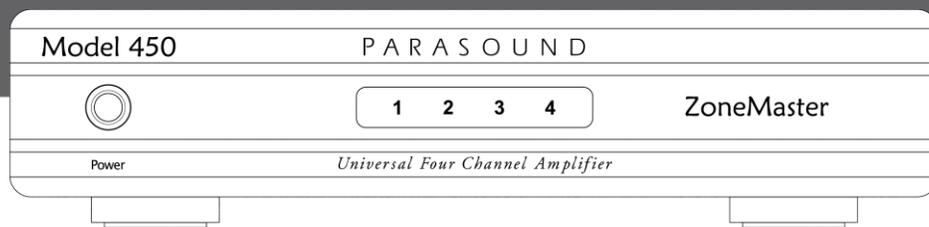


PARASOUND®



ZoneMaster™

Model 450

Universal Four Channel Amplifier

Owner's Manual



Important Safety Instructions

The lightning flash with the arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of “dangerous voltage” inside the product that may constitute a risk of electric shock.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance instructions in the literature accompanying the product.

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

1. **Read Instructions** — Read all the safety and operating instructions before operating this product.
2. **Retain Instructions** — Retain safety and operating instructions for future reference.
3. **Heed Warnings** — Adhere to all warnings on the product and in the operating instructions.
4. **Follow Instructions** — Follow all operating and use instructions.
5. **Cleaning** — Unplug this product from the wall outlet before cleaning. Use a damp cloth for cleaning. Clean the outside of the product only.
6. **Attachments** — Do not use attachments that are not recommended by the product manufacturer; they may be hazardous.
7. **Water and Moisture** — Do not use this product near water.
8. **Accessories** — Do not place this product on an unstable cart or stand. The product may fall, causing bodily injury and damage to the product. A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart to overturn.
9. **Ventilation** — Slots and openings in the cabinet are provided for ventilation to ensure reliable operation of the product and to protect it from overheating. These openings must not be blocked or covered. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided.
10. **Power Sources** — Operate this product only from the type of power source indicated on the label. If you are not sure of the type of power supply to your home, consult your dealer or local power company. This product is equipped with a three-prong grounding plug. This plug will only fit into a grounding power outlet. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding plug.
11. **Power Cord Protection** — Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them.
12. **Lightning** — Unplug the unit from the wall outlet for added protection during a lightning storm and when it is left unattended and unused for long periods of time. This will prevent damage to the product due to lightning and power line surges.
13. **Overloading** — Do not overload wall outlets or extension cords. This can result in a fire or electric shock.
14. **Inserting Objects into Unit** — Never push objects of any kind into this product through any openings; they may touch dangerous voltage points or short out parts that could result in fire or electric shock.
15. **Servicing** — Do not attempt to repair or service this product yourself. Opening or removing covers may expose you to dangerous voltage and other hazards. Refer all servicing to qualified service personnel.
16. **Damage Requiring Service** — Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions: **a)** If the power-supply cord or plug is damaged. **b)** If liquid has been spilled into the product. **c)** If the product has been exposed to rain or water. **d)** If the product does not operate normally by following the operating instructions. **e)** If the product has been dropped or damaged in any way. **f)** If the product exhibits a distinct change in performance.
17. **Replacement Parts** — When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer. Unauthorized substitutions may result in fire, electric shock, and other hazards.
18. **Safety Check** — Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.
19. **Wall or Ceiling Mounting** — Mount the product to a wall or ceiling only as recommended.
20. **Heat** — The product should be situated away from heat sources such as radiators, heat registers, stoves, and other products (including amplifiers) that produce heat.

THE FOLLOWING PRECAUTIONS AND SAFETY INSTRUCTIONS ARE REQUIREMENTS OF UL AND CSA SAFETY REGULATIONS

Warning: To reduce the risk of fire or electric shock, do not expose this unit to rain or moisture.



The graphic symbol of a lightning flash with an arrow point within a triangle signifies that there is dangerous voltage within the unit and it poses a hazard to anyone removing the cover to gain access to the interior of the unit. Only qualified service personnel should make any such attempt.



The graphic symbol of an exclamation point within an equilateral triangle warns a user of the device that it is necessary to refer to the instruction manual and its warnings for proper operation of the unit.

Do not place this unit on an unstable cart, stand, tripod, bracket, or table. The unit may fall, causing serious injury to a child or adult, and serious damage to the unit. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer or sold with the unit. Any mounting of the device should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

Read all the safety and operating instructions before connecting or using this unit.

Retain this notice and the owner's manual for future reference.

All warnings on the unit and in its operating instructions should be adhered to.

All operating and use instructions should be followed.

Do not use this unit near water. For example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool.

The unit should be installed so that its location or position does not interfere with its proper ventilation. For example, it should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or placed in a built-in installation, such as bookcase or cabinet, that may impede the flow of air through its ventilation openings.

The unit should be situated away from heat sources such as radiators, heat registers, stoves, or other devices (including amplifiers) that produce heat.

The unit should be connected to a power supply outlet only of the voltage and frequency marked on its rear panel.

