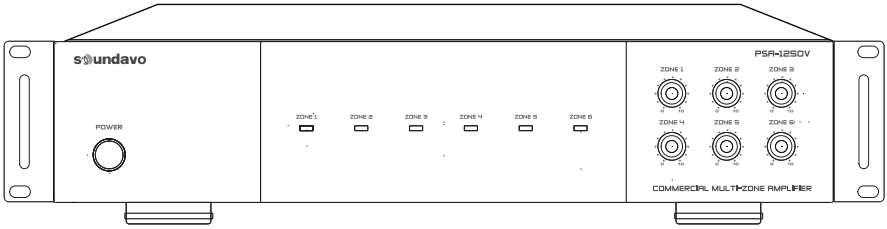
soundavo

PSA-1250V | COMMERCIAL MULTI-ZONE AMPLIFIER



OWNERS MANUAL

DEAR CUSTOMER

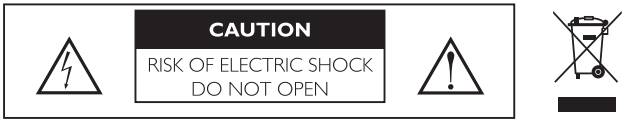
Thank you for purchased **Soundavo** product. Please read this entire manual before using this device, paying extra attention to these safety warnings and guidelines. Please keep this manual in a safe place for future reference.

WARNING

1. Do not place or install this device in an area where it can be exposed to excessive amounts of dust, humidity, oil, smoke, or combustible vapors.
2. To prevent risk of electrical shock or fire hazard, due to overheating do not obstruct unit's ventilation openings.
3. Do not install near any source of heat, including other units that may produce heat.
4. Do not expose this device to excessively high temperatures. Do not place it in, on, or near heat sources, such as a fireplace, stove, radiator, etc. Do not leave it in direct sunlight
5. Do not touch the device, the power cord, or any other connected cables with wet hands.
6. This device ventilates excessive heat through the slots and openings in the case. Do not block or cover these openings. Ensure that the device is in an open area where it can get sufficient airflow to keep from overheating.
7. Only clean unit with a dry cloth.
8. Unplug unit during lightning storms or when not used for an extended period of time.
9. Protect the power cord from being walked on or pinched, particularly at the plugs.
10. Use unit only with accessories specified by the manufacturer.
11. Refer all servicing to qualified personnel.

CAUTION

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



INTRODUCTION

The PSA-1250V is a 6 Zones (12 Channels) audio distribution amp that can be confgured for six stereo 4 Ohm/8 Ohm zones (30W/channel @ 8 Ohms; 60W/channel @ 4 Ohms); but it can also be configured for six stereo 70/100V zones (120W/per Zone); or three high powered bridged zones(120W @ 8 Ohms). It also can be configured for any combination of stereo 4 Ohms/8 Ohms, 8 Ohms bridged and 70/100V zones all at the same time. Which is a versatile multi-channel amplifier provide the good solution for either residential or the 70V/100V contractor/install applications, and perfect for the distribution of multiple speaker systems over long cable runs, such as in-ceiling speakers, surface-mount speakers and paging horns.

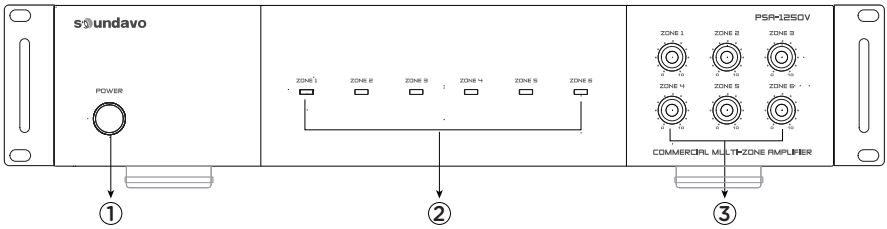
THERMAL PROTECTION

PSA-1250V amplifier is designed with special circuitry to safeguard the amplifier under a thermal overload condition. Thermal protection mode will only engage when the unit has been run at high volume for extended periods of time without adequate ventilation and/or when speaker impedances are below the minimum levels for the amplifier. In thermal protection mode the amplifier will automatically stop output. If this fault occurs, turn off the amplifier, and check that the speaker impedance rating is above the minimum rating. Also check for adequate ventilation around the amplifier and make adjustments if necessary. Once the unit has cooled to sage operating temperatures, the amplifier may be powered back on.Special circuitry has been designed into the amplifier to safeguard under a short-circuit condition. Afaulty speaker can also cause a short circuit condition.

