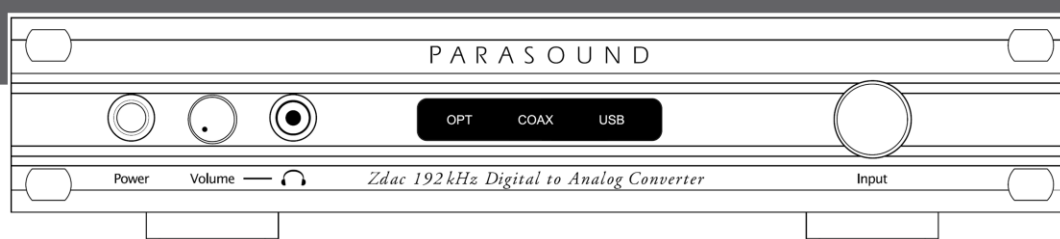


PARASOUND



Zdac

192kHz Digital to Analog Converter

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's advanced performance capabilities.

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

Unpacking Your Zdac

Carefully remove your Zdac from its shipping carton and locate its AC power cord and USB cable. While you are unpacking your Zdac, 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 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’s original packing.

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

Placement Guidelines

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

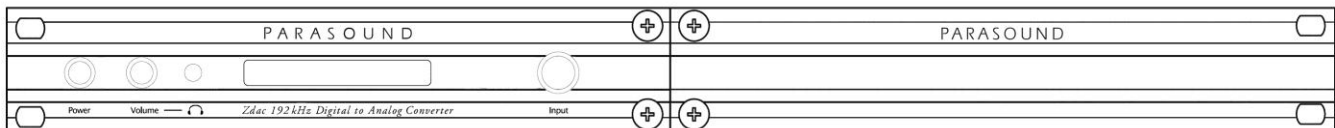
You should never install the Zdac in an unventilated equipment cabinet or compartment because hot air will not exhaust adequately to prevent overheating. Air won’t often circulate adequately in a cabinet or enclosure whose front and back sides are open; pockets of intense heat can still develop around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

If you’re installing the Zdac 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 out of a cabinet to check or to change connections without inadvertently disconnecting cables. If you’re putting the Zdac 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.

Rack Mounting Your Parasound Zdac (black Zdac only)

The Zdac occupies only half the width of a single rack space in a standard 19" equipment rack. For rack mounting, you can fasten it to another Parasound Z model by using the Parasound SBS (Side-by-Side) mounting kit (sold separately). You can also mount a single Zdac in the rack with the accessory Zblank panel extender. The SBS includes four rack mount bolts plus four pairs of plastic “shoulder washers.” The washers are important because they insulate the Zdac front panel (and chassis) from the metal equipment rack and from the four mounting bolts. Place these washers on both sides of the front panel before the mounting bolts are screwed into the rack rail.

Note: Only black Zdacs can be rack mounted. Silver Zdacs cannot be rack mounted.



Note: Tighten each bolt just enough to keep the unit secure in the rack to avoid deforming the shoulder washers. Eliminating metal-to-metal contact reduces the likelihood of creating a ground loop that might introduce hum into your system.

