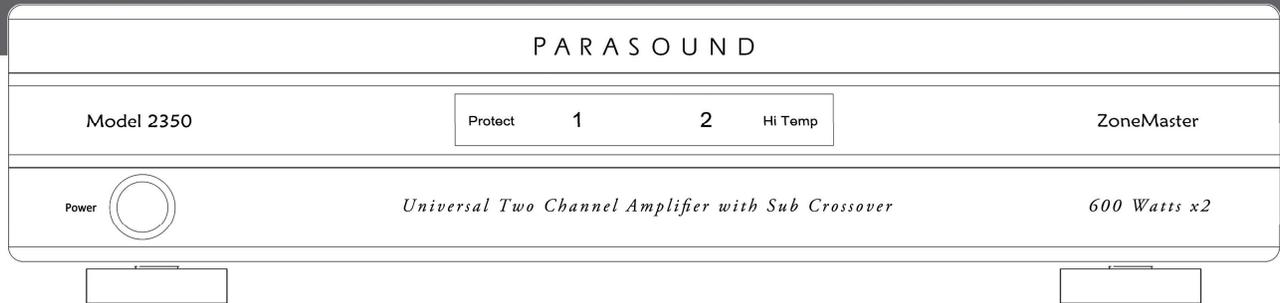


PARASOUND®



ZoneMaster™

Model 2350

Universal Two Channel Amplifier with Sub Crossover

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

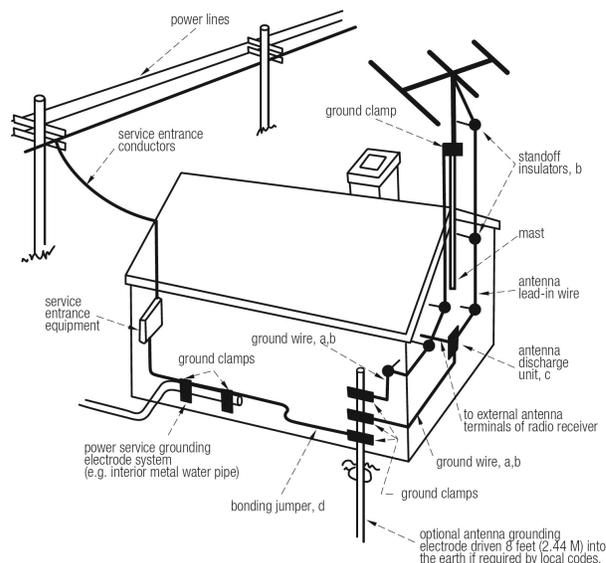
Any outdoor antenna must be located away from all power lines.

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 2350's advanced performance capabilities.

You can find details of the ZoneMaster 2350'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 2350 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 2350 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 2350's carton. If the ZoneMaster 2350 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 2350 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 2350 & Placement Guidelines

Unpacking Your ZoneMaster 2350

Carefully remove your ZoneMaster 2350 from its shipping carton and locate its AC power cord and these included accessories:

- One 12V trigger wire with mono 3.5mm mini plugs at both ends.
- 2U rack mounting kit
- 16AWG power cord

While you are unpacking your ZoneMaster 2350, 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 2350 should 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 2350's original packing.

Again: Do not throw away the carton or foam packing inserts.

Placement Guidelines

Install your ZoneMaster 2350 away from heat sources such as heating ducts, radiators, or other heat-producing components. Always position the ZoneMaster 2350 horizontally. Observe the following ventilation guidelines when installing the ZoneMaster 2350 in an equipment rack or any other enclosed space:

You should never install the ZoneMaster 2350 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 2350 tightly between other components. A ventilation fan is also recommended where other heat-producing equipment must be mounted close to the ZoneMaster 2350.

! Safety Caution ! The ZoneMaster 2350, 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 2350 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 2350 out of a cabinet to check or to change connections without inadvertently disconnecting cables.

