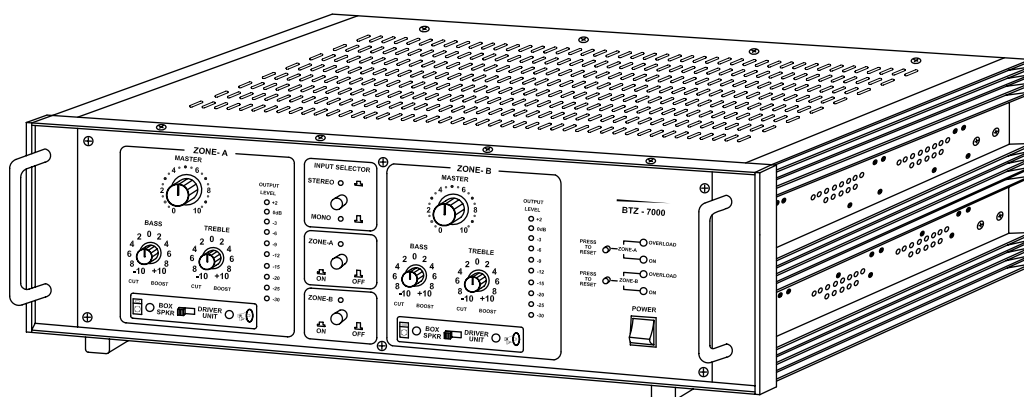


PA AMPLIFIER

700W RMS/1000W Max.

BTZ-7000



- ◆ 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
- ◆ 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.

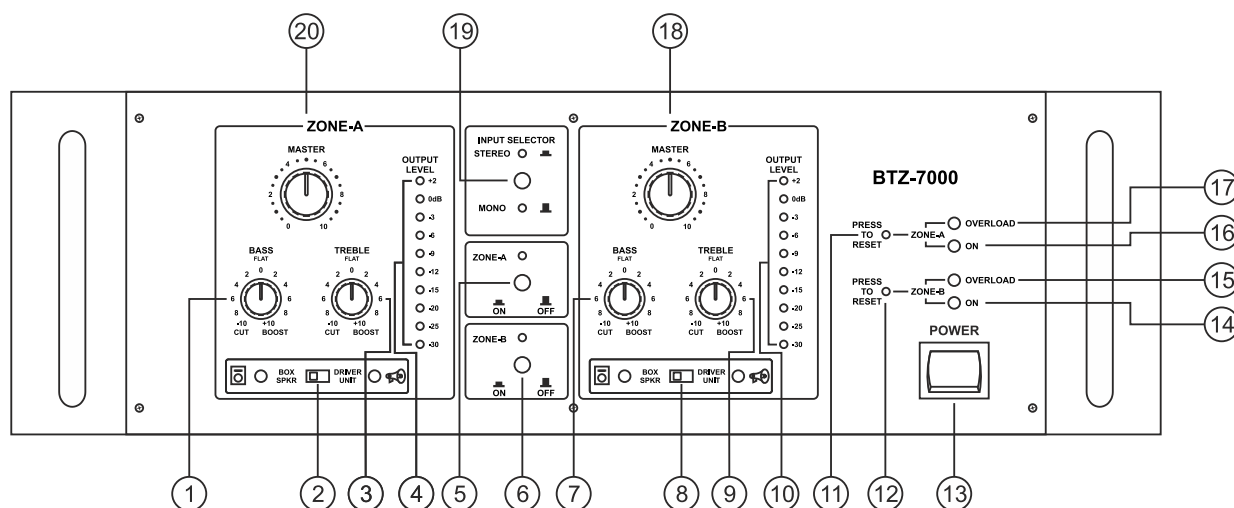
• **Table of Contents**

Contents	Page No.
• Features/General Description of Product	4
• Front Panel Controls & Features	5
• Rear Panel Controls & Features	6
• Interconnections	7
• Speaker Connection Guidelines	9
• Typical Applications	12
• Specifications	20

• **Features/General Description of Product**

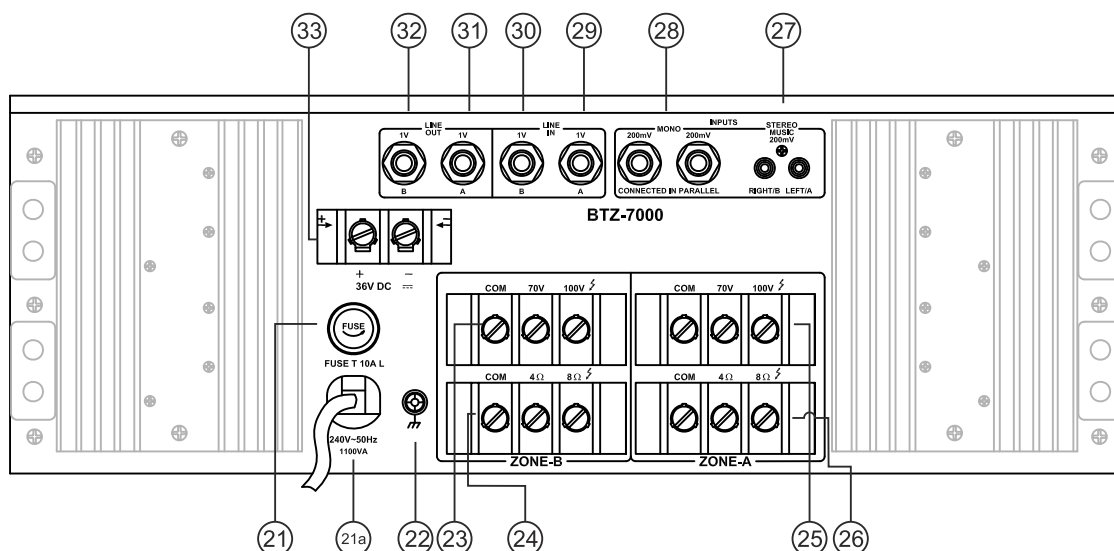
- Ideal for use in a wide variety of 2- Zone PA applications where high power is required.
- BTZ-7000 is a 700 Watts 2- Zone booster amplifier with each zone having its independent tone and master controls for separate and combined operation.
- Line Inputs and Line Outputs have been provided for each zone separately to enable interconnections with other power amplifiers for more power if the need arises.
- The amplifier also has Two Mono and One Stereo input jacks. Thus it can be used for Stereo music reproduction as well as mono.
- The amplifier also has Mono / Stereo input switch. This can be used for selecting mono or stereo operation.
- BTZ-7000 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. 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 for each zone. It safeguards the amplifier against overload and short circuit.
- Power losses in speaker wirings are reduced as the Two zones share the delivering of 700W of power.
- Provision for automatic changeover from AC to battery operation ensuring continuity of program.
- 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



