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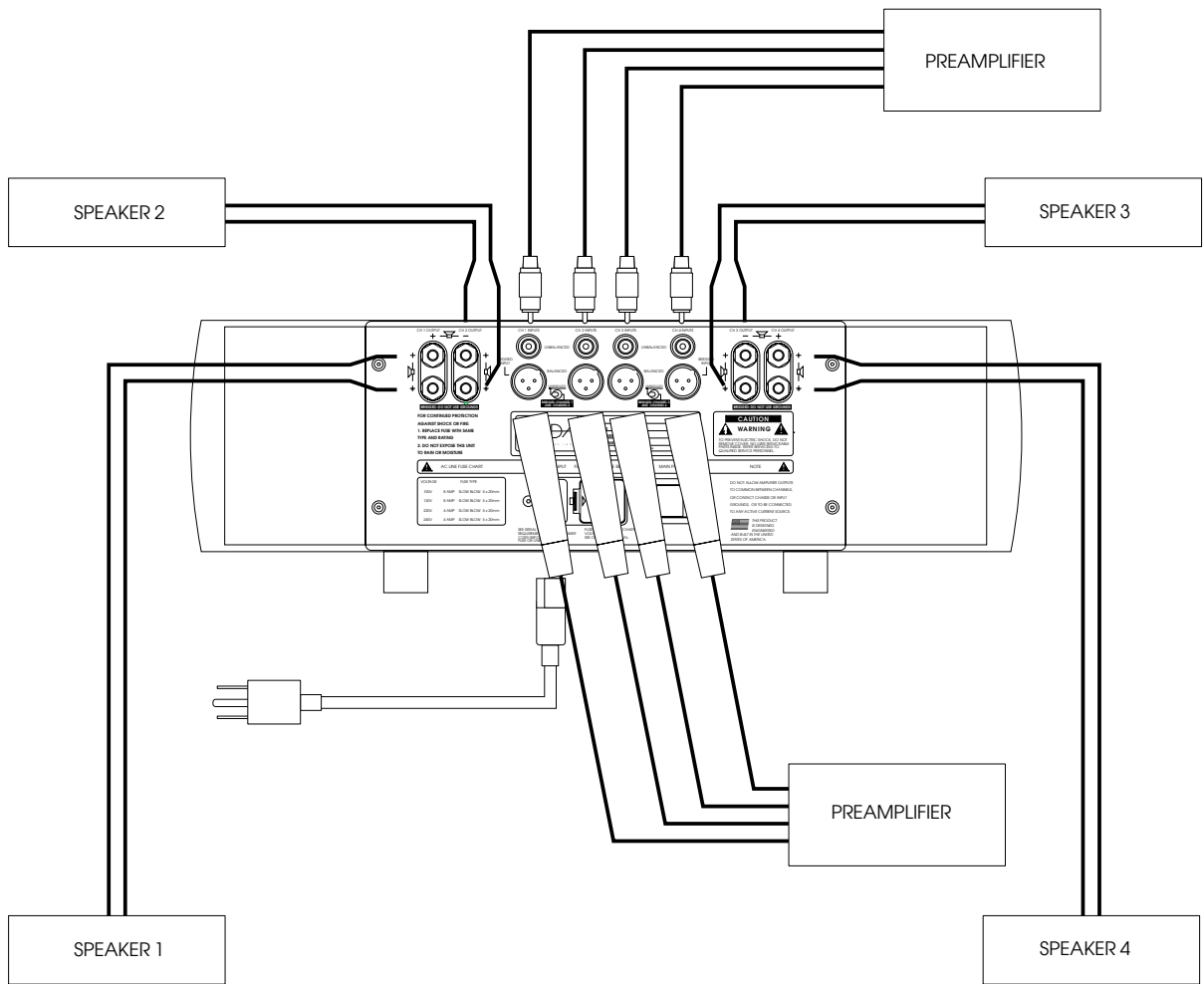
<b>CAUTION</b>		
	<b>WARNING</b>	
<b>CAUTION:</b> TO PREVENT ELECTRIC SHOCK, DO NOT REMOVE COVER. NO USER SERVICEABLE PARTS INSIDE, REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.		
	THIS SYMBOL IS TO ALERT YOU OF THE PRESENCE OF UNINSULATED DANGEROUS VOLTAGE WITHIN THE UNIT'S ENCLOSURE THAT MAY BE OF SUFFICIENT MAGNITUDE TO CONSTITUTE A RISK OF ELECTRIC SHOCK.	
	THIS SYMBOL IS INTENDED TO ALERT YOU OF THE PRESENCE OF IMPORTANT OPERATING AND MAINTENANCE INSTRUCTIONS IN THE LITERATURE ACCOMPANYING THE UNIT.	

