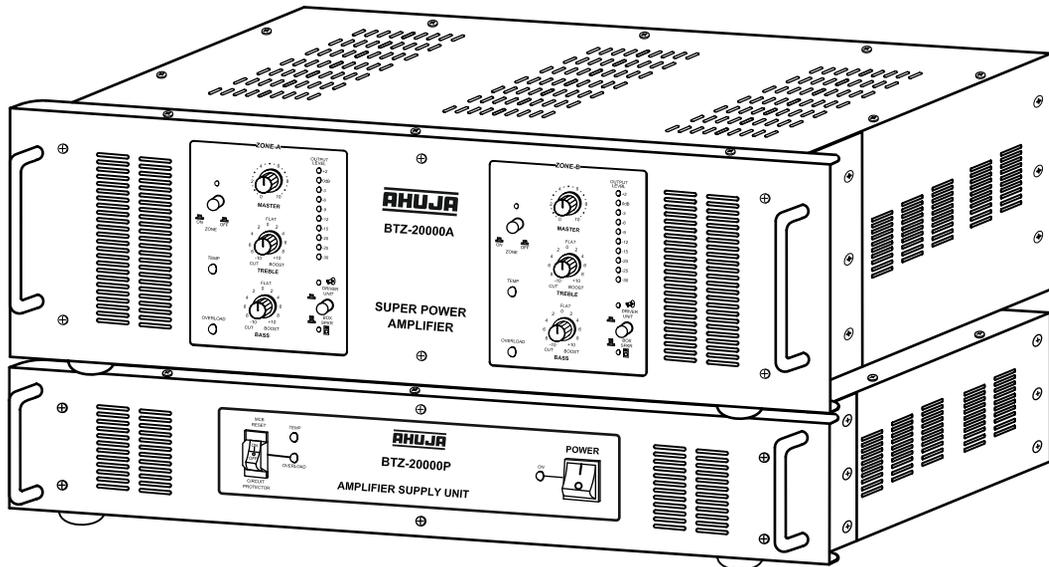


AHUJA[®]**PA AMPLIFIER**
2000W RMS**BTZ-20000**

- ◆ 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 and instructed 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 or circuit protector 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, 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.

• Table of Contents

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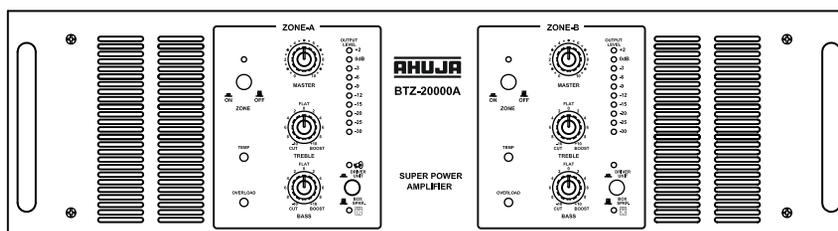
• Features/General Description of Product

- Ideal for use in a wide variety of 2- Zone PA applications where high power is required.
- BTZ-20000 is a 2000W 2-zone booster amplifier with each zone having its independent bass, treble and master controls for separate and combined operation.
- Line Inputs and Line Outputs have been provided for each zone separately to enable interconnections with other power amplifiers for more power if the need arises.
- The amplifier also has One Mono (200mV), One Mono (1V Balanced) and One Stereo input jacks. Thus, it can be used for Stereo music reproduction as well as mono.
- Balanced input is useful when using long connecting cables, and can help in reducing stray pickup noise.
- BTZ-20000 has individual Zone ON / OFF facility. Sound from each zone can be switched ON and OFF without disturbing the settings of tone and volume controls.
- Box Speaker / Driver Unit selector switch has been provided for protecting the Driver Unit's diaphragm from unwanted low frequencies. 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. It safeguards the amplifier against overload and short circuit.
- Power losses in speaker wiring are reduced as the Two zones share the delivering of 2000W of power.
- Ease of operation, combined with service accessibility has been optimized in the design.
- The system consists of two part BTZ-20000P and BTZ-20000A.

BTZ-20000P is a power supply unit for the amplifier. AC mains lead, power switch & power transformer are fitted on the unit.

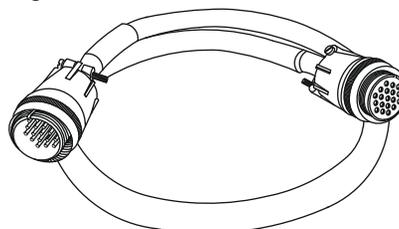


BTZ-20000A is an amplifier unit. All input & output connection are to be done on this unit.

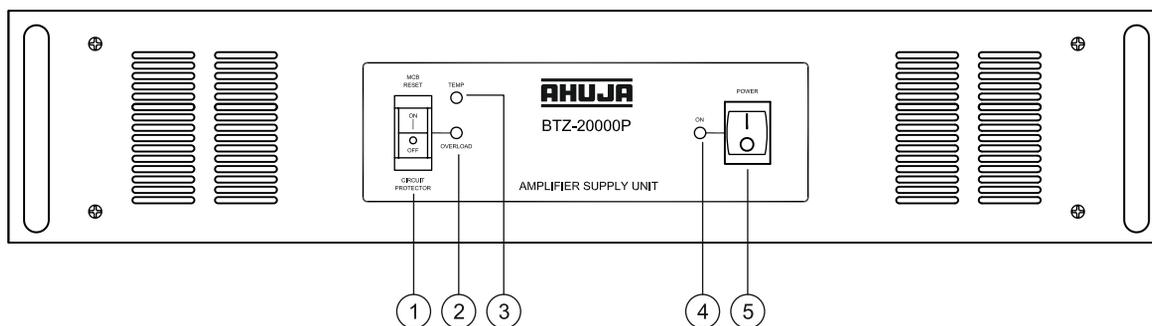


Connecting Cable: Both the unit are to be connected together with this connecting cable before switching ON the power supply unit.

The amplifier part BTZ-20000A will work only when connected to BTZ-20000P with this cable. Make sure the cable is securely connected and the locking rings tightened.