INSTALLATION

The amplifier can be placed on a shelf in an equipment rack, or on a table or cabinet. Be sure the required clearances for ventilation and heat dissipation. The amplifier will take two rack spaces with the feet removed.

FRONT PANEL

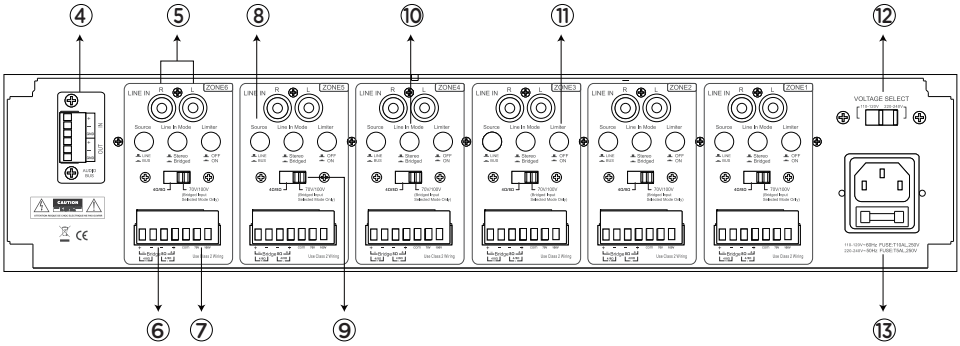


1. Power Switch:
This switch turns the AC mains On or OFF

2. Zone LED:
Blue: the corresponding zone is powered on
OFF: the corresponding zone is off (standby mode).

3. Gain Controls:
Volume controls for each zone (Stereo Left/Right channels or Bridge Mono mode) adjust the sound level independently (Counterclockwise for minimum; clockwise for maximum.) This allows the output level of each speaker to be perfectly matched to its area. It can also be used to limit the maximum audio level in a certain area.

REAR PANEL



4. Audio Bus Input/Output: The PSA-1250V amplifier has a BUS input that receives audio signals from standard balanced audio sources via plug-in screw terminal connector that can be used to connect a single source to multiple zones switched to BUS using the Line/Bus Switch. The BUS output are passive pass through the corresponding of the BUS Input and can be used to daisy chain the source to other amplifiers in the system.

5. Local Line Input RCA Connector: Local input for zone (plays only on that specific zone's outputs). Use for instances where the zone will always play a different source than other zones. Set the Zone Input Selector switch to "Line In" to use this input.

6. 4Ω/8Ω Zone Speaker Output Terminal:
Stereo 4Ω/8Ω Mode - Use indicated terminals for normal stereo speaker connections. (2 x 30W @ 8 Ohms; 2 x 60W @ 4 Ohms)
NOTE 1: 4Ω/8Ω - 70V/100V switch must be in the "4 Ω/8Ω" position
NOTE 2: The Stereo/Bridged switch must be in the OUT (Stereo) position.
Bridge 8Ω Mode - Use indicated terminals for high output mono speaker connection. (1 x 120W @ 8 Ohms)
NOTE 1: 8Ω/4Ω - 70V/100V switch must be in the "4 Ω/8Ω" position.
NOTE 2: The Stereo/Bridged switch must be in the IN (Bridged) position.

7. Hi-Z Zone Speaker Output Terminal:
70V/100V Mode - Use indicated terminals for 70V/100V stereo speaker connections. (120W @ 70V/100V)
NOTE 1: 8Ω/4Ω - 70V/100V switch must be in the "70V/100V" position.
NOTE 2: 70V/100V High Voltage Speaker Output Switch must be set to proper voltage.
NOTE 3: The Stereo/Bridged switch must be in the OUT (Bridged) position.

8. Line/Bus Switch: Each Zone's input source can be selected using this switch. Depress the button to select the audio programcoming from the BUS Input or leave it in the up position to use the Zone's Line Input.