**WARNING:** TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE. TO AVOID ELECTRICAL SHOCK, DO NOT OPEN THE UNIT. REFER SERVICING TO QUALIFIED PERSONNEL.

- CAUTION** - Never install or remove the power cord from the chassis unless it has been disconnected from the AC power source first.
- Never pull on the power cord when removing it from an AC power source. Grasp it by the plug.
  - Do not leave the power cord connected to an AC power source unless it is connected to the unit.
  - It is recommend that during extended periods of nonuse that the units power cord be unplugged from its AC power source.
  - Route the AC power cord so that it will not be damaged or walked on.

This amplifier is a precision device, designed in an effort to provide the listener with unmatched sound quality, design, and construction. In order to operate your amplifier properly and to realize all of the capabilities of the AMPLIFIER v12, we recommend that you read this entire manual carefully.

The first section of the installation instructions for the AMPLIFIER v12 is a diagram of the default four channel configuration required to bring this amplifier into an operating mode. These brief steps will allow you to begin operating your system. Make sure during installation that the main AC power switch on the back of the AMPLIFIER v12 is turned off. While the diagram may be self explanatory, we strongly recommend that you read the detailed instructions following this introductory section.



I. Source-Output, Power Connections and Controls

The connectors and controls are clearly marked on the back panel of the AMPLIFIER v10. Note the correct channel orientation. The function and channel markings on the rear panel correspond to the front panel controls and their signal paths.

1. The MODE switch selects between unbridged or bridged operation. The default position is UNBRIDGED. For information on bridging see BRIDGE SETUP.

2. The UNBALANCED and BALANCED inputs should be attached to the appropriate unbalanced and balanced outputs of a preamplifier either directly or through a crossover or processor, as appropriate to the application.

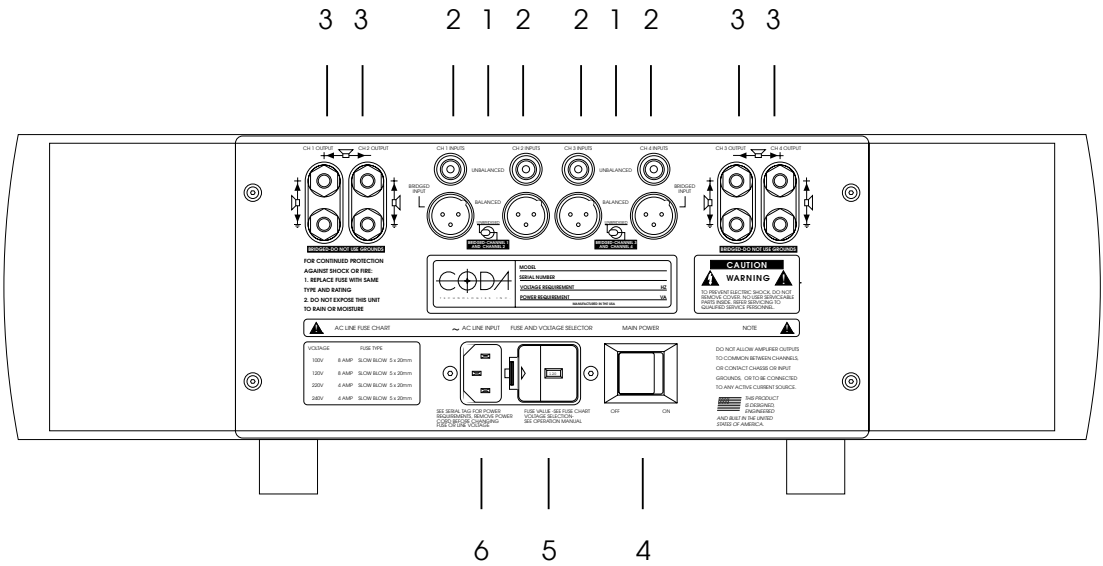
3. The CH1 OUTPUT, CH 2 OUTPUT, CH 3 OUTPUT, CH 4 OUTPUT should be attached to four or three or two speakers. This will depend on how many channels are bridged.

