tabletop unit. The amplifier should be situated so that its location or position does not interfere with its proper ventilation.
- The amplifier must be powered through an AC earthed mains outlet.
- All connections must only be carried out or changed with the amplifier switched OFF.
- The amplifier may be operated from a DC supply of 24 Volts (two car batteries connected in series).
- To avoid loud switching noise, always switch ON the Power amplifier after all other units of the audio system have been switched ON. After operation switch it OFF first, then the other units.
- The connection diagrams that follow display the typical types of input sources (Mics, Keyboards, Cassette Players, Mixers, CD Players etc.) and speakers (Wall, Ceiling, Box, Horn, Column) which can be connected to the amplifier. For correct connection and operation check the specification of the connected equipment.

FRONT PANEL - SSA-250[®]M

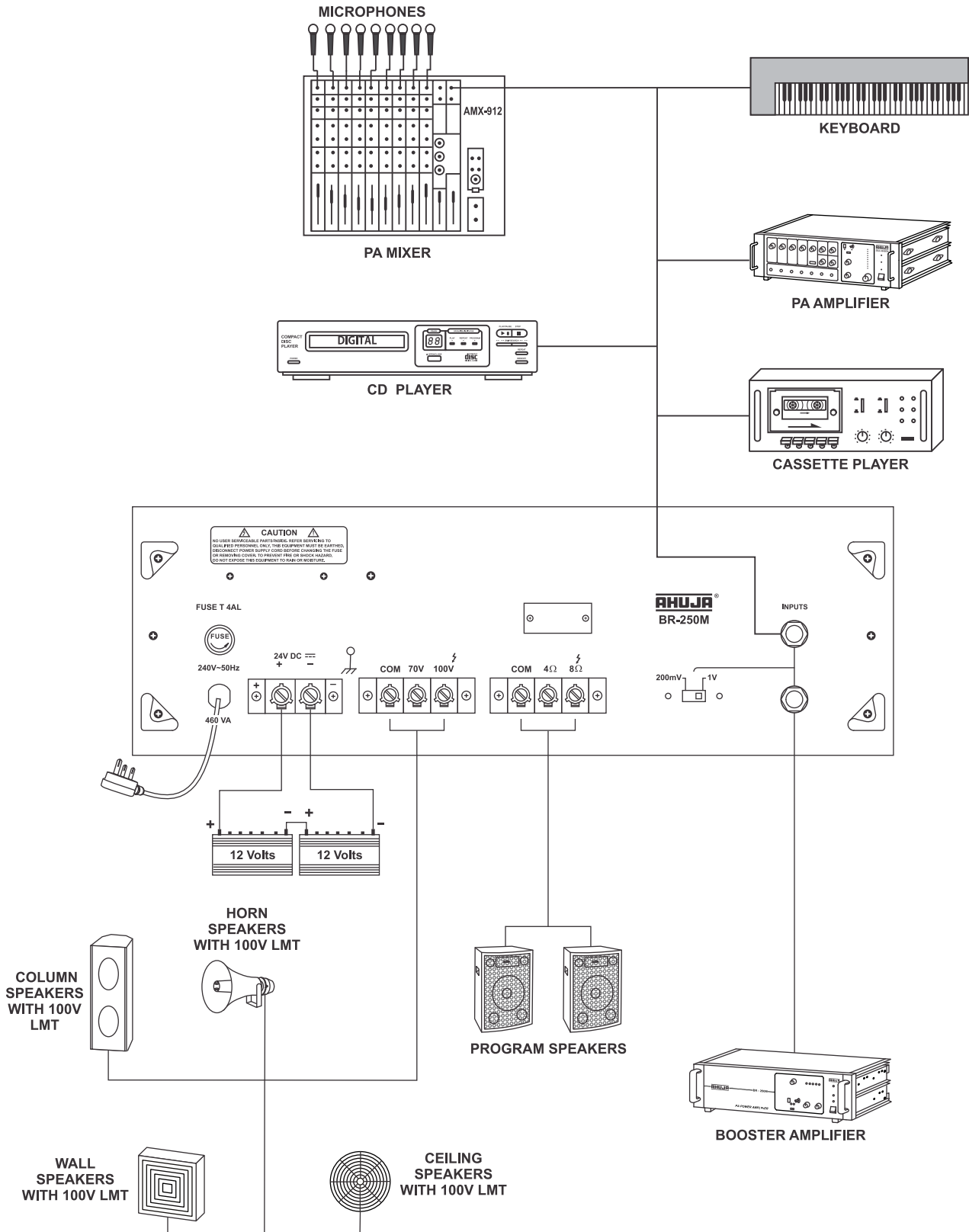


Interconnections....

REAR PANEL - SSA-250[®]M

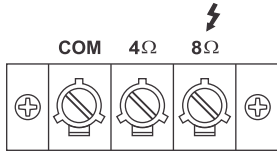


REAR PANEL - BR-250M



• Speaker Connection Guidelines

SSA-250[®]M & BR-250M are PA power amplifiers. It is very important that correct loudspeaker connections are made to avoid damage to the amplifiers or speakers.

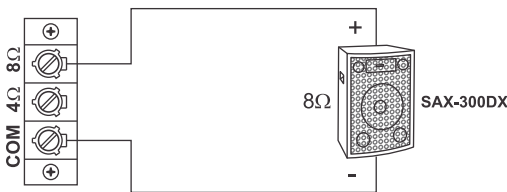


Low Impedance Speaker Connections

- Box type Speakers can be directly connected to Com-4Ω/8Ω Terminal Strip.