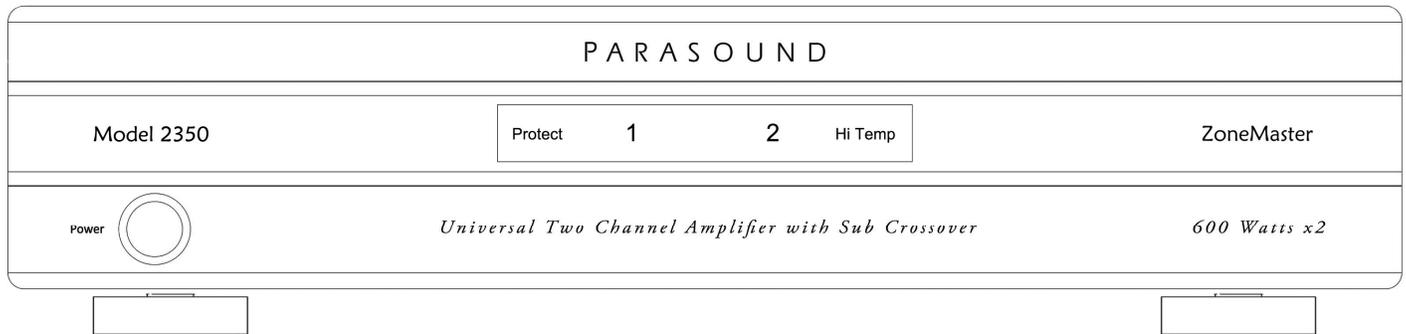
Rack Mounting Your Parasound ZoneMaster 2350

Brackets for mounting in a standard 19" equipment rack are included in the box with the ZoneMaster 2350. The rack bracket "ears" attach to each side of the amplifier using the 4 screws on the sides. If you intend to run the ZoneMaster 2350 into speaker loads less than 4 ohms adequate ventilation should be provided. To improve air flow around the amp we recommend leaving at least 1 empty rack space above and below the amplifier. If more than two amps will be racked mounted on top of each other ("flat stacked") a properly designed forced-air ventilation system should be used.

AC Line Power Cord

Connect your sources and preamplifier before you plug in the AC cord. The power cord supplied with your ZoneMaster 2350 is an IEC type 16AWG 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 2350 into the same AC wall outlet, power strip or line conditioner as all your other audio equipment.

Front Panel Buttons and Display



Power Button

If the Turn On Options switch (on the rear panel) is set to the Manual position, pushing the Power button turns the Model 2350 on and off. When it's turned on the ring around the Power button and the 2 channel status indicators will all illuminate green. Pushing the Power button again turns the unit off. **If the rear panel Turn On Options switch is not set to "Manual" the front panel Power button will not operate.**

A and B Speaker Select Buttons

These buttons turn on the speaker pairs connected to the corresponding Speaker Output A and B terminals. **If the rear panel A/B Lockout switch is not set to "Normal" the front panel A and B buttons will not operate.**

Channel Indicators 1 (Left) and 2 (Right)

The 1 and 2 indicators will illuminate green when the Model 2350 power is on and it is operating normally. The 1 indicator will not light if a fault is only in the left channel (channel 1). The 2 indicator will not light if a fault is only in the right channel (channel 2). Neither indicator will illuminate if the unit has gone into protect or over-temperature shut down.

Hi-Temp Indicator

Hi-Temp will illuminate red when the Model 2350 exceeds its maximum safe operating temperature. The amp should be turned off immediately and the cause of excessive temperature should be corrected before turning the amp on again. The usual cause is too many speakers attached and/or there is inadequate ventilation.

Protect Indicator

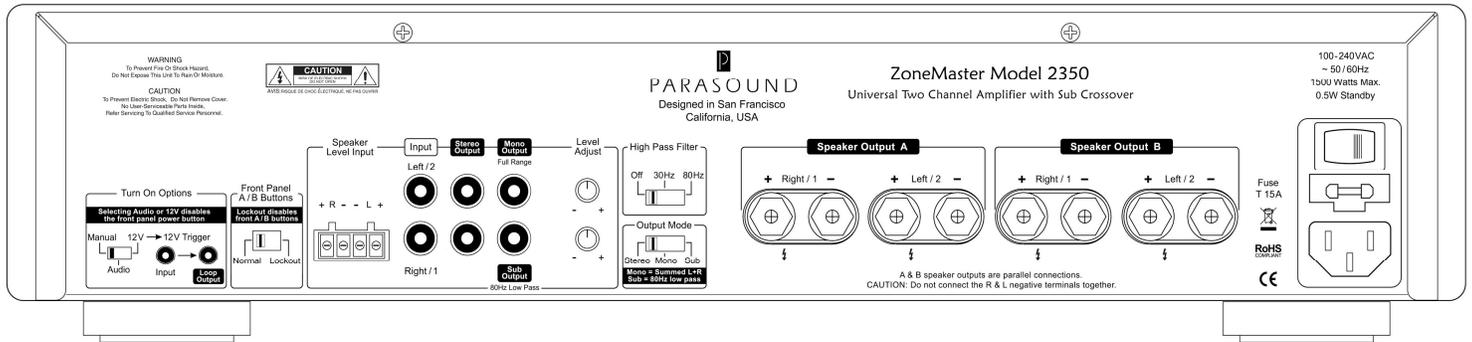
If the amp experiences an external fault condition the Protect light will illuminate red. This indicates the 2350's protection circuit has suspended operation of both the Left (channel 1) and Right (channel 2) to protect the unit from damage from an overload or because one or both speaker wires are short-circuited. Your first step is to immediately turn off the amp. The indicator might also be flashing red depending on the musical content and volume levels. This also indicates a problem. The most likely causes for the front panel Protect light to illuminate red are:

- A short-circuited (+ to -) speaker connection for one or both channels either at the amplifier connector, at the speaker or somewhere along the speaker wires.
- The negative speaker terminals have been combined (L- to R-).
- Too many speakers are connected and the combined impedance is below 2 ohms.
- The amplifier has been damaged.