**NOTE: THERE ARE NO OUTPUT FUSES SO AS TO INSURE A LOW OUTPUT IMPEDANCE. SPEAKER PROTECTION IS LEFT TO THE SPEAKER MANUFACTURER AS THEY WOULD BEST KNOW HOW TO PROTECT THEIR SPEAKER.**

4. The MAIN POWER switch, once all appropriate connections are made, may be left on as the AMPLIFIER v10 draws a negligible amount of current when the BIAS is turned off.

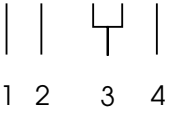
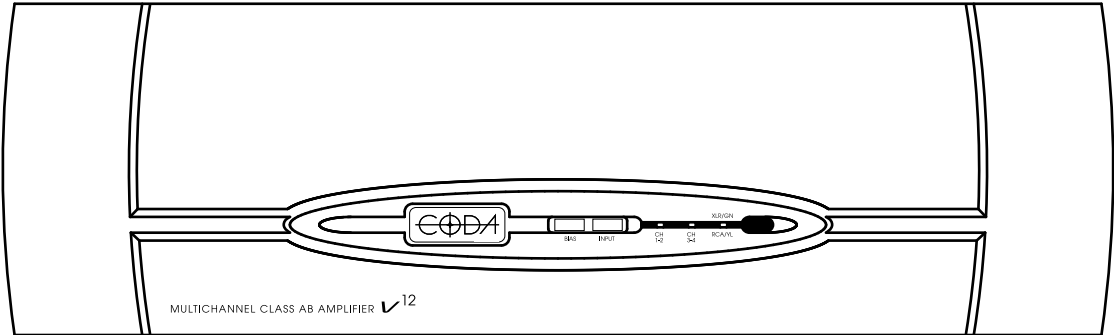
5. The FUSE AND VOLTAGE SELECTOR houses a 5 X 20 slow blow fuse and voltage selector cartridge. Should the fuse blow, contact a Coda dealer or call Coda directly. When changing the fuse, or altering the voltage selection be sure this unit is disconnected from its AC power source.

6. The AC LINE INPUT should be attached to the power cable provided with the amplifier. After making the appropriate connections insert the three prong safety plug into an appropriate AC power source. Once the AMPLIFIER v10 is properly connected, the power switch may be turned on and the led on the front panel will light indicating a ready state.



**II. Front Panel Control Functions and Indicators**

- 1. The BIAS button turns on the bias and opens shunting relays that mute the input.
- 2. The INPUT SELECTOR button switches between the balanced and unbalanced inputs.
- 3. These LEDs when lit, indicate that the bias is activated in the AMPLIFIER v12.
- 4. This two color LED indicates that the main power is on. When it is green the balanced inputs are in use. When it is yellow the unbalanced inputs are in use.