9. 4Ω/8Ω & 70V/100V Switch: Select the zone speaker output between 4Ω/8Ω and 70V/100V

10. Line Input Mode Switch: Select whether a pair of left and right output channels are individual or bridged together for a more powerful mono channel, the Bridge Output mode is ideal for powering larger speakers or speakers on long cable runs.
Stereo: For stereo signals, leave switch in the OUT (Stereo) position. This applies to all connections in the 4 ohm / 8 ohm configuration.
Bridge: ONLY press this button when using the "Bridged 8 Ohm" or "70/100V mode" speaker wiring connection in a giving zone.

CAUTION: In Bridge mode, an amplifier encounters a load that is about one half of its actual value a 4-ohm load would therefore be 2-ohms to a bridged amp and if the amplifier isn't designed to run Safely into such a low impedance (which the PSA-1250V is not) damage may occur tothe amplifier. We do not recommend connecting a 70V Speaker circuit while in Bridge mode as the output will be at 140V and the sound can be distorted.

11. **Zone Audio Limiter:** Press to activates a -20dB input limiter, for the specific zone, to help reduce the level of accidental audio peaks and clipping distortion by zone. Leave in the OUT position to pass audio through unprocessed. Press IN to actiate the input limiter.

12. **Voltage Switch:** The unit is set at the factory for 115V U.S. operation; simply connect the included IEC power cord to your wall outlet. For 230V operation, move the voltage selector switch to the 230V position. When operating at 230V the internal fuse located in the IEC socket should also be changed. In most 230V applications a separate power cord will be required and is not included.

13. **AC Input:** Apply the correct voltage before operate the amplifier, use the supplied 3-pin ground power cable to connect the unit.
FUSE - For 110V-120V/60Hz use a T10.0AL/250V fuse. For 220V-240V/50Hz use a T5.0AL/250V fuse.

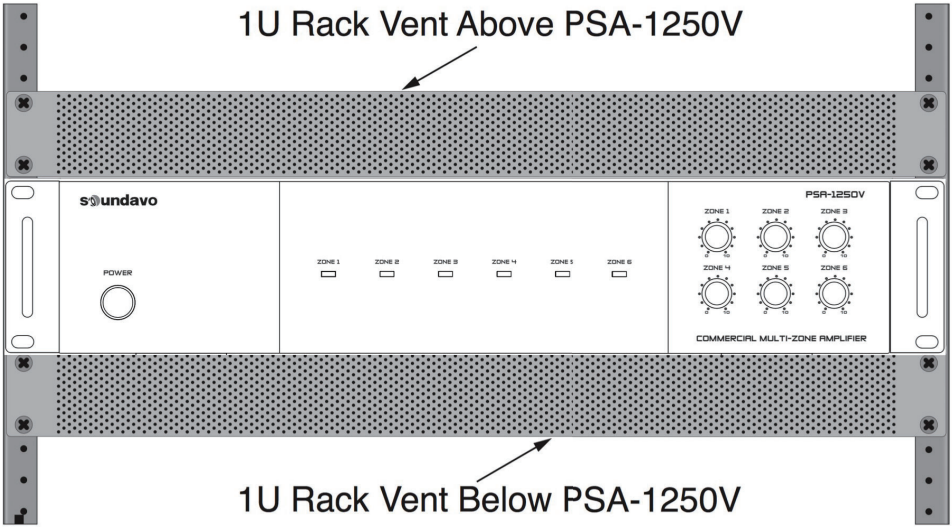
FEATURES:

- Each zone can independently select a zone-specific stereo audio source or the global mono Audio Bus input (balanced)
- Each zone can be independently configured for stereo 4 Ohm/8 Ohm mode, high powered bridged 8 Ohm mode, or 70V/100V mode for total flexibility within a given installation
- Each zone has -20dB Audio Limiter
- Front panel features “Zone ON” and “Zone Standby” LED indicators for each zone
- Rack mountable in standard 19" rack (2U height)
- Selectable 110/220 AC voltage