- The Box Speaker / Driver Unit switch must be kept at Box Speaker position. If by mistake the switch remains in Driver Unit position the quality of sound will not be rich and natural.
- No Driver Units / Horn Speakers / Column Speakers (with 100V LMT) should be connected to Com-4Ω / 8Ω.

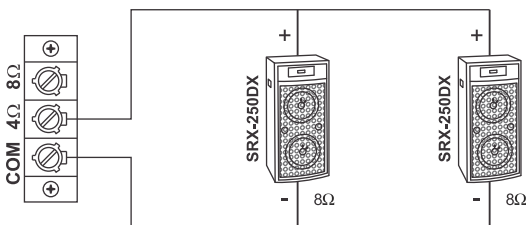
Connecting SAX-300DX Speaker

SAX-300DX speaker (300W) should be connected to COM & 8 ohm as shown in figure.



Connecting Two SRX-250DX Speakers

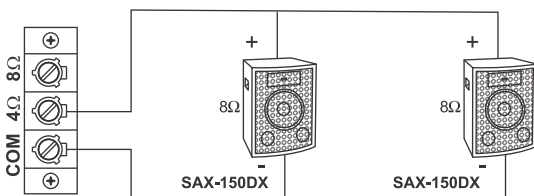
The Two SRX-250DX Speakers (each speaker can handle 200W of power) should be wired in a parallel as shown in figure. The resulting impedance will be 4 ohm. The speaker system should be connected to the 4 ohm tap of the amplifier.



Resultant Impedance = $(8 \text{ ohm}/2) = 4 \text{ ohm}$

Connecting Two SAX-150DX Speakers

The Two SAX-150DX Speakers (each speaker can handle 150W of power) should be wired in a parallel as shown in figure. The resulting impedance will be 4 ohm. The speaker system should be connected to the 4 ohm tap of the amplifier.



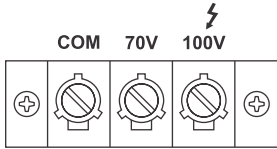
Resultant Impedance = $(8 \text{ ohm}/2) = 4 \text{ ohm}$

IMPORTANT

- When speakers are connected to COM-4Ω/8Ω Terminal Strip, NO speakers should be connected to the Terminal Strip marked COM-70V/100V (fitted with RED cover).
- Speakers should be connected only to either COM-4Ω or COM-8Ω terminals as illustrated above but never to more than one set of terminals.