1. **BASS Control (Zone A)**
For cutting or boosting the signal level of low frequencies.
2. **BOX SPEAKER/DRIVER UNIT Selector Switch (Zone A)**
3. **TREBLE Control (Zone A)**
For cutting or boosting the signal level of high frequencies.
4. **LED Array (Zone A)**
These indicate the output level of the amplifier for Zone A.
5. **Zone-A ON / OFF SWITCH with indicator LED**
6. **Zone-B ON / OFF SWITCH with indicator LED**
7. **BASS Control (Zone B)**
For cutting or boosting the signal level of low frequencies.
8. **BOX SPEAKER / DRIVER UNIT Selector Switch (Zone B)**
9. **TREBLE Control (Zone B)**
For cutting or boosting the signal level of high frequencies.
10. **LED Array (Zone B)**
These indicate the output level of the amplifier for Zone B.
11. **RESET button (Zone A)**
This button pops out when the circuit protector trips. The circuit protector protects the amplifier from getting damaged on account of wrong and mismatched loudspeaker connections, short circuits and when the speakers are drawing more than 500W per channel power. Rectify the cause and press the RESET button for resetting normal operation of the amplifier.
12. **RESET button (Zone B)**
13. **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.
14. **POWER LED (Zone B)**
This LED glows when the amplifier is switched ON.
15. **OVERLOAD LED (Zone B)**
This LED glows when the circuit protector of zone B trips.
16. **POWER LED (Zone A)**
This LED glows when the amplifier is switched ON.
17. **OVERLOAD LED (Zone A)**
This LED glows when the circuit protector of zone A trips.
18. **MASTER Volume Control (Zone B)**
For adjustment of the overall volume level of zone B from the amplifier.
19. **MONO / STEREO input Selector Switch**
For STEREO playback from Cassette and CD this switch must be pressed. The Master and Tone Controls of Zone-A and Zone-B will control the volume of Left and Right channels. For MONO operation the switch must be released.
20. **MASTER Volume Control (Zone A)**
For adjustment of the overall volume level of zone A from the amplifier.

• Rear Panel Controls & Features



21. AC MAINS FUSE Rating 10 AMP 250V (T 10A L)

This protects the amplifier from any excessive current flow.

21a. 3 Core AC Mains Cable with Plug

22. EARTH Terminal

23. SPEAKER Terminal Block for Zone B (70V, 100V)

For connecting speakers with 100V line matching transformers.

24. SPEAKER Terminal Block for Zone B (4 ohm and 8 ohm)

For connecting low impedance speakers.

25. SPEAKER Terminal Block for Zone A (70V, 100V)

For connecting speakers with 100V line matching transformers.

26. SPEAKER Terminal Block for Zone A (4 ohm and 8 ohm)

For connecting low impedance speakers.

27. STEREO RCA Socket

These two RCA Jacks marked 'L' & 'R' are for connecting STEREO Input from Cassette and CD.

28. MONO Input Jack Sockets

These jacks are for connecting Cassette Player, Echo Mixer etc.

29. LINE Input Jack Socket (Zone A)

For connecting the LINE Output of an external Mixer or an Amplifier.

30. LINE Input Jack Socket (Zone B)

31. LINE Output Jack Socket (Zone A)

For connecting to the LINE Input of a booster amplifier to obtain combined higher power output.

32. LINE Output Jack Socket (Zone B)

33. BATTERY Terminal Block

For connecting three 12V Car Batteries in series (which becomes 36V) as standby power source.

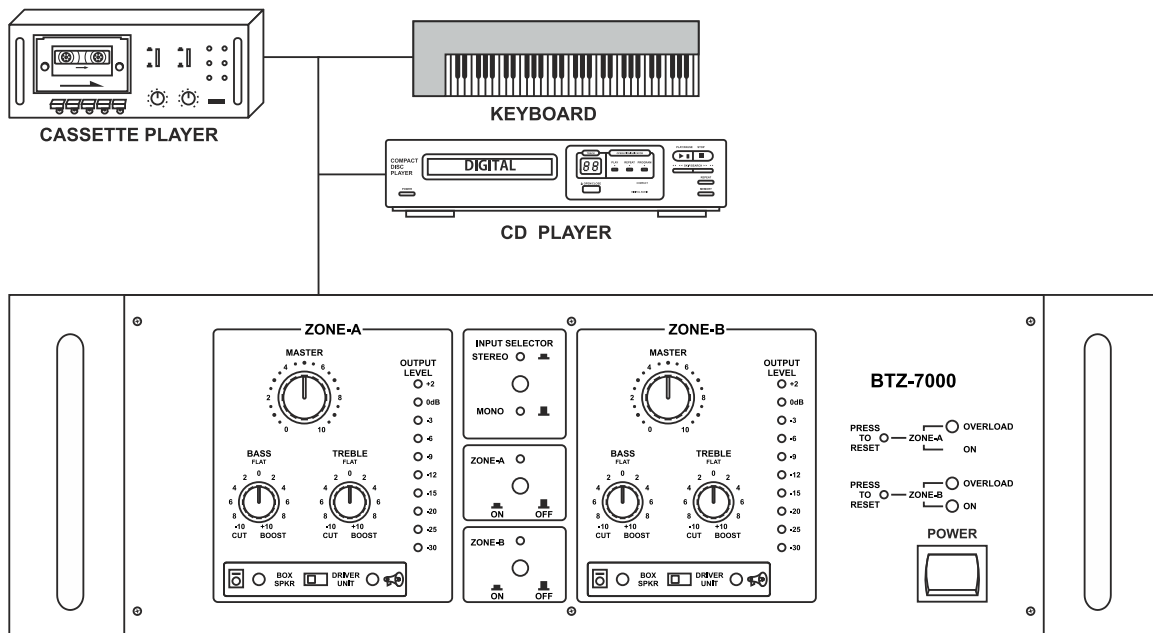
Caution

- 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.

