



# Cary Cinema Power Amplifiers

*Cinema 2 - Cinema 3 - Cinema 5*

## Installation and Users Manual

**NOTE:**

Before installing your new Cary Cinema power amplifier, please read this manual carefully as it will inform you of the specifications, proper installation and operation procedures. Also included in this manual are guidelines on how to service and care for your new Cary Cinema amplifier.

# Cary Cinema Power Amplifiers

Congratulations! You have just purchased one of the finest solid state power amplifiers made. Whether two, three or five channels, your Cinema power amplifier is the perfect foundation for your home stereo or theater system. In addition to the awesome power, the Cinema power amplifier delivers flawless reproduction of musical detail and subtle special effects.

Cary Cinema power amplifier features include:

- Remote trigger (works with + 4.2 to + 32 Volts DC, see page 5)
- Short circuit protection,
- Thermal Protection circuits,
- DC offset protection,
- Matched Sanken, 50 Mhz multiple emitter output transistors.
- Soft start circuit prevents “Brown outs” when amplifier is turned on.

For the technically inclined, the following is an overview of the design characteristics of the amplifier:

The input of the amplifier is fed into a high quality Burr-Brown op-amp for Balanced to Single-Ended conversion. This input circuit is connected to a constant current source, differential style with a current mirror. The pre-drive circuit is constant current Single-Ended Class A. The output is a follower stage that uses special “designed for audio” high speed power transistors that have excellent linearity characteristics. The power supply consists of a 700 or 1400 VA toroidal power transformer and either two or four 33,000uF/80V electrolytic capacitors. Special attention was paid to circuit stabilization and speed of the amplifier to reduce transient inter-modulation (TIM) distortion.

The Cinema power amplifier has three protection circuits to prevent damage to your speaker and the power amplifier.

- AC Fuse - Fused with a 3.5A/7.5A for 240V and a 7.5A/15A for 120V.
- Thermal protection - if a channel overheats its output is disconnected until it cools down to a safe operating temperature.
- DC offset sensor - If an amplifier malfunction or signal source malfunction occurs, the potential exists for providing DC voltage to the loudspeaker. If this happens, the channel will automatically shut down. No damage can occur.

In building the Cinema power amplifiers significant effort has been focused on building an amplifier that delivers outstanding mechanical performance, is easy to use, and has sonic properties that will delight the most demanding customer. Thank you for choosing Cary Cinema Design and enjoy your new Cary Cinema power amplifier.

\* Short circuit protection activates if load impedance is about 1.6 ohms or less. Constant tripping of short circuit can degrade output transistors. To reset protection, turn the amplifier off, wait 10 seconds, then turn the amplifier on.

# SPECIFICATIONS

Operating the Cinema power amplifier is a simple procedure since each unit is designed for long term stability in virtually any home or commercial operating situation. Therefore, if the unit is operated outside the parameters outlined in this Owner's Manual, damage may result.

## I.1 Caution Terms

When the following cautionary terms are used in this manual, these definitions apply:

**WARNING: Electrical hazard! Misuse or failure to follow instructions properly may result in personal injury or death!**

**CAUTION: No risk or personal injury; however, misuse or failure to follow instructions may result in damage to equipment.**

**NOTE: No risk of personal injury or equipment damage. However, misuse or failure to follow instructions may prevent proper performance to the equipment.**

This section describes the basic specifications of the Cary Cinema Power Amplifiers at the time of printing. Specifications are subject to improvement without notice or obligation.