SPECIFICATIONS

- **Stereo Mode (4 Ohm) per Zone:** 2 x 60W THD 0.8%
- **Stereo Mode (8 Ohm) per Zone:** 2 x 30W THD 0.8%
- **Bridged Mono Mode (8 ohms) per Zone:** 120W W THD 0.8%
- **70/100V Mode per Zone:** 120W
- **Total Harmonic Distortion:** 1%
- **Signal-to-Noise Ratio:** -95dB
- **Channel Separation:** -60 dB
- **Frequency Response:** 20Hz---20KHz 1.5dB
- **Input Sensitivity:** 380mV
- **Line Input Impedance:** 47K
- **Dimensions:** 16.81”W x 3.46” H x 16.14”D (42.7 x 8.8 x 41.0 cm)
- **Weight:** 43 lbs (19.25 kg)

INSTALLATION



1. The PSA-1250V is convection cooled. It depends on the natural free fow of air up through the slot perforations in the bottom plate, over the internal heat dissipating fins, then out the top cover, for adequate cooling.

2. The PSA-1250V is designed for mounting into standard 19" (483mm) racks or on fat horizontal surfaces.

3. If mounted in an equipment cabinet or other confining location, allow at least 2 inches of space above the top cover. Be sure there are large openings in the shelf below the unit and in the cabinet to allow the entry of cool air and the escape of warm air.

4. If the cabinet contains other heat generating components or several PSA-1250V's are being used, be sure to provide adequate ventilation to dissipate heat the units can generate.

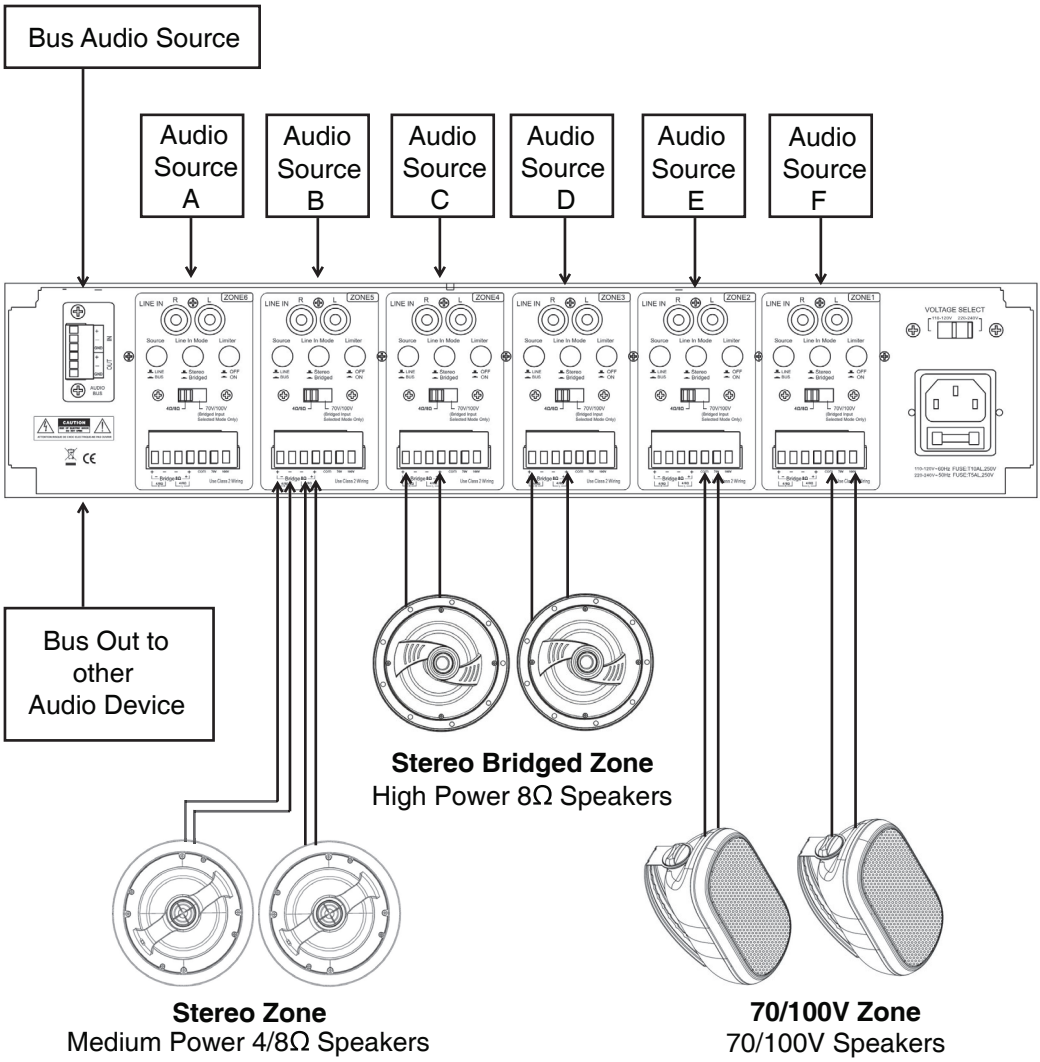
5. Use fans (quiet, boxer type), if necessary, to ensure a constant fow of air through the PSA-1250V's and the other heat generating components.

