



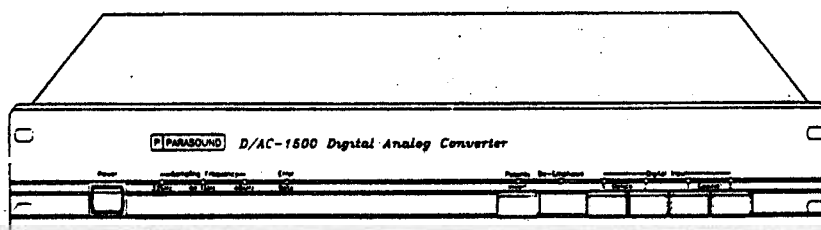
# PARASOUND

*affordable audio for the critical listener*

## *D/A C - 1500 Digital/Analog Converter*

**Congratulations** on the purchase of your new Parasound D/AC-1500 Digital-to-Analog Converter. It has been designed to extract greater musical detail from any digital source. If you are using it to upgrade your CD player, you will find the D/AC-1500 makes a world of improvement. You will enjoy more of the warmth and depth that has previously been associated only with the finest analog sources.

Your D/AC-1500 sets new performance standards at its modest price. Its highest quality hand-selected component parts, triple power supplies, high current drive analog stages, plus hookup and operating flexibility are far superior to all but the few most expensive D-A converters. To assure fullest musical enjoyment, please take a few moments to read these instructions completely.



### Unpacking

Open the carton of your D/AC-1500 carefully and inspect the unit for possible shipping damage. Now is the time to report any damage to your dealer. You will find the detachable AC line cord packed separately inside the carton. We do not recommend use of any other line cord.

Save the plastic bag, styrofoam inserts and carton. You may need these later for transporting the D/AC-1500 or for shipment in the event it ever requires factory servicing. Record the serial number (on rear panel) here for reference in case your unit is stolen: \_\_\_\_\_

### Placement

You should locate your D/AC-1500 as close as possible to your digital source. Keep your unit out of direct sunlight, away from heat sources such as a hot air register or radiator and away from windows which might be left open to let in rain.

If you are stacking your components, you should avoid placing your D/AC-1500 on top of heat-producing components, such as power amplifiers or tube-type preamps. You should keep it as far as possible from your tuner or receiver to avoid interference from their RF local oscillator circuits.

## Connecting Your D/AC-1500

When you make connections, be careful to avoid tension on either wires or fiber optic cables which might cause damage to the connectors or cause them to pull loose later on. Do not attempt to bend either coaxial or optical digital cables at a sharp angle, as this may permanently damage them. It is safest to turn off the power of your preamp and power amp while making connections, not only for the connections you are making, but to avoid the chance of disturbing adjacent connections. As an additional safeguard, turn your preamp's volume control to minimum before making new connections.

### Digital Inputs

The D/AC-1500 has four digital inputs:

- **Coaxial 1:** RCA jack - 75  $\Omega$  standard
  - **Coaxial 2:** RCA jack - 75  $\Omega$  standard
  - **Optical 1:** Fiber Optic - ST module
  - **Optical 2:** Fiber Optic - TOSlink
- **Coaxial output connections** are provided on most high quality CD players. You should use only good quality cables which have been designed for digital data transmission. Cables designed for audio frequencies are not suitable and will not give you satisfactory results.
- **TOSlink fiber optic connections** are also popular and are found on most high quality video laser disc players as well as older CD players and CD transports. Your dealer can assist you to select an appropriate optical cable with TOSlink connectors. According to the TOSlink standard, you're restricted to TOSlink cable lengths from 0.2 m ( $\approx 8"$ ) to 10 m ( $\approx 30'$ ).
- **ST module glass fiber optics** are considered state-of-the-art. They are superior to either coaxial or TOSlink connectors for data transmission. The ST module employs the AT&T standard; both plastic and glass fiber optic connectors are available for ST modules connectors.

You should experiment among the connector options to determine which sounds the best in your system. You may find careful extended listening required in order to hear the subtle differences between the different interface technologies accommodated by your D/AC-1500.

It is possible to connect four separate digital sources to your D/AC-1500 and select among them from the front panel, however RF radiations from the unused digital inputs may "contaminate" the sound of the selected input source. If you have more than one digital source connected, make sure you turn off the power of the unused source(s) until you are ready to listen to it.

### Outputs

**Analog Output jacks** connect to any line-level input on your preamplifier or even directly to your power amplifier, provided it is equipped with level controls. Use only high quality interconnects to preserve detail and clarity. Make sure your preamp is either turned off or its volume is set to minimum whenever making or breaking these connections.

There are two analog outputs: **Unbalanced:** RCA jacks for unbalanced line output  
**Balanced:** XLR connectors for balanced line output  
Pin 1 Ground, Pin 2 + signal, Pin 3 - signal

A balanced line is a necessity if you are driving a long line to your preamplifier, and provided it is equipped with balanced inputs. Balanced lines also reduce annoying hum in many areas prone to RF interference, where 60 Hz (USA) or 50 Hz (most overseas) television sync. signals can mimic ordinary AC line "hum." In this case the two wires for the + and - audio signal are enclosed within a third separate shield wire which is the "floating" ground.