Checking for Short Circuits or Overload

To check for a short temporarily disconnect the speakers from the amp's speaker terminals. Now turn the amp back on with music playing (which you obviously won't hear because the speakers are disconnected). If the front panel lights now illuminate green you've eliminated the 2350 as the source of the problem. Please check your speaker wires and attached speakers for short circuits or an impedance below 2 ohms.

Rear Panel and Audio Connections



Always disconnect the AC cord to your ZoneMaster 2350 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

Line Input Jacks for Left and Right (Channels 1 and 2)

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.

Speaker Level Input Connector Block for Left and Right (Channels 1 and 2)

The speaker level input enables the ZoneMaster 2350 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 2350'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. Speaker level audio is internally converted to line level and routed to the Loop Out, Mono Out and Sub Out jacks. These provide line level outputs to drive additional power amplifier(s) and powered subwoofers.

Note: You can detach the Speaker Level Input Connector Block from the 2350 to make it easier to attach and secure the 4 speaker wires. Grip it firmly with your thumb and forefinger to pull it away from the chassis. It accepts bare wires up to 12AWG (gauge). Each wire should be twisted tightly and/or tinned with solder to prevent its stray strands from touching the adjacent wire which will short-circuit the amplifier.

Consistent Polarity Is Important!

You must be careful to maintain polarity between the "host" receiver (or amplifier) speaker terminals and the Model 2350 speaker Line Level input terminals. Connect the + speaker terminals of the receiver to the + terminals of the Model 2350's Speaker Level Input connecting block. Connect the - speaker terminals of the receiver to the - terminals of the Model 2350's Speaker Level Input connecting block. If you do not maintain correct polarity the Speaker Level Input will not function correctly and there could be no sound.

Note: Connect *either* the RCA Input jacks or the Speaker Level Input block, but not both.

Note: Using large gauge speaker wire between the receiver and 2350 provides no performance advantage because the Speaker Level Input consumes only a small fraction of a watt from your receiver's power output.

Audio Output Connections

Loop Out Jacks

These jacks enable the incoming audio signal to pass along or “daisy chain” from the Line level L and R Input jacks to an additional amplifier. The Speaker Level Input connection is converted to line level and is also available at the Loop Out jacks. The Loop Out jacks are not affected by any of the Model 2350 control settings.

Mono Out Jack (Full Range)

The mono output combines the Left and Right channel inputs into summed L + R mono. This could be useful for connecting a powered subwoofer that has its own built-in crossover. It could also be used for connecting an additional amplifier in mono applications. The Mono Out jack is always active, regardless of the setting of the Mode or High Pass switches.

Sub Out Jack (80 Hz Low Pass)

This is a low-pass output that combines the left and right inputs into a L + R mono signal. This could be useful for connecting to a separate power amp to drive a passive in-wall subwoofer. The Low Pass crossover is fixed at 80 Hz with a 24 dB per octave slope. The Sub Out jack is always active, regardless of the setting of the Mode or High Pass switches.

Note: If you connect the Sub Out 80 Hz Low Pass Out jack to a powered sub the sub's built-in crossover must be switched to Full Range. If your sub's crossover does not have a full range setting you should use the 2350 Full Range Mono Output jack.

Connecting Speaker Wires

The speaker binding posts will accept a wide variety of speaker wire and connectors including large spade connectors, banana connectors and bare wire as large as 10AWG (gauge).

Speaker A and B Outputs

The ZoneMaster 2350 is equipped with connections for two speakers on each channel (labeled A and B). This unique feature gives system designers greater flexibility and can usually avoid the added expense, complexity, heat and power consumption of additional amplifiers. The ability of the ZoneMaster 2350 to drive two pairs of speakers can be attributed to Parasound's 2 ohm stable high current design.

Typical applications for using both Speaker A and B terminals might include a large living room with four ceiling speakers. Another use for the B speakers could be in a sub-zone like a bathroom or hallway that is adjacent to the room where the A speakers are installed.

