



# Operating Instructions for the HCA-2

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## *Package Contents*

- One Hybrid Class A stereo amplifier
- One 6 foot AC power cord
- One user's manual and warranty card
- One plastic adjustment tool
- One spare 7 amp slow blow fuse
- Two spare 5 amp fast blow fuse

**IMPORTANT:** Be sure to save all packing materials included with your HCA-2 as this will be required if you ever need to ship the device for service or modification.



## Warning

To prevent fire or shock hazard, do not expose the unit to rain or moisture. To avoid electrical shock, do not open the enclosure. Refer servicing to qualified personnel only.

To prevent electric shock, use a 3 prong, grounded power cable.

Any change or modifications not expressly approved in the manual could void your warranty.

Do not connect the output of the HCA-2 to ground. The output of the HCA-2 is a balanced output and should not be grounded.

Do not operate the amplifier with no load (ie, without speakers attached)

## Safety Instructions

Read the operating instructions provided with the HCA-2.

Retain the operating instructions for later use and reference.

Unplug the HCA-2 from the wall outlet before changing the fuse or performing any cleaning or service.

Do not operate the HCA-2 near water. Avoid placement near a water reservoir or excessive moisture.

When replacement parts are required, be sure they are specified by the manufacturer to have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

Do not operate with faulty or frayed power cables.

## Overview

Congratulations! You have just taken a step into an incredible new dimension of the audio world. The Hybrid Class A stereo amplifier, or HCA-2, represents a revolution in the innovation and design of amplifier technology.

Analog-only amplifier circuits have been refined over and over for the last 100 years to a point where we hardly expect to gain any further significant achievements. Attempts have been made at pure digital designs only to yield results that certainly leave much more to be desired.

The HCA-2 is an audiophile's first look at these two concepts being blended into one: a hybrid amplifier with a fully balanced, Class A input stage and a truly state-of-the-art digital output section known as SDAT™.

### Design Overview

The HCA-2 is a stereo (two-channel) amplifier rated at 150 watts per channel into 8 ohms. It is comprised of two main stages: the input stage and the output stage.

The input stage is the heart and soul of the HCA-2's sound. A fully balanced, Class A input stage that can be fed by either single-ended RCA connectors or the balanced XLR type.

The output stage of the HCA-2 is our unique Super Digital Amplification Technology SDAT™ circuitry that provides an absolutely linear response into any loudspeaker load. SDAT circuitry is not load sensitive which assures that the frequency response will not change regardless of the loudspeaker load.

The HCA-2 represents a state of the art power amplifier that is affordable, efficient, and can be used to glorify the beauty and passion of recorded music in ones home. We trust you will enjoy the HCA-2 for years.

## Features

- Stereo power amplifier
- 150 Watts Per Channel into 8Ω
- 225 Watts Per Channel into 4Ω
- SDAT™ output stage
- Balanced JFET input stage
- Single ended (RCA) and balanced (XLR) type inputs
- Fully balanced internal architecture
- Internal High Current Ultimate Outlet™ provides AC filtration
- WBT™ 5-way binding posts
- 12 Volt DC trigger
- PS bus for communication with other PS Audio products
- 93% efficient, produces almost no heat
- PS Audio's brushed aluminum FRAME chassis
- Available in black or silver chassis

## Setup Guide

**1.** Turn off your pre-amplifier or any other equipment that the HCA-2 will be connected to.

**2.** Unpack the HCA-2 and place it on a smooth surface. The HCA-2 may also be rack mounted with an optional rack shelf. Due to the efficiency of the design the HCA-2 does not need to be placed in a ventilated area.

**3.** Choose either the single-ended (RCA) or balanced (XLR) input connections on the back of the HCA-2. Connect the outputs of your pre-amplifier or source equipment to the back of the HCA-2 marked "Right Input" and "Left Input." Be sure to match up the left and right conductors appropriately.