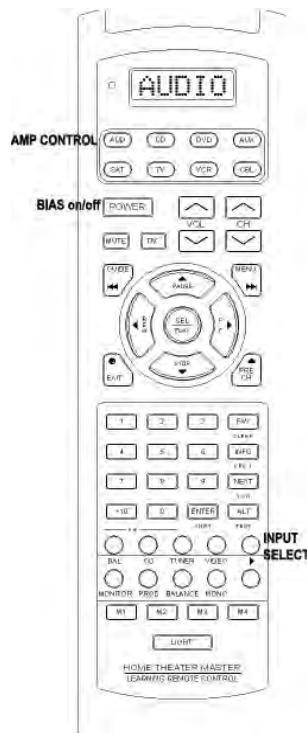


**Note:** If a power interruption occurs to the system the AMPLIFIER v12 defaults to bias off.

### III. Remote Control

The AMPLIFIER V12 may be operated by remote control. To operate, set the SL-9000 remote to **(AUD)**. The optional universal remote can be used to control other Coda products as well as many other audio and video components. For instructions on the remotes other capabilities, refer to the Universal Remote Control Manual.

1. The **(POWER)** button turns on the bias and opens shunting relays that mute the input.
2. The **(>)** button switches between the balanced and unbalanced inputs.



**Note:** If a power interruption occurs to the system the AMPLIFIER V12 defaults to bias off.

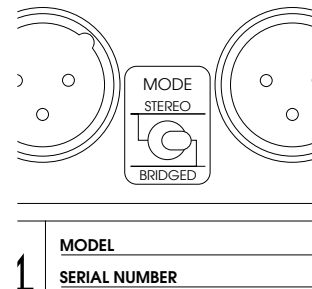
III. BRIDGED SETUP

**WARNING:** DO NOT OPERATE THIS AMPLIFIER WITH THE TOP COVER REMOVED. NEVER MAKE ANY INTERNAL ADJUSTMENTS WHILE THIS AMPLIFIER IS CONNECTED TO AN AC POWER SOURCE.

BRIDGED operation consists of one, or both sets of AMPLIFIER v10 channels. The amount of power from a four channel AMPLIFIER v10 is 100 Watts with 8 Watts class A per channel. A bridged AMPLIFIER v10 has 400 Watts with 8 Watts class A per set of channels. To bridge, set the MODE switch on the back of the amplifier to the BRIDGED position.

Back of AMPLIFIER v12

NOTE: TURN THE MAIN AC POWER SWITCH ON THE BACK OF THE AMPLIFIER v12 OFF BEFORE ALTERING THE MODE SWITCH OR CONNECTING OR DISCONNECTING ANY CABLES.



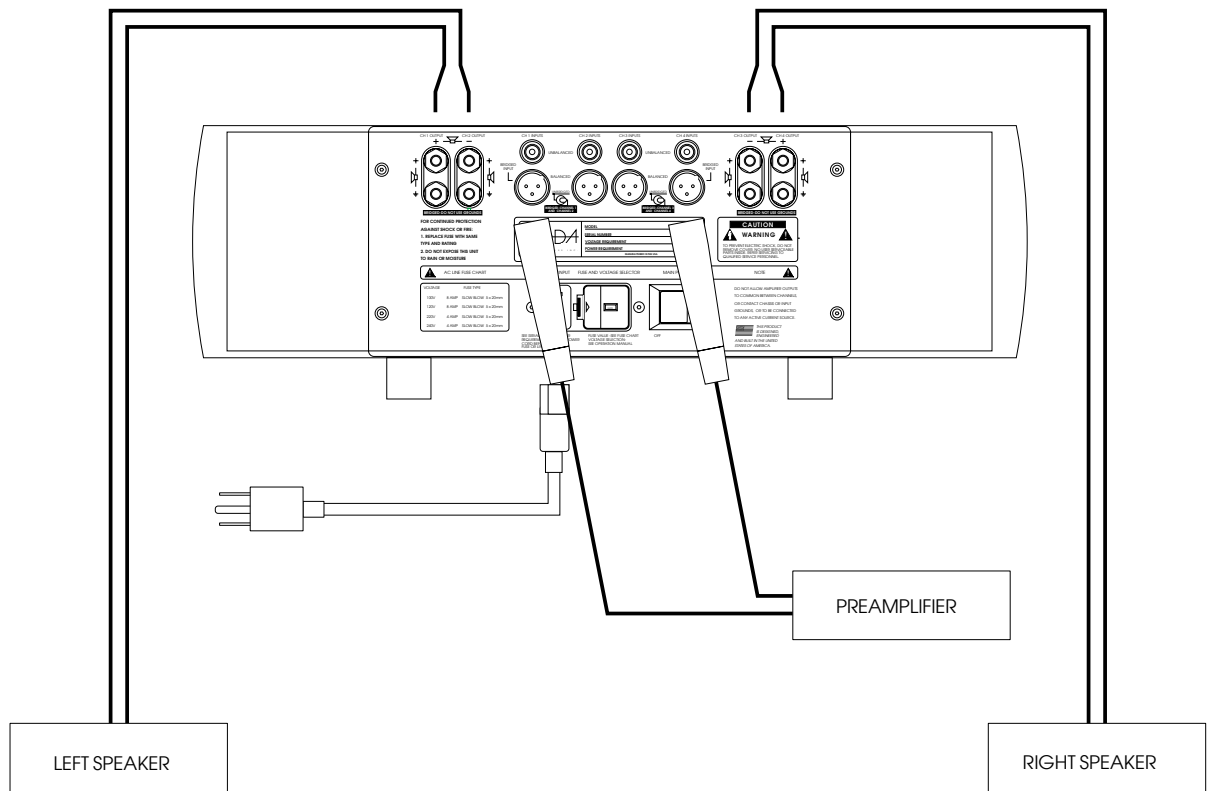
The bridging switch commons the inputs of the AMPLIFIER v12, where pin 2 of the left XLR commons with pin 3 of the right XLR, and pin 2 of the right XLR commons with pin 3 of the left XLR.

