



PS AUDIO

# Owner's Reference

Owner's Reference P-200 Preamplifier C-100 Control Amplifier

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## Instructions for use



## Trio P-200 Preamplifier C-100 Control Amplifier

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**Introduction i**



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# Introduction

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## Important Safety Instructions



**Read these instructions**  
**Heed all warnings**  
**Follow all instructions**



WARNING. TO REDUCE THE RISK OF FIRE OR ELECTRICAL SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

Clean only with a dry cloth.

Do not place flammable material on top of or beneath the component.

All PS Audio components require adequate ventilation at all times during operation. Rack mounting is acceptable where appropriate.

Do not remove or bypass the ground pin on the end of the AC cord unless absolutely necessary to reduce hum from ground loops of connected equipment. This may cause RFI (radio frequency interference) to be induced into your playback setup. All PS products ship with a grounding type plug. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus. Unplug this apparatus during lightning storms or when unused for long periods of time.

When making connections to this or any other component, make sure all components are off. Turn off all systems' power before connecting the PS Audio component to any other component. Make sure all cable terminations are of the highest quality.

There are no user serviceable fuses inside this product.

**THERE ARE NO USER-SERVICEABLE PARTS INSIDE ANY PS AUDIO PRODUCT. REFER ALL SERVICING TO QUALIFIED SERVICE PERSONNEL**

Please contact your authorized dealer, distributor, or PS Audio if you have any questions not addressed in this reference manual.

This product is manufactured in the United States of America. PS Audio® is a registered trademark of PS Audio International Inc., and is restricted for use by PS Audio International, Inc., its subsidiaries, and authorized agents.



The exclamation point within a triangle is intended to tell the user that important operating and servicing instructions are in the papers with the appliance.



The lightning flash with arrowhead within a triangle is intended to tell the user that parts inside the product are a risk of electric shock to persons.





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# Introduction

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## Thank you

Thank you for your purchase of either the Trio P-200 Preamplifier or the C-100 Control Amplifier.

The P-200 Preamplifier is a stereo, remote controlled high-end preamplifier designed to provide great performance in a minimalist high-end system. Unlike an ordinary preamplifier, the P-200 is based on PS Audio's exclusive Gain Cell technology that has no internal volume control or attenuation of the signal. Instead, Gain Cells adjust the actual gain of the preamplifier's internal amplification stage resulting in near perfect performance.

## Cool and efficient running

The C-100 stereo Control Amplifier is a dual mono Control Amplifier, capable of driving nearly every loudspeaker load with ease and beauty. The Trio Control Amplifier is based on ICE power switching amplification for the output, and Gain Cell technology for the adjustable gain feature.

The C-100 has two high efficiency digital amplification stages that allow them to run cool to the touch even while driving demanding loads and should offer years of trouble free performance of the highest standards.

## Power ratings

Power ratings for the C-100 are 100 watts rms into 8 Ohms, 200 watts rms into 4 Ohms at less than 0.1% THD. For musical peaks, the Trio C-100 can produce up to 150 watts per channel into 8 Ohms and 300 watts per channel into 4 Ohms.

## What you can expect

You should expect state of the art performance and sonics from any PS Audio product. The Trio series products represent high value in terms of performance within their rated power levels and will provide excellent results in either a two-channel or multi-channel environment.



# Getting Started

Owner's Reference P-200 Preamplifier C-100 Control Amplifier

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- Location** There are several ways to mount either the C-100 Control Amplifier or P-200 Preamplifier: on a rack shelf, or a stand alone shelf.
- We suggest placing either unit near the source equipment you are planning on connecting to its inputs, such as a CD player, turntable and phono preamplifier, D to A converter etc.
- Isolation** Both units can benefit from aftermarket isolation devices such as cones, spikes and Sorbothane pads.
- Once you have chosen the location for the unit you can use the supplied AC power cord to connect it to the AC wall receptacle or you can use an aftermarket power cord and receptacle.
- Power Cables** We strongly recommend the use of a PS Audio xStream Power™ AC cable and a PS Power Port™ AC receptacle to feed the unit. While the supplied power cable is adequate for the task it is not going to provide the best performance. Choosing any xStream Power cable will make a significant performance improvement over the stock power cable.
- Conditioners** We recommend the use of power conditioning equipment, such as a PS Audio Power Plant, Duet, Quintet, Soloist or any of the power conditioning equipment from PS. We do not recommend the use of simple AC filter power conditioners not made by PS Audio as most of these will "bleach" the sound and rob the music or video soundtrack of life and dynamics. If you do not use PS Audio power conditioning equipment, you would be advised to plug the GCA Power amplifier directly into the AC wall receptacle first, then evaluate the sound with and without the power conditioning equipment you intend to use.