The power supply cord should be routed so that it is not likely to be walked on or pinched, especially near the plug, convenience receptacles, or where the cord exits from the unit.

Clean unit only as recommended in its instruction manual.

The power supply cord of the unit should be unplugged from the wall outlet when it is to be unused for a long period of time.

Care should be taken so that objects do not fall, and liquids are not spilled, into the enclosure through any openings.

This unit should be serviced by qualified service personnel when:

- A. The power cord or the plug has been damaged; or
- B. Objects have fallen, or liquid has been spilled, into the unit; or
- C. The unit has been exposed to rain, or liquids of any kind; or
- D. The unit does not appear to operate normally, or exhibits a marked change in performance; or
- E. The device has been dropped, or the enclosure damaged.

**DO NOT ATTEMPT SERVICING OF THIS UNIT YOURSELF.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.**

ATTENTION

POUR PREVENIR LES CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR, UNE PRISE CE COURANT OU UNE AUTRE SORTIE CE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

CAUTION

TO PREVENT ELECTRIC SHOCK DO NOT USE THIS POLARIZED PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

CAUTION POWER LINES

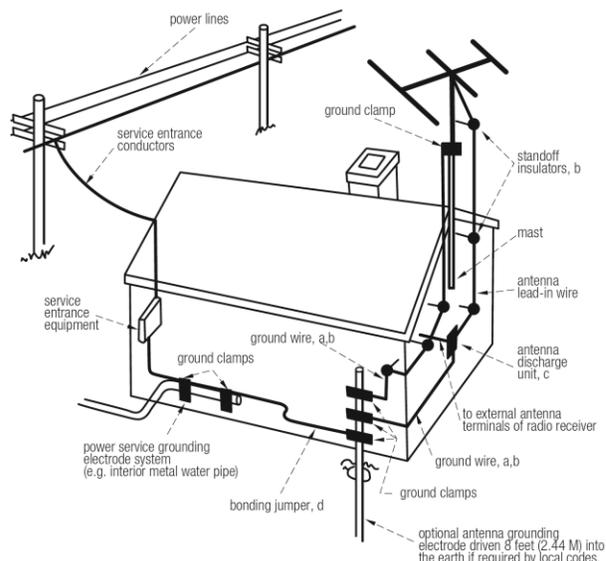
Any outdoor antenna must be located away from all power lines.

OUTDOOR ANTENNA GROUNDING

If an outside antenna is connected to your tuner or tuner/preamplifier, be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 701984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

- a. Use No.10 AWG (5.3 mm²) copper, No.8 AWG (8.4 mm²) aluminum, No.17 AWG (1.0 mm²) copper clad steel or bronze wire, or larger, as a ground wire.
- b. Secure antenna lead-in and ground wires to house with stand-off insulators spaced from 46 feet (1.221.83 m) apart.
- c. Mount antenna discharge unit as close as possible to where lead-in enters house.
- d. Use jumper wire not smaller than No.6 AWG (13.3 mm²) copper, or the equivalent, when a separate antenna grounding electrode is used. See NEC Section 810-21 (j).

EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE INSTRUCTIONS CONTAINED IN ARTICLE 810. RADIO AND TELEVISION EQUIPMENT.



NOTE TO CATV SYSTEM INSTALLER

This reminder is provided to call the CATV system installer's attention to Article 82022 of the National Electrical Code that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

INTRODUCTION

Congratulations on your purchase of this precision audio product and thank you for selecting Parasound. We are proud to offer you this versatile amplifier, knowing that it will bring you many years of enjoyment and dependable operation. Please take a few moments to read the following instructions so you can enjoy all the benefits of your new ZoneMaster 450's advanced performance capabilities.

You can find details of the ZoneMaster 450's specifications and advanced technology at www.parasound.com.

Enjoy.

The Parasound Staff
www.parasound.com

- **Keep your Purchase Receipt/Dealer Invoice for future reference**
- **Keep the carton in the event it is needed in the future**

Record the 5 digit serial number located on the bottom side of your ZoneMaster 450 in the space below. Also note your Parasound dealer's name and telephone number. Your purchase receipt-dealer invoice is required to determine if your ZoneMaster 450 is eligible for Parasound warranty service. We recommend that you make an extra copy of your original purchase receipt-dealer invoice and store it inside the ZoneMaster 450's carton. If the ZoneMaster 450 should require warranty repair you will need its original carton and foam packing inserts to ship it.

Please do not throw away the carton or foam packing inserts.

Parasound ZoneMaster 450 Serial # _____

Parasound Dealer: _____

Parasound Dealer Phone Number: _____

Date of Purchase: _____

Important Warranty information

There is no Parasound warranty for this unit if it was not purchased from an Authorized Parasound Dealer. Investigate warranty coverage statements made by *unauthorized* dealers very carefully, as Parasound will not provide service under our warranty and you will need to depend entirely upon the unauthorized dealer for warranty service. A list of Authorized Parasound Dealers and detailed warranty information is available at www.parasound.com or you can call Parasound at **(415) 397-7100** between 8:30 am and 4 pm Pacific time.