Speaker Connection Guidelines....

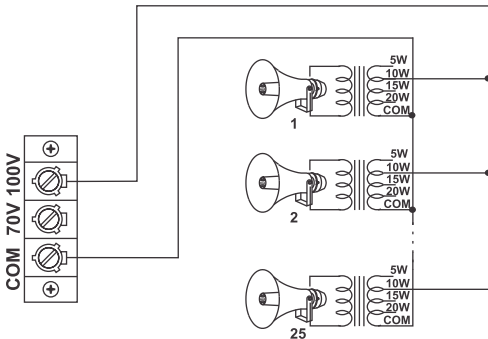
High Impedance Speakers or Speakers Using A 100V Line Matching Transformer



- Only Driver Units / Horn Speakers / Column Speakers with 100V Line Matching Transformers are to be connected to Com-70V / 100V Terminal Strip.
- The Box Speaker / Driver Unit switch must be kept at Driver Unit position.
- When any of the above speakers are connected to the Com-70V / 100V Terminal Strip then NO Box speakers should be connected to the COM-4Ω / 8Ω Terminal Strip.
- The power drawn from the amplifier should not exceed 250 Watts.

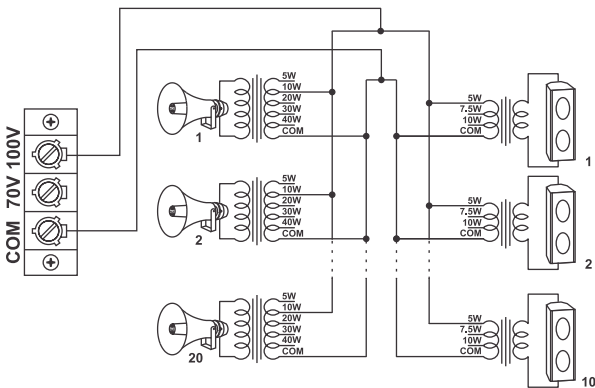
Connecting 25 Driver Units with 100V LMT

25 Driver Units with 100V Line Matching Transformer connected at 10 Watts tap can be operated. The power drawn from the amplifier should not exceed 250 Watts.



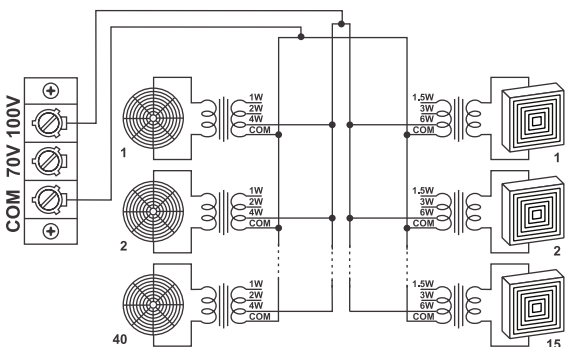
Connecting a Combination of Driver Units and Column Speakers with 100V LMT

20 Driver Units with 100V LMT at 10 Watts and 10 Column Speakers with 100V LMT at 5 Watts can be connected together. The power drawn from the amplifier should not exceed 250 Watts.



Connecting a combination of Wall and Ceiling Speakers with 100V LMT

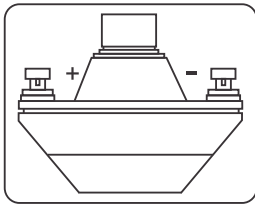
40 Ceiling Speakers with 100V LMT at 4 Watts and 15 Wall Speakers with 100V LMT at 6 Watts can be connected together. The power drawn from the amplifier should not exceed 250 Watts.



Speaker Connection Guidelines....