AC Voltage Selection

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

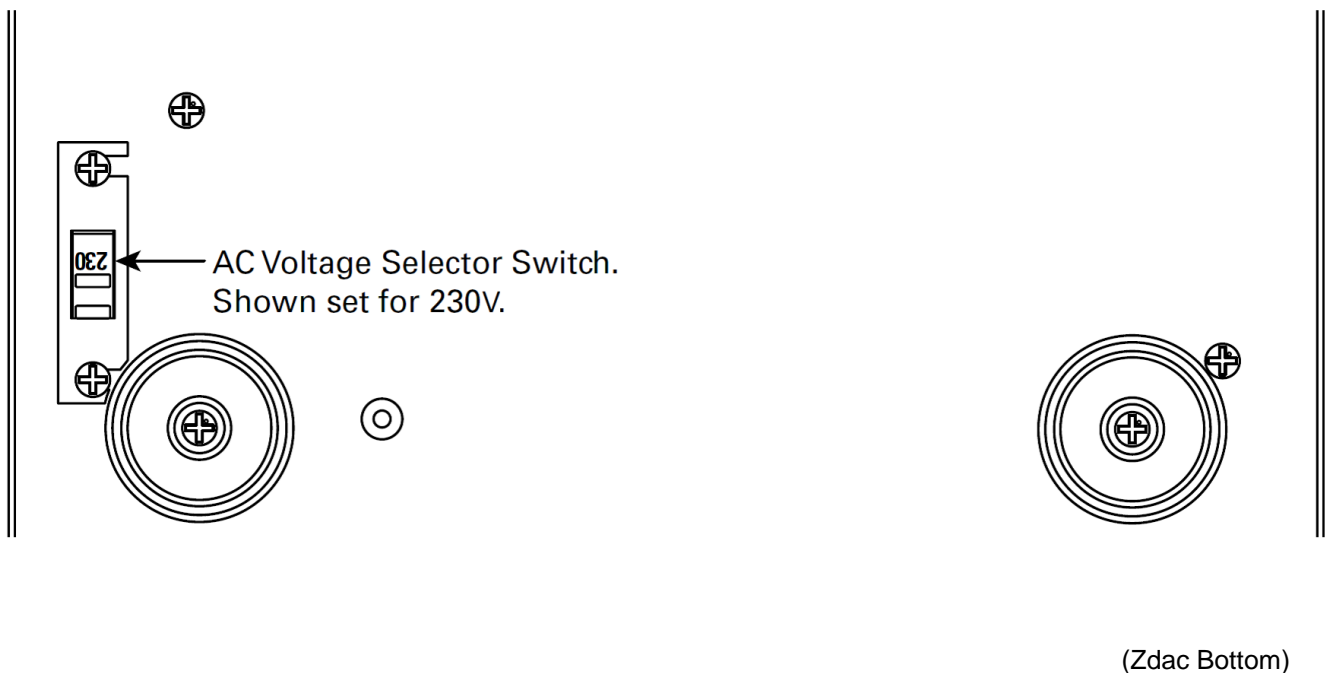
Make sure the 115V/230V Voltage Selector switch on the Zdac's bottom side is set for the correct AC line (mains) voltage *before* you plug in the Zdac's power cord. The unit can be seriously damaged if this switch is set incorrectly for your AC mains voltage.

In the 115V position the Zdac 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 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:

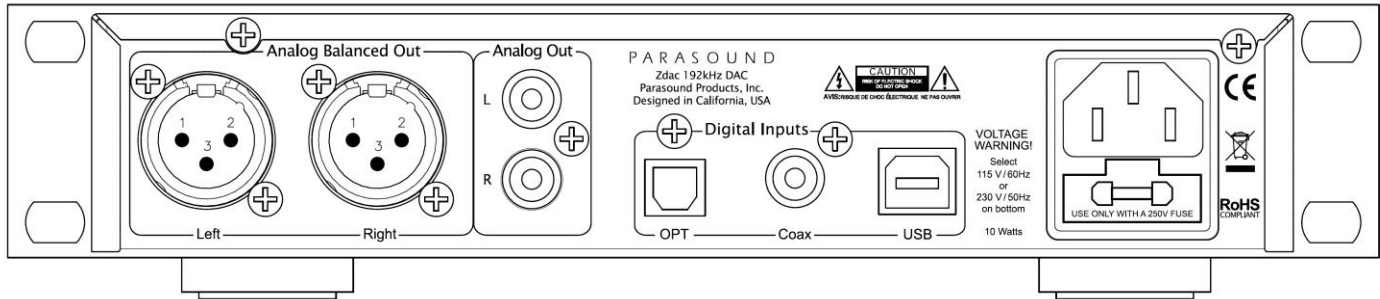
http://en.wikipedia.org/wiki/Mains_electricity_by_country#Voltage_ranges

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



Connecting your Zdac

Always disconnect the AC cords to your Zdac and preamplifier or amplifier before plugging in or unplugging the 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.