• Front Panel Controls & Features BTZ-20000P



1. MCB RESET Switch

MCB (circuit protector) switches off automatically and protects the amplifier from getting damaged on account of wrong and mismatched loudspeaker connections, short circuits and when the speakers are drawing more than 1300W per channel power. Rectify the cause and press the top part of the this MCB for resetting normal operation of the amplifier.

2. OVERLOAD LED

This LED glows when the circuit protector MCB switches off. Rectify the problem which caused the circuit protector to trip. Then press the top part of the circuit protector for re-setting normal operation.

3. TEMP LED

This LED glows when the power transformer gets overheated & output become zero on both zone. Rectify the fault and let the transformer cool down. The LED will then go off and the amplifier will automatically resume working.

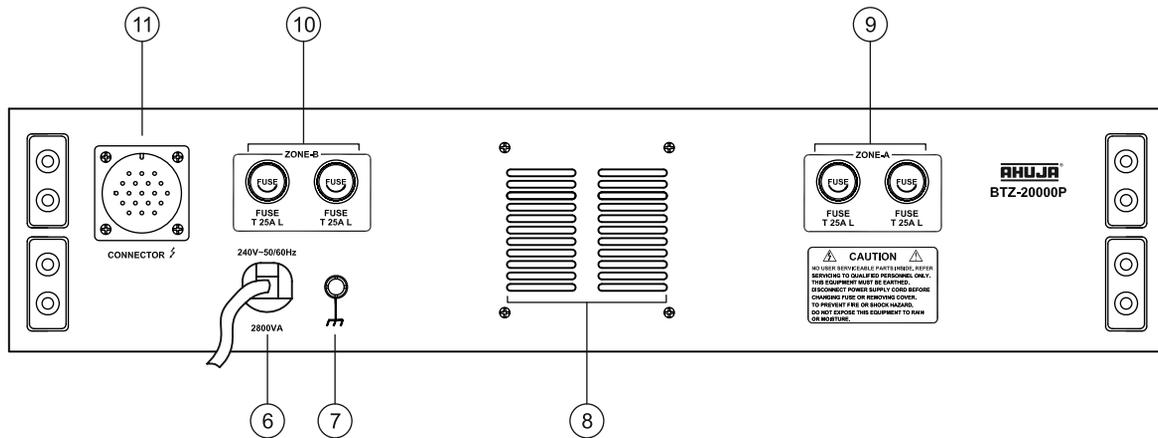
4. POWER LED

This LED glows when the amplifier is switched ON.

5. 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.

• Rear Panel Controls & Features BTZ-2000P



6. 3 Core AC Mains Cable With Plug

7. EARTH Terminal

8. FAN

Fan is fitted from inside to protect the power transformer from overheating.

9. FUSES Rating 25 AMP 250V (T 25A L) Zone A

These protect the amplifier from any excessive current flow. Separate fuses are provided for +ve -ve voltages.

10. DC Fuses Rating 25 AMP, 250V (T 25A L) Zone-B.

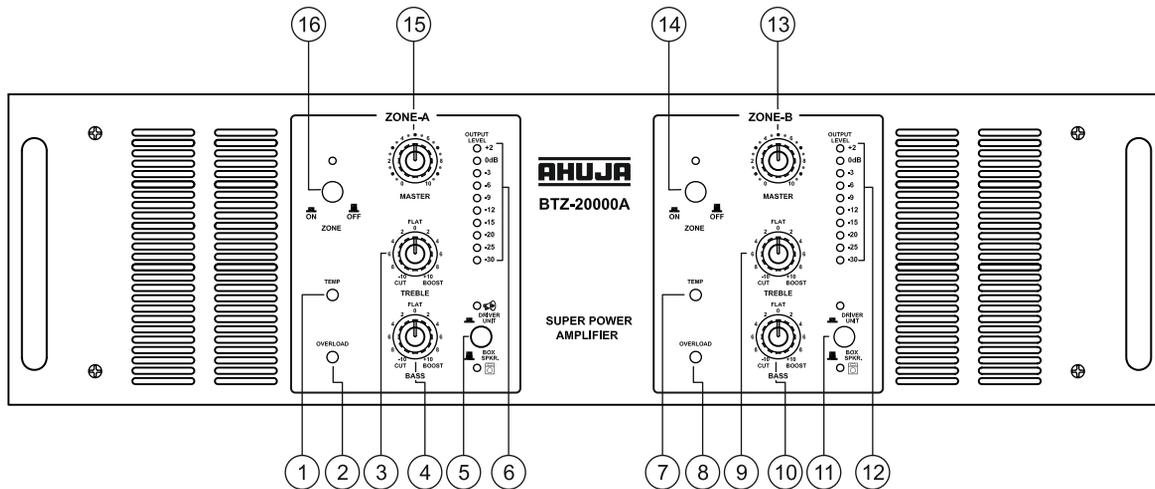
11. 19 PIN Connector

For connecting this power supply to amplifier unit through 19 core cable with connector at both ends.

Caution

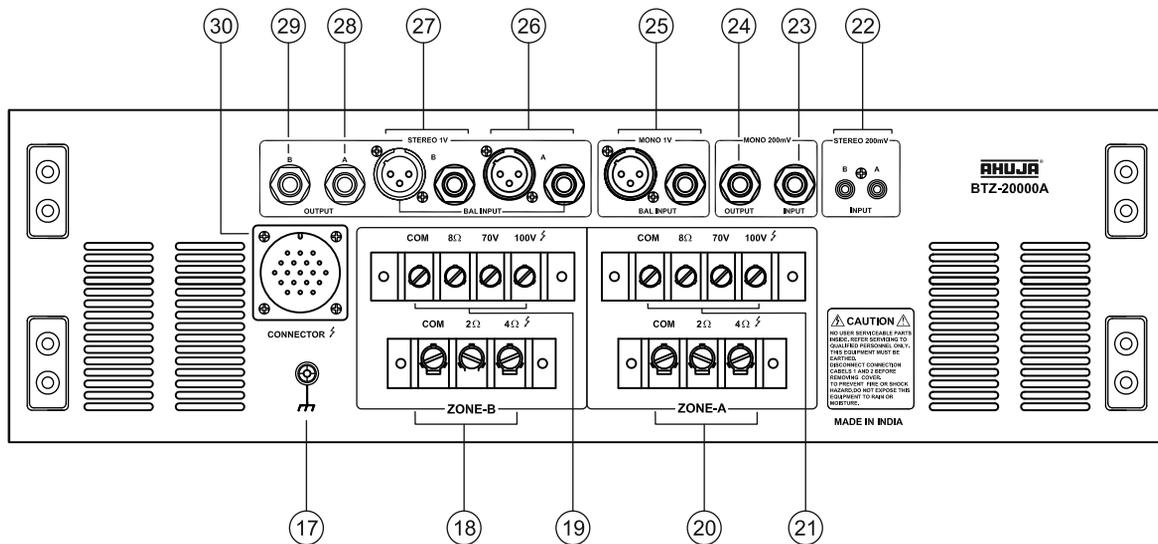
- The equipment must be earthed properly before operating it to avoid electric shock. A wire from the Earth Terminal must be connected to electrical earth for safe operation.