<b>POWER OUTPUT:</b>	Class AB, 200 Watts/channel - 8 ohms 350 Watts/channel - 4 ohms
<b>DAMPING FACTOR:</b>	100 @ 8 ohms 50 @ 4 ohms
<b>PEAK CURRENT:</b>	35 amps
<b>FREQUENCY RESPONSE:</b>	10 to 50 kHz +/-0.1 dB -3 dB @ 200 kHz
<b>DIMENSIONS:</b>	6.25"H x 17.7"W x 19.5"D – (6.25" x 17.7" x 12", Cinema 2) Allow 2"D for binding post and front panel switch
<b>INPUT POWER REQUIREMENTS:</b>	100, 110, 117, 220, 240, / 50-60Hz
<b>POWER CONSUMPTION:</b>	155/115/90 Watts – Idling with no signal input 2500/1500/1000 Watts –All channels, 8-ohm load, full power
<b>NET WEIGHT:</b>	38/48/80 lbs.

<b>INPUT IMPEDANCE:</b>	44K ohms for single-ended 91K ohms for balanced
<b>OUTPUT IMPEDANCE:</b>	4 and 8 ohms
<b>GAIN:</b>	27.2 dB
<b>THD:</b>	< 0.05 %, 20 Hz-20 kHz
<b>NOISE:</b>	> 100 dB below rated output, A-weighted
<b>SENSITIVITY:</b>	1.42 Volts for full output
<b>POWER SUPPLY CAPACITORS:</b>	4 or 2 - 33,000 $\mu$ Fd @ 80 Volts (Cinema 5 or Cinema 2)
<b>POWER TRANSFORMERS:</b>	1 – Toroidal 200% duty cycle
<b>BREAK-IN PERIOD:</b>	100 hours of music playing time
<b>FINISH:</b>	Textured black chassis with silver anodized aluminum faceplate Standard, black faceplate optional
<b>AC CORD:</b>	3 conductor shielded and detachable
<b>1.3 Front Panel Features</b>	
<b>POWER SWITCH:</b>	Main power switch for all channels.
<b>LED 5/3/2:</b>	Indicates channels operating. The LED's will not light if the power amplifier is in protection mode or if the fuse is blown.
<b>1.4 Rear Apron Features</b>	
<b>AC INLET:</b>	3-conductor detachable power cord connector
<b>INPUTS:</b>	5, 3 or 2 signal input connections via shielded interconnect cables either single-ended RCA or XLR balanced
<b>OUTPUT:</b>	5, 3 or 2 , 5-way binding posts provide output to the speaker system (4 or 8 ohm).
<b>FUSES:</b>	AC power fuse. Only replace with 15 AMP (Cinema-5), 10 AMP (Cinema-3) or 7 AMP (Cinema-2) SLOW BLOW@ 250 VOLT! 7.5A/3.5A for 220V (Cinema-5/-3/-2)
<b>RCA/XLR SWITCHES:</b>	Select single-ended or balanced operation for each channel.

**REMOTE TRIGGER:**

1/8" connection jack. Set the front panel Main Power switch to OFF to use the remote turn on/turn off feature with the remote trigger controlled by an external switch.

## **INSTALLATION**

This section describes the unpacking and installation procedures for your Cinema power amplifier.

### **2.1 Unpacking**

All shipping containers have been specially designed to protect their contents and special care has been taken to prevent damage under normal shipping conditions. Mishandling should be evident upon inspection of the shipping container. If shipping damage is found after visual inspection, take care not to destroy the evidence. If necessary, document the damage with photographs and contact the transport carrier immediately.

Carefully remove your new Cinema power amplifier from its packing carton and examine it closely for signs of shipping damage. We strongly recommend saving all original packing cartons to protect your amplifier from damage should you wish to store it or ship it for after-sales service.

### **2.2 Warranty Card**

If you were the original purchaser of this unit and you purchased it in the United States, you should fill out the enclosed warranty registration card and return it to Cary Audio Design within 15 days of your purchase. Cary Audio Design also suggests that you keep your original packing cartons in case you ever need to ship the unit when moving to a new home. Warranty restrictions apply. Consult the warranty section of this manual for details. *Please be certain to keep a copy of the original sales receipt from your Authorized Cary Cinema dealer.*

### **2.3 Cinema Amplifier Placement**

The Cinema power amplifier is designed for use inside climate controlled rooms. It must be protected from the elements and temperature extremes. For example, avoid placing the unit in extremely hot locations such as near radiators or other heating units. Avoid installation where it might be damp or wet to avoid potential shock hazards.