A missing or altered serial number could indicate that this unit was re-sold by an unauthorized dealer or is stolen merchandise. If this unit is missing its serial number or the serial number has been altered, you should return it to your dealer immediately for a full refund.

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Unpacking your ZoneMaster 450 & Placement Guidelines

Unpacking Your ZoneMaster 450

Carefully remove your ZoneMaster 450 from its shipping carton and locate its AC power cord and these included accessories:

- Two 12V trigger wires with mono 3.5mm to 3.5mm mini plugs at both ends.
- Two different size screwdrivers, the larger one is for the speaker output connectors and the smaller one is for the speaker level input connector.

While you are unpacking your ZoneMaster 450, inspect it thoroughly for evidence of possible shipping damage and tell your Parasound dealer immediately if you find any. If possible, save and store both the inner and outer cartons and—most especially—the foam packing inserts, to protect the ZoneMaster 450 if you have to move it or ship it. This would be a good time to make a copy of your sales receipt for storage with the ZoneMaster 450's original packing. **Again: Do not throw away the carton or foam packing inserts.**

Placement Guidelines

Install your ZoneMaster 450 away from heat sources such as heating ducts, radiators, or other heat-producing components. Always position the ZoneMaster 450 horizontally. Observe the following ventilation guidelines when installing the ZoneMaster 450 in an equipment rack or any other enclosed space:

You should never install the ZoneMaster 450 in an unventilated equipment cabinet or compartment because hot air will not exhaust adequately to prevent overheating. Even a cabinet or enclosure whose front and back sides are open doesn't guarantee that air will circulate adequately pockets of intense heat can still develop around any heat-producing equipment. Allow a few inches of empty space on each side and above the unit and try to avoid crowding or stacking the ZoneMaster 450 tightly between other components. A ventilation fan is also recommended where other heat-producing equipment must be mounted close to the ZoneMaster 450.

! Safety Caution ! The ZoneMaster 450, as with any other high powered amplifier, could overheat if it is installed in a confined space without adequate ventilation. Continuous overheating can damage an amplifier and could ultimately pose a risk of fire.

If you are installing the ZoneMaster 450 yourself, use input and output cables that are long enough to leave at least two feet of slack; that will enable you to pull the ZoneMaster 450 out of a cabinet to check or to change connections without inadvertently disconnecting cables.

Rack Mounting Your Parasound ZoneMaster 450

A rack mount adapter is available for purchase separately. This kit allows two half sized ZoneMaster units or Z Custom units to be installed in a rack side by side. Included in the kit is also a panel extender to rack mount a single 450.

AC Mains Voltage

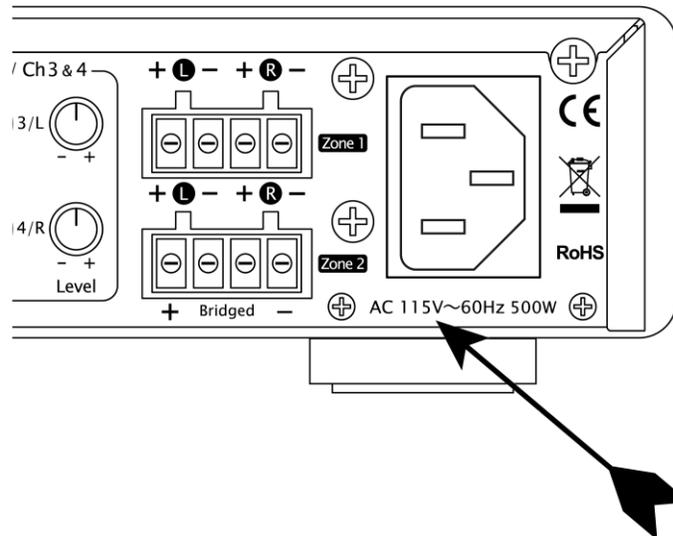
BEFORE plugging in the ZoneMaster 450's AC power cord: Check if the rear panel is marked for 115V or 230V. These markings are located below the AC line (mains) inlet.

The ZoneMaster 450 has been set by the factory to either 115V or 230V AC mains operation. The unit can be seriously damaged if it is plugged into the incorrect AC mains voltage. The operating voltage for this model can be changed only by a qualified electronics technician.

In the 115V position the ZoneMaster 450 can safely operate with AC line voltages between 110V-120V which is correct for North America, including Mexico, as well as in Taiwan. In some countries, such as Brazil, AC voltage varies by region. Most other countries require setting this switch to 230V. With the 230V setting the ZoneMaster 450 can operate safely with AC line voltages between 220V-240V.

Note: A ZoneMaster 450 that has been damaged by connection to the incorrect AC voltage is not covered by the Parasound warranty.