6. When installing the PSA-1250V in a rack, please use racks that feature a rear support provision. Adding a single RU (Rack Unit) vent above and below the PSA-1250V will improve convection in heavy use applications. [One Rack Unit size = 1-3/4" (44.5mm) in height]. Also try to mount the amplifier(s) at the top of the rack so heat dissipation does not affect other devices.

7. Be sure to leave adequate space for large bundles of wire and dress them in such a manner that does not block airflow. Leave enough 'play' in the wires for making connections should the system require service.

TYPICAL PSA-1250V SYSTEM APPLICATION

Typical System application for the PSA-1250V audio distribution amplifier. The amp can be set for any combination of high-power bridged, normal 8Ω/4Ω or 70/100V zones. All zones can select local or Bus sources and can be controlled via the source select switch on the rear panel.

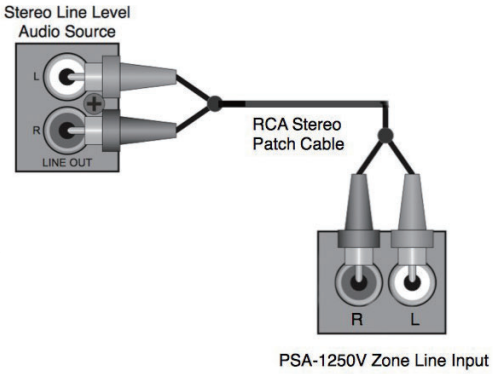


AUDIO CONNECTION

Zone Line In

This connection is an input for a dedicated zone line-level audio source. If multiple line level audio sources are required in a zone, use an audio switch on the zone Line IN or use a multi-source, multi- zone controller if multiple audio sources are required in multiple zones.

1. Line In: Using a quality, stereo audio RCA- RCA patch cable with gold ends, connect the L&R line level OUTs on the audio source to the L&R Line Ins on the appropriate PSA-1250V zone.



Audio Bus In

This connection will distribute unbalanced line level audio to any zone set to 'Bus' with the Line/ Bus Trigger IN.

NOTE: This is a mono unbalanced line level input. If connecting a stereo line level device, use an appropriate stereo to mono 'Y' adapter as shown when making this connection.

1. IN - Connect the RCA to bare wire adapter to the Audio Bus IN +/GND terminals as shown.

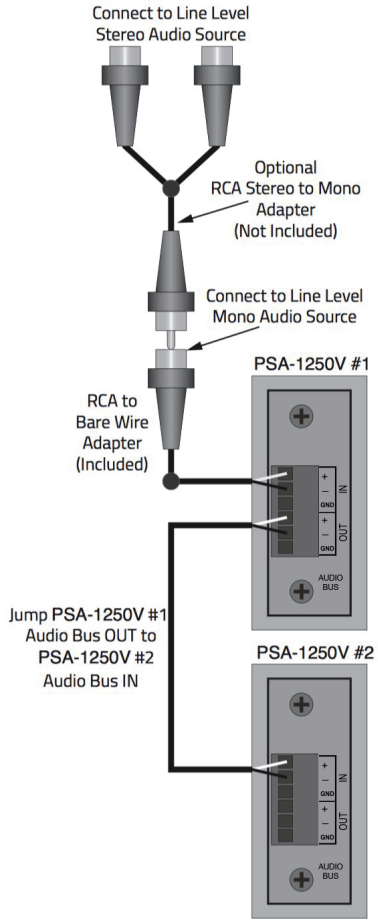
2. Connect the Audio Bus IN Source to the RCA adapter. Use a stereo to mono adapter if connecting a stereo source.