Note: Speaker A and B terminals are parallel connections inside the amp.

Total Speaker Impedance (A + B)

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 one 4 ohm speaker connected to one channel's speaker output A while another 4 ohm speaker is connected to the same channel's speaker output B. When driving 2 ohm loads the amplifier will generate more heat and it is important to ensure that it has adequate ventilation. See the chart on pages 14-16 to determine how many speakers you can drive and how much power each will be receiving.

! SPEAKER CONNECTION WARNINGS !

1. Never combine the Speaker L & R channel negative (-) output terminals together.

Combining the Left and Right channel black negative (-) terminals will cause the amplifier to engage its protection circuit and could even seriously damage the amplifier. L and R channel speakers cannot be wired where they share a single negative (-) wire. Some speaker selectors combine the negative speaker connections and are not compatible with the ZoneMaster 2350.

2. The ZoneMaster 2350 does not support Bridging.

Do not attempt to wire the 2350 for bridged operation as this could damage it.

Channel Level Controls

Each channel 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 deliberately made the Level control shafts very short so they are less likely to be turned unintentionally. When the 2350 is installed in an equipment rack you may find it easier to use a small Phillips head screwdriver to adjust the Level controls.

Additional Uses for the Level Controls:

Passive In-Wall Volume Controls

The ZoneMaster 2350 Level controls are especially useful for rooms that have in-wall passive/autoformer type volume controls. Most wall-mounted volume controls and most speaker selector box volume controls are this type. By reducing the ZoneMaster 2350's maximum output level you reduce the amount of power that has to be absorbed and wasted as heat by the in-wall volume control. Reducing the 2350's maximum output level prevents the volume control from overheating or possibly vibrating from the stress of absorbing extra amplifier power. It avoids wasting amplifier power and reduces distortion. Here is the correct way to optimize the level settings for this type of in-wall volume control:

1. Music should be playing.
2. Turn the ZoneMaster 2350's L and R Level control knobs fully counter-clockwise 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 2350's L and R Level control knobs until the volume level in the room is as high as it will ever be played. This will prevent excessive volume levels and will improve sound quality by reducing distortion from over-driving the speakers.

Note: Listening with an in-wall volume control knob fully clockwise might take some getting used to. This because we're conditioned to expect much louder sound than we want whenever a volume control is turned all the way up.

Limiting Maximum Volume for a Room or Zone

By adjusting the L and R 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)

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

You might prefer to listen at an extremely low volume level. The audio signal voltage at very low volume levels could fall below the ZoneMaster 2350's threshold for Audio trigger On-Off circuit to function: It will not remain on or it might continue to cycle 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 control knobs 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 the 2350 powered on, even at very low listening levels.

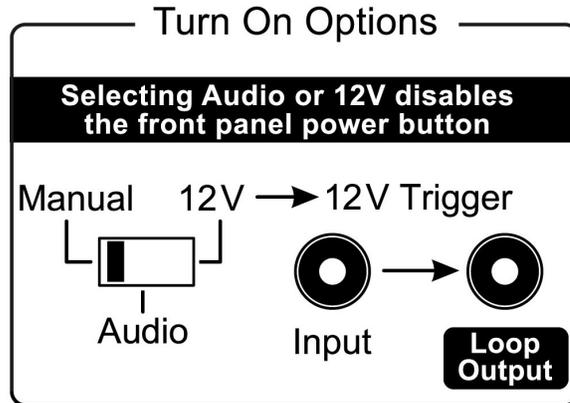
Reducing Background Hiss or Noise

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

Balance Left and Right to Compensate for Room Placement

Adjust only the left or right channel Level Control knob so you hear both channels equally from your preferred listening location.

Turn On Options



The setting of the rear panel Turn On Options switch determines how the amplifier turns on and off. Setting the Turn On Options switch to Audio or 12V disables the 2350's front panel Power button. There are three positions for this switch:

Manual: When the Turn On Options switch is set to **Manual** the Model 2350 is turned on and off manually only by pressing the Power button on its front panel every time you want to listen to music.

Audio: When the Turn On Options switch is set to the **Audio** position, the Model 2350 will be turned on automatically when an audio signal is present at the L or R Input jacks. After the audio signal ceases the amplifier will remain on for about 10 minutes before shutting itself off. This prevents unintended turn-off during pauses in your music or movies. The audio sensing circuit functions the same way whether you use the Line Level Input jacks or the Speaker Level Input.

Audio Trigger Sensitivity: The audio trigger threshold in the ZoneMaster 2350 is not adjustable. It is calibrated to turn the amp on at a very low volume level (an audio signal as low as 2mV). If you need it to turn on at an extremely low volume level, simply turn down the Left and Right Level Control knobs. Start with the Level control knobs at 12 o'clock and check if the volume level is low enough when the amp turns on.