The set up diagram for BRIDGED operation is on the following page.



**BRIDGED set up diagram**

Before setting up the BRIDGED AMPLIFIER v12, read the entire DETAILED INSTALLATION section of this manual. As stated on the previous page, either the left set or right set, or both sets of channels may be bridged.



## I. Design Philosophy and Approach

The subtlety of the design process at this level of performance makes it impossible to easily explain all of the advantages inherent in the Amplifier v12. However, we present here an overview to give you an understanding of some of its unique features and an idea of the listening experience you can expect. Often a particular technique has numerous unrelated advantages and possibilities. We make every effort to exploit these advantages with the final result being an amplifier that is greater than the sum of its individual features

The topology and component selection is built on the foundation established by the Amplifier System 100. Balanced interconnections are provided to take advantage of their greater noise rejection as in the 100. Differential voltage gain throughout provides exceptional rejection of external noise and contributes to the inherent DC stability of the circuit. This allows direct coupling without servo circuitry. The unit also uses output followers operating without feedback.

The front end of the Amplifier v12 is designed to operate without ever entering Class B operation as is common in many other designs. This combined with excellent high frequency design insures linear operation at high speed, and translates into a sonic reproduction which is extremely transparent in character. The supply takes a very direct approach to high performance. First, a top quality toroid transformer and over 144,000 uf of capacitance with very low ESR and inductance is used. For optimum performance and reliability all circuitry remains continuously powered.

The specifications are consistent with what would be expected in a high current amplifier design. In this design, however, an unusual degree of attention has been paid to sonically meaningful parameters.

For example, the current stage is capable of producing peak currents in excess of 60 Amperes with a degree of linearity and speed which is not matched by other designs when producing only a fraction of of this current. This is achieved by the implementation of several distinct circuit features.

In the Amplifier v12 extremely wide bandwidth output transistors are used instead of the usual TO3 devices which are used in other transistor designs. Each channel uses 8 individual output transistors with a combined power rating of 1600 Watts and 60 Amperes with a bandwidth of 10 Mhz.

The manner in which the Amplifier v12 accomplishes Class A/AB operation is also different than that employed in conventional designs. All Class AB designs leave Class A operation when they are operated into loads of sufficiently low impedance or power levels. Generally, this transition will produce a large and abrupt distortion increase.

The Amplifier v12 uses bias voltages and component values which have been specifically selected to produce a precision transition with no abrupt changes in distortion or output impedance. This "Precision Bias" technique yields seamless performance regardless of the complexity of the load impedance and is particularly effective at eliminating a form of IM distortion which often occurs in these instances.