**Note:** If connecting the HCA-2 to a powered subwoofer, ensure the subwoofer's negative input terminal is not grounded.

**4.** Connect your speakers to the HCA-2's output terminals, labeled "Right Output" and "Left Output." Be sure to connect the polarity of the speaker cables correctly. Match the HCA-2's positive (red) and negative (black) terminals to the corresponding speaker connections.

**5.** Plug the HCA-2 into a power source. Use the supplied AC power cable or an aftermarket power cable. For optimum results, we recommend the use of a PS Audio xStream Power Cable.

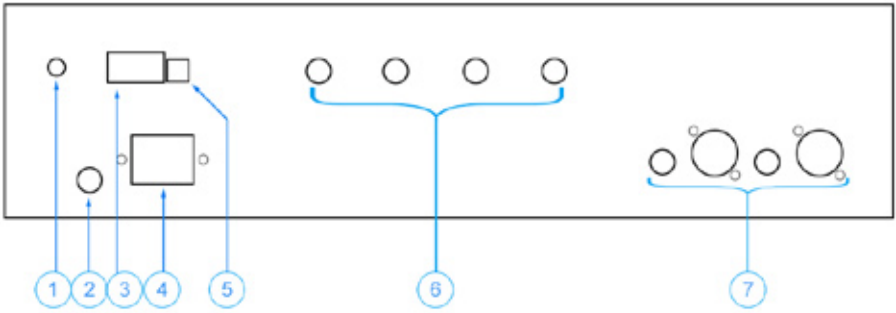
**6.** First, turn on your source equipment. Then, turn on the HCA-2 by pressing the power button on the left-hand side of the chassis.

**7.** The HCA-2 will go into standby mode for about 15 seconds, indicated by the amber "Standby" light on the front panel display.

**8.** Once the blue "Operate" light becomes visible in the display, the HCA-2 is ready to go.



## Back Panel



### 1. 12 Volt Trigger

The HCA-2 is equipped with a 12 Volt DC input trigger. The 12 Volt trigger can be used with other 12 Volt trigger equipped products to relay power status.

See "Using the 12 Volt Input Trigger" for more information.

### 5. Fuse

The fuse is a 7 amp slow blow. It can be removed by inserting a flat device into the fuse holder's slot and twisting counter-clockwise.

**Note:** Unplug the power cord before checking the fuse.

### 3. PS Bus

The P500 comes equipped with a built in PS Bus. The PS Bus allows other PS Audio products equipped with a PS Bus to communicate via standard RJ11 "twisted end" crossover cable.

**Note:** use only a "twisted end" crossover cable. A standard phone cable will not work.

See "Using the PS Bus" for more information.

### 4. IEC Power Input

15 amp male IEC standard power socket.

### 5. PS Bus jumper switches

The jumper switches control the functionality of the PS Bus. These settings are only functional when connected to other PS Audio products via the PS bus.

### 6. Speaker terminals

The 5-way WBT™ binding posts are capable of accepting speaker cable with either spade lug, banana plug, pin connector or bare wire.

Connect the left positive binding post (red ring) of the HCA-2 to the positive (red or +) left speaker cable lead. Connect the left negative binding post (black ring) of the HCA-2 to the negative (black or -) left speaker cable lead.

Do the same for the right terminals of the HCA-2 and the right speaker. Be sure to hook-up the speaker(s) in phase with the HCA-2; it should be positive to positive and negative to negative.

The HCA-2 uses a balanced output design. Therefore, the negative speaker terminal is not common or ground.

**Note:** Do not operate the HCA-2 without speakers connected.

### 7. Audio Inputs

There are two sets of inputs to choose from, single-ended (RCA) and balanced (XLR).

The single-ended RCA connections are a very high quality, gold plated connector designed specifically for PS Audio components. The HCA-2 is a fully balanced design, thus use of the balanced XLR inputs is the optimal choice.

