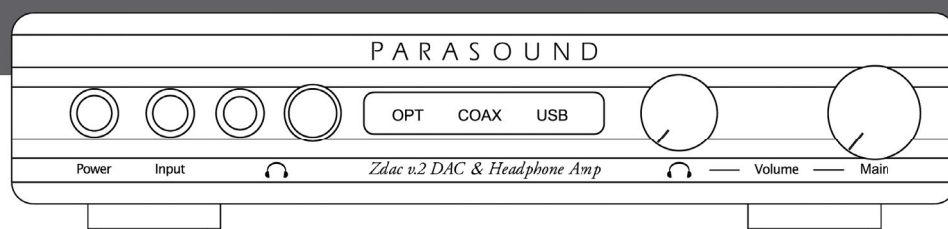


PARASOUND



Zdac v.2

192kHz DAC and Headphone Amp

OWNER'S GUIDE

INTRODUCTION

Congratulations on your purchase of this precision audio component and thank you for selecting Parasound. We are proud to offer you this versatile audio component, 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 the benefits of your new Zdac v.2's advanced performance capabilities.

You can find details of the Zdac v.2's specifications and advanced technology at www.parasound.com.

Enjoy.

The Parasound Staff
www.parasound.com

Keep your Purchase Receipt/Bill of Sale and Keep the Carton for Future Reference

Record the 5 digit serial number located on the bottom side of your Zdac v.2 in the space below. Also note your Parasound dealer's name and telephone number. Your purchase receipt/bill of sale is required to determine if your Zdac v.2 is eligible for Parasound warranty service. We recommend that you make an extra copy of your original purchase receipt/bill of sale and store it inside the Zdac v.2's carton. If the Zdac v.2 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 Zdac v.2 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 Zdac v.2 & Placement Guidelines

Unpacking Your Zdac v.2

Carefully remove your Zdac v.2 from its shipping carton and locate its AC power cord, USB cable and 12 Volt trigger wire. While you are unpacking your Zdac v.2, inspect it thoroughly for 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 Zdac v.2 if you have to move it or ship it. This would be a good time to make a copy of your sales receipt to store with the Zdac v.2's original packing.

Do not throw away the Zdac v.2 carton or foam packing inserts!

Placement Guidelines

Install your Zdac v.2 away from heat sources such as heating ducts, radiators, or other heat-producing components. Observe the following ventilation guidelines when installing the Zdac v.2 in an equipment rack or any other enclosed space:

You should never install the Zdac v.2 in an unventilated equipment cabinet or compartment because hot air will not exhaust adequately to prevent overheating. Air won't often circulate adequately in a cabinet or enclosure whose front and back sides are open; 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 Zdac v.2 tightly between other components. A ventilation fan is also recommended where other heat-producing equipment must be mounted close to the Zdac v.2.

If you're installing the Zdac v.2 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 Zdac v.2 out of a cabinet to check or to change connections without inadvertently disconnecting cables. If you're putting the Zdac v.2 inside a cabinet, it needs a space that's at least 11 inches wide so you'll be able to turn it around for access to its rear panel connections.

AC Voltage Selection

Check the 115V/230V Voltage switch before plugging in the Zdac v.2's AC power cord!