To maintain "Precision Bias" requires an advanced bias circuit that must have a very high degree of stability under a wide range of temperatures and load conditions. The usual bias network is of such high impedance and poor thermal regulation that at the extremes of operation, bias currents are ineffectively controlled. Advanced tracking techniques results in absolute control of bias currents under all conditions in the Amplifier v12.

The main power supply of the amplifier consists of a 1600VA toroidal power transformer with dual rectifiers to isolate one set of channels from the other. One hundred thousand microfarads of total capacitance provide effective filtering.

The above attributes result in a amplifier of such extreme linearity and bandwidth that no overall feedback correction is required or used. One advantage of this is a high degree of immunity from interactions with loads or cables and a superior transient response. An extremely low nonreactive output impedance is maintained well beyond 20,000 hz. The resulting uniform damping factor is not usually found in other designs.

The Amplifier v12 has all structural parts made of machined aluminum which are milled to very close tolerances yielding the seamless appearance characteristic of previous products from Coda. As with all Class A/AB amplifiers, heat dissipation is important. The Amplifier v12 uses two massive heat sinks for efficient, noiseless, and clean thermal relief. The thermal coefficient of the heat sinks is one of the lowest and most effective in the audio industry.

## II. Parts' Quality

1. Finishes - All exterior metal parts are anodized or powder coated. Anodizing for its multiple finishing and powder coating for durability.

2. Circuit Boards - Circuit boards are fiberglass epoxy with gold plating over a tin/nickel barrier. This gold layer will not corrode, while the barrier plate prevents the gold from migrating to the lower copper layer and detracting from its appearance.

3. Resistors - All are high reliability metal film 1% resistors for 1/4 watt and 5% for 1 watt.

4. Capacitors - All capacitors have been eliminated where possible on the premise that "no cap is better than the best cap." The only electrolytics used are in the power supply where large numbers provide enormous filtering capacitance for the supply.

5. Semiconductors - There are no integrated circuits (IC) in the signal path. Very high quality dual FETs were selected for their superb noise performance and precision matching. The remaining semiconductors are also of very high quality, each possessing parameters ideally suited for the specific application.

6. Connectors - Coda employs a standard RCA configuration with a gold plated case. The XLR input and output connectors are manufactured by Neutrik of Switzerland. Speaker connectors are also gold plated.

7. Wire - All signal wire has been eliminated whenever possible. Where wire is used, Coda employs solid silver and silver plated copper, 141 strand, 18 guage wire with a silicone insulation.

**AMPLIFIER v12**

Rated Power: 60 Watts with 25 Watts class A @ 8 Ohms both channels driven from 20Hz to 20kHz  
Frequency Response: DC to -3dB @ 100kHz  
Distortion: < .1 percent from 10Hz to 20kHz @ 100 Watts both channels driven into 2 Ohm through 8 Ohms  
Gain: 26dB  
Maximum Current: >60 Amperes peak per channel  
Noise: -100dB referenced to rated output  
Input Impedance: 50k Ohms unbalanced/1k Ohms balanced  
Output Impedance: .08 Ohms from 20Hz to 20kHz

**BRIDGED**

Rated Power: 240 Watts with 25 Watts class A @ 8 Ohms mono from 20Hz to 20kHz  
Frequency Response: DC to -3dB @ 100kHz  
Distortion: < .1 percent from 10 Hz to 20kHz @ 400 Watts driven into 4 Ohms through 8 Ohms  
Gain: 32dB  
Maximum Current: >60 Amperes peak  
Noise: -100dB referenced to rated output  
Input Impedance: 1k Ohms unbalanced/1k Ohms balanced  
Output Impedance: .15 Ohms from 20Hz to 20kHz

Also available configured for 120W x 4 channels with 25W Class A. When purchased in this higher power configuration, the amplifier channels cannot be bridged. Any Amplifier V12 can be modified by the factory to operate at the 60W per channel (bridgeable) or 120W per channel (non-bridgeable). Contact the factory for specific details or to discuss the proper configuration for your V12.

