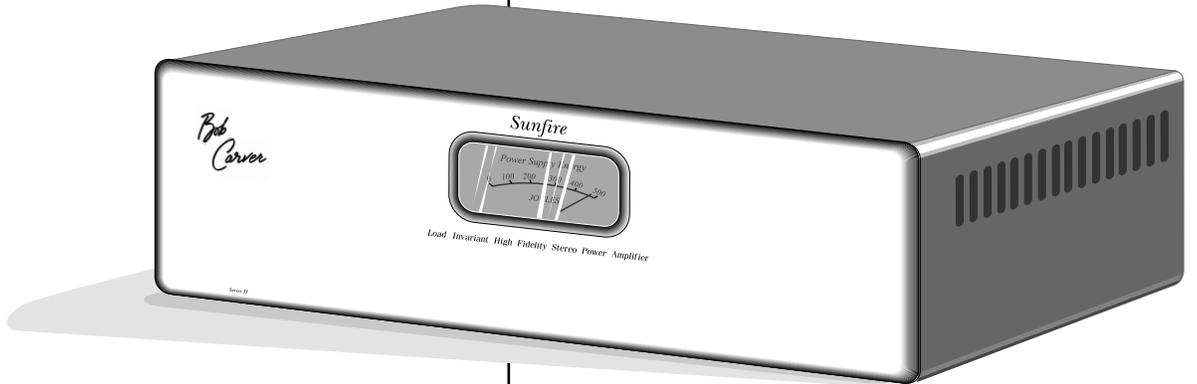
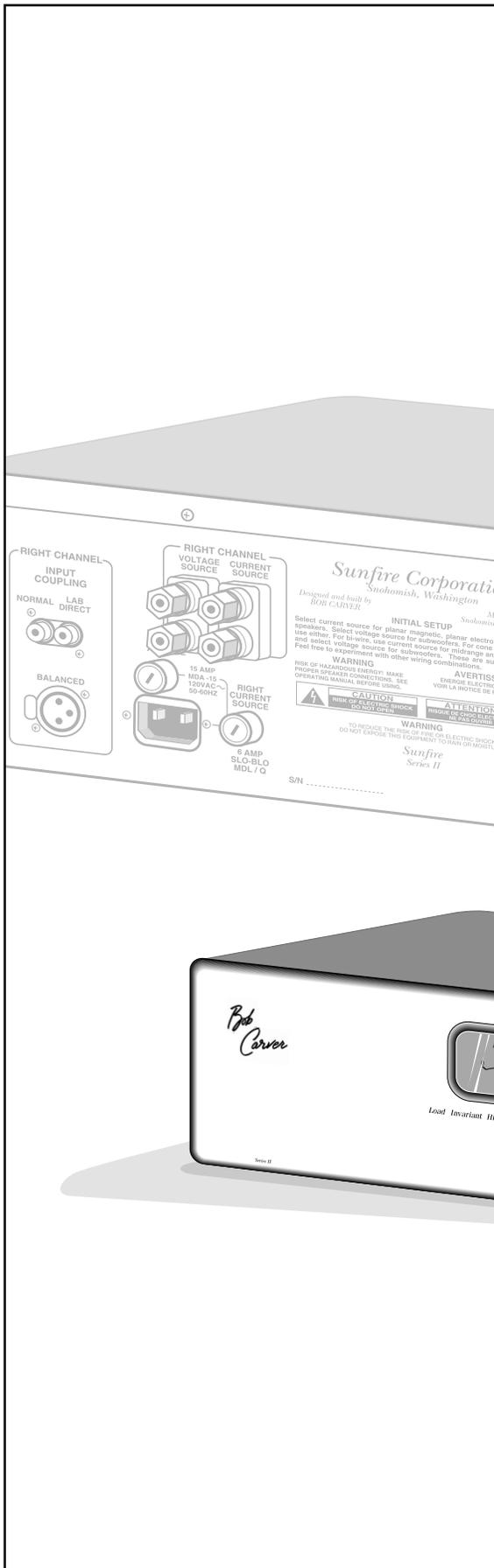


Bob Carver's
Sunfire
...from his mind & soul

Sunfire
Standard and Signature
Stereo Power Amplifiers



Series II

User's Manual



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure, that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Safety Instructions

1. Read Instructions — All the safety and operation instructions should be read before the Sunfire Component is operated.

2. Retain Instructions — The safety and operating instructions should be kept for future reference.

3. Heed Warnings — All warnings on the Component and in these operating instructions should be followed.

4. Follow Instructions — All operating and other instructions should be followed.

5. Water and Moisture — The Component should not be used near water - for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.

6. Ventilation — The Component should be situated so that its location or position does not interfere with its proper ventilation. For example, the Component should not be situated on a bed, sofa, rug, or similar surface that may block any ventilation openings; or placed in a built-in installation such as a bookcase or cabinet that may impede the flow of air through ventilation openings.