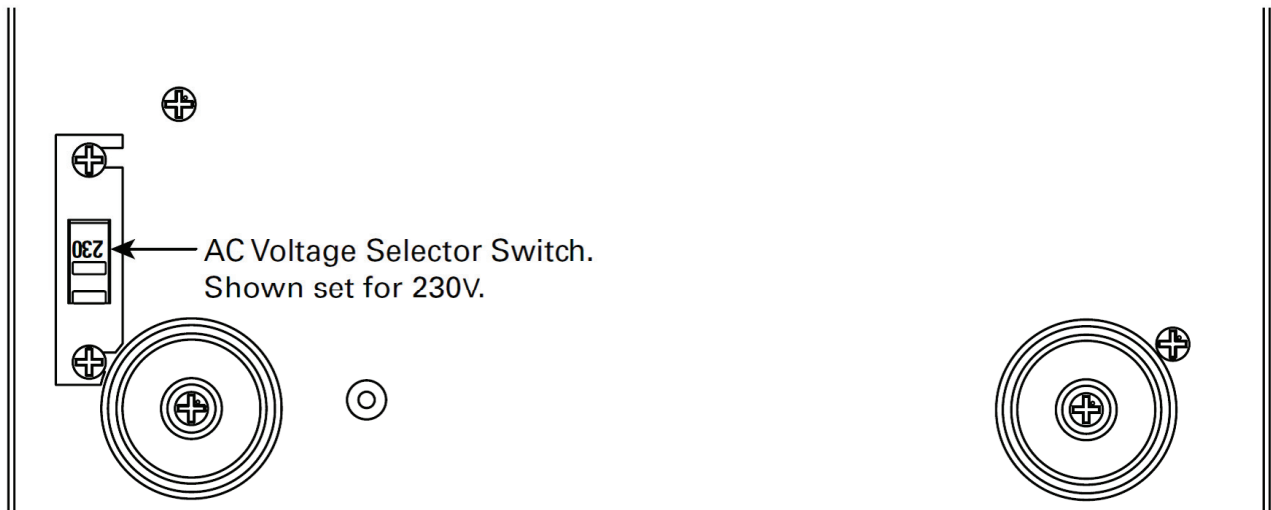
Make sure the 115V/230V Voltage Selector switch on the Zdac v.2's bottom side is set for the correct AC line (mains) voltage *before* you plug in the Zdac v.2's power cord. The unit can be seriously damaged if this switch is set incorrectly for your AC mains voltage.

In the 115V position the Zdac v.2 can safely operate with AC Line voltages between 110V-120V which is correct for North America, including Mexico, and also in Taiwan. In some countries, such as Brazil, AC voltages are different by region. Most other countries require setting it to 230V. With the 230V setting the Zdac v.2 can operate safely with AC line voltages between 220V-240V.

If you are not certain of your local AC voltage call your dealer. The following website will also be helpful:

http://en.wikipedia.org/wiki/Mains_electricity_by_country#Voltage_ranges

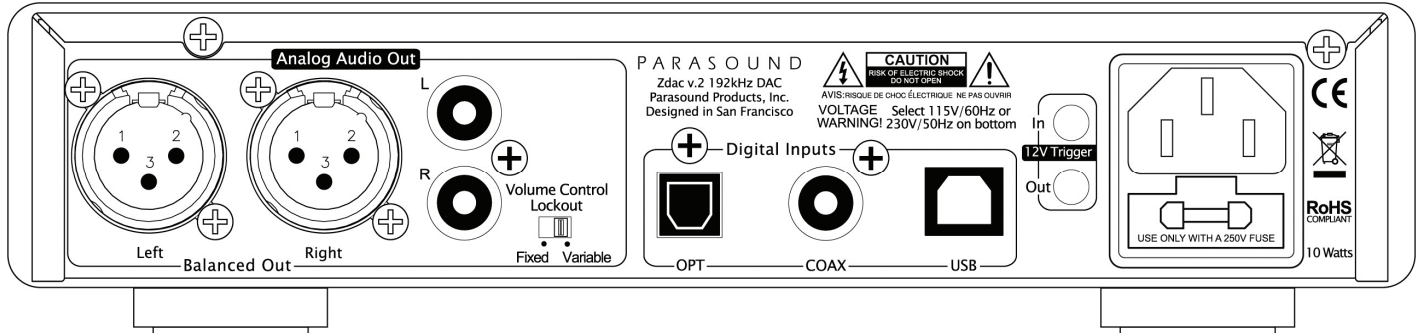
Note: A Zdac v.2 that has been damaged by connection to the incorrect AC voltage is not covered by the Parasound warranty.



(Zdac v.2 Bottom)

Connecting your Zdac v.2

Always disconnect the AC cords to your Zdac v.2 and preamplifier or amplifier before plugging in or unplugging its audio output jacks. Inserting or removing an output cable while the preamp or power amp are turned on can result in a blast of sound that can damage your loudspeakers. Make sure there is no strain or tension on any cables that could cause them to pull loose.