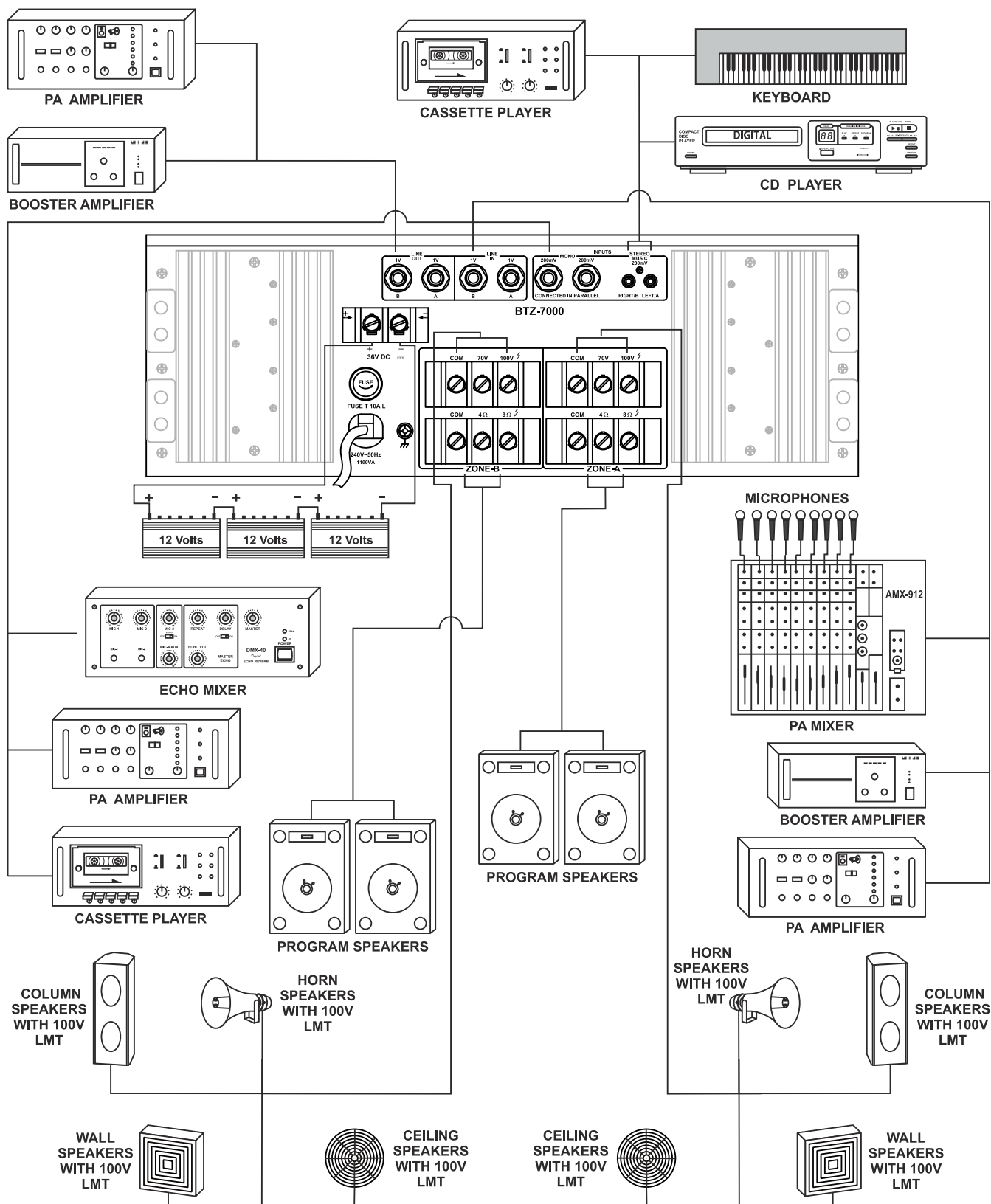
• Interconnections

- The amplifier can be placed as a tabletop unit. 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.
- The amplifier may be operated from a DC supply of 36 Volts (three 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 and then the other units.
- The connection diagram below, 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.

FRONT PANEL - BTZ-7000

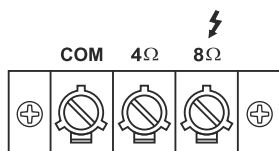


REAR PANEL - BTZ-7000



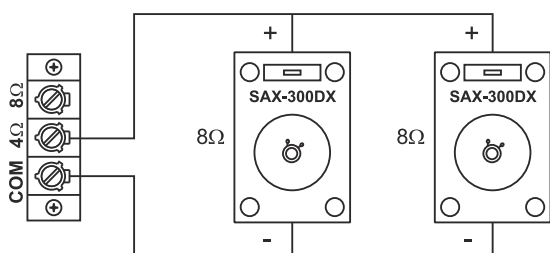
• Speaker Connection Guidelines

BTZ-7000 is a high-powered amplifier. Therefore it is very important that correct loudspeaker connections are made to avoid damage to the amplifier or speakers.



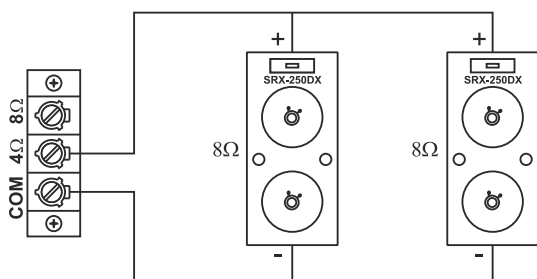
Low Impedance Speaker Connections

- 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.



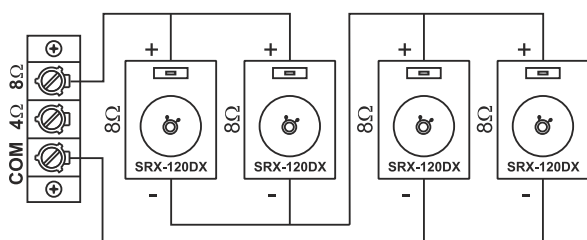
Connecting Two SAX-300DX Speakers on Each Zone

Two SAX-300DX speakers (Each speaker can handle 300W of power) should be wired in parallel and connected to each zone as shown in figure. The resulting impedance of the speaker system is 4Ω (two 8Ω speakers in parallel). Thus they should be connected to the 4Ω tap of the amplifier.



Connecting Two SRX-250DX Speakers on Each Zone

Two SRX-250DX speakers (Each speaker can handle 200W of power) should be wired in parallel and connected to each zone as shown in figure. The resulting impedance of the speaker system is 4Ω (two 8Ω speakers in parallel). Thus they should be connected to the 4Ω tap of the amplifier.