• Front Panel Controls & Features BTZ-20000A



1. **TEMP LED (Zone A)**
This LED glows when the output transistors of Zone A are overheated & output become zero. Rectify the cause, let the set cool down then this LED goes off and amplifier starts working properly.
2. **OVERLOAD LED (Zone A)**
This LED glows when any one of the DC fuses of zone A blows off.
3. **TREBLE Control (Zone A)**
For cutting or boosting the signal level of high frequencies.
4. **BASS Control (Zone A)**
For cutting or boosting the signal level of low frequencies.
5. **BOX SPEAKER / DRIVER UNIT Selector Switch (Zone A)**
Keep this switch in Box Spkr position while using Box Speakers and in Driver Unit position while using Driver Units, horns & column speakers.
6. **LED Array (Zone A)**
These indicate the output level of the amplifier for Zone A.
7. **TEMP LED (Zone B)**
This LED glows when the transistors of Zone B are overheating & output become zero.
8. **OVERLOAD LED (Zone B)**
This LED glows when any one of the DC fuses of zone B blows off.
9. **TREBLE Control (Zone B)**
For cutting or boosting the signal level of high frequencies.
10. **BASS Control (Zone B)**
For cutting or boosting the signal level of low frequencies.
11. **BOX SPEAKER / DRIVER UNIT Selector Switch (Zone B)**
12. **LED Array (Zone B)**
These indicate the output level of the amplifier for Zone B.
13. **MASTER Volume Control (Zone B)**
For adjustment of the overall volume level of zone B from the amplifier.
14. **Zone-B ON / OFF SWITCH with indicator LED**
15. **MASTER Volume Control (Zone A)**
For adjustment of the overall volume level of zone A from the amplifier.
16. **Zone-A ON / OFF SWITCH with indicator LED**

• Rear Panel Controls & Features BTZ-20000A



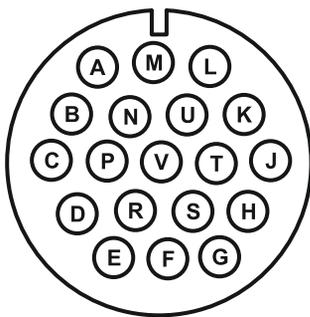
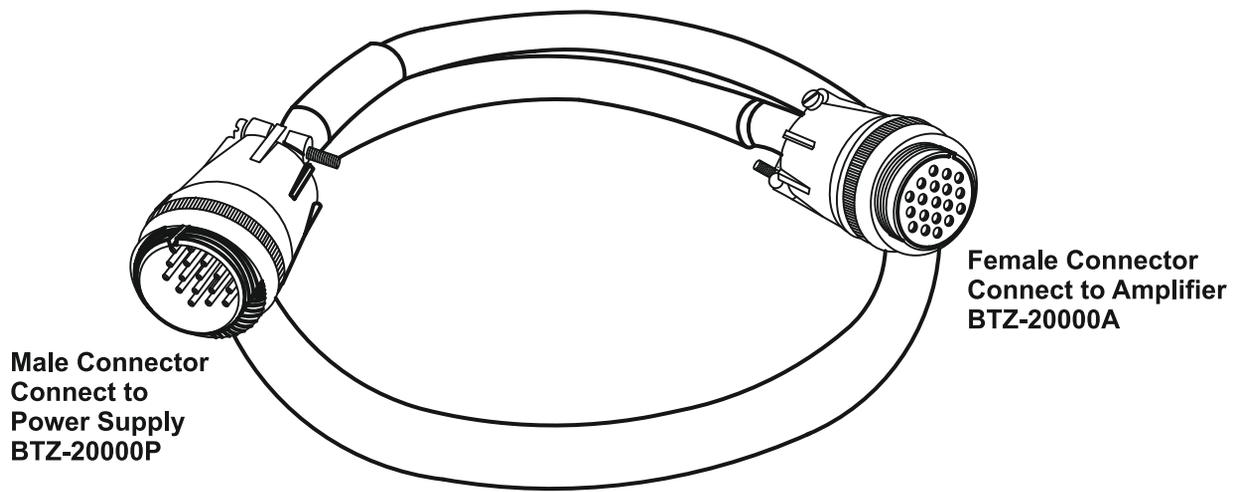
17. **EARTH Terminal**
18. **SPEAKER Terminal Block for Zone B (2Ω and 4Ω)**
For connecting low impedance speakers.
19. **SPEAKER Terminal Block for Zone B (8Ω, 70V, 100V)**
For connecting speakers with 100V line matching transformers.
20. **SPEAKER Terminal Block for Zone A (2Ω and 4Ω)**
21. **SPEAKER Terminal Block for Zone A (8Ω, 70V, 100V)**
22. **STEREO RCA Socket**
These two RCA Jacks marked 'L' & 'R' are for connecting STEREO Input from Cassette and CD.
23. **MONO 200mV Input Jack Socket**
This 200mV jack is provide for connecting Cassette Player, Echo Mixer etc.
24. **MONO 200mV Output Jack Socket**
For connecting to the AUX input of another amplifier or recorder for recording purpose.
25. **MONO 1V Balanced Input Jack Socket/XLR Connector**
These are provided in parallel for connecting mixer or line output of any other amplifiers to get higher output power.
26. **LINE Input Jack Socket/XLR Connector (Zone A) 1V Balanced**
For connecting the LINE Output of an external Mixer or an Amplifier.
27. **LINE Input Jack Socket/XLR Connector (Zone B) 1V Balanced**
28. **LINE Output Jack Socket (Zone A)**
For connecting to the LINE Input of a booster amplifier to obtain combined higher power output.
29. **LINE Output Jack Socket (Zone B)**
30. **19 Pin Connector**
For connecting this amplifier to power supply unit through 19 core cable with connectors at both ends.