**SUPPLY** 1600 VA toroidal power transformer and 144,000 uF of capacitance

**DIMENSIONS**

Height: 5.25" Faceplate, 6.0" Overall  
Width: 19.0" Faceplate, 17.0" Chassis  
Depth: 12.5" Overall  
Weight: 45 lbs., 50 lbs., Shipping  
Power requirement: 450 Watts maximum at rated power

The interior of the amplifier requires no special care. If exterior cleaning beyond simple dusting is required, any dilute ammonia-based product is recommended. Do not use any abrasive rags, cleaners or chemical solvents on the amplifier.

When handling the amplifier, take care not to mar the faceplate. Aluminum is a medium hardness metal and can be scratched by harder tool steels, and the surface can be easily marred if the amplifier is set face-down on a hard surface. Do not rest the amplifier on its faceplate.

The amplifier should not be left in direct sunlight or exposed to intense heat to avoid damage to internal components or finish.

It is recommended that you do not throw away any shipping material. The box and packing materials are ideal for moving, and if any service is required they will be necessary for safe shipment.

i. Warranty - Any failure of the Amplifier V12, hereafter known as the product or original product, to operate or to meet specifications, applicable at time of manufacture, due to a manufacturing defect or component failure, will be corrected by Coda Technologies without charge for parts or labor, for a period of ten years from date of original purchase. Coda Technologies will provide for surface transportation to and from the factory for a period of one year from date of original purchase.

ii. Procedure - If the product should require service under warranty contact Coda Technologies at the location on the back cover of this manual for shipping instructions. Products purchased outside of the United States will be covered by the warranty conditions extended by the importing distributor which may differ from those given above.

iii. Exclusion of Coverage - Coda Technologies is not obligated to service the product in certain conditions, as according to the following subsections.

- a. The product has been damaged through:
  - i. operation not in accordance with the instructions in this manual
  - ii. abuse, tampering, modification or accident
  - iii. serial number defacement
- b. The product has been transferred to a third party. This warranty is valid only for the original purchaser of the product.
- c. The product has been transported outside of the United States of America.

In these conditions any service will be made at Coda Technologies sole option.

iv. Total Loss and Replacement - If the product is submitted for service due to a severe malfunction which has caused damage sufficient enough to make a repair attempt infeasible, the product will be replaced with another unit of equal or superior specifications. Coda Technologies product line is frequently updated and changed, and the specific model and version of the original product may be discontinued at any time without notice. In this case no guarantees are made that the replacement unit will be visually similar to the original product.

v. Subjective Differences - No guarantee is made that the product will perform to any specifications that cannot be measured and confirmed with precision audio analysis equipment. Coda Technologies is only obligated to make repairs which will bring the product into compliance with the specifications stated in this manual.

vi. Unnecessary Service - In all conditions, if the product is submitted for service and found to be operated without fault and within specifications, shipping charges will be billed to the customer.

This warranty gives you specific legal rights. You may have other rights which vary from state to state.

Disclaimer - Coda Technologies cannot be held responsible for any damage caused by their products, including but not limited to:

- a. Damage to speakers caused by failure of a Coda Technologies product to mute or disable itself as expected or described in its manual.
- b. Damage caused by connecting a load to a Coda Technologies product having an improper impedance as described in the products manual.
- d. Damage caused by defects in design, construction or component quality.

Fill in this registration sheet and fax or mail it to Coda Technologies to ensure you are in our warranty system. This will facilitate warranty service should it become necessary.

It is recommended that you retain a copy of this form for your own records. Coda Technologies' address and fax number are located on the back of this manual.

**MODEL DESIGNATION:** \_\_\_\_\_

**SERIAL NUMBER:** \_\_\_\_\_

**DATE OF PURCHASE:** \_\_\_\_\_

**PLACE OF PURCHASE**

Dealer: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_

**PURCHASER**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_

**NOTES:** \_\_\_\_\_

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