Audio Input Connections

Opt (Optical)

The optical input is a Toslink receiver. It is compatible with any Toslink-equipped digital source component. The Zdac v.2 optical input accepts these standard sampling rates: 8 kHz, 11.025 kHz, 16 kHz, 32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 176.4 kHz and 192 kHz. It accepts 16 bit and 24 bit word lengths.

Note: 176.4 kHz and 192 kHz require a very short optical cable. Be careful when handling the optical cable. It has limited flexibility and it cannot be bent at a sharp angle without impairing its ability to transfer the digital signal from your source to the Zdac v.2.

Coax (Coaxial)

The Coax input connector is an RCA jack, also called S/PDIF. It is compatible with any S/PDIF coaxial digital output. The coaxial input accepts these standard sampling rates: 8 kHz, 11.025 kHz, 16 kHz, 32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 176 kHz & 192 kHz. It accepts 16 bit and 24 bit word lengths.

Note: Please use a 75 ohm digital interconnect cable. Standard audio and video interconnect cables do not have the correct 75 ohms impedance and impedance mismatches compromise digital transmission by causing high amounts of jitter. While the Zdac v.2 is virtually immune to jitter, we recommend that you do not introduce compromises into the digital signal chain.

USB – PC, Mac or Linux

The USB connector is a USB type B. The USB accepts sampling rates of 44.1 kHz, 48 kHz, 88.2 kHz and 96 kHz. It accepts 16 bit and 24 bit word lengths. The Zdac v.2 uses the USB 1.1 Audio standard which allows use of 9' (3 m) cables without any performance penalty. See page 10 for more details.

USB – Apple® Lightning Connector

The Apple® "Lightning to USB Camera Adapter" allows a direct digital audio connection between your Zdac v.2 and Lightning equipped Apple® product (phone, tablet, iPod®). The "Lightning to USB Camera Adapter" can be purchased separately through your Apple® store.

To use, simply plug the "Lightning to USB Camera Adapter" into your Apple® product and then use the standard USB cable included with your Zdac v.2 to connect the adapter to the USB input of your Zdac v.2. Select the USB input on the Zdac v.2 and start playing music on your Apple® device.

Audio Output Connections

CAUTION! When Connecting Direct to a Power Amplifier

Before you connect the Zdac v.2 directly to a power amplifier make certain the Volume Control Lockout switch is set to Variable. When it set to Fixed the output jacks are at full volume and this could damage a loudspeaker and, at the very least will startle you.

Balanced (XLR) Out

The balanced output uses two XLR jacks. Connect these to the balanced XLR inputs on your preamplifier or directly to a power amp if you prefer to use the volume control built into the Zdac v.2. The XLR connectors in the Zdac v.2 follow audio industry convention: Pin 2 is +, Pin 3 is -, Pin 1 is ground.

Unbalanced (RCA) Out

The RCA jacks connect to any line level input jacks on your preamplifier or directly to a power amp if you prefer to use the volume control built into the Zdac v.2.

Note: The Balanced and Unbalanced Outputs are “live” simultaneously and you can connect them to different preamps or controllers. For example, you can connect the XLR out jacks to the XLR balanced inputs on your music system’s stereo preamplifier. Then you can connect the RCA jacks to the input jacks on a multi-room audio system to enjoy music in other rooms of your house.

Volume Control Lock Out Switch

The Volume Control Lock Out Switch is located on the rear panel next to the RCA outputs. This switch affects both the RCA and Balanced (XLR) outputs. There are two positions for this switch:

Fixed: When set to Fixed the front panel Main Volume control will be disabled so that the output level will be “fixed” at maximum. This setting should be used if you are using a separate preamp, integrated amp or receiver to control the volume level of your stereo system. The Fixed setting can also be used if your source components have their own volume controls.

Variable: When set to Variable the front panel Main Volume control is engaged. The RCA and Balanced (XLR) output level will be determined by the position of the Zdac v.2’s Main Volume control knob. This setting should be used if your Zdac v.2 will be connected directly to your power amplifier.