NOTE: Polarity of RCA plugs/jacks is typically pin = signal, sleeve =GND.

Audio Bus Out

This connection will send the unbalanced line level audio source connected to the Audio Bus IN to the Audio Bus IN on another PSA-1250V or other audio amplifier.

1. OUT - Using either the RCA adapter or bare wire, connect the Audio Bus OUT +/GND terminals on PSA-1250V #1 to the Audio Bus IN +/GND terminals on PSA-1250V #2. Use an RCA to bare wire adapter if connecting to a device with line level RCA jacks.



NOTE: Polarity of RCA plugs/jacks is typically pin = signal, sleeve =GND.

WIRING INFRASTRUCTURE

Speaker Output Mode Selection

The PSA-1250V has three amplifer modes for zone speaker connections. Bridged 8 Ohms, 4/8 Ohms Stereo and 70V/100V. Any mix of amplifier modes is allowable in differient zones...as long as they are configured correctly.

NEVER CHANGE THE 70V/100V HIGH VOLTAGE SPEAKER OUTPUT, 8Ω/4Ω - 70V/ 100V OR STEREO/BRIDGED SETTINGS WHILE THE AMP IS TURNED ON OR CONNECTED TO AC POWER!!!

Speaker Wire

The PSA-1250V is a fexible multi-channel amplifer capable of many different applications. The application for a given system, or even different amp configurations for different zones within a single system can create different requirements for speaker wire runs. Please review the information below and apply these guidelines to your particular application(s).

Multi-Room Audio - Stereo or Bridged (4/8Ω) Connection

If the PSA-1250V amp is being used to distribute audio from the PSA-1250V Zone Line INs or Audio Bus IN, to different rooms with 4/8 Ohm speakers, with a multi-zone preamp/ controller then pull home-runs directly from the speaker locations or speaker terminal plates to the amplifier location. Use quality stranded speaker wire based upon the 4/8Ω Speaker Wire Gauge Table below.

4/8Ω SPEAKER WIRE GAUGE	
SPEAKER WIRE LENGTH	SPEAKER WIRE GAUGE
150' (46m)	16 AWG
400' (122m)	14 AWG
1000' (305m)	12 AWG

70V/100V Connection

If the PSA-1250V amp is being used to distribute 70V/100V audio, pull distribution lines (each distribution line is a wire pair) in a daisy-chain pattern, (amp to first speaker, first speaker to second speaker, second speaker to third speaker, etc.) If distributing stereo, pull two distribution lines (two pair) to each speaker location in a daisy chain from the amp location. Use quality stranded speaker wire based upon the 70V Speaker Wire Gauge Table below.

70V SPEAKER WIRE GAUGE (120W Zone Output)	
SPEAKER WIRE LENGTH	SPEAKER WIRE GAUGE
350' (106m)	24 AWG
550' (167m)	22 AWG
900' (274m)	20 AWG
1400' (426m)	18AWG
2300' (701m)	16AWG

SPEAKER OUTPUT CONNECTIONS

70/100V Mode Speaker Output Application -

This configuration creates a stereo 70V speaker zone. (120W/zone) A70V/ 100V system utilizes speakers with special taps that set the wattage/ volume of each speaker.

70V/100V speaker system are wired using a dsisy-chain configuration where the amp feeds a speaker, then that speaker connects to the next speaker and so on.

When setting an PSA-1250V zone for 70V/ 100V, be sure to accurately calculate the total wattage required and not exceed the PSA-1250V 70V/100V zone's output, 30W per channel in 70V/100V mode.

Typically 70V amp power requirement can be calculated by adding the total of the tap wattage set for all speakers to be connected to a 70V/ 100V zone and multiplying it by 1.2. This will allow roughly a 20% loss of efficiency, typical for this type of system

If the total wattage exceeds 120 Watts for a 70/100V zone, reducet the load to any given zone by connecting 70V/100V speakers to multiple zones set to 70V/ 100V to safely distribute the load.