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.

• Interconnecting Cable

19-CORE CONNECTING CABLE WITH CONNECTORS AT BOTH ENDS



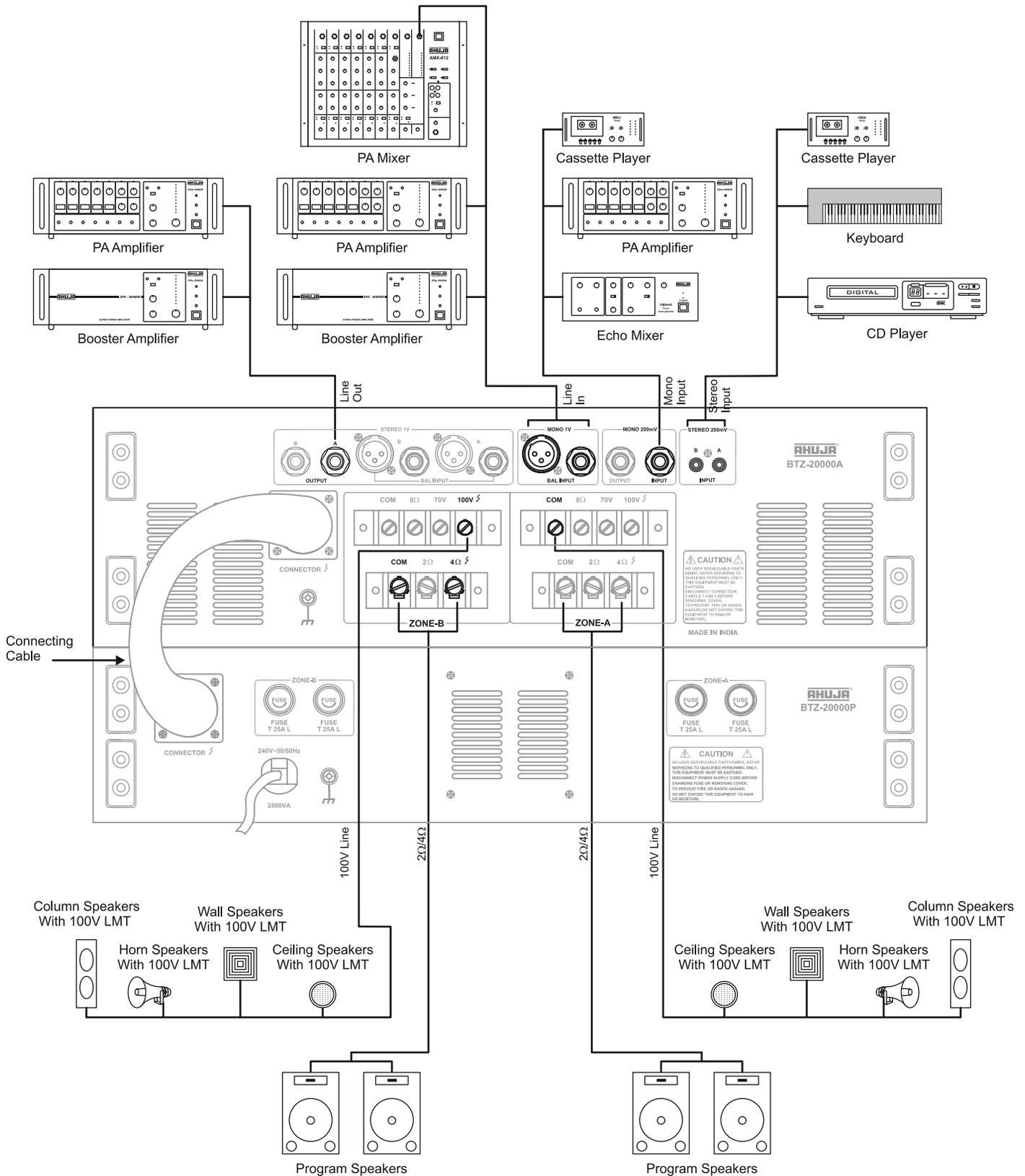
This is 1:1 Connecting Cable: Pin A of male connector is connected to Pin A of female connector at other end. Similarly Pin B of one end to Pin B of other end and so on other pins.

Tighten the connectors at both ends properly.

• Interconnections

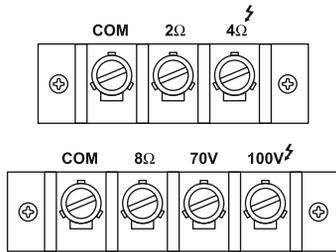
- The amplifier can be placed as a tabletop unit. Considerable heat is generated inside the amplifier during continuous use, therefore, the amplifier should be situated so that its location or position does not interfere with its proper ventilation.
- The amplifier must be powered through an AC earthed mains outlet.
- All connections must only be carried out or changed with the amplifier switched OFF and disconnected from AC mains.
- 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 and then the other units.
- The connection diagram on the next page, displays the typical types of input sources (Keyboard, Cassette Player, Mixer, CD Player etc.) and speakers (Wall, Ceiling, Box, Horn, Column) which can be connected to the amplifier. For correct connections and operation check the specifications of the connected equipment.