7. Heat — The Component should be situated away from heat sources such as radiators, or other devices which produce heat.

8. Power Sources — The Component should be connected to a power supply only of the type described in these operation instructions or as marked on the Component.

9. Power Cord Protection — Power-supply cords should be routed so that they are not likely to be walked upon or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit the Component.

10. Cleaning — The Component should be cleaned only as recommended in this manual.

11. Non-use Periods—The power cord of the Component should be unplugged from the outlet when unused for a long period of time.

12. Object and Liquid Entry — Care should be taken so that objects do not fall into and liquids are not spilled into the inside of the Component.

13. Damage Requiring Service — The Component should be serviced only by qualified service personnel when:

- A.** The power-supply cord or the plug has been damaged; or
- B.** Objects have fallen, or liquid has spilled into the Component; or
- C.** The Component has been exposed to rain; or
- D.** The Component does not appear to operate normally, or exhibits a marked change in performance; or
- E.** The Component has been dropped, or its cabinet damaged.

14. Servicing — The user should not attempt to service the Component beyond those means described in this operating manual. All other servicing should be referred to qualified service personnel.

15. To prevent electric shock, do not use this polarized plug with an extension cord, receptacle or other outlet unless the blades can be fully inserted to prevent blade exposure.

Pour prévenir les chocs électriques ne pas utiliser cette fiche polarisée avec un prolongateur, un prise de courant ou une autre sortie de courant, sauf si les lames peuvent être insérées à fond sans laisser aucune partie à découvert.

16. Grounding or Polarization — Precautions should be taken so that the grounding or polarization means of the Component is not defeated.

This apparatus does not exceed the Class A/ Class B (whichever is applicable) limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

ATTENTION — Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de class A/de class B (selon le cas) prescrites dans le règlement sur le brouillage radioélectrique édicté par les ministere des communications du Canada.

WARNING – TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION: TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

ATTENTION: POUR ÉVITER LES CHOCS ÉLECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU'AU FOND.

PORTABLE CART WARNING



Carts and stands - The Component should be used only with a cart or stand that is recommended by the manufacturer.

A Component and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the Component and cart combination to overturn.

Contents

Signature and Standard Editions	5
Introduction	6
Unpacking	7
Signature Edition specifications	8
Standard Edition specifications	9
Installation	10
Front panel features	11
Rear panel features	12-13
System configurations	14
Unbalanced inputs, voltage source outputs	14
Balanced inputs, current source outputs	15
Parallel Mono	16
Biwiring, Stereo	17
Biwiring, Mono	18
Biamping	19
Speaker connections	20
Troubleshooting guide	21-22
Limited Warranty	23
Service assistance	23

To find out more about this and other Sunfire products, please visit our website:

www.sunfire.com

Signature and Standard Editions

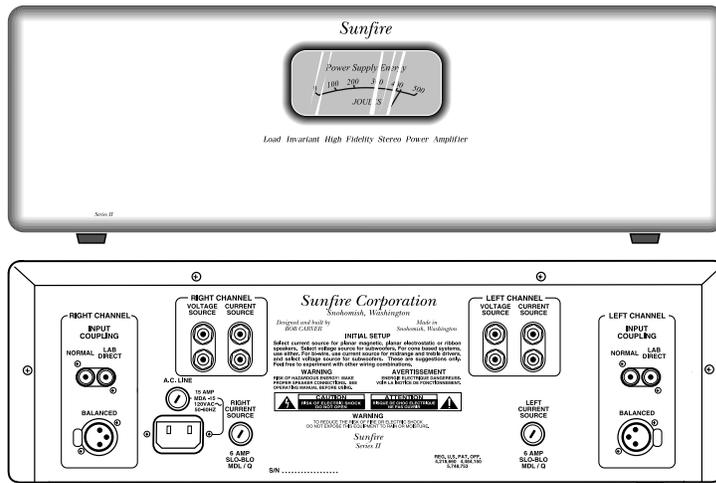
This manual covers both the Signature Edition and the Standard Edition of the Sunfire Series II Amplifiers.

The Signature Edition has more power output and uses premium quality output terminals compared to the Standard Edition.

The illustrations in this manual are of the Signature Edition, but the operational details, features and connections to loudspeakers and preamplifiers are the same for both models.