Use of 70 Volt Line

A loudspeaker / Driver Unit with its LMT adjusted to the 15W tap, when connected to COM and 100V terminals on the Amplifier's Terminal Strip will draw 15W from the Amplifier but when the same is connected to COM and 70V it will only draw half power or 7.5W. A good use of 70V line tap can be made in installations where large number of Speakers / Driver Units are to be installed for more even distribution of sound.



Correct Phasing of Loudspeakers

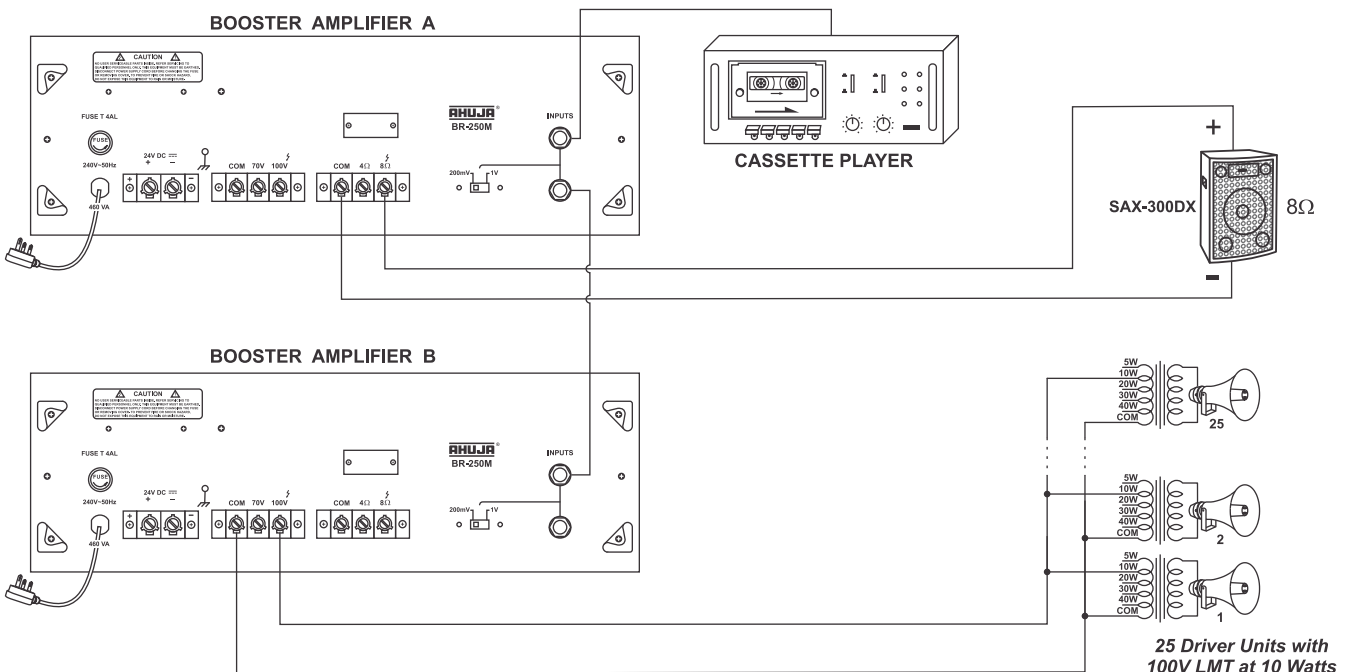
- When two or more Speakers/Units are installed in the same area and are facing the same direction, it is essential that their cones/diaphragms act in unison. Otherwise the sound level of one speaker will be cancelling the sound level of the other. To avoid any mistake, the terminals of Box speakers and the Driver Units are marked '+' & '-'. Always connect the COM of the Amplifier to '-' of speaker & 4Ω/8Ω of the amplifier to the '+' of the speakers.
- In case of LMT's the COM of all the LMT's should be connected to the COM of the red strip terminal of the amplifier and the power tap to 100V line as shown in figure.