Since the gain is higher for balanced input, as opposed to the single ended input, be sure to use the inputs in matched pairs (in other words, use both RCA inputs or both XLR inputs, but never one of each).

## Front Panel Controls

### Power

The front panel of the HCA-2 was designed to bring both a level of elegance and simplicity into your system. The power button (on/off) is located on the far left-hand side. When the HCA-2 is off, pressing this button will initiate the power up sequence.

### Display

The front panel display window contains three status indicators: Standby, Operate and Fault. These indicators show the current status of the unit.

### Standby

After pressing the power button to turn on the HCA-2, the "Standby" indicator will illuminate in amber. The word "Standby" will be visible in the front panel display. The HCA-2 will remain in standby mode for approximately 15 seconds. During this period no sound will be produced from the connected speakers.

### Operate

After the initial warm-up mode, the "Standby" indicator will go out, and "Operate" will illuminate in blue. The PS logo will also illuminate at this time.

The HCA-2 is now ready to play music.

### Fault

The final indicator that may illuminate within the front panel display is a red "Fault" light. This indicates an abnormal operating condition. To reset the HCA-2 and return the unit to normal operating conditions, unplug the HCA-2 from the power source and then re-connect. If the fault light continues to illuminate, please refer to the Trouble Shooting Guide.

### Illumination Control

The blue "Operate" indicator and PS logo can be dimmed to match your room's environment. Locate the small hole found under the bottom of the HCA-2 directly below the PS logo. Using the supplied adjustment tool, rotate the dial mounted just inside this hole to increase or decrease the brightness of these lights.

Only the blue "Operate" indicator and PS logo are adjustable in this fashion. The brightness of the amber "Standby" or red "Fault" indicators cannot be adjusted.

## Alternate Connectivity

The HCA-2 is a stereo amplifier and cannot be switched into a mono configuration. However, it can be used in bi-wiring or bi-amping configurations.

### Bi-wire

Bi-wiring allows for separate cables to transfer the high and low frequencies to the speakers. This enables each type of cable to be optimized for the specific frequency bandwidth.

To Bi-wire, use one cable to connect the HCA-2 to the left and right "low" frequency terminals on the speakers. The second cable can be used to connect the HCA-2 to the "high" frequency terminals on the speakers.

Alternatively, Bi-Wire speaker cable may be used to achieve the same effect.

### Bi-amp

If more performance is desired, two HCA-2's can be used to drive a pair of speakers if equipped with dual binding posts.

One HCA-2 should be used to drive the "low" section of the left and right speakers. A second HCA-2 should be used to drive the "high" section of the left and right speaker.

## Using the 12 Volt Input Trigger

The HCA-2 can be activated when connected to another electronic component with a 12 Volt DC output trigger. Many other electronic components, such as pre-amplifiers or AC control products, provide an external 12 volt trigger output.

When a 12 volt DC signal is applied the HCA-2 will respond by switching from off to "Operate" mode. If the DC voltage is removed, the HCA-2 will power off. The 12 Volt DC input trigger is a female mini-jack (3.5 mm).

## Using the PS Bus

The PS Bus allows for more sophisticated communication between other PS Audio products. The HCA-2 includes two PS Bus connectors. This allows for several PS products to be linked together so they work as a system.

There are 4 small switches next to the PS Bus connectors. If the PS Bus is not in use, then the switch setting will not effect the operation of the amplifier.

From left to right the first three switches set the "Network Address" for the product on the PS Bus. If more than one HCA-2 is connected to the bus, then each amplifier should be assigned a different address. The switches are off when up, and on when down.

Address	SW1	SW2	SW3
1	Off	Off	Off
2	On	Off	Off
3	Off	On	Off
4	On	On	Off
5	Off	Off	On
6	On	Off	On
7	Off	On	On
8	On	On	On

The fourth switch, SW4, is used to assign the amplifier to a "Network Group". Either group 1 or group 2 can be selected (up or down respectively). Multiple groups can be used if it is necessary to connect multiple products to the PS Bus but only specific products should respond to commands.