AC Voltage Marking:



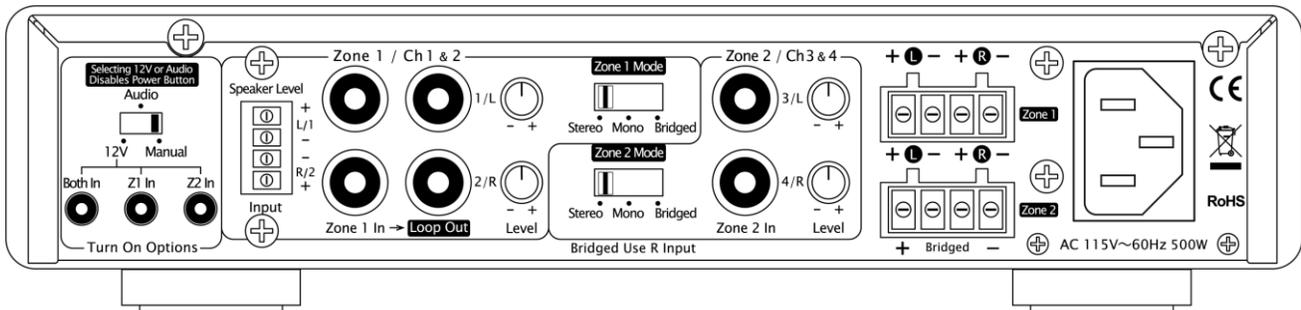
AC Line Power Cord

Connect your sources and preamplifier before you plug in the AC cord. The power cord supplied with your ZoneMaster 450 is an IEC type 18AWG AC cord. The AC ground potential can vary between your AC outlets and the result can be an audible 60Hz (or 50Hz) hum heard in your speakers. To help avoid this problem plug your ZoneMaster 450 into the same AC wall outlet, power strip or line conditioner as all your other audio equipment.

Rear Panel Audio Connections

Channel pairs (left and right) are grouped into two zones. Typically each room or area is considered a zone but this will be determined by the system integrator.

Always disconnect the AC cord to your ZoneMaster 450 before plugging in or unplugging any connections. Inserting or removing an interconnect cable's plug while this power amp is turned on can result in a burst of sound that can damage your loudspeakers. Make sure there is no strain or tension on any input cables, speaker wires, DC trigger wires or the AC cord that could cause them to pull loose.



Audio Input Connections

The Speaker Level Input Connector

This is an additional type of audio input that can be used by Zone 1 and connected to Zone 2 by using the Loop Out jacks. The Speaker Level input enables the ZoneMaster 450 to connect to any audio receiver or stereo system even if it lacks preamp output jacks. This is a high impedance input and the ZoneMaster 450's Speaker Level input can connect to the speaker terminals on any receiver or amplifier. This will not reduce the output power or degrade the sound quality of the speakers that are already connected directly to the "host" receiver or amplifier. Audio connected to the Speaker Level input connector will be routed to the Left and Right inputs of zone 1. Speaker level audio is also converted to line level and routed to the zone 1 Loop Out jacks which provide a line level output to drive zone 2 or additional amplifiers. To route the Speaker Level Input to zone 2 as well as zone 1 you can use any standard RCA cables and connect it between the Loop out jacks and the input for zone 2.

Note: You should connect only the RCA connections for zone 1 or the Speaker Level inputs, but not both or you could hear both sources at the same time.

Note: You can detach the speaker input connector block from the 450 to make it easier to attach and secure the 4 speaker wires. It accepts bare wires up to AWG 16. Each wire should be twisted tightly and/or tinned with solder to prevent stray strands that could short circuit the amplifier. Since the Speaker Level input consumes a small fraction of a watt of your receiver's power output using large gauge speaker wire provides absolutely no performance advantage.

Line Input Jacks for Channels 1 through 4

These are standard line level audio Inputs for each channel. Connect these jacks to the Left and Right output jacks on your preamp, whole-house audio controller or the zone outputs of your AV receiver.

Audio Output Connections

Loop Out Jacks

These jacks enable the audio source connected to the zone 1 Input jacks to pass along or “daisy chain” to zone 2 or an additional amplifier. Audio from the Speaker Level Input connector is also converted to line level and routed to the Loop Out jacks. To pass the audio signal from zone 1 to zone 2 use any standard RCA cables and connected the Loop out jacks to the input of zone 2.

Connecting Speaker Wires

Detach the green speaker output connecting blocks by pulling them away from the ZoneMaster 450 rear panel. This makes attaching speaker wires far more convenient. Removing them might require a bit of effort because the connecting blocks are seated very securely. Connect the connecting block's + and – terminals to the corresponding + and – speaker wires. Never combine the – (negative) of two channels together, doing so will trigger the amp's protection circuit.

Note: The minimum speaker load impedance is 2 ohms in Stereo Mode or 4 ohms when Bridged Mode is selected. When driving low impedance loads ensure that the ZoneMaster 450 has adequate ventilation and is not installed in a cabinet that is totally enclosed.

Note: The speaker connector blocks accept bare wires as large as AWG12. The ends of the wires should be twisted tightly and/or lightly tinned with solder to prevent stray wire strands from short circuiting the amplifier.

Connecting Multiple Speaker to each Channel

The 450 does not have A and B outputs for each channel unlike the other amplifiers in the ZoneMaster line. This is due to the limited space on the rear panel. Since the Model 450 is stable at 2 ohms you can connect multiple speakers to each channel. This is done by simply twisting the two positive speaker wires together and connecting them to the + (positive) speaker output on the 450. The same should be done with the two negatives and connecting them to the – (negative) speaker output. This is called a parallel connection.