Standard Edition

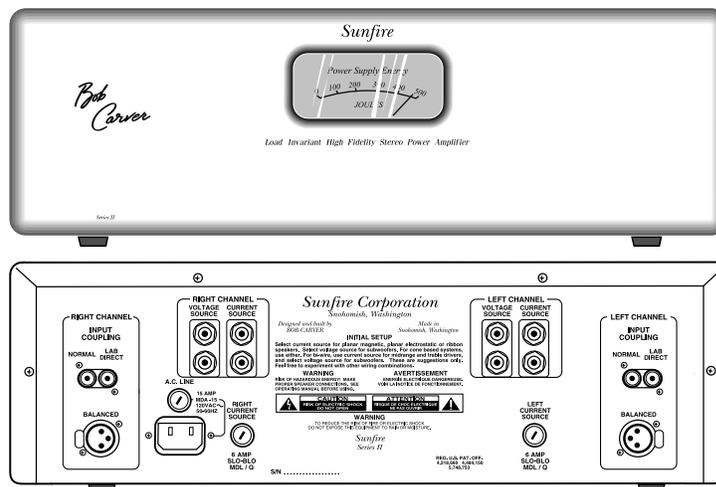
- 325 Watts per channel into 8 Ω
- 650 Watts per channel into 4 Ω
- 19" wide chassis



Signature Edition

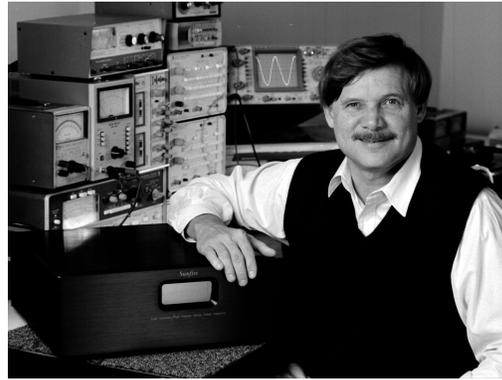
- 625 Watts per channel into 8 Ω
- 1250 Watts per channel into 4 Ω
- 19" wide chassis

Bob Carver's signature on the front panel



Introduction

Bob Carver's
Sunfire
..from his mind & soul



Bob Carver, Amplifier Designer, Physicist

Dear Friend:

Thank you for purchasing my *Sunfire* two channel power amplifier. I hope you enjoy it and the music it makes as much as I have enjoyed creating it for you.

This magnificent amplifier represents my very latest thinking - and my best amplifier design ever. I've spent over twenty years developing it, and cannot imagine how I could make it any better, or refine it any further. No matter what, its performance is, at first, somewhat difficult to believe.

The *Sunfire Signature Edition* can produce **625 watts rms per channel into 8 ohms** and **1250 watts rms into 4 ohms**.

The *Sunfire Standard Edition* can produce **325 watts rms per channel into 8 ohms**, and **650 watts rms per channel into 4 ohms**.

The big breakthrough feature of the *Sunfire* Amplifier is its uncanny tracking downconverter, which uses 18 Herculean Mosfets in the Signature Edition and 12 in the Standard Edition.

The circuit boards are heavy glass epoxy, double sided, with a Faraday shield on the back side. All resistors in the signal path are 1% tolerance, metal-film. Critical capacitors are film devices with high dielectric strength and ultra low absorption characteristics. An enormous *Sunfire* power source built around a massive power transformer provides the ultimate muscle for limitless dynamics.

I could go on and on, but here's the best part: I've included two kinds of left and right outputs: (1) a standard **voltage-source** (i.e., near zero impedance) output for all typical applications and (2) a higher-impedance **current-source** output, which many prefer for electrostatic, planar magnetic, or ribbon speakers. Or you can biwire your system with the voltage source driving the woofer(s) and the current source driving the upper part of the system. In many cases this provides by far the best possible interface between the amplifier and the speaker system.

Whichever way you decide to hook up the *Sunfire* power amplifier, it will create a multilayered soundstage that is deep, wide, three-dimensional, and utterly believable. The optional current-source output can coax forth a sensuous, delicately detailed musical voice long associated with low-powered classic tube amplifiers. (The current-source characteristic of vacuum tubes is the dominant factor in the soundstage delivery of classic tube amplifiers).

Bob Carver

Unpacking

Your Sunfire Amplifier should reach you in perfect condition. If you do notice any shipping damage, please contact your Sunfire Dealer immediately.

Gently lift out the unit and remove all the packing material and accessories. It is important to save all the packing materials and the box in case your amplifier ever needs to be moved or shipped for repair.

Make sure that you keep your sales receipt. It is the only way to establish the duration of your Limited Warranty and it may come in useful for insurance purposes.

Please make a note of your serial number located on the rear panel:

Serial #: _____
Purchased at: _____ _____ _____
Date: _____

Signature Edition Specifications

Power output

625 watts continuous, per channel, both channels driven into eight ohms, from 20Hz-20kHz with no more than 0.5% T.H.D.

Power at clipping, minimum:

1250 watts per channel into four ohms.
2000 watts per channel into two ohms (time limited basis).

Hum and Noise

-103 dB, A-Weighted

Maximum output current

100 amperes peak to peak per channel

Maximum output voltage

70.7 Vrms

Output impedance

Voltage source: Approximately zero ohms
Current source: Approximately one ohm

Input impedance, RCA inputs

30k Ω

Input sensitivity for rated output

Unbalanced: 2.5 Vrms
Balanced: 2.5 Vrms

Input impedance, XLR inputs

24k Ω , each leg balanced to ground
Female XLR
Pin 1 is ground
Pin 2 is negative (cold)
Pin 3 is positive (hot)

Power Consumption

45W	At idle
300W	Typical (1/8th power)
1800W	Absolute Max (Fuse Limit)

Dimensions

19.0 inches wide
6.5 inches high (including feet)
15.75 inches deep

Weight

39 lbs

Finish

Brushed aluminum and black anodize

Standard Edition Specifications

Power output

325 watts continuous, per channel, both channels driven into eight ohms, from 20Hz-20kHz with no more than 0.5% T.H.D.