## Trouble Shooting Guide

### The HCA-2 is stuck in "fault" mode

Ensure that the speaker wires are not shorted out (making contact with each other). If the HCA-2 is connected to a powered subwoofer, ensure the subwoofer's negative input terminal is not grounded.

Disconnect unit from its power source and plug it back in to clear fault mode. If the unit remains in fault mode this then it may need to be serviced. Contact PS Audio or an authorized distributor.

### One or both channels are not working or sound "muted", "distorted" or "quiet"

Unplug the HCA-2 and remove the top cover. Now examine the 2 fuses on main circuit board located where output wires attach to board. The

fuses are half size (5x20mm) and the value is 5 amp fast blow. Replacing the fuse should bring the unit back to life. If it does not then it may need to be serviced. Contact PS Audio or an authorized distributor.

**Note:** The fuses blow due to either very loud playback or very low impedance speakers or a combination of both. If this happens frequently, reduce the playback volume or use speakers with higher impedance.

### The speakers are producing a hum or buzz

A hum or buzz heard through speakers is a ground loop hum. A ground loop hum can occur if there are two different ground lines attached to the system. Use the Humbusters guide on the PS Audio website <[www.psaudio.com](http://www.psaudio.com)> located under "Toolbox" to help pinpoint the problem.

A very low level fuzz/cracking noise audible within 1-2 feet from the speaker is the HCA-2's own "self" noise and is normal.

### The HCA-2 is producing an audible signal or "singing" internally

If the HCA-2 is producing noise then one or both of the speakers are not connected while the HCA-2 is powered on and producing a signal. Turn off the HCA-2 and connect both speakers and turn the unit back on.

### The HCA-2 is not responding and is completely dark

The main fuse may need to be replaced. Using a flat head screwdriver or small coin, twist it counter-clockwise. The fuse holder should pop out. Replace the fuse with the included 7 amp slow blow or a fuse with the identical rating.

If the problem persists then it may need to be serviced. Contact PS Audio or an authorized distributor.

## Specifications

<b>Power Rating</b>	(both channels, stereo)
8 ohms	- 150 watts per channel
4 ohms	- 250 watts per channel
2 ohms	- 275 watts per channel
<b>Performance</b>	
Frequency	- 20 Hz to 20 kHz
Response	+/- 0.5 dB
THD+N	- 0.2% @ 1kHz (full power)
Voltage Gain	- 24 dB
Input Impedance	- 100K
<b>General</b>	
Weight	- 35 lbs
Dimensions	- 17 x 4.5 x 14 in (WxHxD)

## Warranty and Service

### ***Inside the U.S. and Canada***

PS Audio's warranty is 3 years parts and labor, from the date of original purchase. The warranty follows the product itself regardless of ownership, new or used.

### ***Outside the U.S. and Canada***

PS Audio has authorized distribution in many countries of the world. In each country, the authorized importing retailer or distributor has accepted the responsibility for warranty of products sold by that retailer or distributor. Warranty service should normally be obtained from the importing retailer or distributor from whom you purchased the product. In the unlikely event of service required beyond the capability of the importer, PS Audio will fulfill the conditions of the warranty. Such product must be returned at the owner's expense to the PS Audio factory. Contact your PS Audio distributor or the PS Audio customer service department for more information.

### ***Service issues***

Should your unit ever require service or if you have any technical questions about the HCA-2, you must either contact your dealer (PS Audio if purchased direct) or your PS Audio distributor. No equipment will be received at our service facilities without an attached RA number.

If purchased through an authorized PS Audio dealer or distributor, the RA number must be obtained by the dealer or distributor. If the product was purchased from PS Audio direct, this can easily be obtained by calling PS Audio at 720-406-8946 or by contacting us via E-mail at <service@psaudio.com>.



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