Using The Zdac v.2 without a Preamplifier

The Zdac v.2 can be connected directly to a power amplifier without using a separate preamplifier for volume control. If you want to use the Zdac v.2 this way you must first ensure that the Volume Control Lock Out Switch is set to Variable. Also make sure to turn down the Main Volume control before turning on your equipment. **Failure to ensure these steps could result in a blast of sound that could damage your speakers or hearing!**

Once you have turned down the Main Volume control and set the Lock Out Switch to Variable, connect either the RCA or Balanced (XLR) outputs to your power amplifier. The Zdac v.2’s Main Volume control will now control the playback level of your stereo system.

Since the Zdac v.2’s volume control operates purely in the Analog domain its audio performance is superior to a digital volume control which can reduce audio resolution. When using the USB input, setting your computer’s volume control to 100% will result in the highest sound quality. Some COAX and OPT digital sources such as the Sonos® Connect® also have a digital volume control. For the best results you should set the digital volume control of your source component to “fixed” or set the volume to maximum.

12 Volt Triggers

12 Volt Trigger Input

You can turn your Zdac v.2 on and off automatically if your preamp (or integrated amp/receiver) is equipped with a 12 volt trigger output. Simply connect the included 12 volt trigger wire between your other audio equipment 12 volt output and the 12V input jack of the Zdac v.2. When 12 volts is supplied to this jack the Zdac v.2 will turn on and when 12 volts is removed it will turn off.

12 Volt Trigger Output

If your Zdac v.2 is connected directly to your power amp you may find it convenient for your amp to turn on automatically with the Zdac v.2. If your power amp is equipped with a 12 volt trigger input, connect the included trigger cable between the Zdac v.2's 12 volt output and the amplifier's 12 volt trigger input. When the Zdac v.2 is powered on, 12 volts will be present at the 12 volt output jack and your amp will turn on automatically.

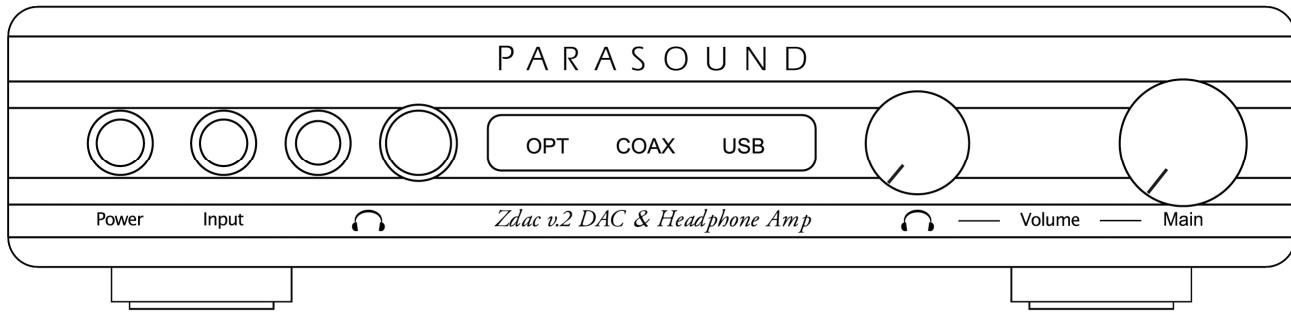
AC Power Cord

Verify that the Zdac v.2 AC Voltage Selector switch is set for your AC mains voltage.

Connect your digital sources and analog preamplifier before you plug in the AC cord.

The power cord supplied with your Zdac v.2 is a high quality IEC type AC cord. If possible, plug your Zdac v.2 into the same AC wall outlet, power strip or line conditioner as your digital source components, analog preamplifier and power amplifier. If the AC ground potential varies between your AC outlets the result can be an audible 60Hz (or 50Hz) hum.

Front Panel Operation



Power Button

Pushing the Power button will turn on the Zdac v.2. The power button illumination will change from red to green. The most recently selected digital input will also illuminate green. Pushing the Power button again turns off the Zdac v.2 and the button illumination will change to red to indicate the unit is in standby.