REAR PANEL - BTZ-20000



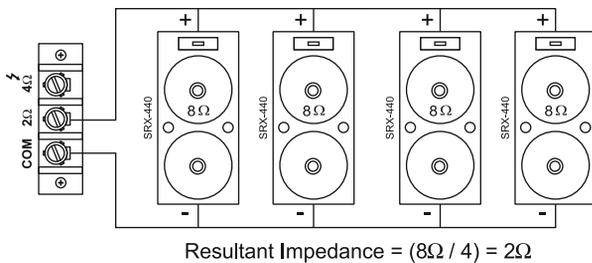
• Speaker Connection Guidelines

BTZ-20000 is a high-powered amplifier. Therefore it is very important that correct loudspeaker connections are made to avoid damage to the amplifiers or speaker.



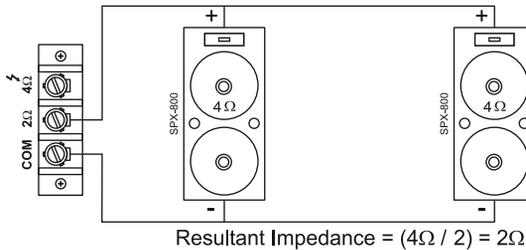
Low Impedance Speaker Connections

- Box type Speakers can be directly connected to COM-2Ω / 4Ω / 8Ω Terminal Strip.
- The Box Speaker / Driver Unit switch must be kept at Box Speaker position when using box speaker. 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-2Ω / 4Ω or COM / 8Ω.



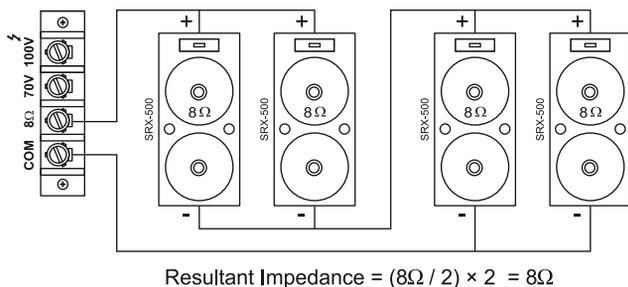
Connecting Four SRX-440 Speakers

The Four SRX-440 Speakers (each speaker can handle 400W of power) can be wired in a parallel as shown in figure. The resulting impedance will be 2Ω. The speaker system should be connected to the 2Ω tap of each zone of the amplifier.



Connecting Two SPX-800 Speakers

The Two SPX-800 speakers (each speaker can handle 700W of power) should be connected in parallel as shown in figure. Since impedance of each SPX-800 is 4Ω the resulting impedance would be 2Ω. Thus they should be connected to the 2Ω tap of each zone of the amplifier.



Connecting Four SRX-500 Speakers

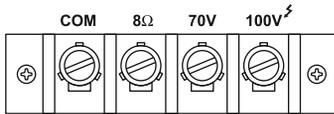
The Four SRX-500 speakers (each speaker can handle 400W of power) should be connected in parallel - series combination as shown in figure. Two groups of two speakers each are connected in parallel and then the groups are connected in series. The resulting impedance would be 8Ω. Thus they should be connected to the 8Ω tap of each zone of the amplifier.

IMPORTANT

- When speakers are connected to COM-2Ω / 4Ω Terminal Strip of the same zone, NO speakers should be connected to the Terminal Strip marked COM-8Ω / 70V/100V (fitted with RED cover).
- Speakers should be connected only to either COM-2Ω or COM-4Ω or COM 8Ω terminals of the same zone as illustrated above but never to more than one set of terminals.

• Speaker Connection Guidelines....

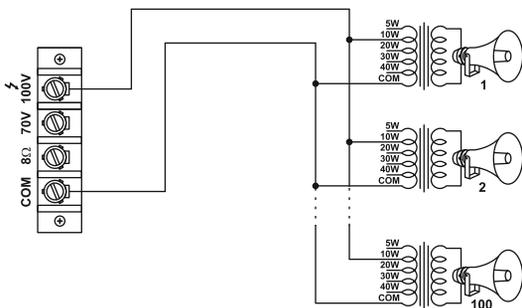
High Impedance Speakers or Speakers Using A 100V Line Matching Transformer



- 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 of a zone then NO Box speakers should be connected to the COM-2Ω / 4Ω / 8Ω Terminal Strip of that zone of the amplifier.
- The power drawn from the amplifier should not exceed 1000 Watts from each zone.

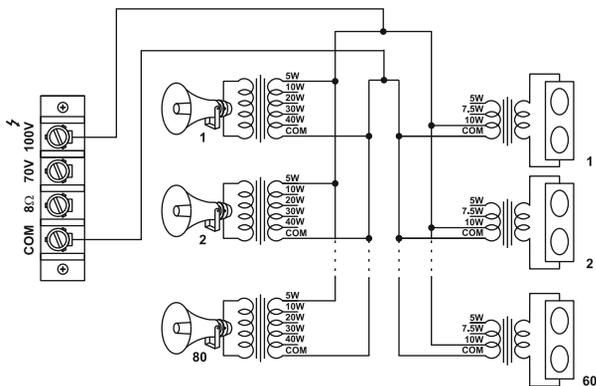
Connecting Hundred Driver Units with 100V LMT

100 Driver Units with 100V Line Matching Transformer connected at 10 Watts tap can be operated on each zone.

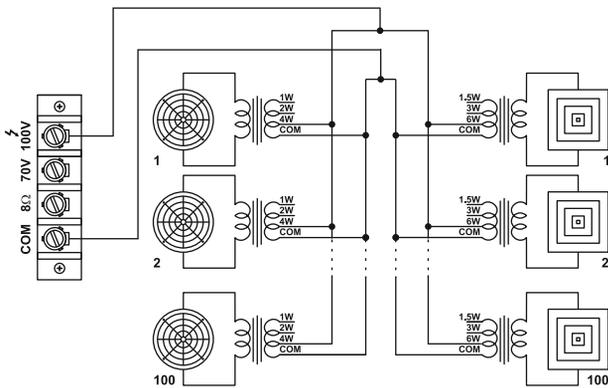


Connecting a Combination of Driver Units and Column Speakers with 100V LMT

80 Driver Units with 100V LMT at 5 Watts and 60 Column Speakers with 100V LMT at 10 Watts can be connected together on each zone. The power drawn from the amplifier should not exceed 1000 Watts per zone.