Power at clipping, minimum:

650 watts per channel into four ohms.
1300 watts per channel into two ohms (time limited basis).

Hum and Noise

-100 dB, A-Weighted

Maximum output current

80 amperes peak to peak per channel

Maximum output voltage

51 Vrms

Output impedance

Voltage source: Approximately zero ohms
Current source: Approximately one ohm

Input impedance, RCA inputs

30k Ω

Input sensitivity for rated output

Unbalanced: 1.8 Vrms
Balanced: 1.8 Vrms

Input impedance, XLR inputs

24k Ω , each leg balanced to ground
Female XLR
Pin 1 is ground
Pin 2 is negative (cold)
Pin 3 is positive (hot)

Power Consumption

45W	At idle
150W	Typical (1/8th power)
1800W	Absolute Max (Fuse Limit)

Dimensions

19.0 inches wide
6.5 inches high (including feet)
15.75 inches deep

Weight

37 lbs

Finish

Brushed aluminum and black anodize

© 2001 Sunfire Corporation.
All rights reserved. Sunfire Corporation reserves the right to improve its products at any time. Therefore, specifications are subject to change without notice.
Manual part number : 913-042-00 Rev A

Installation

Read and follow all safety instructions shown on pages 2 and 3.

Observe the following precautions when choosing a location for your Sunfire Amplifier:

- Protect it from prolonged exposure to direct sunlight and other direct sources of heat, such as heating vents and radiators.
- Do not expose the unit to rain or moisture. If fluid or a foreign object should enter the unit, immediately turn off the power and contact your Sunfire Dealer.
- Avoid excessive exposure to extreme cold or dust.
- Do not place heavy objects on top of the unit.
- Allow adequate ventilation around the amplifier; do not cover the ventilation slots.

AC Power Considerations

Ensure that the unit is plugged into an outlet capable of supplying the correct voltage specified for your model. The outlet should be capable of supplying 15 amps for the 120V model, 8 amps for the 230V model.

Note that the Sunfire Amplifier has no power switch. It is designed to be turned off, if desired, using a switched outlet or power strip.

Care

If you need to clean the front surface, first turn off the power and then use a slightly dampened cloth, rubbing with the grain. Be careful not to scratch the display window.

Connection Tips

Before setting up your new system, please consider the following :

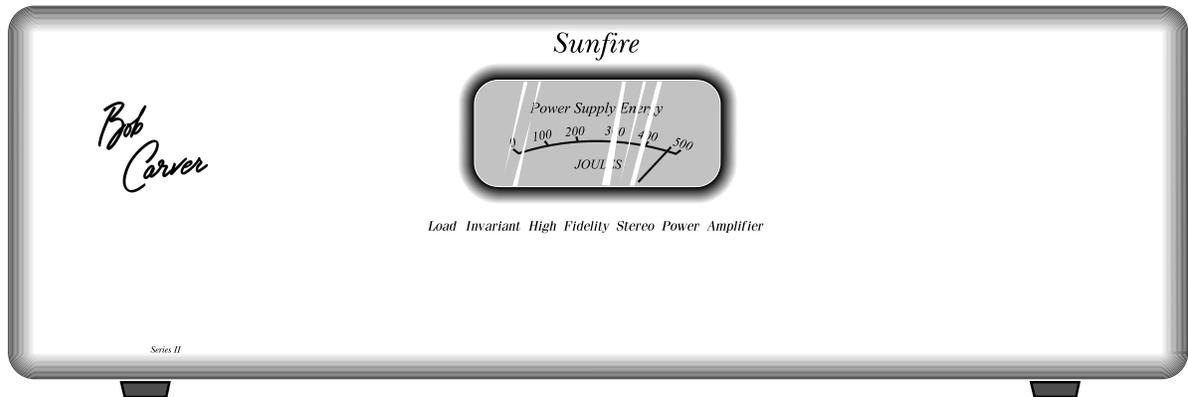
- Always make sure that your components are all turned OFF before making or changing connections.
- Make sure that the power cords of all your components are attached to the same outlet or at least to the same circuit. This will reduce the possibility of a ground loop in the system.



Make sure that the total current draw does not exceed the current rating of the outlet.