Once your new Trio is unpacked, you'll need to find a convenient place to set it.

Once you have decided on the location and chosen the appropriate power cables, you are ready to install the Trio.



## Power down first

We would recommend that you power the entire system down before attempting to connect either the preamplifier or Control Amplifier.

## Rear switch

Insert the Trio into the system. Make sure the rear mounted power switch is in the off position.

## Connect the inputs

Both the C-100 and P-200 have 3 single ended RCA type inputs. These are line level inputs and will accommodate any line level output such as a CD player, DVD player, D to A player, phono preamplifier output, etc. None of these inputs is designed to take the output of a turntable directly. Turntable outputs need a phono preamplifier to work into either of the Trio products. Should you require a turntable connection, PS manufacturers an excellent choice in phono preamplifiers, the GCPH.

Be sure to use a high quality well shielded and well regarded interconnect for this critical link. PS Audio makes an entire line of excellent choices for interconnects, perfectly matched to your equipment's needs. Input impedance is 50K on each of the Trio inputs.

## Bi-amp

The Trio P-200 Preamplifier has two outputs, an XLR balanced output as well as a single ended RCA output. Both outputs may be used at the same time to connect to a power amplifier or amplifiers if you are bi-amping.



The C-100 Control amplifier has a line level output that can be used to feed another power amplifier like the Trio A-100 for bi-amping.



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# Quick Start Guide

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## Check for proper polarity

Speaker cables are a critical link between your loudspeakers and your new C-100 Control Amplifier. Pay close attention to the polarity on the rear panel binding posts. It is critically important that you match plus and minus (red and black) of the C-100 Control Amplifier to the plus and minus of your speaker. Carefully observe the polarity. The plus or red terminal of the C-100 Control Amplifier must eventually be tied to the plus or red terminal of your loudspeaker. The C-100



Control Amplifier is a non-inverting amplifier design meaning it is in phase with the input signal.

## Be careful when connecting a subwoofer

If you intend to connect a subwoofer to the C-100 outputs, be advised that generally there is no problem. In a few rare instances there may be a problem, which will show itself as problematic if the Control Amp's protection comes on after hooking up the sub. REL subwoofers and some Sunfire subwoofers can be problematic. Please check with the factory or your dealer if you encounter these subwoofers or any problems.

## Binding posts

The binding posts, on the rear panel of the C-100 Control Amplifier will accept either spade or banana type connectors. To use a spade or forked connector, simply unscrew the binding post, place the tongs of the spade over the threaded binding post and tighten the outer barrel of the binding post. It is permissible to use a wrench to tighten the binding post down.

## Connecting a banana style

The banana style connectors should be inserted into the center hole on the rear of the binding post.

Turn your source equipment back on. Make sure everything is powered up properly between the AC receptacle and your AV equipment.

## Rear power switch

Next, turn the rear panel power switch on the Trio to on and power up. There is a normal 10 second delay for the Trio once powered up.

## Using the remote control

The Trio's come with a supplied remote control. The remote has more buttons and functions than are available on the Trio. This remote is a shared remote with the G Series of Control Amplifiers and Preamplifiers. The functions that will work are: power, volume, mute, input selects 1, 2 3.



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# Questions And Answers

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Should the unit be on all the time?

The Trio is best left powered on at all times. The current draw is negligible and keeping it powered on will make sure the internal AC capacitors stay working properly.

There is no harm in leaving the unit on at all times as the lifespan of the Trio will be unaffected by leaving it on.

Are there any internal fuses?

There is a user replaceable fuse inside the P-200. There are no user replaceable internal fuses inside the C-100. There is an internal fuse that should only be replaced by an authorized service center if needed. The components inside the Trio have lethal voltages when powered and even when un-powered. Capacitors inside the Trio can retain an electrical

charge after the unit has been powered down. Do not attempt to get inside the unit for any reason unless instructed to do so by your dealer or an authorized service representative. Should the Trio cease to function, contact your dealer or PS Audio's service center for help.



Placement?

Placement of the Trio is not critical. Placement with respect to other equipment can be important. In general, place the Trio close to the source equipment as possible. It is always preferable to have long speaker cables and short interconnects if there is a distance problem. Long interconnect cables will degrade the performance of most preamplifiers, surround processors or integrated amplifiers and receiver preamp outputs.

Isolation?