• Speaker Connection Guidelines....

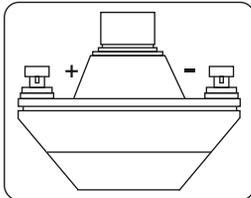


Connecting a combination of Wall and Ceiling Speakers with 100V LMT

100 Ceiling Speakers with 100V LMT at 4 Watts and 100 Wall Speakers with 100V LMT at 6 Watts can be connected together on each zone. The power drawn from the amplifier should not exceed 1000 Watts per zone.

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 i.e. 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 can cancel 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 & 2Ω / 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 taps to 100V line as shown in figure.

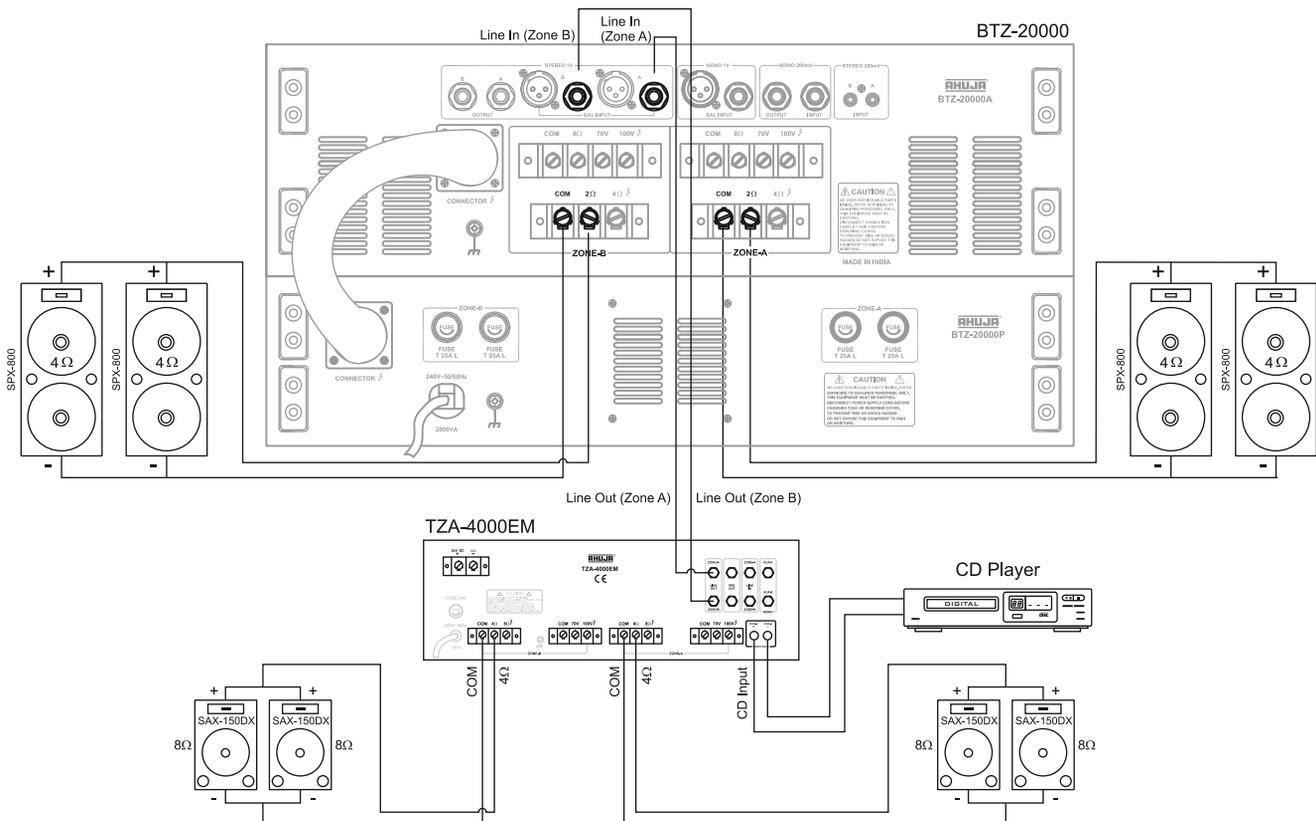
IMPORTANT

- When 70 / 100 Volt line is being used, no speakers / driver unit should be connected to 2Ω / 4Ω (Low Impedance) Tap of the same zone.
- Loudspeaker / driver unit should be connected to either COM-100V or COM-70V terminals of the same zone, but never to more than one set of terminals.