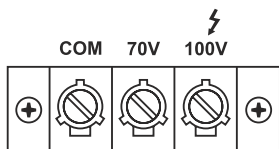
Connecting Four SRX-120DX Speakers on Each Zone

Four SAX-120DX Speakers (Each speaker can handle 100W of power) should be wired in a parallel-series combination to each zone 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 will be 8Ω. The speaker system should be connected to the 8Ω tap of the amplifier.

IMPORTANT

- When speakers are connected to COM - 4Ω / 8Ω Terminal Strip of the same zone, 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 of the same zone as illustrated above but never to more than one set of terminals.

• Speaker Connection Guidelines....

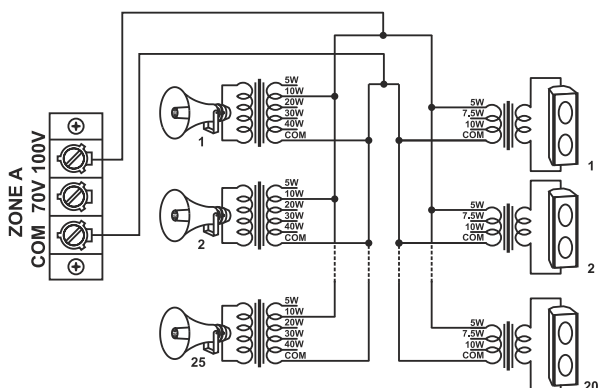


High Impedance Speakers or Speakers Using A 100V Line Matching Transformer

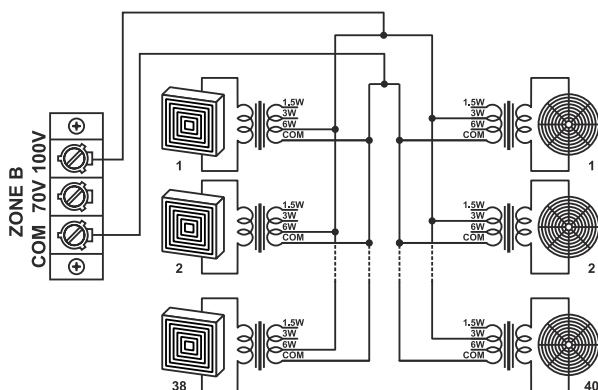
- Driver Units/Horn Speakers / Column Speakers with 100V Line Matching Transformers are only to be connected to COM-70V / 100V Terminal Strip.
- The Box Speaker / Driver Unit switch must be kept at Driver Unit position.
- When any of the above speakers are connected to the COM-70V / 100V Terminal Strip of a zone then no box speakers should be connected to the COM - 4 ohm, 8 ohm Terminal Strip of that same zone.
- The power drawn from each zone of the amplifier should not exceed 350 Watts.

Connecting a combination of Driver Units and Columns Speakers with 100V LMTs on Zone A, Wall Speakers & Ceiling Speakers with 100V LMT on Zone B

- 25 Units with 100V LMTs connected at 10W and 20 Columns Speakers with 100V LMTs connected at 5W can be operated on Zone A.

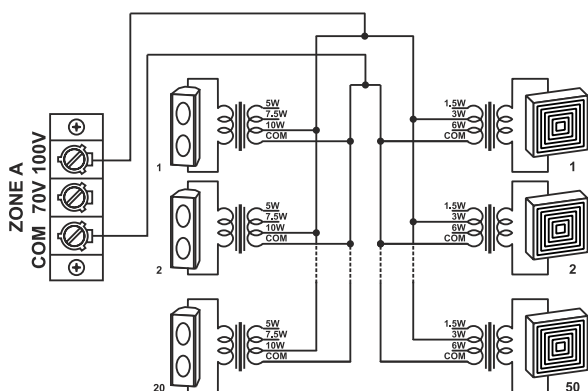


- 40 Ceiling Speakers with 100V LMT connected at 3W and 38 Wall Speakers with 100V LMTs connected at 6W can be operated on Zone B.

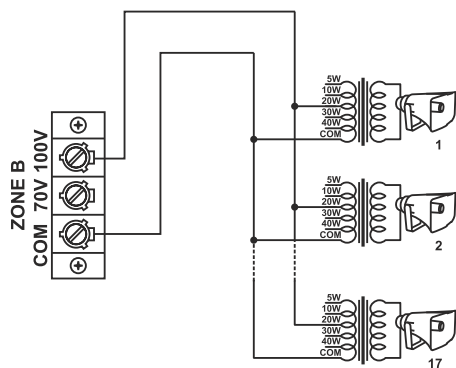


Connecting a combination of Column Speakers and Wall Speakers with 100V LMTs on Zone A, Horn Speaker with 100V LMT on Zone B

- 20 Column Speakers with 100V LMTs connected at 10W tap and 50 Wall Speakers with 100V LMTs connected at 3W can be operated on Zone A.



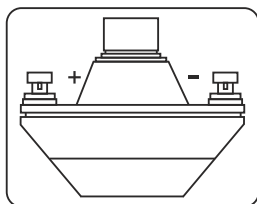
Speaker Connection Guidelines....



- On Zone B, 17 SUH-40XT Horn Speakers with 100V LMTs connected at 20W can be operated.

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 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 canceling 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 & 4/8 of the amplifier to the '+' of the speakers.
- In case of LMTs the COM of all the LMTs should be connected to the COM of the red strip terminal of the amplifier and the power tap to 100V line as shown above.