- Use the XLR inputs if your preamplifier has XLR outputs. These balanced connections provide superior noise rejection.
- Whenever possible, keep the power cords away from the signal cables or speaker wires to prevent any hum or interference being heard in the speakers.
- Choose reliable hookup cables, also called patch cords or RCA cables. They should be fully shielded and as short as possible for the job.
- Do not place your preamp directly on top of the amplifier. It may pick up hum from the amplifier's massive AC power transformer.
- Some patch cords can be a very tight fit and there is usually a preferred method of getting them off, some have to be removed with a twisting action. Be gentle or you may damage the jacks of the amplifier or your other components.
- Some special patch cords can only be hooked up in one direction, these are usually marked with arrows.
- It is usual for the right patch cord plugs to be red and the left connections to be white, grey or black. Video connections are usually yellow.

Front Panel Features (Signature Edition shown)



Overview

Your Sunfire Amplifier has two channels of power amplification combined in one chassis for the purpose of reproducing music or video soundtracks. It accepts line level signals from a controlling preamplifier and amplifies them to a higher level, suitable for driving powerful stereo and home theater speakers.

Meter

The front panel meter indicates the total energy available from the tracking downconverter power supply. It is calibrated in Joules and will normally indicate approximately 480 Joules for the Signature Edition and 400 Joules for the Standard Edition. Note that the needle does not move under normal use.

Crystal Base

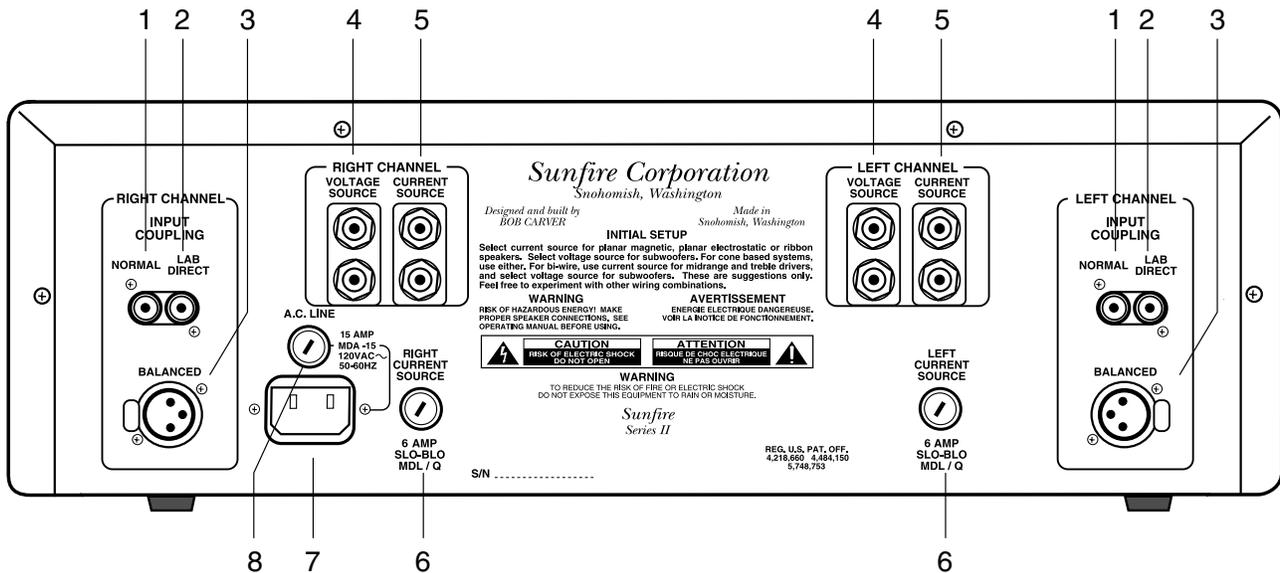
The glass base is intended to ensure proper airflow under the amplifier. A good choice for the amp location is centered between the loudspeakers on the floor, using the glass base to prevent the carpet from restricting the airflow. If you choose to place the unit on a shelf or other hard surface, the base will isolate the amp from vibration and will help make an attractive installation.

Illumination

The meter is illuminated by an incandescent lamp operating at a very warm color temperature. I have been influenced by the scale lighting of classic electronic equipment from the 1950's, with their warm dim glow, usually with a "headlight effect" from the lamp. I incorporated that historical look and feel into this meter lighting. It is decidedly **not** "evenly back-lit" with a cool to cold color temperature. I hope you like my unusual meter lighting treatment.

The Signature Edition has a switch on the underside of the unit toward the front. This gives you the ability to dim the meter lamp to reduce distractions in a home theater environment. I like the brighter of the two settings, as it illuminates the meter nicely and matches my other Sunfire equipment. Feel free to choose the setting that suits you.

Rear Panel Features (Signature Edition shown)



1. RCA Normal Inputs

Your Sunfire Amplifier has three sets of inputs for each of the channels. Two are unbalanced RCA inputs and one is a balanced XLR type.

The Normal RCA inputs will not respond to any DC voltages, and you can use these inputs for connection to your preamplifier's RCA outputs.

If you are using the Normal inputs, you can use the Lab Direct inputs as a daisy-chaining output, sending the preamplifier output signal to another channel or to another amplifier.