Typical applications for connecting two speakers to a single channel might include a large living room with four ceiling speakers. Another use could be in a subzone like a bathroom or hallway adjacent to the room where the main speakers are installed. This adjacent subzone might also use a passive in-wall volume control to adjust its listening level separately. The ability of the ZoneMaster 450 to drive two pair of speakers is credited to its high current design.

Channel Impedance: When you select the Stereo Mode the R and L channels are each capable of driving speaker loads as low as 2 ohms. An example of a 2 ohm load is two 4 ohm speaker connected in parallel to one channel's speaker output terminal. When driving 2 ohm loads ensure the amplifier has adequate ventilation.

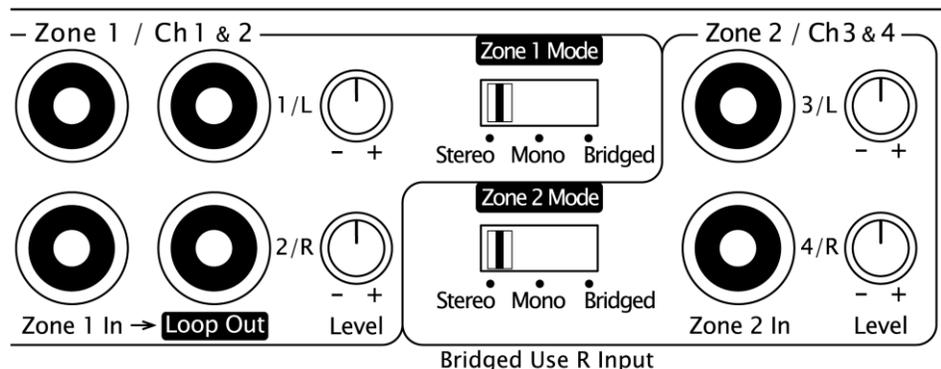
Bridged Mode Connections: When you select the Bridged Mode the L and R channels are used together as one channel with higher power output. A channel pair, or zone, in Bridged Mode is capable of driving a 4 ohm load. When you have selected Bridged Mode only use the **L+ and R –** terminals. Only the R channel Input jack and Level control are used. See page 11 for more details.

CONNECTION WARNING:

Never combine the Speaker L & R channel negative (-) outputs together.

Some speaker selectors combine the negative connections and are not compatible with the ZoneMaster 450. Combining the negatives of any two channels would cause the amplifier to engage its protection circuit and could seriously damage the amplifier. L and R channel speakers cannot be wired where they share a single negative (-) wire.

Rear Panel Controls for Each Zone



Mode Select Switch

The Mode select switch determines how the amplifier is utilized in that zone. There are three options:

Stereo: The Stereo setting routes the Left channel input to the Left channel speaker outputs and the Right channel input to the Right channel speaker outputs.

Mono: The Mono Mode is particularly useful for applications such as bathrooms and hallways where mono speakers and a single speaker wire are more practical than separate L and R wires and a single one-point stereo speaker. The Mono setting combines the Left and Right channel inputs into a summed L + R mono signal and routes it to both the Left and Right channel speaker outputs. In the Mono Mode you can connect one speaker to the L+ and L- and another speaker to the R+ and R- terminals. Because the 450 is stable with a 2 ohm load, two additional mono speakers can be connected in parallel to the L and R speaker outputs. All speakers in the zone will play the same Mono signal.

Bridged: The Bridged Mode setting internally reconfigures the left and right amplifier channels of the zone into a single channel amplifier with more than the twice as much power output to drive a single speaker. The bridged mode can be used to drive larger or less efficient speakers in large spaces where more power is needed. A typical use of the bridged mode would be to run Zones 1 and 2 in Bridged Mode to power a single pair of floor standing speakers. Another application would be to run only one zone in Bridged Mode to power an in-wall passive subwoofer and the other zone in Stereo Mode to power the left and right speakers. The minimum speaker impedance in Bridged Mode is 4 ohms.

Both Zone 1 and Zone 2 use the same connection method even though the rear panel only shows the bridged polarity under Zone 2. There simply wasn't enough space to print the bridged text under the Zone 1 speaker terminals.

When you have selected Bridged Mode only use the **L+ and R –** terminals. Only the R channel Input jack and Level control are used.

CAUTION: Do not use the L+ and R+ terminals (in Bridged Mode) as you would when bridging most other power amps. The L– and R + terminals are not used. Follow the markings on the rear panel located below the speaker terminals.

⚠ Safety Caution ⚠ Bridged Mode 4 Ohm Minimum Speaker Impedance

- The minimum speaker impedance in Bridged Mode is 4 ohms per zone.
- Sustained high power operation in Bridged Mode driving two speakers could overheat the ZoneMaster 450 if it is installed in a confined space without adequate ventilation. As with any high powered amplifier, continuous overheating can damage the amplifier and could ultimately pose a risk of fire.

Channel Level Controls

Each of the four channels has its own Level control. Fully counter-clockwise is full attenuation and no sound will be heard from that channel. Fully clockwise is maximum volume. We made the Level control shafts very short so they are less likely to be turned unintentionally. When installed in a rack you may find it easier to use a Phillips head screwdriver to adjust the Level controls.