12V Trigger: When the Turn On Options switch is set to its **12V** position, the Model 2350 is turned on and off only with an external +9 V to +12 V DC voltage. When the external voltage ceases the amp will turn off within a few seconds. The 12V turn on trigger circuit in the ZoneMaster 2350 requires a mere 5mA from the 12V trigger source.

12V Loop Out Jack

The Trigger Loop Out jack lets you loop or daisy-chain the incoming 12V trigger voltage to an additional amplifier or other component. When 12V is coming into the 12V Input jack the 12V Loop Out jack is always live, even if the 2350 is turned on and off manually or with the audio trigger.

Power Button Disabled

Whenever you select **12V** or **Audio** the front panel Power button will be disabled and turn on and turn off is controlled by the incoming 12V or audio signal from your preamp, AV Receiver or whole-house controller.

High Pass Filter Switch

Using the High Pass Filter can improve the sound in many installations. It's called a "high pass" filter because depending on the switch position it permits signals higher than 30 Hz or 80 Hz to pass, while preventing signals below these frequencies from passing. There are three positions for this switch:

Off: The Off setting bypasses the filter so the Model 2350's frequency response is full range (flat).

30 Hz: The 30 Hz setting filters out frequencies below 30 Hz at 12 dB per octave. Most speakers will have greater dynamic range and far less distortion when they don't receive frequencies which are lower than they are capable of reproducing. There are very few in-wall or in-ceiling speakers capable of reproducing frequencies below 30 Hz. Engaging the 30 Hz high pass filter will keep the speakers from being over-driven, allowing them to play louder without distortion.

The 2350 will also operate more efficiently when it's not called upon to amplify very low frequencies so you'll have more power in the frequency range the speakers *are* capable of reproducing. Because the 30 Hz setting is essentially a sub-sonic filter you probably won't notice any loss of low bass information unless you're using very large full range speakers.

80 Hz: The 80 Hz setting filters out bass below 80 Hz at 12 dB per octave. This setting is advised when the 2350 is driving in-wall or in-ceiling speakers in conjunction with a separate subwoofer. Most in-ceiling and in-wall speakers have little useful bass output below 80 Hz. You'll enjoy much cleaner sound and higher undistorted volume levels with these lower frequencies filtered out.

Note: Typical volume controls for in-wall or ceiling installed speakers use stepped autoformers. Autoformers impose a highly reactive load on the power amplifier often stress it, leading to malfunction. The 30 Hz or 80 Hz filter settings enable the 2350 to drive any such volume control with ease.

Note: Most speaker selector boxes use passive volume controls with autoformers with the same challenges for most amplifiers.

A/B Speaker Selector Lockout Switch

The Lockout switch lets the home owner or installer disable the front panel A and B speaker selector buttons. In some installations the A/B buttons are useful to turn the audio on/off in a second room or zone. In other installations you may always want the A and B speaker outputs to be on. The Lockout switch prevents the buttons from turning off the speakers by mistake. There are two options to this switch:

Normal: When this switch is set to Normal, the front panel A and B buttons determine whether speaker output terminals A and B are live. If both front panel A and B buttons are turned off there will be no sound from any speaker. Use the Normal option only if you or your client intend to use the front panel A and B buttons.

Lockout: When this switch is set to Lockout, the front panel A and B buttons are disabled so speakers A and B will always be on, even if the front panel A/B buttons are turned off. This feature can be particularly useful for a professional audio installer who never intends for the client to use the front panel Speaker A/B buttons. Select the Lockout option only if the front panel A and B buttons won't be used.

Output Mode Switch

There are three positions for this switch which enable the 2350 to operate in three different modes. See pages 14-16 for example diagrams of each Mode.

Stereo: The Stereo setting routes the Left channel Input signal to the Left channel Speaker A and B terminals and the Right channel Input signal to the Right channel Speaker A and B terminals. The Stereo option is used for a standard stereo system with a left and right speaker.

Mono: The Mono setting combines the Left and Right Inputs into a summed L + R mono signal and routes it to both the Left and Right channels for both the A and B speaker output terminals. In the Mono Mode the 2350 can easily drive 4 or even 8 speakers at the same time. You can connect one pair to the A Speakers Terminals and other pair to the B Speaker Terminals. All speakers will play the same Mono signal.

The Mono Mode is especially useful for very large rooms and particularly outdoor speakers where mono operation will produce a more uniform sound than stereo. Other applications might be for bathrooms and hallways where there is only space or need for a single speaker and it is more practical to run a single speaker wire pair.