Isolation through the use of spikes, cones or Sorbothane feet is recommended for the Trio if space and budget allows. Isolation of any piece of high-end stereo and theater equipment is always recommended wherever practical.

Do cables make a difference?

Yes, cables make a difference. It is important to use the best power cables, interconnects and speaker cables when operating the Trio.

Power switch

There is only one power switch for the Trio and it is located on the rear of the chassis.



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# Questions And Answers

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**What speakers can I use?**

You can power nearly every loudspeaker made with a C-100. It is relatively tolerant of most loudspeakers loads and will not be damaged by attempting to power heavy loads. If, while playing music, the C-100 continues to go into a protection mode when the music gets loud, it means that the speaker load is probably too difficult for the C-100.

**What voltages can the Trio run on?**

The Trio is specific to your country's voltage. Do not use the Trio on a voltage higher than it is rated for. For instance, do not take a 120 volt rated Trio and attempt to use it in a 230 volt country. Failure to observe this cautionary note will void your warranty and may damage the amplifier. If you need to operate the Trio at a voltage other than the voltage it was designed for, contact your dealer, distributor or the factory.



**Protection circuitry**

If the C-100 protection circuitry is activated, the amplifier will immediately shut off. You need to switch off the rear power switch and then turn it back on to reset the amplifier's protection circuitry.

**Does the amp require ventilation?**

The Trio produces little heat under normal operation so ventilation requirements are typically minimal, but there needs to be some measure of airflow for proper operation.



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# Troubleshooting

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No sound comes out of the Trio

If no sound comes out of the Trio there are several areas to check. Either you are not getting an audio signal into the Trio, in the case of the P-200 you may not be properly connected to a power amplifier and, in the case of the C-100, you may not be properly connected to the loudspeakers so the audio can get out of the amplifier, or there is no power from the AC socket.

Check the inputs on the P-200

Check to make sure the Trio's rear mounted AC switch is in the on position. For the P-200, first check to see if the connected power amplifier is operational. You can do this by removing the amplifier's interconnect if it is an RCA type and while the amplifier is on, touch your finger to the RCA interconnect's center pin and see if you hear a buzz through the speakers. If not, you have a problem with your amplifier. An alternate method would be to or plug the audio output of your CD player or DVD player directly into the power amplifier's inputs. Be careful to choose a CD or DVD with relatively soft music because this will play very loudly if it is working. If you determine the power amplifier is working, shut off the power amplifier, reconnect the inputs of the amp to the P-200's outputs and check the Trio's inputs. Make sure the Trio's gain control is up, you have selected the correct input, etc.

For the C-100

For the C-100, you should first determine if the Control power amplifier is working. To do this, one method is to turn the C-100 on, turn the gain control up about half way, then place your ear near the tweeter of your loudspeaker and listen for a very slight hiss. If you hear one, chances are good the amp is working fine, connected properly at the speakers and you have an input problem. If you suspect an input problem, replace the interconnects between the source and your C-100. At last resort, if you suspect an input problem, try another source.

Try another source

If there is no sound and you are convinced the Trio has power and its front panel light is lit, contact your dealer, distributor or PS Audio for further assistance.

If there is a lot of hiss in your speaker

If there is an excessive amount of hiss or noise from the loudspeaker with either Trio, it is probably not from the Trio as these products have extremely low self noise. To test, turn the amp your P-200 is feeding off, or in the case of the C-100 Control Amp, turn it off. Remove the interconnect cables between the source and the Trio and then turn the amplifier back on. Listen once again to see if the noise has been diminished. If it has, chances are good you either need to replace your source or power amplifier with a quieter one or you may need to experiment with better shielded interconnect cables.

If you have hum or buzz

If you experience a hum through the speakers this can be caused by several things. The first is the source. If there is an excessive amount of buzz or noise from the loudspeaker, it may be caused by a ground loop, a light dimmer in the home, poor AC power, or any number of causes. The quickest way to determine where to start your search is to simply turn the preamp or Control amp off, disconnect the cables feeding its input, and see if the hum goes away when you turn it back on. If it does, it's most likely a ground loop or buzz from a dimmer.

The easiest way to figure out where ground loop problems lie is by the process of elimination. You need to determine where the hum or buzz is coming from within your system.

## Finding a ground loop

If the hum/buzz goes away when you remove the inputs to the power amp or Control amp, your next step will be to reconnect the amp and move further down the chain. Disconnect all inputs to the C-100 or the power amplifier you are using to connect to the outputs of the P-200 preamp/ifier. Once these are disconnected, turn the system on and again, listen for hum. Should the hum now appear, it is a problem with your power amp or Control amp.