Additional Uses for the Level Controls:

Passive In-Wall Volume Controls

The Level controls are particularly useful when an in-wall passive volume control is used to adjust the listening level in a room or zone. By reducing the ZoneMaster 450's maximum output level you reduce the amount of power that is absorbed by the in-wall volume control. This prevents the volume control from overheating or even vibrating from the stress of absorbing extra amplifier power. It avoids wasting amplifier power and reduces distortion. For a room or zone with an in-wall volume control the correct way to optimize the settings for the Level controls and the in-wall volume control is this:

1. Music should be playing.
2. Turn the ZoneMaster 450's Level knobs for that room or zone fully counterclockwise to their minimum settings.
3. Turn the passive in-wall volume control knob fully clockwise to its maximum setting.
4. Slowly turn up the ZoneMaster 450's Level controls until the volume level in the room or zone is as high as you or the home owner might ever want it to be. This is the most appropriate setting for the Level controls because it will improve sound quality and prevent the home owner from over-driving the speakers.

Improving the Audio Trigger Turn On for Listening at Very Low Volume

You might prefer to listen to music in some zones at an extremely low volume level. The audio signal voltage at very low volume levels could fall below the ZoneMaster 450's threshold for the Audio trigger On-Off circuit to function and the zone will not remain on or it might continue to turn on and off every few minutes because the amp "thinks" there is no source playing. To overcome this, simply turn down **both** the L and R Level controls for that zone by the same amount. Setting the level controls to 12 o'clock is a good place to start. This way the Audio On-Off function will keep that zone powered on even for very low listening levels.

Limit Maximum Volume for a Room

By adjusting the channel level controls you can limit the maximum volume in a zone regardless of how high someone turns up the volume on the preamp or whole-house controller.

(See **Passive In-Wall Volume Controls** above)

Reducing Background Hiss

If you hear hiss or other background noise you can reduce its audibility by turning down the Level controls until you no longer hear the noise.

Balance Left and Right to Compensate for Room Placement

Adjust only the left or right channel Level knob until you hear your music equally from your preferred listening location.

Turn On Options

The setting of the rear panel Turn On Options Switch determines how each zone turns on and off. There are three positions for this switch:

Manual

Pressing the Power button on the front panel will turn both zones on and off together.

12V Triggers

There are two different ways to use the 12 volt trigger features. Zone 1 and Zone 2 can be turned on/off by the same 12 volt trigger by using the “Both In” trigger input jack. Or the two zones can be turned on/off independently by using the Z1 and Z2 12 volt trigger jacks.

Both In: When 12 volts is applied to the 12V Input jack marked “Both In” Zone 1 and Zone 2 will always turn on together. When the trigger voltage is removed both zones will turn off together.

Z1 and Z2 In: These are two different 12 volt inputs for triggering the zones independently. When 12 volts is applied to the 12V Input jack marked “Z1 In” only Zone 1 will turn on. When 12 volts is applied to the 12V Input jack marked “Z2 In” only Zone 2 will turn on.

Note: Whenever the Turn On Options switch is set to 12V or Audio the ZoneMaster 450’s front panel Power button will be disabled to prevent the amplifier from being turned on or off manually or by mistake.

Note: The 12V turn on trigger circuit in the ZoneMaster 450 requires a mere 5mA from the 12V trigger source.

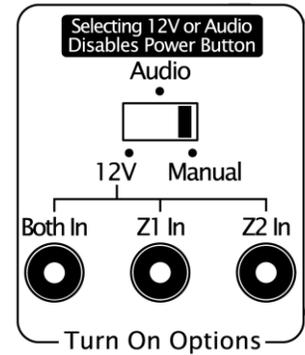
Audio

Each zone can be turned on and off individually by an audio signal. When an audio signal is present at the Zone 1 L or R input jacks only Zone 1 will turn on. When an audio signal is present at the Zone 2 L or R input jacks only Zone 2 will turn on. After the audio signal ceases the zone will remain on for about 6 minutes before shutting off. This prevents unintended turn-off during pauses in your music or movies.

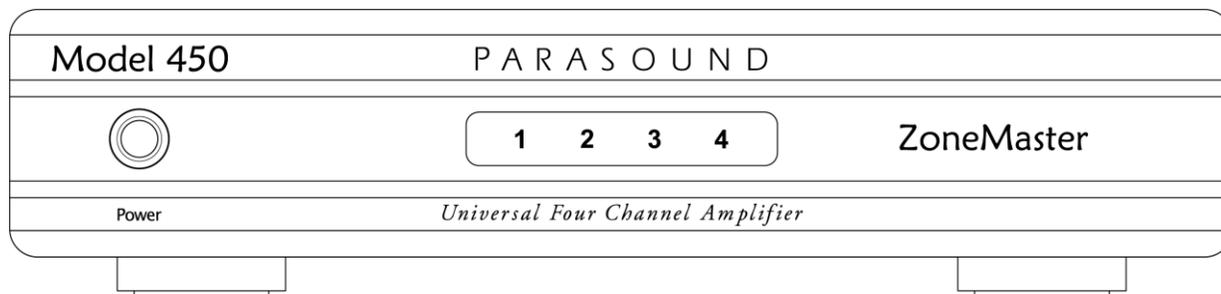
Note: The audio sensing circuit functions the same way whether the zone is using the Line Input jacks or the Speaker Level Input.