Note: The Mono mode is not for bridging. The 2350 channels cannot be bridged.

Sub (80Hz Low Pass): The Sub setting is only used when the Model 2350 will be powering one or more passive subwoofer(s). This mode combines the Left and Right Inputs into a summed L + R mono signal. This mono signal is then routed through an 80 Hz low pass filter (crossover) with a slope of 24 dB/oct. This allows multiple passive subwoofers to be powered by the Model 2350 without the need for additional external crossovers. The Model 2350 is capable of driving up to four 8Ω passive subwoofers at the same time. The Model 2350 does not support stereo subs and all subs will play the same mono signal with an 80 Hz low pass filter.

Note: The High Pass Filter switch must be set to Off for the Sub Mode to function. The 2350 cannot power both full range speakers and a passive subwoofer at the same time. This requires two 2350s.

Minimum Impedance When Driving Subwoofers:

Although the Model 2350 is 2 ohm stable in all three modes (Stereo, Mono and Sub), it is not recommended to go below 4 ohms per channel when powering subwoofers. This means two 4 ohm subwoofers can be driven (one sub on channel 1 and a second sub on channel 2). This is because subwoofers require much more power than a typical full range speaker. See the chart on page 16 to determine how many subwoofers you can drive and how much power each will be receiving.

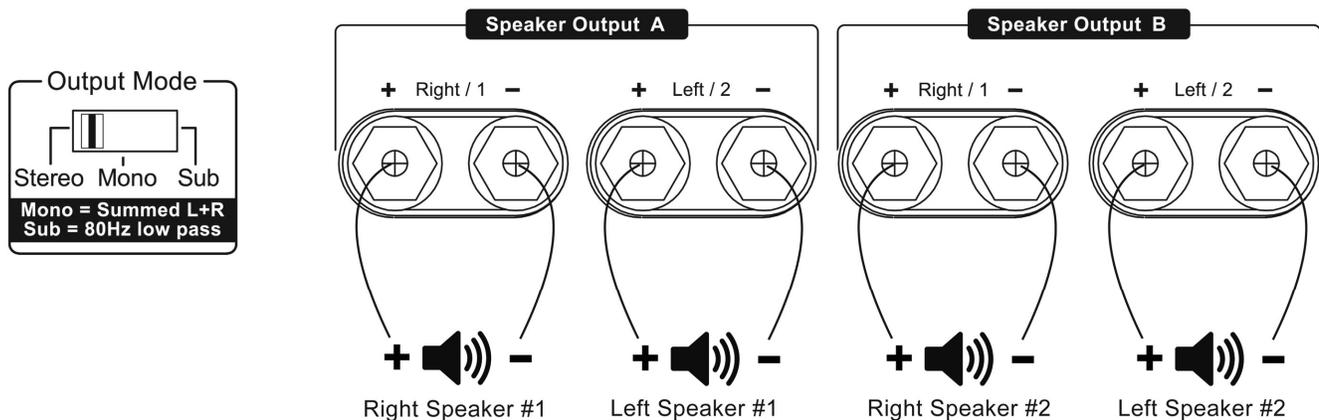
Driving Multiple Speakers or Subwoofers

The Model 2350's high current plus 2 ohm stable design enables it to drive multiple speakers. Each of the two channels can drive a 2 ohm load when connecting full range stereo or mono speakers. Subwoofers require much more power than a typical full range speaker and because of this the recommended minimum impedance is 4 ohms per channel when driving subwoofers. The following charts show how many speakers can be driven and how much power will be delivered to each speaker.

Stereo Speakers:

<u>Number of stereo speaker pairs</u>	<u>Impedance of speakers</u>	<u>Load per amp channel</u>	<u>Power to each speaker</u>
1	8 Ω	8 Ω	350 Watts
1	4 Ω	4 Ω	600 Watts
2	8 Ω	4 Ω	300 Watts
2	4 Ω	2 Ω	300 Watts
3	8 Ω	2.7 Ω	200 Watts
3	4 Ω	1.3 Ω	<i>Not recommended</i>
4	8 Ω	2 Ω	150 Watts
4	4 Ω	1 Ω	<i>Not recommended</i>