## Process of elimination

If you determine that there is still no hum present when the power amp or Control amp is connected with no inputs, then selectively begin plugging in your various inputs one at a time until the system is connected again. After each connection, check for hum until you discover the humming culprit.

## It could be the cable TV

VCR's, surround processors, and any device that is connected to a television cable or satellite dish can cause a loud buzz and should always be suspect. If, by the process of elimination described above, you determine it is a component like a VCR that is causing the hum/buzz to occur, and using a cheater plug or removing the ground pin on a PS xStream Power Cable doesn't help matters, it may be necessary to isolate the cable connection (CATV)

with an isolation transformer. This inexpensive device is available at most Wal Mart, Radio Shack or department store type outlets and is sometimes called a 'matching transformer'. If you have problems finding one, call your local cable TV company for advice. The matching transformer will be placed between the cable TV cord and the VCR, TV or processor.

Just remember, take the system down to its simplest level of connection. Find a way to hook the system up with as many pieces of the system missing or not connected. Keep it simple and get it to the point where the hum's gone. Then start adding back components one at a time until the hum returns.

Finding the problem is 9/10th of the work in finding a solution.

## Problems with subwoofers

If you have a problem connecting a subwoofer, please refer to the quick start guide in the front of this manual. We do not recommend connecting the high level inputs of a self power subwoofer to the outputs of the Trio. For many subwoofers it will be fine. Some, like the REL subwoofers, and the





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# Troubleshooting

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## If the amp shuts down while playing music

Carver Sunfire type of subwoofers will not work properly when connected to the Trio's outputs. This is because the C-100 is a balanced type of output with a DC voltage as referenced to ground.

If the C-100 shuts off when playing music, there are several possibilities. If the music plays quite loudly but shuts off on the most explosive parts of the music or video soundtrack, then the C-100 Amplifier is probably underrated for the type of speaker you are using. See your dealer or call PS Audio for advice on going to the next size power amplifier.

If the amplifier shuts down with very little volume, then check the speaker cable connections. The Trio can actually play music at low levels even into a near short on its outputs. Chances are good that you have a shorted connector (plus touching the minus) and you should simply check carefully on the back of the speaker and the back of the amplifier.



# Warranty

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## TERMS AND CONDITIONS

PS Audio warrants the product designated herein to be free of manufacturing defects in material and workmanship, subject to the following conditions, for a period of 90 days from the date of purchase by the original purchaser or date of shipment to the authorized PS Audio dealer, whichever comes first. This warranty period can be extended to three (3) years by registering your product. To register, go online [www.psaudio.com](http://www.psaudio.com).

## Conditions

This Warranty is subject to the following conditions and limitations: the Warranty is void and inapplicable if the product has been used or handled other than in accordance with the instructions in the owner's manual, abused, or misused, damaged by accident or neglect or in being transported, or the defect is due to the product being repaired or tampered with by anyone other than PS Audio or an authorized PS Audio repair center.

- a. The product must be packaged and returned to PS Audio or an authorized PS Audio repair center by the customer at his or her sole expense in the original packing material. PS Audio will pay return freight of its choice for original purchasers.
- b. Return Authorization Number (RA Number) is required before any product is returned to our factory for any reason. This number must be visible on the exterior of the shipping container for PS Audio to accept the return. Units shipped to us without a Return Authorization Number or without a visible RA Number on the exterior of the shipping container will be returned to the sender, freight collect.
- c. RETURNED PRODUCT MUST BE ACCOMPANIED BY A WRITTEN DESCRIPTION OF THE DEFECT.

PS Audio reserves the right to modify the design of any product without obligation to purchasers of previously manufactured products and to change the prices or specifications of any product without notice or obligation to any person.

## Remedy

In the event the product fails to meet this Warranty and the above conditions have been met, the purchaser's sole remedy under this Limited Warranty shall be to return the product to PS Audio or an authorized PS Audio repair center where the defect will be repaired without charge for parts or labor.

This Warranty is for the benefit of the original purchaser of the covered product if the product has been purchased through an authorized PS Audio dealer, distributor or agent. PS Audio will not honor this warranty without valid proof of purchase from an authorized PS Audio dealer, distributor or agent and or a valid serial number as proof the product is a valid PS Audio product manufactured by PS Audio International.

This warranty does not cover the cost of custom installation, customer instruction, setup adjustments or signal reception problems.