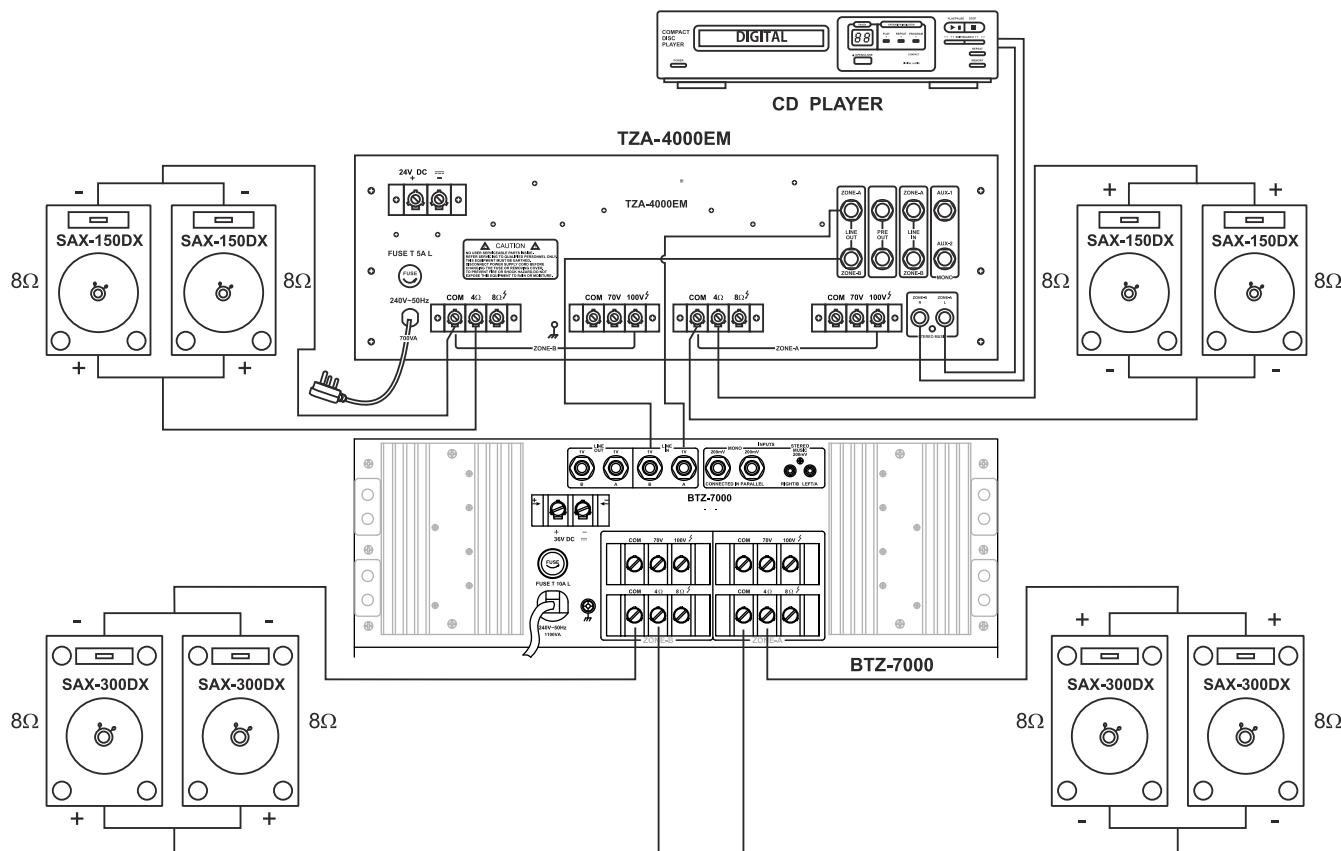
IMPORTANT

- When 70/100 Volt line is being used, no speakers/driver unit should be connected to 4Ω/8Ω (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

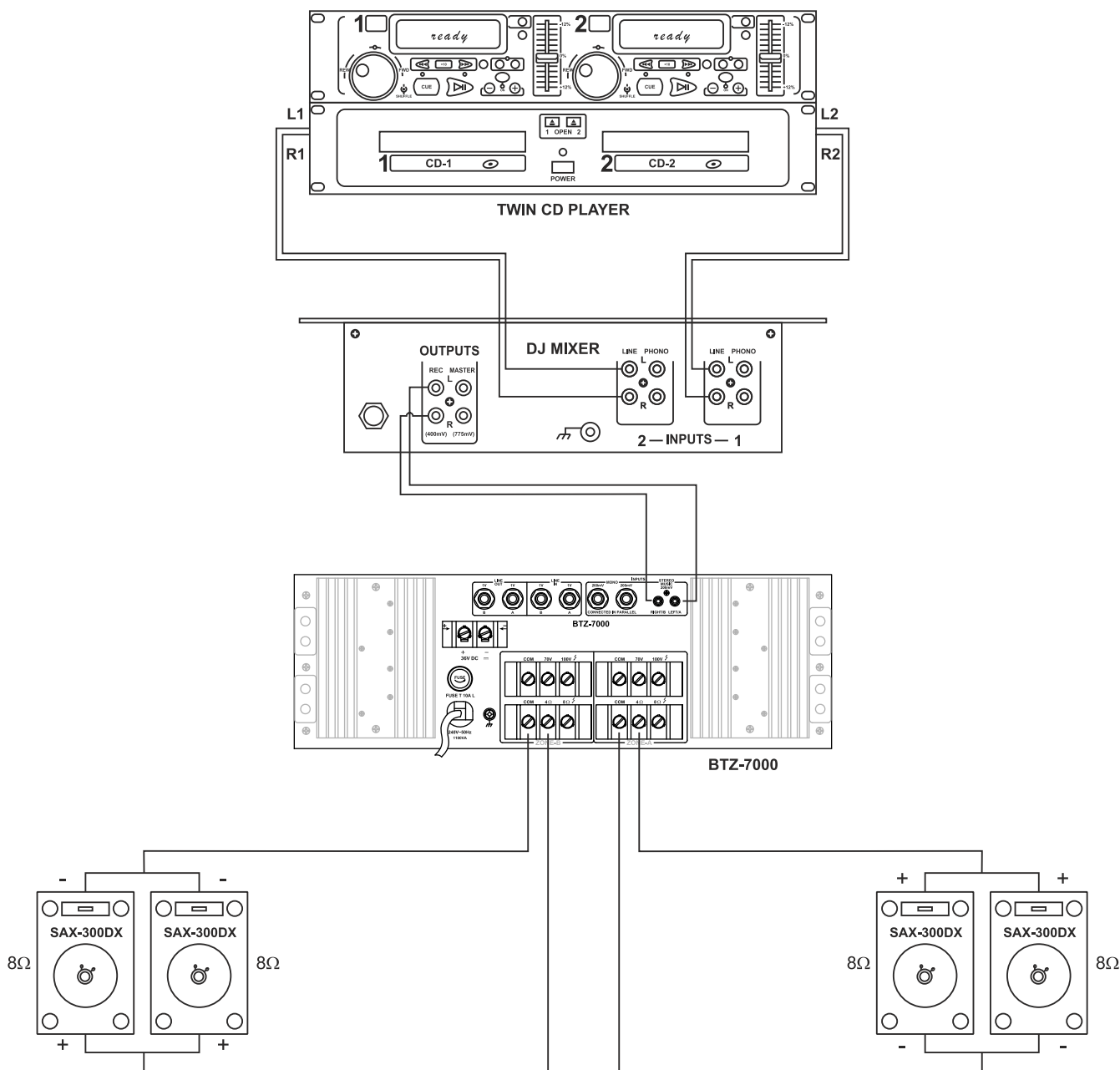
Connecting One TZA-4000EM And One BTZ-7000 To Make A 1100W Stereo System

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-7000 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 1100W Stereo System.
4. Loudspeaker connections to both the amplifiers should be done independently.
5. The left and right speaker stacks comprise of Two SAX-150DXs on top of Two SAX-300DXs on each side. Two SAX-150DXs should be connected in parallel to each zone of the TZA-4000EM and Two SAX-300DXs should be connected in parallel to each zone of the BTZ-7000.
6. 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. The Box Speaker / Driver Unit switch should be set to the Box Speaker side on both the amplifiers and the Mono/Stereo Selector Switch should be kept towards the Stereo position.
8. Finally when operating the system, the Bass and Treble controls of the BTZ-7000M 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.