IMPORTANT

- When 70/100 Volt line is being used, no speakers/driver unit should be connected to 4Ω/8Ω (Low Impedance) Tap.
- Loudspeaker/driver unit should be connected to either COM-100V or COM-70V terminals, but never to more than one set of terminals.

Connecting A Cassette Player To Two BR-250M To Get A 500W Mono System

1. Connect the pre-out of Cassette Player to the first input jack socket of the first BR-250M (Booster A) using a patch-cord with ¼" phone plugs at both ends. The sensitivity switch next to the input jack sockets should be towards 200mV.
2. Second input jack socket of Booster A should be connected to the first input jack socket of the second BR-250M (Booster B). The sensitivity switch of the second booster should also be at 200mV.
3. In this manner the Cassette Player will feed both the amplifiers creating a 500W output system.
4. A maximum of four boosters should be connected in this way otherwise the output of the Cassette Player will get loaded.
5. Loudspeaker connections to both the amplifiers should be done independently. Each of the amplifiers can be connected to either box type speakers or to speakers using the 100V LMT but never to both together. Speaker system impedance should be matched to the output impedance of the amplifier and thus should be connected to the corresponding tap of the amplifier.
6. When connecting box speakers to an amplifier the Box Speaker/Driver Unit switch should be set to the Box Speaker side and when connecting driver units, wall, ceiling or column speakers with 100V LMT, the switch should be turned to the Driver Unit side.
7. When speakers with 100V LMT are used, total power drawn should not exceed 250W in case of either of the amplifiers.
8. Finally when operating the system, the Bass & Treble controls of the individual amplifiers can be adjusted to give optimum tonal quality of sound to suit the system requirements.
9. This kind of system is ideal where both high and low impedance speakers are being used and the Cassette Player does not have its own Bass and Treble controls.



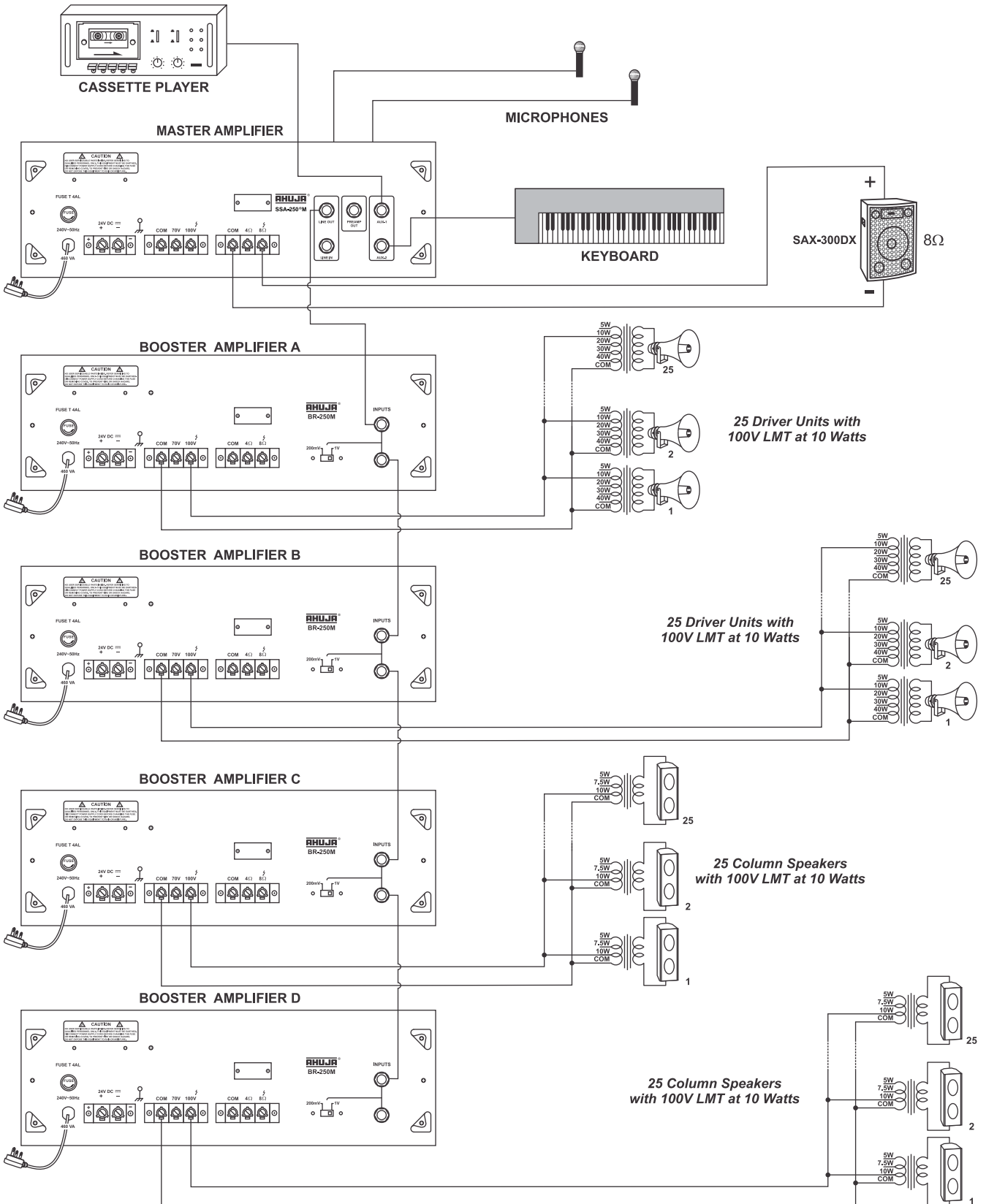
Typical Applications....