• Typical Applications

Connecting One TZA-4000EM And One BTZ-20000 To Make A 2400W Stereo System

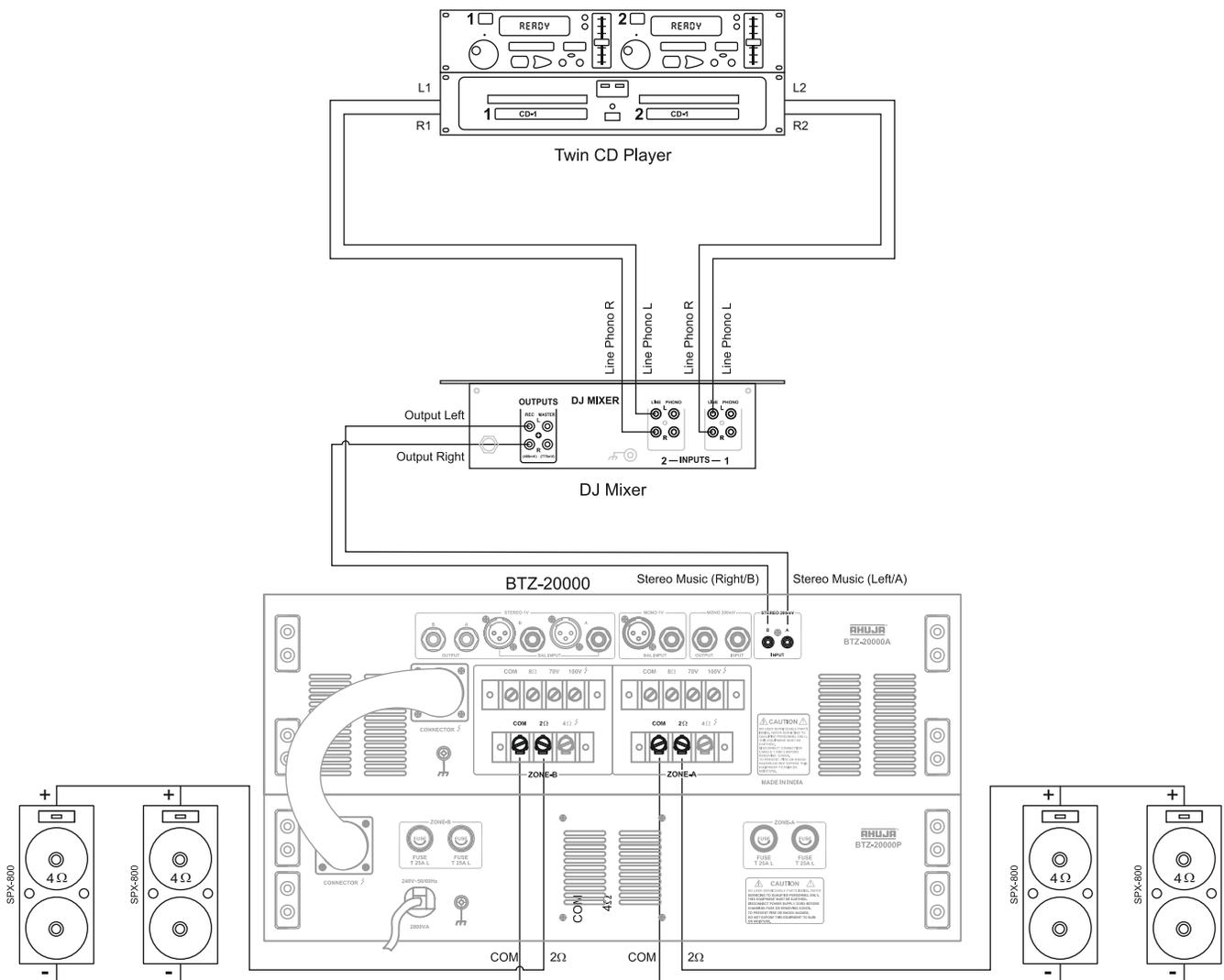
1. Connect the Output of the CD Player to the Stereo Input of TZA-4000EM i.e. the Source Amplifier.
2. Connect the Line-Out of Zone A & Zone B from TZA-4000EM to the Line-In of Zone A & Zone B of BTZ-20000 respectively, using a patch-cord with ¼" phone plugs at both ends.
3. In this manner the CD Player will feed both the amplifiers creating a 2400W Stereo System.
4. Loudspeaker connections to both the amplifiers should be done independently.
5. The left and right speaker stacks in the fig. below comprise of Two SAX-150DXs and Two SPX-800 on each side. Two SAX-150DXs should be connected in parallel to each zone of the TZA-4000EM and Two SPX-800 should be connected in parallel to each zone of the BTZ-20000.
6. Speaker system impedance should be matched to the output impedance of the amplifier. Calculate the net impedance of the speakers connected and use the appropriate impedance tap on the amplifier.
7. The Box Speaker / Driver Unit switch should be set to the Box Speaker side on both the amplifiers. The Mono / Stereo Selector Switch of TZA-4000EM should be kept towards the stereo position as stereo music is being played.
8. Finally, when operating the system, the Bass and Treble controls of the BTZ-20000 should be set to flat and any adjustments in the tonal quality of the sound if required should be adjusted only from the Source Amplifier i.e. the TZA-4000EM.



• Typical Applications....

Connecting A DJ Mixer To BTZ-20000

1. Connect the Output of the Twin CD Player to the Stereo Input of the DJ Mixer.
2. Connect the Stereo Output of the DJ Mixer to the Stereo Input of BTZ-20000, using a patch-cord with 1/4" phone plugs at both ends.
3. Two SPX-800 can be connected in parallel to each Zone of the amplifier (resulting impedance is 2Ω). Each set would be independently connected to the COM and 2Ω tap of either zone of the amplifier.
4. The Box Speaker / Driver Unit switch of the amplifier should be set to the Box Speaker side.