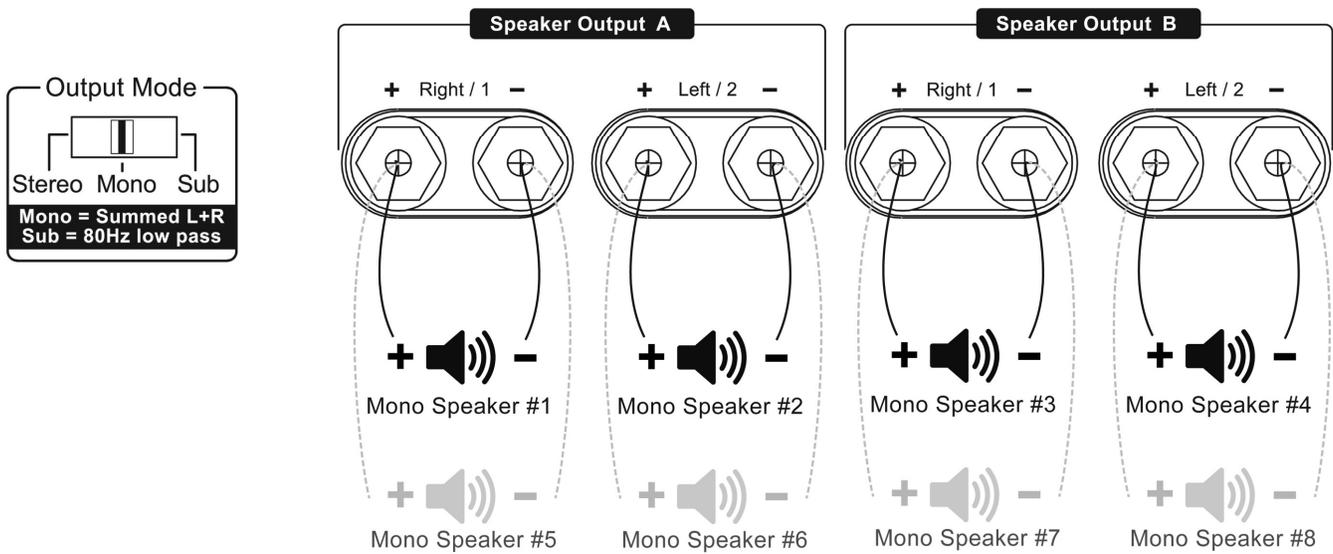
All power ratings are RMS, 20-20 kHz, both channels driven



Mono Speakers:

<u>Number of mono speakers</u>	<u>Impedance of speakers</u>	<u>Load per amp channel</u>	<u>Power to each speaker</u>
2	8 Ω	8 Ω	350 Watts
2	4 Ω	4 Ω	600 Watts
4	8 Ω	4 Ω	600 Watts
4	4 Ω	2 Ω	300 Watts
6	8 Ω	2.7 Ω	200 Watts
6	4 Ω	1.3 Ω	<i>Not recommended</i>
8	8 Ω	2 Ω	150 Watts
8	4 Ω	1 Ω	<i>Not recommended</i>

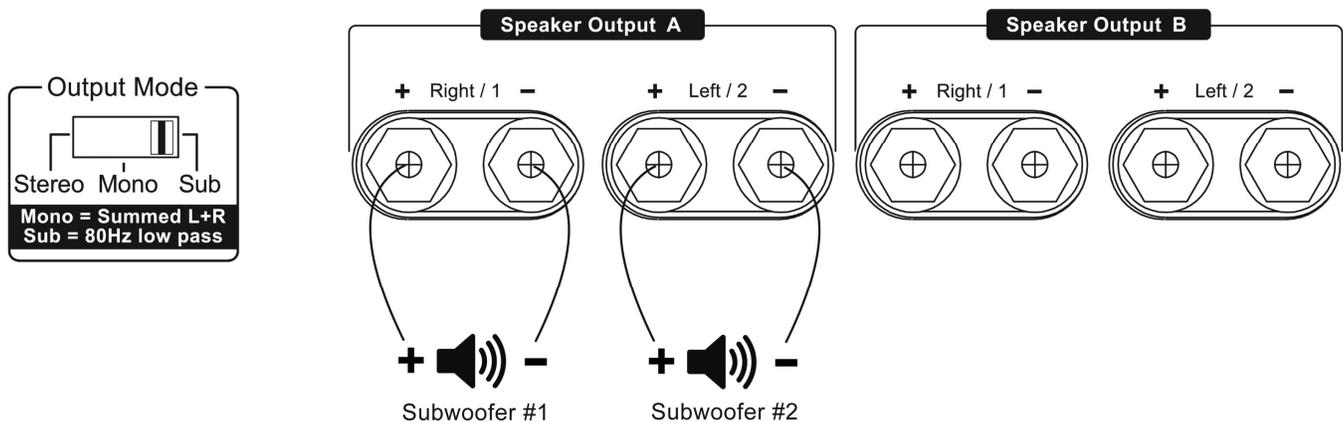
All power ratings are RMS, 20-20 kHz, both channels driven