Connecting A DJ Mixer To BTZ-7000

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-7000, using a patch-cord with ¼" phone plugs at both ends.
3. Two SAX-300DXs should be connected in parallel to each Zone of the amplifier (resulting impedance is 4Ω). Each set would be independently connected to the COM and 4Ω 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 and the Mono/Stereo Selector Switch should be kept at Stereo position.



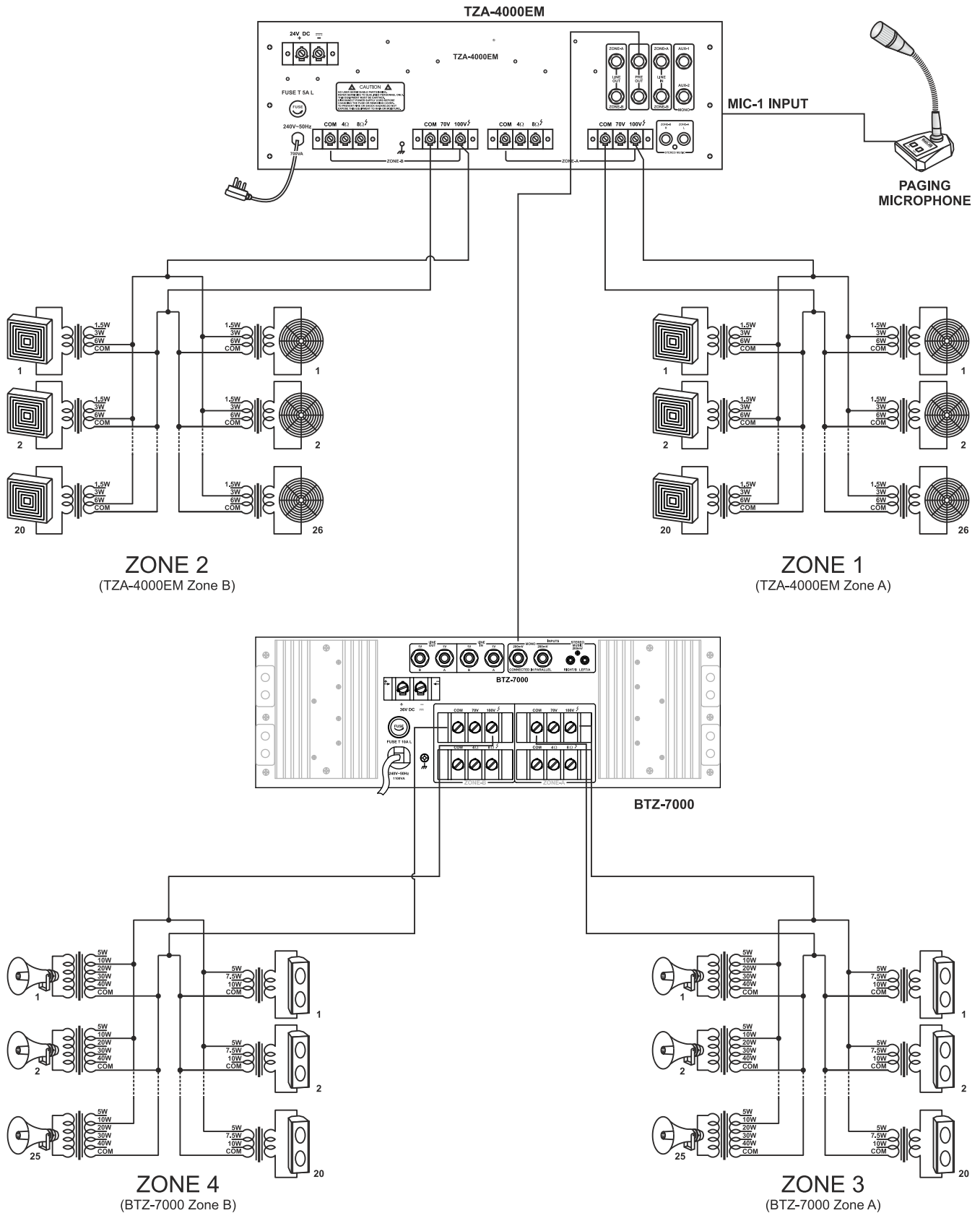
Typical Applications

Installing A 4 Zone Industrial Paging System Using A TZA-4000EM And A BTZ-7000 Amplifier

1. Connect the ACM-66CH microphone to the Mic-1 Input Jack of TZA-4000EM Amplifier.
2. The Pre-Out of the TZA-4000EM is connected to either (the jacks are in parallel) of the Mono Input Jacks of the BTZ-7000, using a patch-cord with ¼" phone plugs at both ends.
3. In both the amplifiers the Mono/Stereo Selector Switch should be kept towards the Mono position and the Box Speaker/Driver Unit switch should be set to Driver Units side.
4. Various combinations of Unit Horn Combinations and Column Speakers with 100V LMTs can be connected independently to both the Zones of the High power BTZ-7000 amplifier. While we suggest the use of Ceiling and Wall Speakers with 100V LMTs on both the Zones of the TZA-4000EM.
5. The total power drawn from either of the zones of the BTZ-7000 should never exceed 350W and from either of the zones of the TZA-4000EM shouldn't exceed 200W.
6. Shown below is an example of speaker types and connections, which may be used with the system.
7. In this way we can have a 4-Zone paging system with each zone having its independent Bass, Treble and Volume controls and is ideal for large factories etc.