Connecting One SSA-250®M And Four BR-250M For Making A 1250W Mono System

1. Connect Microphones and other Program Sources to the input jack sockets of the Master Amplifier, which is the SSA-250®M.
2. Connect the Line-Out of the Master Amplifier to the first input jack socket of the first BR-250M (Booster A) using a patch-cord with ¼" phone plugs at both ends. The sensitivity switch next to the input jack sockets should be towards 1V.
3. Second input jack socket of Booster A should be connected to the first input jack socket of the second BR-250M (Booster B). The sensitivity switch of the second booster should also be at 1V.
4. The third and the fourth BR-250M (Booster C and Booster D) should be connected in the same way. A maximum of four boosters should be connected in this way otherwise the line output of the Master Amplifier will get loaded.
5. In this manner the inputs connected to the Master Amplifier will feed all the five amplifiers creating a 1250W output system.
6. Loudspeaker connections to each of the five amplifiers should be done independently. Each of the amplifiers can be connected to either Box type speakers or to speakers using the 100V LMT but never to both together. Speaker system impedance should be matched to the output impedance of the amplifier and thus should be connected to the corresponding tap of the amplifier.
7. When connecting box speakers to an amplifier the Box Speaker / Driver Unit switch should be set to the Box Speaker side and when connecting driver units, wall, ceiling or column speakers with 100V LMT, the switch should be turned to the Driver Unit side.
8. When speakers with 100V LMT are used, total power drawn should not exceed 250W in case of any of the amplifiers.
9. Finally when operating the system, any adjustments in the tonal quality of the sound if required can be made from the Master Amplifier.