Serious listeners prefer the superior musicality of balanced interconnections. The lower noise floor seems to enhance the apparent width and depth of the sound stage by reducing interference.

A Digital Output jack passes your digital source's data stream directly to a digital recorder like a Mini Disc, DAT, DCC or CD-R. This is an RCA type connector; use only digital quality cable.

## **AC Power**

Your D/AC-1500 has an IEC standard detachable power cord which has been specially selected for its contribution to the sound quality of this unit. Try to connect only this cord directly to a nearby AC wall outlet and avoid extension cords or connection to accessory outlets on your preamp.

## **Operating your D/AC-1500**

### **Power On/Off**

Push the upper section of the button to turn on; lower section for off.

### **Sampling Frequency LEDs**

Your D/AC-1500 will recognize the digital signal of whatever type of digital source you connect and will switch to the correct sampling rate automatically. The 44.1 kHz sampling rate is standard for compact discs. 32 kHz is for digital broadcast; 48kHz is for DAT.

### **Error/Data LED**

In case there is an interruption of data from the digital source or a malfunction of the digital source or connection, the Error/Data LED will illuminate. This shows you that your D/AC-1500 is not receiving correct digital data to process and convert to analog. In this case, a muting circuit will prevent a "garbage" signal passed to Analog Out or the Digital Out Record jacks.

### **Input Select Buttons and LEDs**

The four Input Select buttons correspond to the four input connectors on the rear panel: Coaxial 1, Coaxial 2, Optical 1, Optical 2.

### **Polarity Invert Button and LED**

This button allows you to select between 0° normal operation and 180° inverted polarity. Even if you know if your preamplifier and power amplifier are inverting or non-inverting designs, you have no way to know which of your CD's may have been recorded with inverted absolute polarity.

• Absolute polarity is not the same as Left-Right loudspeaker phasing. Absolute polarity means the + and - of both channels are reproduced so the compression wave of an initial musical attack correlates to the compression wave (+) from outgoing speaker diaphragm motion rather than rarefaction (-) of ingoing speaker diaphragm motion.

Your choice of 0° or 180° polarity will be strictly a matter of taste. It may be easier to detect differences between 0° and 180° polarity with some recordings than with others. Don't be discouraged if you cannot hear the difference - not everyone can identify absolute polarity.

### **De-Emphasis LED**

Some digital recordings are encoded with pre-emphasis contouring. Your D/AC-1500 automatically recognizes and processes them. An LED illuminates as a beacon for visual confirmation.

### **"Burning-in" your D/AC-1500**

Like most other great audio components, your D/AC-1500 needs to operate for at least 72 hours before it will start sounding its best. This allows the materials of various internal parts to "form" so they can better process the complexities of musical waveforms. While your unit will sound spectacular right out of its carton, you'll find it worthwhile to listen again after a few days. You'll discover details in your music you wouldn't have guessed were there.

### **Maintaining your D/AC-1500**

Your D/AC-1500 needs no routine maintenance. We do recommend that you remove and twist the various RCA connections once a year to remove any corrosion buildup on plugs and jacks. Make sure the power is turned off before attempting this. It's not a bad idea to do this for each of your other components while you're at it.

Never use any commercial cleaners or abrasives on the front panel or top cover - they will likely scratch or disfigure them. Use only a soft cloth, if necessary slightly damp to remove fingerprints.

### **In Case of Trouble**

If you suspect a problem with your unit, first recheck all your connections. If one channel is inoperative, the trouble may be caused by another component or even a defective hookup cable. If only one channel remains inoperative, try reversing the Left and Right cables to your preamplifier (turn it off before moving wires). If the same channel stays out, it indicates trouble could be other than your D/A converter itself. We suggest you contact your authorized Parasound dealer or call Parasound Technical Service if you suspect a problem. We will suggest other diagnostic tests you can easily perform and which will save you a lot of trouble.

If we determine that your D/AC-1500 should be returned to Parasound for inspection and possible servicing, you must first obtain a Return Authorization number from Parasound. You will be asked to re-pack the unit in its original carton and cardboard packing *plus* an additional outer box over its own box for proper protection in transit. The Return Authorization number must be clearly marked on the outer carton only. You should ship the unit by UPS with adequate insurance specified. You must include a copy of your purchase receipt to validate your ownership.

Units that arrive without your specific Return Authorization number, without a suitable shipping carton or evidence of improper internal packing or collect will be refused. We do not accept collect shipments. After repair under warranty, the unit will be returned to you via prepaid UPS or RPS. If we found no problem with the unit, we will ship the unit by UPS or RPS collect for return shipping charges. In the case of an out of warranty repair, we will advise you repair charges before you ship the unit. The same packing requirements and RA requirement apply.