(Refer to page 15 for illustration)

Installing A 4 Zone Industrial Paging System Using A TZA-4000EM And A BTZ-7000 Amplifier



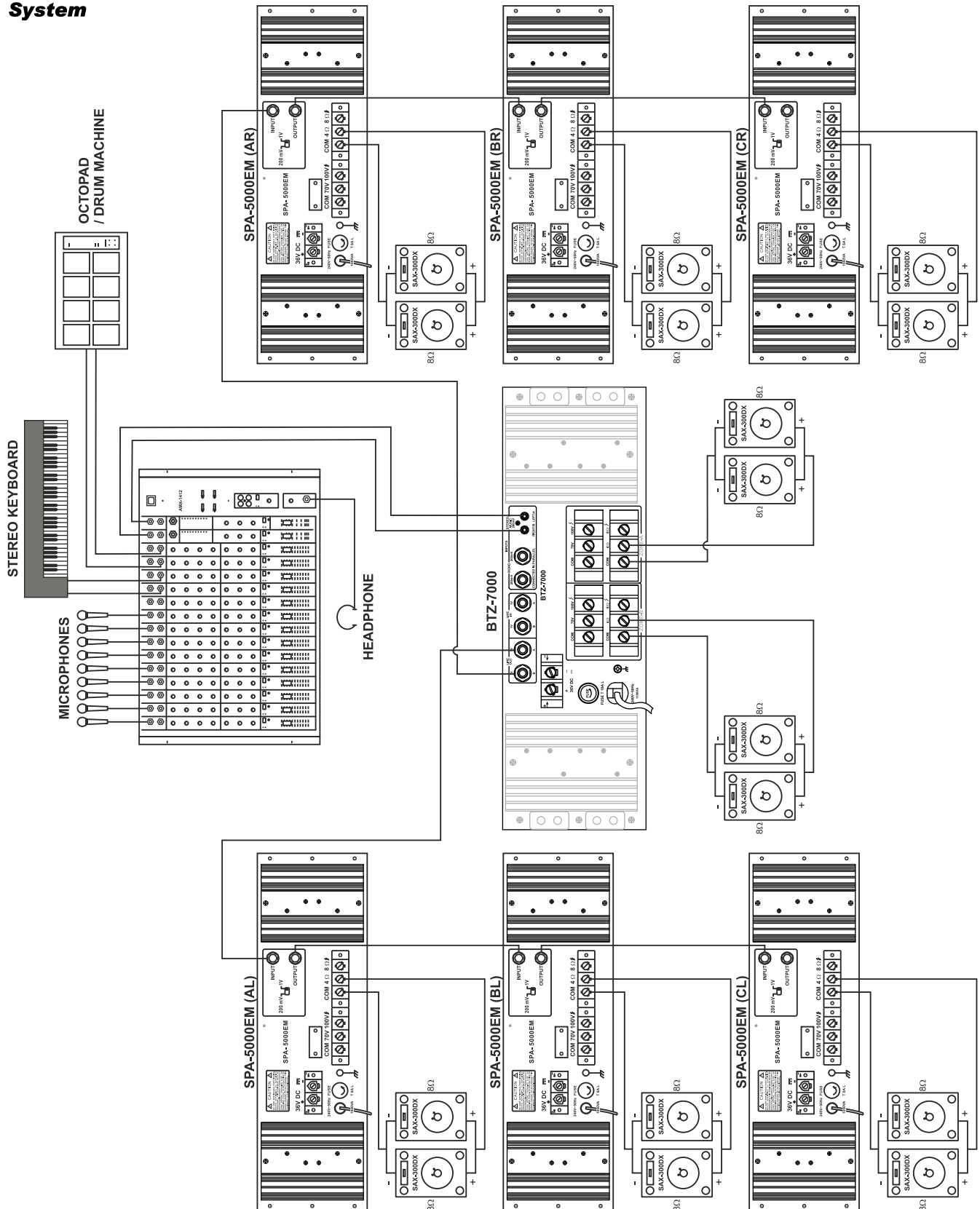
Typical Applications

Connecting Three SPA-5000EM To Each Zone Of BTZ-7000 And To Make A 3700W Stereo System

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 and Right Line Out Hi of the MIXER to the Left and Right Stereo Inputs of the BTZ-7000 amplifier respectively, using a patch-cord with ¼" phone plugs at both ends. The Stereo/Mono Selector Switch should be kept towards the Stereo position.
3. Connect the Zone-A Line Out of the BTZ-7000 to the upper input jack of first SPA-5000EM (BOOSTER-AL). The sensitivity switch next to the input jacks should be toward 1V.
4. The Lower jack of BOOSTER-AL should be connected to the Upper jack of the second SPA-5000EM (BOOSTER-BL). The sensitivity switch of the second booster should also be at 1V.
5. The third SPA-5000EM (BOOSTER-CL) 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.
6. Similarly the Zone-B Line Out of the BTZ-7000 should be connected to the three right channel SPA-5000EMs (BOOSTER-AR, BR, CR) with the inputs cascaded as shown in the diagram. In all the seven amplifiers the Box Speaker/Driver Unit switch should be set to Box Speaker side.
7. The left and right speaker stacks comprise of eight SAX-300DXs on each side. Each stack will have four columns of 2 SAX-300DXs placed one on top of each other. The two speakers in each column will be wired together in a parallel (resulting impedance is 4ohm).
8. The first column of left stack should be connected to COM and 4 ohm tap of Zone-A of the BTZ-7000 and first column of right stack should be connected to Zone-B. Each of three remaining columns of either stack would be independently connected to the COM and 4 ohm tap of a SPA-5000EM.
9. Finally when operating the system, the Bass and Treble controls of the BTZ-7000 and all the BOOSTER AMPLIFIERS should be set to flat and any adjustments in the tonal quality of the sound if required should be made only from the MIXER.
10. This STEREO system is capable of delivering output power of 1850W per channel and will render high quality rich powerful sound both in large indoor as well as outdoor settings.