Zdac Input Connections

You can connect up to three digital sources to the Zdac:

Opt (Optical)

The optical input is a Toslink receiver. It is compatible with any Toslink-equipped digital source component. The Zdac 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.

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 is virtually immune to jitter, we recommend that you do not introduce compromises into the digital signal chain.

Note: It is equally important to use a 75 ohm interconnect if your source component is equipped with a BNC output connector instead of an RCA jack. Use an interconnect cable that is terminated with a BNC plug rather than an RCA plug which requires an RCA-BNC adapter.

USB

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 uses the USB 1.1 Audio standard which allows use of 15' (5 m) cables without any performance penalty.

Analog audio Output Connections

Balanced Out

The balanced output uses two XLR jacks. Connect these to the balanced XLR inputs on your preamplifier (or directly to a power amp when using a digital source with its own volume control). XLR connectors have separate pins for audio – and for ground. The XLR connectors in the Zdac follow audio industry convention: Pin 2 is +, Pin 3 is -, Pin 1 is ground.

Unbalanced Out

The RCA jacks connect to any line level input jacks on your preamplifier or directly to a power amp if your digital source has its own volume control.

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 controller to enjoy music in other rooms of your house.

Using The Zdac Without a Preamplifier

The Zdac can be connected directly to a power amplifier without using a separate preamplifier. This is only possible if the digital sources connected to the Zdac each have their own volume controls. Examples are a PC running Windows 7 and connected with its USB or some music servers such as Sonos® or Squeezebox®. Never connect the Zdac directly to a power amplifier if you have a digital source without its own volume control connected to one of the Zdac’s inputs. **This could result in a very loud blast of sound that could damage your loudspeakers or hearing.** Non-variable digital sources include all CD/DVD/Blu-ray players, cable/sat boxes and the optical output from an HD television.

Note: We do not recommend connecting the Zdac directly to a power amplifier if you are using Windows XP® or a Mac®. The volume controls in Windows 7 and Windows XP operate differently. With Windows 7 the main volume control slider (in the tool bar) will control the volume output from the Zdac. With Windows XP (and Mac OS®) volume is only controlled by the volume slider in the application you are using for music playback so some computer system sounds may be very loud compared to the the music you are listening too.

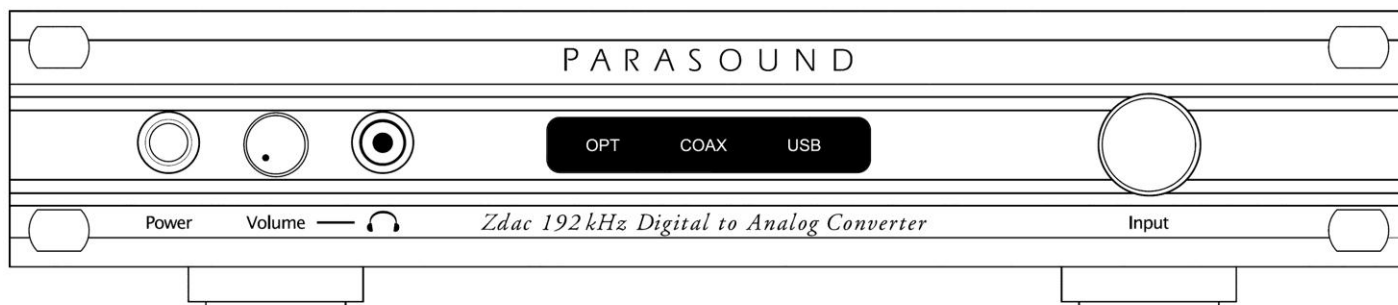
AC Line Cord

Verify that the Zdac 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 is a high quality IEC type AC cord. If possible, plug your Zdac 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.