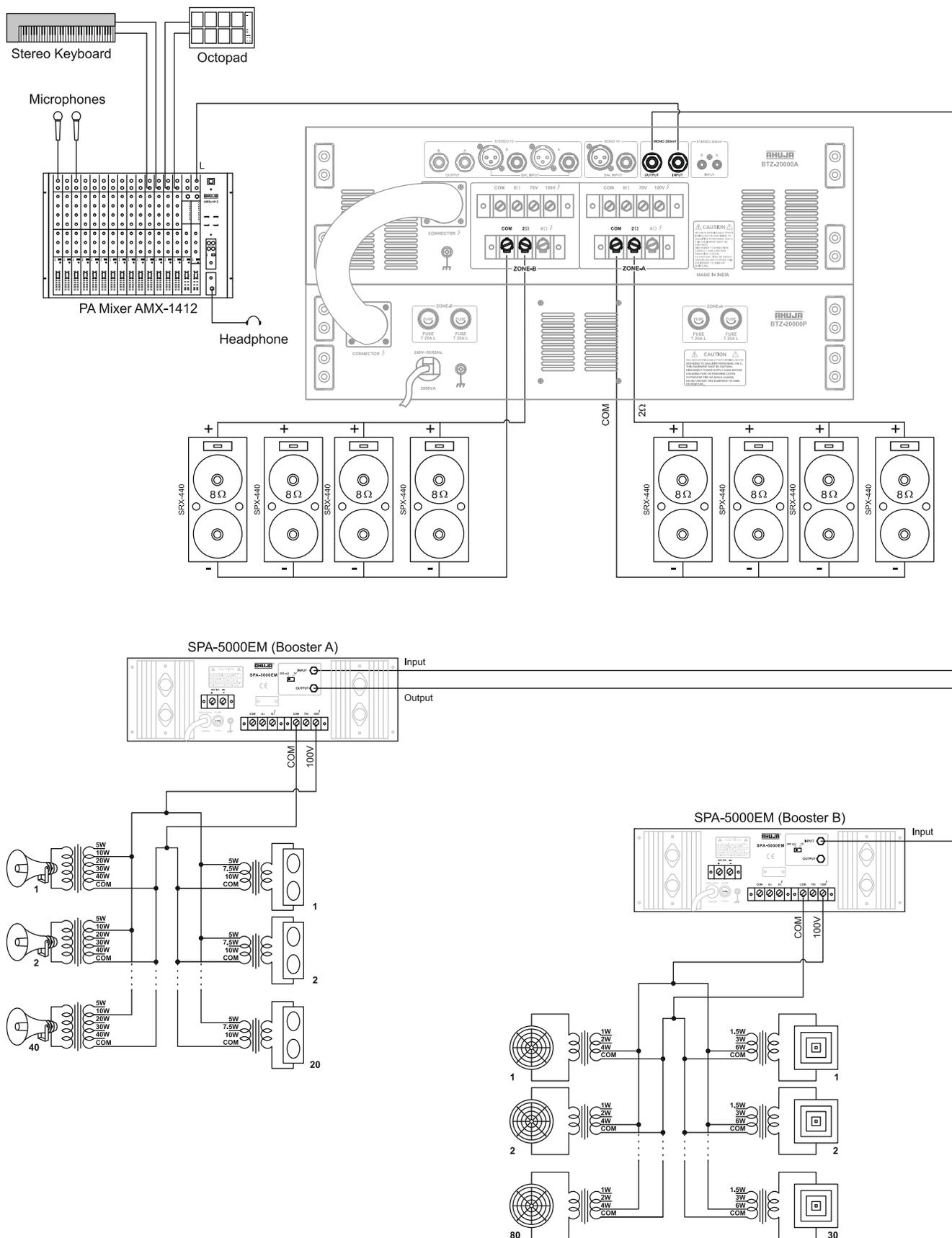


Connecting Two SPA-5000EM To BTZ-20000 To Make A 3000W High Power Mono System

1. Connect microphones and other program sources such as keyboard etc. to a mixing console like AMX-1412, AMX-912, AMX-812 or PMX-1632.
2. Connect either the Left or Right Line Out LO of the Mixer to Mono 200mV input jack of the BTZ-20000 amplifier, using a patch-cord with ¼" phone plugs at both ends.
3. Connect the Mono 200mV output jack of the BTZ-20000 to the Upper input jack of the first SPA-5000EM (Booster A). The sensitivity switch next to the input jacks should be towards 200mV.
4. The Lower jack of Booster A should be connected to the Upper jack of the second SPA-5000EM (Booster B). The sensitivity switch of the second booster should also be at 200mV.
5. In this manner the inputs connected to the Mixer will feed all the three amplifiers creating a 3000W output system.
6. Loudspeaker connections to each of the three amplifiers should be done independently. Any of the amplifiers can be connected to either Box type speakers or to speakers using the 100V LMTs 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. When connecting driver units, wall, ceiling speakers, or column speaker the switch should be turned to the Driver Unit side.
8. Finally when operating the system the Bass and Treble controls of the BTZ-20000 and all the Booster Amplifiers should be set to flat and any adjustments in the tonal quality of the sound if required should be adjusted only from the Mixer.

(Refer to page 18 for illustration)

• Typical Applications....



• Specifications

MODEL BTZ-20000	ZONE-A	ZONE-B
Power Output	1000W RMS at 10% THD (Rated) 900W RMS at 5% THD 820W RMS at 2% THD	1000W RMS at 10% THD (Rated) 900W RMS at 5% THD 820W RMS at 2% THD
Output Regulation	≤ 2dB no load to full load at 1kHz	
Input Channels	Mono Input: 200mV / 100kΩ unbalanced input through Mono Phone Jack 1V/50k Balanced input through stereo Phone Jack and XLR Connector Stereo Input: Left Channel / A: 200mV / 100kΩ (through RCA Socket) Right Channel / B: 200mV / 100kΩ (through RCA Socket) Line Input: Left Channel / A: 1V / 50kΩ Balanced input through Stereo Right Channel / B: 1V/50kΩ Phone Jack & XLR connector	
Frequency Response	50Hz–15,000Hz ±3dB	50Hz–15,000Hz ±3dB
Signal to Noise Ratio	60dB	60dB
Tone Controls: Switch at Box Speaker Position	Bass: ±8dB at 100Hz Treble: ±8dB at 10kHz	Bass: ±8dB at 100Hz Treble: ±8dB at 10kHz
Switch at Driver Unit Position	Bass: -8dB at 100Hz Treble: ±8dB at 10kHz	Bass: -8dB at 100Hz Treble: ±8dB at 10kHz
Line Output	1V/1kΩ	1V/1kΩ
Output Taps for Speaker Matching	2, 4 & 8Ω (for direct connections) 70 & 100V Line (for use with LMT)	2, 4 & 8Ω (for direct connections) 70 & 100V Line (for use with LMT)
Power Supply	AC: 220-240V 50/60Hz	
Protection	AC: Pri. Circuit Protector 16 Amp. AC: Sec. Fuse 3 Amp. (T 3AL) 4 Nos. in each Zone DC: Fuse 25 Amp. (T 25AL) 2 Nos. for ± supply of each Zone	
Rated AC Power Consumption	2800 VA	
Dimensions	BTZ-20000P W560 × H120 × D530 mm BTZ-20000A W560 × H165 × D530 mm	
Weight	BTZ-20000P 25.0kg approx. BTZ-20000A 34.0kg approx.	

AHUJA RADIOS • 215, Okhla Industrial Estate, New Delhi - 110 020, INDIA
Tel.: +91-11-26831549, 41612474 Fax: +91-11-26847287
E-mail: ahuja@ahujaradios.com, admin@ahujaradios.com
Website: www.ahujaradios.com

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