## Miscellaneous

This warranty does not cover cosmetic damage or any damage due to accident, misuse, abuse, negligence or modification of, or to any part of the Product, without initial express consent from PS Audio. This warranty does not cover damage due to improper operation or maintenance, connection to improper voltage supply, or attempted repair by anyone other than a facility



# Warranty

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authorized by PS Audio to service the Product.

This warranty is invalid if the factory applied serial number has been altered or removed from the Product.

This warranty is invalid if proof of manufacture by PS Audio International cannot be determined to the satisfaction of the company either by verification of a valid serial number and or a valid receipt that includes the serial number from an authorized PS Audio dealer, distributor or agent.

To locate the servicer or dealer nearest you, or for service assistance or resolution of a service problem, or for product information or operation, call or email PS Audio.

ANY IMPLIED WARRANTIES RELATING TO THE ABOVE PRODUCT SHALL BE LIMITED TO THE DURATION OF THIS WARRANTY. THE WARRANTY DOES NOT EXTEND TO ANY INCIDENTAL OR CONSEQUENTIAL COSTS OR DAMAGES TO THE PURCHASER. Some states do not allow limitations on how long an implied warranty lasts or an exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This Warranty gives you specific legal rights, and you may also have other rights that vary from state to state.

Inquiries regarding the above Limited Warranty may be sent to the following address: PS Audio International, Inc., 4826 Sterling Drive, Boulder, Colorado 80301 ATTN: Customer Service; Email: [customerservice@psaudio.com](mailto:customerservice@psaudio.com); Voice 720-406-8946; FAX: 720-406-8967.

## Outside the US

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 your 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, together with a photocopy of the bill of sale for that product, a detailed description of the problem, and any information necessary for return shipment.



## If you require service in North America

In the unlikely event there is a problem with your PS Audio component, please contact your dealer, distributor, or the PS Audio corporate research center to discuss the problem before you return the component to our California manufacturing facilities for repair. Products shipped to either the factory or the corporate research facilities will be refused and returned freight collect if not accompanied by a PS Audio Service Department issued return authorization number (RA Number).

## Obtain an RA number

Return authorization numbers must be prominently displayed on the outside of the box and an accompanying letter describing the problem and re-listing the RA number must be inside the box to qualify for service.

## Contact information

To contact the PS Audio Service Department:

TELEPHONE 866-406-8946 (toll Free)  
HOURS M/F 9:00 am to 5:00 pm MST  
FAX 720-406-8967  
E-MAIL [service@psaudio.com](mailto:service@psaudio.com)  
WEBSITE <http://www.psaudio.com>

## If you are in the United States or Canada

If you are in the United States or Canada use the following procedure:

1. Obtain a Return Authorization Number (R/A number) and shipping address from the PS Audio Service Department.
2. Insure and accept all liability for loss or damage to the product during shipment to the PS Audio factory and ensure all freight (shipping) charges are prepaid.

The product may also be hand delivered to the California or Colorado facilities if arrangements with the Service Department have been made in advance. Proof of purchase from an authorized PS Audio dealer, distributor or agent will be required for warranty validation at the time of hand delivery.

## Use original packing

Use the original packaging to ensure the safe transit of the product to the factory, dealer, or distributor. PS Audio may, at its discretion, return a product in new packaging and bill the owner for such packaging if the product received by PS Audio was boxed in nonstandard packaging or if the original packaging was so damaged to the point it was unusable. If PS Audio determines that new packaging is required, the owner will be notified before the product is returned.

To purchase additional packaging, please contact your authorized PS Audio dealer, distributor, or the PS Audio Service Department for assistance.

## If you are outside the US or Canada

If you are outside the United States or Canada and require service you must contact your country's dealer or distributor for instructions. PS Audio warrants its products (see warranty section) worldwide. Service for PS Audio products outside the United States and Canada is handled through your country's distributor or dealer.



1. Obtain a Return Authorization Number (R/A number) and shipping address from your dealer or distributor's Service Department.
2. Insure and accept all liability for loss or damage to the product during shipment to the dealer or distributor's Service Department and ensure all freight (shipping) charges are prepaid.

### If you have problems

If you feel your country's authorized dealer or distributor is either unwilling or unable to service your PS Audio products, please contact our service department at [service@psaudio.com](mailto:service@psaudio.com) or at the above contact numbers to discuss the situation.

### Voltage changes

Voltage changes to match your country's voltage and frequency requirements to your PS Audio product are possible only at the time of purchase. The GCA amplifier series is set to a fixed voltage to match your country's requirements and may not be changed.

### Your serial number

Your PS Audio product serial number is:

Please fill in the dealer or distributor's information from where you originally purchased the unit.

### Your purchase information

### Date of purchase