2. RCA Lab Direct Inputs

The Lab Direct inputs are directly coupled and will respond to DC voltages. The Lab Direct inputs have less components in the signal path than the Normal inputs, giving a more direct sound.

If you have a high quality preamplifier which is reliable and stable with minimum DC offset, use the Lab Direct inputs, otherwise use the Normal inputs.



Use the Lab Direct inputs with caution. The amount of DC offset coming from a correctly functioning preamp is very

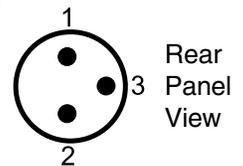
small, normally less than 5mV. If a fault occurs within your preamp, and it sends a large DC offset into the Lab Direct inputs of the Sunfire amplifier, this could easily damage or destroy your speakers. The Lab Direct inputs would pass the DC voltage into the amplifier and the output terminals would pass a larger DC offset into your speakers, heating up and damaging the voice coils. The Normal inputs would not let this DC voltage pass into the amplifier.

3. XLR Inputs

If your preamplifier has XLR outputs, connect them to these XLR inputs. Use them instead of the RCA inputs because balanced connections offer superior noise rejection.

The female XLR inputs are wired as follows:

- Pin 1 is ground
- Pin 2 is negative (cold)
- Pin 3 is positive (hot)



Balanced connections pass the input signal along two conductors. If there is any external noise and interference passing into the audio lines, both conductors will receive the same amount of noise. This noise is then rejected in the balanced input stage of the Sunfire Amplifier.

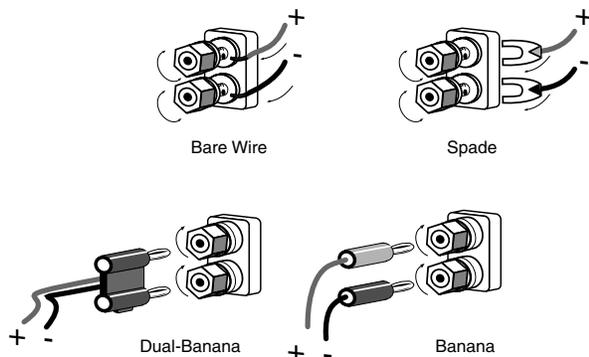
4. Voltage Source Outputs and 5. Current Source Outputs

Each channel has two sets of outputs. The voltage source output has a source impedance of approximately zero ohms. The current source has a source impedance of approximately one ohm.

The top post of each pair is the positive output, and connects to the positive (red) post of your speaker. The bottom post of each pair is the negative, and connects to the negative (black) post of your speaker. The posts can accept bare wire, spade terminals, and dual or single banana connectors.

According to your tastes, you may select the current source for electrostatic, planar magnetic or ribbon speakers. Select the voltage source for woofers. For cone based systems, use either. For a biwired system, try the current source for midrange and treble drivers and use the voltage source for the woofer(s). These are suggestions only. By all means, please feel free to experiment with other wiring options.

NOTE: The current source output is a voltage source modified to yield a current source impedance of one ohm. This corresponds approximately to a vacuum tube amplifier output impedance and constitutes the dominant factor in the soundstage delivery of classic vacuum tube power amplifiers.



6. Current Source Fuses

Each current source output has an in-line fuse to protect your speakers. If one ever opens, there will be no output to that speaker.

7. IEC connector

The amplifier comes with a detachable linecord which attaches here. Make sure it is firmly pushed in place. Connect the other end to a switched AC outlet or power strip which is properly configured for the type of plug and has the correct voltage for your model. The AC outlet should be switched, as this will allow you to turn the amplifier on or off.