### **2.4 Power Requirements**

The Cinema Amplifier is designed to operate from residential or commercial AC current mains. The design voltage is 117 VAC at 50/60Hz (Foreign units 234 VAC at 50/60Hz).

### **2.5 Cables**

The speaker cables from the output posts of the Cinema Amplifier to the speaker system can be any convenient length, as your speaker set-up requires. Select speaker cables of sufficient size to preserve the outstanding performance capabilities of your Cinema Amplifier. Heavy gauge #14 wire is suitable for distances up to 10 feet, #12 for 25 feet. Most audio dealers will have proper speaker cable in stock for this purpose. Consult your *Authorized Cary Cinema* dealer for advice.

## 2.6 Interconnects

Signal input connections are made via the input jack on the rear of the Cinema amplifier, either single-ended or balanced. The interconnect cables from the output of the processor can be any convenient length your installation set-up requires. The choice of a high quality interconnect cable is important. Once again, your audio dealer will have the proper cables in stock for this purpose.

**WARNING: Do not touch the speaker output binding posts during normal operation. You may be shocked. Do not short-circuit the speaker output binding posts. Damage may occur or the fuse may blow. Do not parallel or “bridge” the speaker output binding posts as this will damage the amplifier.**

## OPERATION

Your new Cinema power amplifier is ready for operation after installing the AC power cord, speaker and interconnect cables. Make sure the RCA/XLR switch is in the proper input selector position for your particular installation.

### 3.1 On-Off Power Switch

Push the main power switch on the front panel to the “ON” position for normal use. (Set it to OFF for *remote* turn on/off operation and it will be turned on and off by the trigger in the surround sound processor.) LED’s 1-2, 1-3 or 1-5 will light up. At this point you can play music or start the movie. Flip the main power switch to OFF for normal shut down.

### 3.2 Break In Period

The transistors and capacitors take approximately 100 hours of music playing to fully settle in for peak performance. The Cinema power amplifier will sound good right out of the box and continue to improve as it goes through ‘break in.’ After the first couple of hours you will notice increased depth and tighter bass.

## SERVICE AND CARE

The Cinema power amplifier chassis may be cleaned with a soft towel and Windex® (or a similar window cleaner). Spray it on the cleaning cloth to moisten it, not on the amplifier. Do not use solvents or harsh chemicals to clean the amplifier. They may remove the labels from the chassis. The frequency and need of cleaning will be governed by operating environmental conditions. Avoid letting it become dusty or wet. A ‘feather duster’ type cleaner will also work well for cleaning the amplifier.

### 4.1 Factory Service

Careful consideration has been given to the design of your Cinema power amplifier to keep maintenance problems to a minimum. If problems arise, refer to the trouble-shooting guide at the end of this manual. If the problem is not easily solved, we suggest that you contact our Customer Service Department at phone number (919) 355-0010 to describe your problem in detail. **Do not return the Cinema power amplifier to the factory without a Return Authorization Number from the Customer Service Department.**

Cary Audio Design will assume no responsibility if the transportation company refuses to pay a damage claim due to your improper packing or lack of insurance should the unit be lost in shipment. We strongly suggest using the original packing cartons for all shipping of your Cinema power amplifier.

### **Non-Warranty Repairs**

Cary Audio Design will provide repair service for its products charging on a time and expense basis for the repairs.

#### **WARNINGS**

**Make no attempt to put the Cinema Amplifier in service outside of the cabinet -  
Contact with high voltages found in the unit can be fatal!!!**

**Completely remove AC power plug from the wall and allow 30 minutes for the  
high voltage capacitors to discharge through bleeder resistors before attempting  
to clean the inside of the amplifier.**

#### **CAUTIONS**

**Never remove/insert AC plug when the unit is on or the  
AC power switch is in the "ON" position**

**Obstruction of the top portion of the Cinema Amplifier will result  
in overheating**

**PROPRIETARY RIGHTS:** Cary Audio Design has proprietary right in the circuit design and components of its units. While the purchaser is entitled to use the unit for its intended purpose, use of the unit for copying, imitation, or reverse engineering is a violation of these proprietary rights and is forbidden.