(Refer to page 17 for illustration)

Connecting One SSA-250[®]M And Four BR-250M For Making A 1250W Mono System



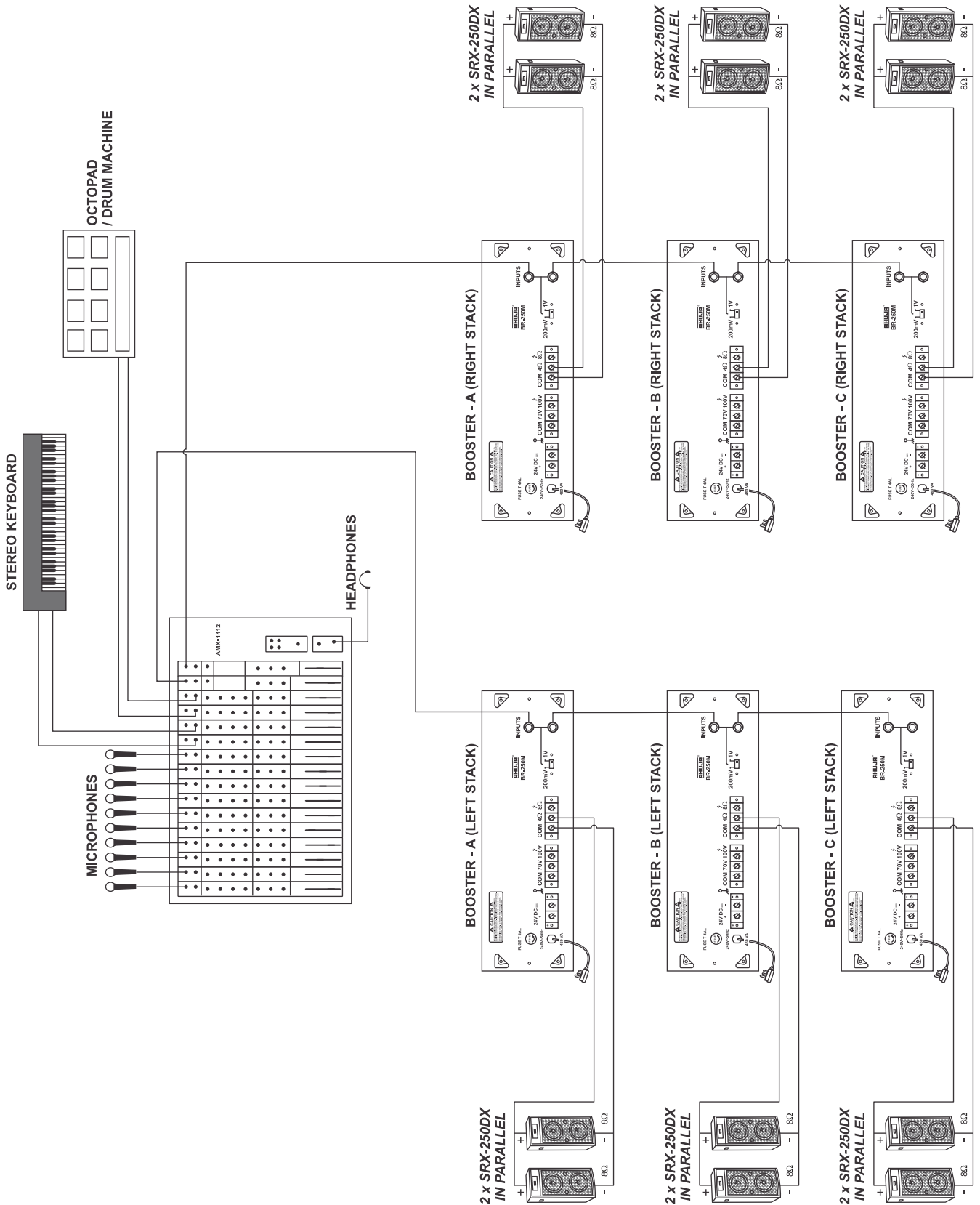
Typical Applications....