(Refer to page 17 for illustration)

Connecting Three SPA-5000EM To Each Zone Of BTZ-7000 And To Make A 3700W Stereo System



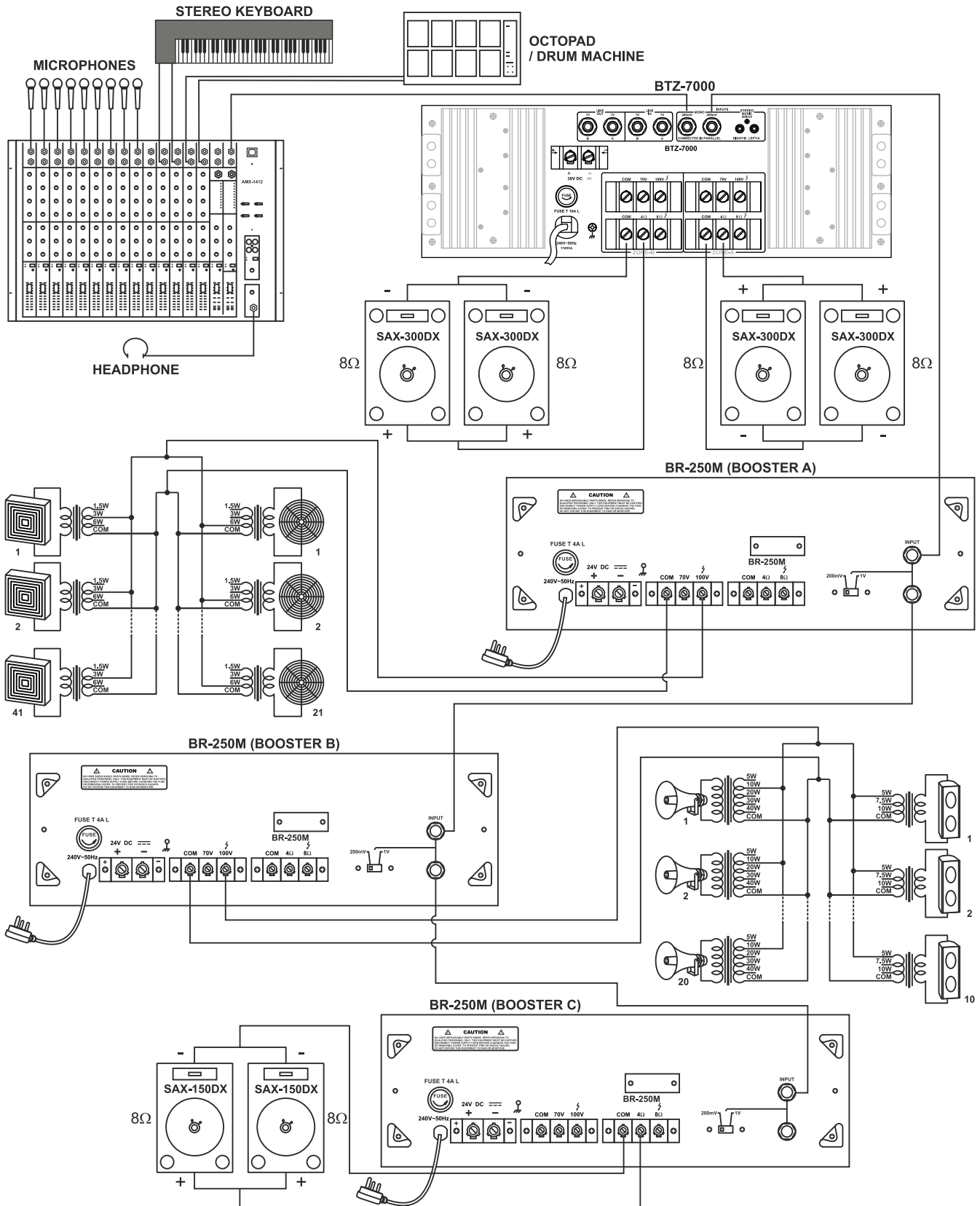
Typical Applications

Connecting Three BR-250M To BTZ-7000 To Make A 1450W High Power Mono System

1. Connect microphones and other program sources such as keyboard etc. to a mixing console like AMX-1412, AMX-912 or AMX-812.
2. Connect either the Left or Right Line Out Lo of the MIXER to one of the Mono input jacks (the jacks are connected in parallel) of the BTZ-7000 amplifier, using a patch-cord with ¼" phone plugs at both ends. The Stereo/Mono Selector Switch should be kept towards the Mono position.
3. Connect the other Input jack of the BTZ-7000 to the Upper input jack of the first BR-250M (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 BR-250M (BOOSTER B). The sensitivity switch of the second booster should also be at 200mV.
5. The third BR-250M (BOOSTER C) 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.
6. In this manner the inputs connected to the MIXER will feed all the four amplifiers creating a 1450W output system.
7. Loudspeaker connections to each of the five 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.
8. 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 or ceiling speakers the switch should be turned to the Driver Unit side.
9. Finally when operating the system the Bass and Treble controls of the BTZ-7000 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 19 for illustration)

Connecting Three BR-250M To BTZ-7000 To Make A 1450W High Power Mono System



• Specifications

MODEL BTZ-7000	ZONE-A	ZONE-B
Power Output	500W RMS Max. 350W RMS at 10% THD 300W RMS at 5% THD 280W RMS at 2% THD	500W RMS Max. 350W RMS at 10%THD 300W RMS at 5% THD 280W RMS at 2% THD
Output Regulation	$\leq 2\text{dB}$ no load to full load at 1kHz	
Input Channels	Mono Input: 200mV / 100k Ω Stereo Input: Left Channel / A : 200mV / 100k Ω Right Channel / B : 200mV / 100k Ω Line Input: Left Channel / A : 1V / 50k Ω Right Channel / B : 1V / 50k Ω	
Frequency Response	50Hz – 15,000Hz $\pm 3\text{dB}$	50Hz – 15,000Hz $\pm 3\text{dB}$
Signal to Noise Ratio	60dB	60dB
Tone Controls: Switch at Box Speaker Position	Bass: $\pm 10\text{dB}$ at 100Hz Treble: $\pm 10\text{dB}$ at 10kHz	Bass: $\pm 10\text{dB}$ at 100kHz Treble: $\pm 10\text{dB}$ at 10kHz
Switch at Driver Unit Position	Bass: -10dB at 100Hz Treble: $\pm 10\text{dB}$ at 10kHz	Bass: -10dB at 100Hz Treble: $\pm 10\text{dB}$ at 10kHz
Line Output	1V / 1k Ω	1V / 1k Ω
Output Taps for Speaker Matching	4 & 8 Ω (for direct connections) 70 & 100V Line (for use with LMT)	4 & 8 Ω (for direct connections) 70 & 100V Line (for use with LMT)
Power Supply	AC : 220-240V 50 / 60Hz; DC : 36V (3 $\times$ 12V Car Battery)	
Protection	AC: Fuse 10Amp. (T 10AL); DC: 15Amp. Circuit Protector for each zone	
AC Power Consumption	1100 VA	
DC Power Consumption	6.5 A	6.5 A
Dimensions	W510 $\times$ H185 $\times$ D470 mm	
Weight	32.0kg approx.	

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