Operating your Zdac



Front Panel Operation

Power Button

Pushing the Power button turns on the Zdac.

The most recently selected digital input will illuminate green to indicate that the Zdac is on.

There is no separate power on indicator.

Pushing the Power button again turns off the Zdac. The Zdac does not have a standby indicator.

Input Selector Knob

This selects the digital input you wish to hear. The mute circuit employs precision relays so you won't hear any transient popping or thumping noises when you select the inputs.

Note: Avoid changing Zdac inputs while your system is playing at very high volume.

Input Indicators

The selected input will illuminate green. Available inputs are Opt, Coax and USB.

Headphone Jack

The Zdac headphone jack accepts a standard 1/8" (3.5 mm) stereo mini plug. It is driven by a high current, low noise operational amplifier running in pure class A. It can drive headphones from 32 ohms to 600 ohms at substantial undistorted listening levels. If your headphones use a 1/4" (6.3mm) plug you can use a 6.3 mm-to-3.5 mm stereo adaptor for the Zdac headphone jack. Some headphones include this adaptor.

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

Headphone Volume Knob


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

Note: Headphones can create dangerously high sound pressures levels without audible distortion you would hear from loudspeakers at comparable volume levels. **Please do not listen at high volumes for an extended time.** When you listen with headphones you won't have the benefit of family (or neighbors) telling you to "turn it down!"

USB - Computer Setup

First power up your computer, then connect the USB cable (included in the Zdac carton) and then turn on the Zdac. The first time you connect your Zdac to a computer it will automatically install the correct drivers. Next you will need to ensure that the Zdac is set as the computer's default audio output device. Follow these instructions to assign the Zdac 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 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 via the USB cable. Any sound that you would normally hear through your computer speakers will now be heard through the Zdac and accompanying audio system.

Note: For the highest quality sound playback we recommend leaving your computer's volume control at 100%. Then use the volume control of your accompanying stereo system to set the listening level.

Using a Blu-ray or DVD player with the Zdac

If you use a Blu-ray or DVD player with the Zdac you must set the player's digital audio output to Stereo PCM (2.0). The Zdac will accept only two-channel stereo PCM.

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.
- Are your headphones plugged in to the Zdac?
- 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 will not decode Dolby Digital or DTS surround sound.
- If you are trying to listen to a connection from an HD TV, ensure that you have set the TV to output only Stereo PCM Audio (2.0). The Zdac will not decode Dolby Digital or DTS surround sound.

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 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. If it doesn't, then try rebooting it with the Zdac connected.
- Turn off the Zdac for about 10 seconds and turn it on again.
- Is your computer operating correctly? Is the music playing or paused?

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 cable 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 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

Your Zdac 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 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 bit - 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

USB Streaming Controller: Texas Instruments TAS1020B

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

Sample Rate Converter: Analog Devices AD1895

D to A Converter: Analog Devices AD1853

Frequency Response: 20 Hz to 20 kHz ± 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:

Unbalanced: 2.1 V rms

Balanced: 4.2 V rms

Output Impedance:

Line out: 160 ohms, balanced or unbalanced

Headphone out: 10 ohms

AC Power Requirement: 10 watts

110-130 VAC 60 Hz

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

Dimensions:

Width: 9.5" - 241 mm (black); 8.5" - 220 mm (silver)

Depth: 10" - 254 mm

Height, with feet: 2" - 51 mm; without feet: 1.75" - 45 mm

Weight:

Net: 5 lbs (2.3kg)

Shipping: 8 lbs (3.7kg)

Rack Mount Accessory (Black Zdac only):

SBS: Side by Side Mounting bracket, purchased separately

Zblank: Panel extender, purchased separately

(Silver Zdacs cannot be rack mounted)

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.



PARASOUND
NEW CLASSIC



PARASOUND®

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