Input Button

Press the Input button to cycle between OPT, COAX and USB inputs.

Input Indicators

The selected input will illuminate green. Available inputs are OPT, COAX and USB.

Main Volume Knob

The Main Volume knob controls a high quality analog potentiometer. It adjusts the output level of the RCA and Balanced (XLR) outputs when the rear panel Volume Control Lockout switch is set to Variable. If your Zdac v.2 is connected directly to your power amp you will use the Main Volume knob to control the playback level of your stereo system. If the Volume Control Lockout switch is set to Fixed this knob will be disabled and the volume will be set to maximum.

Listening with Headphones

The Zdac v.2 is equipped with a dedicated high quality current-feedback headphone amplifier based on the top grade Texas Instruments TPA6120. This superior design allows for an extremely high slew rate preventing odd order distortions which are responsible for listening fatigue. The virtually instantaneous response to musical dynamics doesn't raise the noise floor or degrade the s/n ratio like typical headphone amps. The headphone amp circuit was also designed with a low 10 ohms output impedance and high gain to drive headphones rated up to 600 ohms. We are confident you will be thrilled with what you hear when the Zdac v.2 is mated with any of your preferred cans.

Headphone Jacks

The Zdac v.2 accepts both 1/8" (3.5mm) and 1/4" (6.3mm) stereo plugs. Both headphone jacks can be used at the same time. A very low 10 ohms output impedance and high gain allows the Zdac v.2 to drive headphones with impedances up to 600 ohms.

Note: The Zdac v.2's Analog XLR and RCA output jacks will be automatically muted whenever you insert a headphone plug into either of the Zdac v.2's headphone jacks.

Headphone Volume Knob


The headphone volume knob controls a high quality analog potentiometer. It adjusts only the output level of the headphone jacks and it has no effect on the Analog XLR or RCA jacks' output level.

Note: Headphones can create dangerously high sound pressures levels without the audible distortion you would hear from loudspeakers at comparable volume levels. **To protect your hearing please do not listen at high volumes for an extended time.**

USB - Computer Setup

First power up your computer, then connect the USB cable (included in the Zdac v.2 carton) and then turn on the Zdac v.2. The first time you connect your Zdac v.2 to a computer it will automatically install the correct drivers. Next you will need to ensure that the Zdac v.2 is set as the computer's default audio output device. Follow these instructions to assign the Zdac v.2 as the default audio device.

For a Windows® PC

- Right click on the loudspeaker icon  in the bottom right of your screen (on the tool bar)
- Select "Playback Devices"
- When the "Sound" window pops up click on the "Zdac" and then click "Set as Default"
- Click "OK" to close the "Sound" window

Note: If for some reason you cannot find the loudspeaker icon you will need to go to the sound options in the Control Panel and select the Zdac as the default playback device.

For a Mac® with OS X

- Go to the Apple Menu
- Select "System Preferences"
- Select "Sound" from the Hardware Menu
- Select "ZDAC" in the Sounds Menu

Playing Music From Your Computer

Once initial setup is complete your Zdac v.2 will be ready for use with your PC or Mac. Simply start playing any music on your computer and it will be sent to the Zdac v.2 via the USB cable. Any sound that you would normally hear through your computer speakers will now be heard through the Zdac v.2 and accompanying audio system.

Getting the Best Sound Quality

If you use the volume control in your computer's operating system you will audibly reduce the resolution of your digital music. Reducing resolution impairs the overall sound quality. The Zdac v.2's volume controls operate purely in the analog domain where they don't affect the resolution. For playback with the highest quality sound we recommend leaving your computer's volume control at 100%. Then use the volume control of your Zdac v.2 or accompanying stereo system to set your listening level.

Use With a Blu-ray/DVD Player or TV

If you plan to use a Blu-ray/DVD player, setup box (cable/satellite) or optical output from your TV with the Zdac v.2 you must set their digital audio outputs to Stereo PCM (2.0). The Zdac v.2 will only accept a two-channel stereo PCM signal. If your player or TV is set to output Dolby Digital®, DTS® or multi-channel PCM you will either hear nothing or distorted digital noise. See your player's or TV's owner's manual for instructions about how to set its digital output to stereo PCM in the setup menu.