Audio Trigger Sensitivity: The audio trigger in the ZoneMaster 450 is calibrated for turn on at a very low volume level (an audio signal as low as 2mV) and is not adjustable. If you need a zone to turn on at an extremely low volume level, simply turn down both Level control knobs for that zone. Start with the level controls at 12 o’clock and see if the volume level is low enough when the amp turns on.

Whenever either the 12V or the Audio Turn On option is selected the front panel Power button will be disabled so that turn on and off is determined solely by the 12V trigger voltage from the preamp, receiver or by an active audio signal.



Front Panel Power Button and Display



Power Button

If the Turn On Options switch is set to the Manual position, pushing the Power button turns on all channels/zones. When turned on the ring around the Power button and the 4 channel status indicators will illuminate green. Pushing the Power button again turns off all channels/zones. **If the rear panel Turn On Options switch is not set to “Manual” the front panel power button will not operate.**

Channel Indicators (1 - 4)

The channel numbers on the front panel illuminate according to each channel's operational status. Both channel number indicators for a zone will always illuminate together. When a zone is turned on, both of the channel number indicators for that zone will illuminate green. For zones that are not turned on the corresponding channel pair indicators will not illuminate.

Channel indicators are illuminated by channel pairs that correspond to two zones:

Ch 1-2 = Zone 1

Ch 3-4 = Zone 2

Green: Indicates normal operation.

Red: Indicates the protection circuit has suspended operation of that channel pair to protect them from an overload or because one or both of their speaker wires are short-circuited. The indicators might also alternate flashing green and red, depending on the musical content and volume levels. This also indicates a problem. Both channel number indicators for a zone will always illuminate the same color. Causes for the front panel indicators to illuminate red are:

- The speaker outputs for one or both channels of that zone are short-circuited (negative to positive) either at the amplifier, at the speaker or somewhere along the speaker wire.
- The negative speaker terminals have been combined (L- to R-).
- Too many speakers are connected and the combined impedance is below 2 ohms. Or below 4 ohms when that zone is set to Bridged Mode.
- The unit has overheated. Provide more ventilation or use a fan.
- The AC line voltage has exceeded the maximum allowed (132V when set for 115V or 264V when set for 230v, depending on your region's mains voltage).
- The amplifier has been damaged.

Checking for Short Circuits on the Speaker Outputs

If your ZoneMaster 450's front panel indicators are illuminated red or alternate illumination between green and red this indicates a problem. Your first step is to immediately turn off the amp. The most likely cause will be a short circuited speaker connection. To check for this type of fault temporarily unplug both of the green speaker output connecting blocks. Now turn the amp back on and play music. If the front panel lights now illuminate green then you've eliminated the amp as the source of the problem. Please check your speaker wires and attached speakers for short circuits or impedance below 2 ohms in Stereo Mode or 4 ohms in Bridged Mode.

Frequently Asked Questions

The unit will not turn on

- Check the setting of the Turn On Options switch (The front panel Power button will be disabled if the switch is set to Audio or 12V).
- Check that the AC power is live. When the AC power is live and the unit is turned off, the Power button will illuminate red.

When using the audio trigger a zone is turning off during quiet listening

- Turn down the Level controls for those channels (12 O'clock is a good place to start).
- See page 11 for more details.

When using the audio trigger a zone never turns off

- The audio trigger circuit waits for up to 10 minutes before shutting the zone off. Try waiting at least 10 minutes after stopping the audio source.
- Ensure that the Turn On Option switch is set to the "Audio" position.
- If the zone still will not turn off then you may have too much noise (hiss or hum) in the audio signal path. You must eliminate the source or cause of this noise. If you are unable to do this you will have to resort to using the 12V triggers.

Front panel channel indicators are red or flashing green and red

- Check speakers and speaker wires for short circuits.
- Ensure that you have not combined the negative (-) terminals of any of the speaker outputs.
- You may have attached a total speaker load that is below the 2 ohm minimum in Stereo Mode or the 4 ohm minimum in Bridged Mode. The total speaker load for that channel is the combined parallel impedance of one channel. If two 8 ohm speakers are attached the channel "sees" only 4 ohms. If two 4 ohm speakers are attached the channel "sees" only 2 ohms.
- The zone may have overheated and will not resume operation until it cools down. Ensure that you have provided adequate ventilation especially when driving low impedance loads.
- See page 13 for more details.

Why is there no sound from my speakers?

- Are the channel lights illuminated green on the front panel indicating that the zone is turned on?
- Check that input and output cables are plugged in all the way at both ends.
- Are your preamplifiers and all power amplifiers turned on?
- Is the correct input selected on the preamplifier?
- Is there an audio source playing (CD player, Tuner, etc.).