# CINEMA AMPLIFIER TROUBLESHOOTING GUIDE

<b>SYMPTOM</b>	<b>CAUSE</b>	<b>REMEDY</b>
Hum or “Buzzing” through the speakers	-Ground loop	-Install 2-pin adapter on AC cord to float the ground.
“” “”	-Intermittent or poor connection of interconnect ground	-Replace interconnect
“” “”	-RCA/XLR Switch not in correct position	-If using balanced inputs, make sure switch is toward XLR connector and toward RCA jack for RCA in.
Reduced Output	-RCA/XLR Switch not in correct position	-If using balanced inputs, make sure switch is toward XLR connector and toward RCA jack for RCA in.
AC fuseblows into very	-Overload	-Playing very loud low impedance. Replace fuse.
“” “”	-Short at output	-Make sure (+) and (-) of binding post are not shorted.
LED out	-Protection circuit activated	-Turn power off. Wait 10 seconds and turn back on.



## **UNITED STATES LIMITED WARRANTY**

Cary Audio Design, Inc. warrants to the original United States purchaser for use in the United States, that this product shall be free from defects in or workmanship for three (3) years from the date of the original purchase. This warranty is for the original purchaser only and does not transfer to any subsequent owner.

During the warranty period, Cary Audio Design or an authorized Cary Audio Design service facility will provide free of charge both parts and labor necessary to correct defects in material or workmanship.

To obtain such warranty service, the original purchaser must:

- (1) Complete and send in the warranty Registration Card within 15 days of purchase.
- (2) Notify Cary Audio Design as soon as possible after the discovery of a possible defect and submit the following:
  - (a) The model number and serial number;
  - (b) A copy of the original sales receipt from an Authorized Cary Cinema dealer with date of purchase;
  - (c) A detailed description of the problem;
- (3) Deliver the product to Cary Audio Designs or the nearest authorized service facility, or ship the same in its original container or equivalent, fully insured and with the shipping charges to Cary Audio prepaid by the owner.

Correct maintenance, repair and use are important to obtain performance from this product. Therefore, carefully read the Operating Manual. This warranty does not apply to any defect that Cary Audio Design in its sole discretion determines is due to:

- (1) Improper maintenance or repair, including the installation of parts or accessories that do not conform to the quality and the specifications of the original parts.
- (2) Misuse, abuse, neglect or improper installation.
- (3) Accidental or incidental damage.

## **WARRANTY DISCLAIMER**

Except for the express warranties stated herein, Cary Audio Design disclaims all other warranties including, without limitation, all implied warranties of merchantability and fitness for a particular purpose.

## **EXCLUSIVE REMEDY**

Notwithstanding the foregoing, the purchaser's exclusive remedy for any breach of warranty, express or implied, is limited to the repair or replacement of the defective unit or the refund of the purchase price, at the option of Cary Audio Design. Under no circumstances is Cary Audio Design liable for incidental or consequential damages. Any implied warranties imposed by law terminate one (1) year from the date of purchase.

## **INTERNATIONAL PURCHASERS (Outside the USA)**

Cary Audio Design warrants its merchandise to purchasers within the United States exclusively for use within the United States. It provides no other warranties, expressed or implied. If you are a non-USA purchaser, consult with your local dealer or distributor to determine the details of your local warranty.

The foregoing constitutes Cary Audio Design's entire obligation with respect to this product, and the original purchaser and any user or owner shall have no other claim for incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation and exclusion may not apply to you. This warranty gives legal rights and you may also have other rights, which vary from state to state.

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