Frequently Asked Questions

Why is there no sound from my speakers?

- Check that input and output cables are plugged in all the way at both ends.
- Are your preamplifier and power amplifier turned on? Is the correct input selected on the preamplifier?
- Make sure you have selected the correct input on your Zdac v.2.
- Are your headphones plugged in to the Zdac v.2?
- If you are trying to listen to a DVD or Blu-ray, ensure that you have set the DVD/Blu-ray player to output only Stereo PCM Audio (2.0). The Zdac v.2 will not decode Dolby Digital[®], DTS[®] or multi-channel PCM.
- If you are trying to listen to a connection from an HDTV (or cable/Satellite TV), ensure that you have set the TV to output only Stereo PCM Audio (2.0). The Zdac v.2 will not decode Dolby Digital[®] or DTS[®].

Why is there no sound from my headphones?

- Check that input cables are plugged in all the way at both ends.
- Make sure you have selected the correct input.
- Is the headphone volume knob turned down?

I have a USB problem

- Check if the Zdac v.2 is recognized as a USB device in your computer's control panel.
If not, remove the USB cable from the computer and re-insert it. Your computer should indicate that it has found and identified the Zdac v.2. If it doesn't, then try rebooting it with the Zdac v.2 connected.
- Unplug the Zdac v.2 power cord for about 10 seconds and turn it on again.
- Is your computer operating correctly? Is the music playing or paused? Is the volume turned up on your computer on both the task bar and in the application?

I can hear a hum or buzzing noise from my speakers and headphones

- Cable TV is the most common source of hum. If you have a cable TV box connected to your audio system temporarily remove the incoming cable line from the Cable TV box. If the hum goes away the problem is the cable TV ground. You will need a Cable TV ground isolator which is an inexpensive device that attaches between your incoming TV 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 the effect the dimmers have on your AC power. A line conditioner might help.
- Ground Loops are 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 Zdac v.2

Your Zdac v.2 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 Zdac v.2 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 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- 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

Supports Incoming Digital Word Lengths: 16 or 24 bit

Supports Incoming Digital Sampling Frequencies:

Opt & Coax: 8 kHz, 11.025 kHz, 16 kHz, 32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 176.4 kHz, 192 kHz
USB: 44.1 kHz, 48 kHz, 88.2 kHz and 96 kHz

Upsampling Frequency: 422 kHz / 24 bit (all inputs)

USB Streaming Controller: Texas Instruments TAS1020B

Sample Rate Converter: Analog Devices AD1895

D to A Converter: Analog Devices AD1853

Headphone Amplifier: Texas Instruments TPA6120

Frequency Response: 20 Hz to 20 kHz \pm 0.2 dB

Channel Balance: < 0.05 dB, 20 Hz - 20 kHz

Channel Separation: > 95 dB, 20 Hz - 20 kHz

Signal to Noise Ratio: 110 dB, A-weighted

THD + Noise: < 0.015 %

Audio Output Level, RMS (maximum):

Unbalanced Variable: 2.4 V

Balanced Variable: 4.8 V

Unbalanced Fixed: 2.2 V

Balanced Fixed: 4.4 V

Output Impedance:

Line out: 160 ohms, unbalanced or balanced

Headphone out: 10 ohms

AC Power Requirement:

110-130 VAC 60 Hz or

220-240 VAC 50 Hz (voltage is selected on the chassis bottom)

Operating: 10 watts

Standby: < 1 watt

Dimensions:

Width: 8.5" (220 mm)

Depth: 10" (254 mm)

Height: 2" (51 mm) with feet, 1.75" (45 mm) without feet

Weight:

Net: 5 lbs (2.3kg)

Shipping: 8 lbs (3.7kg)

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.

PARASOUND
NEW CLASSIC

HALO
by
PARASOUND

Z CUSTOM
PARASOUND



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