Subwoofers:

<u>Number of subwoofers</u>	<u>Impedance of subs</u>	<u>Load per amp channel</u>	<u>Power to each sub</u>
1	8 Ω	8 Ω	350 Watts
1	4 Ω	4 Ω	600 Watts
2	8 Ω	8 Ω	350 Watts
2	4 Ω	4 Ω	600 Watts
4	8 Ω	4 Ω	300 Watts
4	4 Ω	2 Ω	<i>Not recommended</i>

All power ratings are RMS, 20-20kHz, both channels driven



Reducing Hum or Buzz Heard in the Speakers

- Cable TV is the most common source of hum or buzzing background noise in a system. If you have a cable TV box connected to your audio system temporarily remove the incoming cable 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.
- Ground loops are also a common cause of hum and buzzing noise. Finding a ground loop requires a patient 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.
- 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.

Frequently Asked Questions

The unit will not turn on

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

When using the audio trigger the amp is turning off during quiet listening

- Turn down both channels' Level controls (12 o'clock is a good place to start).
- See page 10 for more details.

The amp never turns off when using the audio trigger

- The audio trigger circuit might wait for up to 15 minutes before shutting the amp off. Try waiting at least 15 minutes after stopping the audio source.
- Ensure that the Turn On Options switch is set to the "Audio" position.
- If the amp still will not turn off then you may have too much residual 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 might have to resort to using the 12V trigger or the manual Turn On mode.

There is no sound coming from the speakers

- Ensure that the A and B buttons are turned on (pushed to their inward position)
- Ensure that the Output Mode switch is not set to Sub (unless driving subwoofers)
- Ensure that the High Pass switch is not set to 30 Hz or 80 Hz while the Output Mode switch is set to Sub.
- Turn up the Level Controls

The 1 and 2 indicators are not illuminating or the Protect light is illuminating 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 combined speaker load that is below the 2350's 2 ohm minimum. The combined speaker load for that channel is the combined parallel impedance of one channel A and B outputs. If one 4 ohm speaker is attached to the A speaker terminal and another 4 ohm speaker is connected to the B speaker terminal then that amp channel will "see" only 2 ohms. The combined A and B impedance for either channel should never be below 2 ohms.
- The amp 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 7 for more details.

Why is there no sound when using the Speaker Level Input?

- Ensure that you have connected the correct polarity at both ends of the speaker wire.
- Try reversing the speaker wire polarity at only one end.

Why does the sub have such weak output or I can hear only very low frequencies?

- If you are using the Sub Out RCA jack with a powered sub, make sure its built-in crossover is turned off (or use the Mono Full Range RCA output jack). With "double-filtering" you'll hear very little bass.

Maintaining Your ZoneMaster Model 2350

Your ZoneMaster 2350 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 2350 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, Both Channels Driven (20 Hz – 20 kHz)

350 watts x 2 @ 8Ω
600 watts x 2 @ 4Ω or 2Ω

Minimum Speaker Impedance (Output A+B)

Stereo or Mono Mode: 2Ω
Subwoofer Mode: 4Ω
Note: Operation at these minimum impedances might require additional ventilation.

Frequency Response

10 Hz – 70 kHz, +0/-3 dB
20 Hz – 20 kHz, +0/-0.8 dB

Total Harmonic Distortion

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

Inter-channel Crosstalk

70 dB at 20 kHz

Input Sensitivity:

2 Volts = Full output (350 Watts @ 8 Ω)
Total gain = 29 dB (Level controls set to Maximum)

S/N Ratio

> 100 dB, input shorted, unweighted
> 114 dB, input shorted, IHF A-weighted

High and Low Pass Crossovers

Sub Mode and Sub out jack: 80 Hz, 24 dB per octave
High Pass Filter: 30 Hz or 80 Hz, 12 dB per octave

DC Trigger Requirements

+9 Vdc to +12 Vdc, 5 mA

Audio Trigger Requirements

2 mV audio signal (8-15 minutes turn off delay)

AC Power Requirement

1500 Watts maximum
100 Watts typical (music playing, typical listening level)
30 Watts idle (no music playing)
0.5 Watts in standby
110-240 VAC 50/60 Hz

Dimensions

Width: 17.25" (438 mm)
Depth: 14.5" (368 mm)
Depth: 16.25" (412 mm) with cables connected
Height, with feet: 4.25" (108 mm)
Height, without feet: 3.5" (89 mm), 2U

Weight

Net: 15 lbs. (6.8 kg)
Shipping: 22.25 lbs. (10.1 kg)

Specifications and features subject to change or improvement without notice.

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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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NEW CLASSIC

HALO
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PARASOUND

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