8. Line fuse

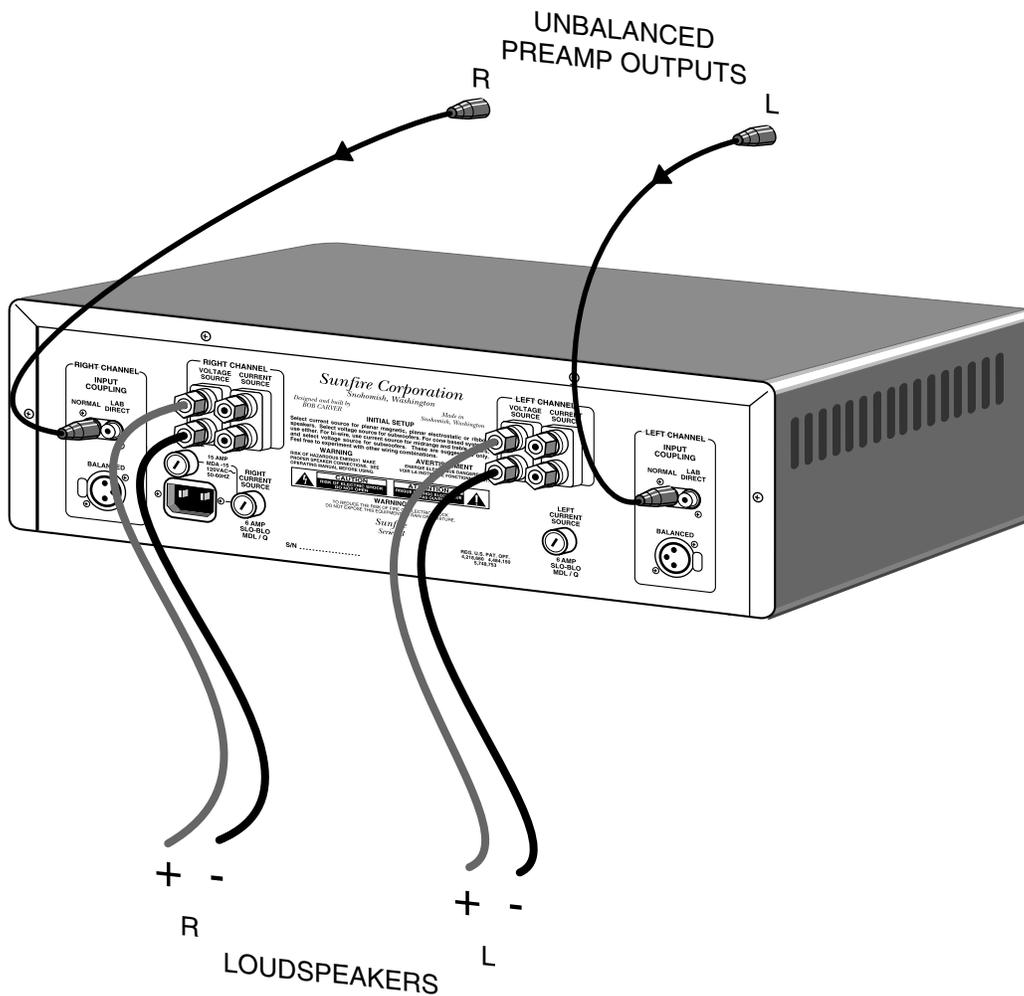
If this fuse fails, replace it with the exact same "Slow-Blow" type and current rating.



Note: Always unplug the power cord from your AC outlet before removing the fuse cover.