I can hear a hum or buzzing noise from my speakers

- Cable TV is the most common source of hum or buzzing noise in a system. If you have a cable TV box connected to your audio system temporarily remove the incoming cable signal from the Cable TV box. If the hum goes away the problem is with the cable TV ground. You will need a cable TV ground Loop Isolator which is an inexpensive device that attaches between your incoming cable and the Cable TV box.
- Light dimmers can cause noise in your audio. Try turning lights that are controlled by dimmers all the way off. If the hum goes away the problem is electrical noise the dimmers introduce into your home's AC power.
- Ground loops are also a common cause of hum and buzzing noise. Finding a ground loop is a process of elimination. Unplug your source components one at a time. When the hum goes away you've identified the source of the ground loop. You might be able to stop the hum by attaching a wire from the chassis of the offending component to the chassis or ground screw of your preamplifier.

Maintaining Your ZoneMaster 450

Your ZoneMaster 450 requires no periodic maintenance and has no user serviceable parts inside. To avoid risk of electric shock do not remove the top cover. To keep it clean use only a soft cloth moistened with a few drops of clear water or window cleaner. Never use any solvents or abrasives.

Are You Having Difficulty?

Warranty Repair

Call your Parasound dealer first. If the dealer can't help you with your problem we encourage you to call Parasound's Technical Service Department at **415-397-7100**, Monday - Friday, 8am - 4pm Pacific time. We can suggest other diagnostic tests you can easily perform.

If we determine that your ZoneMaster 450 should be returned to Parasound or an Authorized Parasound Warranty Center for inspection and possible servicing, we will provide the location of a warranty center near you or shipping instructions for the unit's return to Parasound.

Read your accompanying Parasound Limited Warranty carefully to understand the applicable rights and limitations. This section provides instructions for obtaining repairs, both for units covered under the Parasound Limited Warranty and for units or situations which are outside the Warranty.

Unit is not eligible for repair under the terms of the Parasound warranty if:

1. Unit was not purchased from a Parasound Authorized Dealer.
2. You do not have the original bill of sale or sales receipt from a Parasound Authorized Dealer.
3. You are not the original owner. The Parasound warranty is not transferable.
4. Unit's serial number was removed, modified, or defaced.
5. Unit shows evidence of abuse and/or misuse.
6. Unit was modified in any way.
7. A prior repair was attempted by an unauthorized repair station.

Before You Return Any Unit to Parasound for Service

Before you send your unit to Parasound, you will need to obtain a specific Return Authorization (RA) number and shipping instructions from Parasound's Technical Department. The RA number must be clearly marked on the outer carton. Use the original factory packing materials and arrange adequate insurance to cover its replacement value. You must include a copy of your purchase receipt, since this document establishes the validity of this unit's warranty. Warranty repairs are only performed by Parasound or Parasound Authorized warranty centers when your purchase receipt is from a Parasound Authorized Dealer or Parasound Authorized Reseller.

Do not ship to Parasound by the USPS (US Postal Service) - we will not accept delivery. We will also refuse delivery of units whose cartons show evidence of damage caused by inadequate packing.

Specifications and Details

Power Output – RMS, All Channels Driven (20 Hz - 20 kHz)

50 watts x 4 @ 8Ω
90 watts x 4 @ 4Ω or 2Ω
160 watts x 2 @ 8Ω (Bridged Mode)
200 watts x 2 @ 4Ω (Bridged Mode)

Minimum Speaker Impedance

Stereo Mode: 2 Ω
Bridge Mode: 4 Ω

Note: Continuous operation at these minimum impedances might require additional ventilation for the amplifier.

Frequency Response

10 Hz - 60 kHz, +0/-3 dB

Total Harmonic Distortion

< 0.05 % at typical listening levels
< 0.9% at full power

Interchannel Crosstalk

70 dB at 20 kHz

Input Sensitivity:

700mv = Full output (50 Watts @ 8 Ω)
Total gain = 29 dB (Level controls set to Maximum)

S/N Ratio

> 112 dB, input shorted, IHF A-weighted

DC Trigger Requirements

+9 Vdc to +12 Vdc, 5 mA

Audio Trigger Requirements

2 mV audio signal

AC Power Requirement:

500 Watts maximum
30 Watts typical (music playing in both zones)
15 Watts idle (both zones on)
7.5 Watts idle (one zone on)
0.9 Watts in standby
110-130 VAC 60 Hz or 220-255 VAC 50 Hz

Note: AC mains voltage must be set only by a qualified electronics technician.

Dimensions:

Width: 8.5" (220 mm)
Depth: 10" (254 mm)
Depth: 12" (305 mm) with AC cord and cables connected
Height, with feet: 2" (51 mm)
Height, without feet: 1.75" (45 mm), 1U

Weight:

Net: 4.5 lbs. (2.0kg)
Shipping: 7.5 lbs. (3.4 kg)

We invite you to visit www.parasound.com for the most up-to-date information on your unit and to find out about other Parasound products. Learn why Parasound has been a quality and value favorite of magazine reviewers, sound professionals and listeners like you since we were founded in 1981.

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Parasound Products, Inc. 2250 McKinnon Ave, San Francisco, CA 94124
Customer Service: 415-397-7100
www.parasound.com