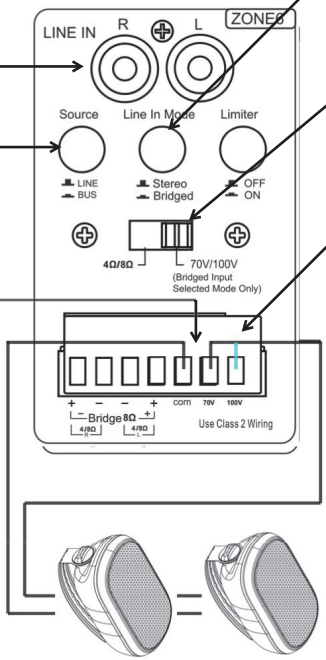
1. Zone Line IN: Connect the L & R line level OUT on the zone audio source to the appropriate zone LINE IN L & R

2. Select Input Source: Choose the Input source betwen LINE & BUS

5. Speaker Connections: Connect the right 70V distribution line +/- wires to the right 70V/100V distribution line +/- wires to the right 70V or 100V +/- terminals as shown

NOTE 1: Speaker terminals may not be specifically marked In/Out/

NOTE 2: In a 70/100V system +/- polarity is not critical in same way as in a 4/8 ohm system. But it is critically important that the connections be consistent, that is, plus to plus, minus to minus.



3. Stereo/Bridged Switch: Set to the **Bridged** position.

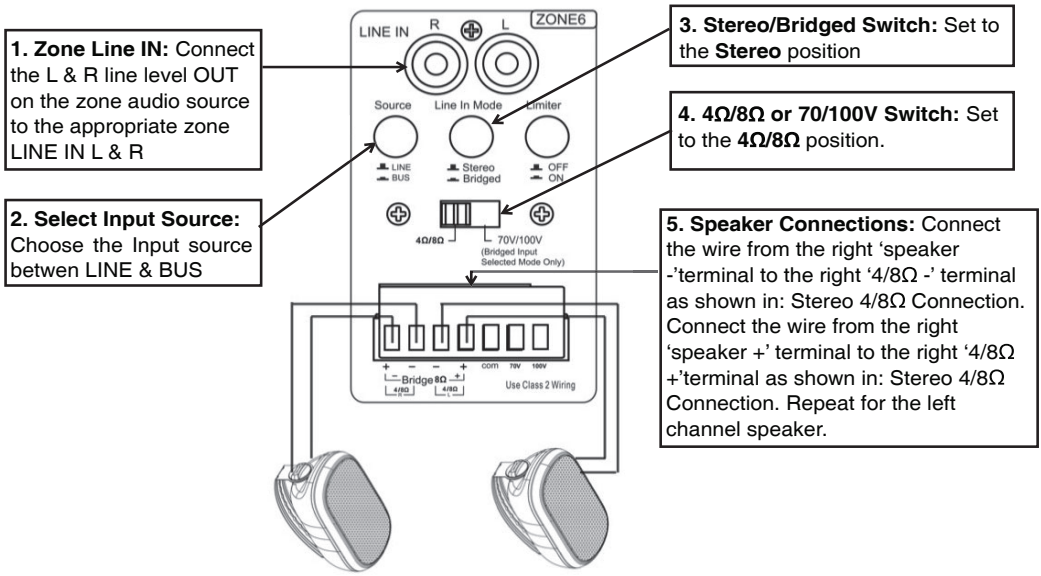
4. 4Ω/8Ω or 70/100V Switch: Set to the **70V/100V** position.

6. 70V/100V High Voltage Speaker Output - wiring the speaker into the 70V connector if PSA-1250V AC Voltage Select switch is set to 110~120VAC.

Set to 100V if PSA-1250V AC Voltage Select switch is set to 220~240VAC. This setting will affect all zones set to 70V/100V.

4Ω/8Ω Stereo Mode Speaker Output Application -

This configuration creates a standard zone stereo speaker output. (30W @ 8 Ohms/60W @ 4 Ohms)



8Ω Bridged Mode Speaker Output Application -

Bridging a zone amp creates an 120 Watt RMS mono @ 8 ohm power output