## D/AC-1500 Specifications

<b>Frequency Response:</b>	2 Hz - 20 kHz, $\pm 0.25$ dB
<b>Signal to Noise Ratio:</b>	> 108 dB, 113 dB typical
<b>Channel Separation:</b>	> 100 dB @ 1 kHz
<b>Total Harmonic Distortion:</b>	< 0.0015% @ 1 kHz
<b>Amplitude Linearity:</b>	>100 dB; 102 dB typical
<b>Phase Linearity:</b>	$\pm 0.1^\circ$ @ 20 kHz
<b>Maximum Jitter (HF):</b>	<50 picoseconds RMS, using selected low-jitter Crystal 8412 Digital Interface Receiver
<b>D-A Converters:</b>	Four Burr-Brown PCM 63P-K (highest grade) 20 bit, push pull for each channel and fully balanced digital operation
<b>Oversampling Rate:</b>	8x (352.8 kHz)
<b>Digital Input:</b>	32 kHz, 44.1 kHz, 48 kHz; Consumer standard SPDIF
<b>Digital Filters:</b>	8x interpolating digital filter two 2/3-order low-pass anti-imaging filters
<b>Absolute Polarity:</b>	0° or 180° switchable
<b>Digital Inputs:</b>	<ul style="list-style-type: none"><li>• 2 Coaxial: 75 <math>\Omega</math> RCA</li><li>• Toslink fiber optic: EIAJ Standard CP-340/RC-5720, 660 nm typical wavelength</li><li>• ST module fiber optic: AT&amp;T Standard, 820 nm typical wavelength</li></ul>
<b>Outputs:</b>	<ul style="list-style-type: none"><li>• Balanced Analog Line Out: 6.0 V nominal, 1.2 k<math>\Omega</math>, suitable load should be <math>\geq 10</math> k<math>\Omega</math></li><li>• Unbalanced Analog Line Out: 3.0 V nominal, 600 <math>\Omega</math>, suitable load should be <math>\geq 10</math> k<math>\Omega</math></li><li>• Digital: 75 <math>\Omega</math> RCA coaxial, 0.5 V peak-to-peak</li></ul>
<b>Power Supplies:</b>	3 separate transformers and nine regulators for digital circuits and for each analog channel
<b>Power Requirement:</b>	120 V, 60 Hz, 18 W; may be re-wired for 220-240 V, 50 Hz
<b>Dimensions:</b>	19" W x 3 3/8" H x 12" D
<b>Net Weight:</b>	12.5 lb.

"ST" is a registered trademark of AT&T Corporation.  
Specifications subject to change or improvement without notice.

## **Rewiring for 220-240 V 50 Hz Operation**

**The D/AC-1500 can be rewired for operation abroad. Please refer this conversion to a skilled electronics technician to avoid personal injury or possible harm to the unit. There are high voltages present inside the chassis even after the power is turned off.**

**The main power supply printed circuit board has three separate power transformers. Nearby the transformers you will find jumper wires which correspond to the various primary windings of each power transformer.**

**For 120 V operation, a total of six jumper wires are connected to the circuit board: two jumpers are connected near each transformer, each jumper has "120 V" printed alongside of it on the circuit board.**

**For 220-240 V operation, only 3 jumpers are connected to the circuit board; one jumper is connected near each transformer, each jumper has "220 V" printed alongside of it on the circuit board.**

**For 220-240 V operation, you must also disconnect the six "120 V" jumpers.**

## **Parasound Limited Warranty (USA only)**

Your Parasound D/AC-1500 is covered by a limited warranty against defects in materials and workmanship for a period of two years from date of purchase. This warranty is provided by the Parasound dealer where the unit was purchased. Warranty repair will be performed only when your purchase receipt is presented to validate your ownership, date of purchase and authorized status of the selling dealer. Defective parts will be repaired or replaced without charge by your authorized dealer's store or the location designated by your dealer that is authorized to service Parasound equipment. Additional information is available by calling or writing to the Service Manager, Parasound Products, Inc. at the address below. Charges for unauthorized service and transportation costs are not reimbursable under this warranty.

This warranty becomes void if the product has been damaged by alteration, misuse, accident or neglect. Alteration includes any removal, obscuration or defacement of its serial number. This warranty becomes void if unit has been connected or operated contrary to printed instructions. The warrantor assumes no liability for property damage or any other incidental or consequential damage whatsoever which may result from the failure of this product. Any and all warranties of merchantability and fitness implied by law are limited to the duration of this expressed warranty.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary state by state.

### **Please Stay in Touch**

We'd like to hear from you about your experience with your Parasound D/AC-1500. Of course we want to assist you with any questions you may have, but we'd also be thrilled to know how much you are enjoying the unit. You don't need to have a problem as an excuse to call us.

Reviews on Parasound are coming in from all over the world and we continually have exciting new products in development. If you'd like us to keep you advised, just drop a line and ask to receive updates. We welcome your suggestions and look forward to hearing from you.



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