Connecting Six BR-250M For A Live 1500W Stereo Programme

1. Connect Microphones and other Program Sources such as Keyboard and Octopad to a Mixing Console like AMX-1412, AMX-912 or AMX-812.
2. Connect the Left Line Out Hi of the Mixer to the first input jack socket of first BR-250M (Booster A - Left Stack) using a patch-cord with ¼" phone plugs at both ends. The sensitivity switch next to the input jack sockets should be towards 1V.
3. Second input jack socket of Booster - A (Left Stack) should be connected to the first input jack socket of the second BR-250M (Booster - B Left Stack). The sensitivity switch of the second booster should also be at 1V.
4. The third BR-250M (Booster - C Left Stack) should be connected in the same way. A maximum of three boosters should be connected in this way otherwise the output of the Mixer will get loaded.
5. Similarly the Right Line Out Hi of the Mixer should be connected to the three right channel BR-250M (Booster - A, B & C Right Stack) with the inputs cascaded as shown in the diagram.
6. The left and right speaker stacks comprise of six SRX-250DXs on each side. Each stack will have three columns of two SRX-250Ds placed one on top of each other. The two speakers in each column will be wired together in parallel (resulting impedance is 4 ohm). Each column would be independently connected to the COM and 4 ohm tap of a BR-250M.
7. Finally when operating the system, any adjustments in the tonal quality of the sound if required can be made from the Mixer.
8. This stereo system is capable of delivering output power of 750W per channel and will render high quality rich powerful sound both in large indoor as well as outdoor settings.

(Refer to page 19 for illustration)

Connecting Six BR-250M For A Live 1500W Stereo Programme



• Specifications

Model	SSA-250[®]M	BR-250M
Power Output	300W RMS Max. 250W RMS at 10% THD 220W RMS at 5% THD 200W RMS at 2% THD	300W RMS Max 250W RMS at 10% THD 220W RMS at 5% THD 200W RMS at 2% THD
Output Regulation	≤2 dB no load to full load at 1kHz	
Input Channels	6 × Mic. 0.65mV / 4.7kΩ (Mic source impedance 50Ω to 1kΩ) 2 × Aux. 100mV / 470kΩ Line Input 1V / 50kΩ	200mV / 100kΩ 1V / 50kΩ
Frequency Response	50 – 15000 Hz ± 3dB	50 – 15000 Hz ± 3dB
S/N Ratio	60dB	60dB
Tone Controls:		
Switch at Box Speaker Position	Bass: ±10dB at 100Hz	Treble: ±10dB at 10kHz
Switch at Driver Unit Position	Bass: -10dB at 100Hz	Treble: ±10dB at 10kHz
Pre-amp Output	200mV / 600Ω	-
Line Output	1V / 1kΩ	-
Output Taps for Speaker Matching	4 & 8Ω (for direct connections) 70 & 100V Line (for use with LMT)	
Power Supply	AC: 220-240V 50 / 60Hz (110V on request) DC: 24V (2×12V Car Battery)	
Protection	AC: Fuse 4Amp. (T 4AL); DC: 14Amp. Circuit Protector	
AC Power Consumption	460 VA	
DC Power Consumption	6 A	
Dimensions	W450 × H160 × D340 mm	
Net Weight	16 kg approx.	15 kg approx.

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

AHUJA RADIOS

215, Okhla Industrial Estate, New Delhi-110020, INDIA
C-45, Phase-II, Noida-201305 (UP) INDIA
Tel.: +91-11-26831549, 41612474 Fax: +91-11-26847287
E-mail: ahuja@ahujaradios.com Website: www.ahujaradios.com

- Design and Specifications are subject to change without notice owing to continuous product up-gradation
- Technical specifications are subject to production tolerances.
- We cannot be held responsible for printing errors, should they occur.
- **AHUJA** is a registered trademark of Ahuja Radios in India and other countries.
- © Copyright Ahuja Radios, 2014. All rights reserved. Any unauthorized reproduction or use of logos, images or design elements is strictly prohibited by law.
- No part of this compilation may be reproduced in any manner or translated without written permission.