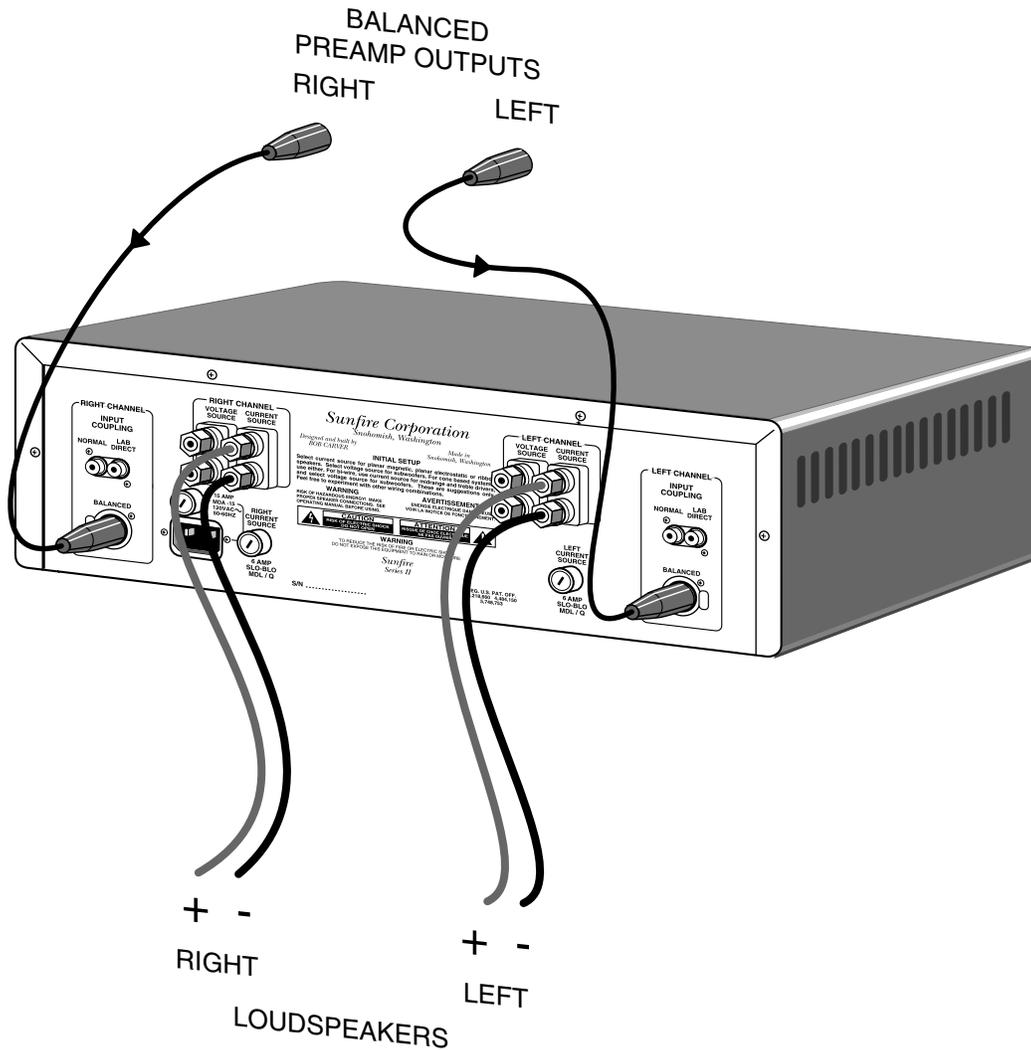
System Configurations

The following diagrams show some typical connections that you might make in your installation. They show how the inputs and outputs of the Sunfire Amplifier are connected to your preamplifier and speakers.



If your preamplifier has RCA outputs, it can be connected to the amplifier inputs as shown. This diagram also shows how the voltage source outputs connect to the input posts of your speakers. (The current source can be used instead, as shown on the next page).

Unbalanced RCA inputs and voltage source output connections



If your preamplifier has XLR outputs, it can be connected to the XLR inputs as shown. This diagram also shows the current source output connections to the speaker inputs. (The voltage source outputs can be used instead, as shown on the previous page).

Balanced XLR inputs and current source output connections

Parallel Mono

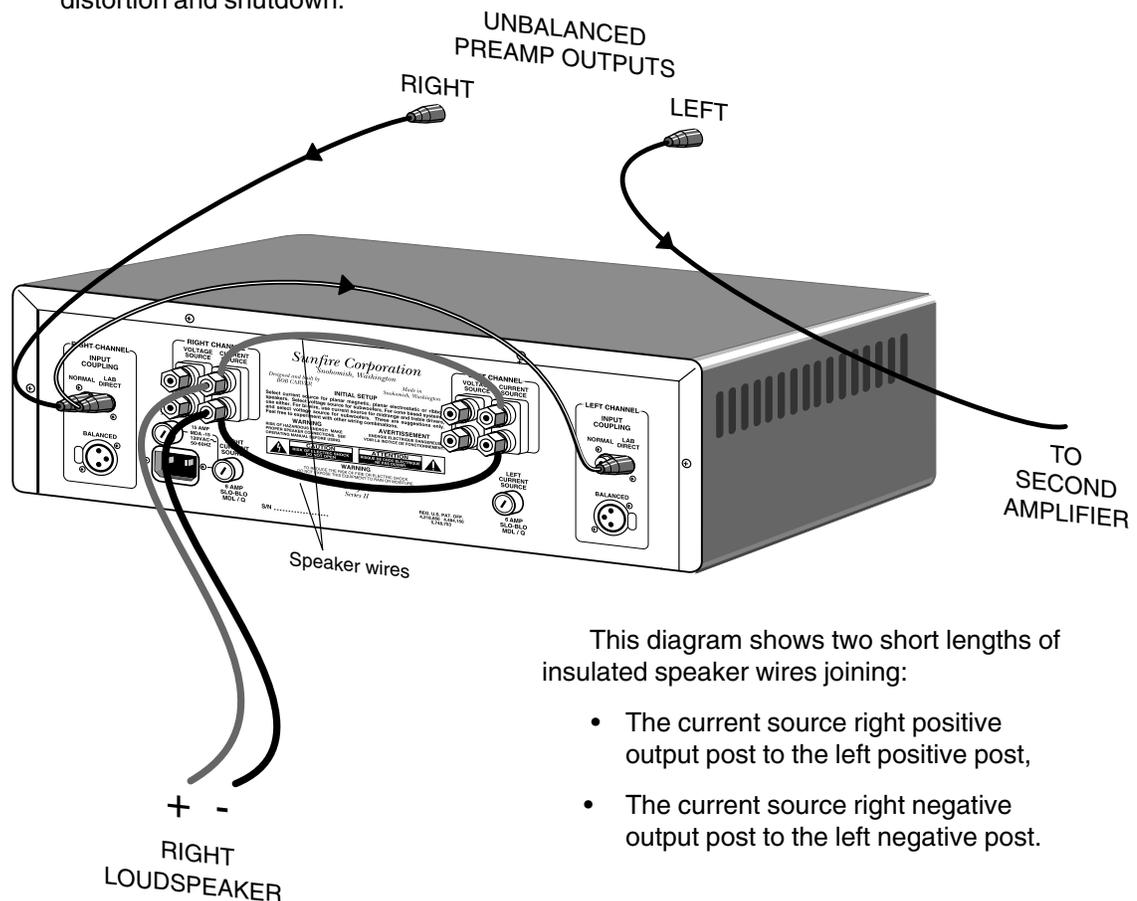
The Sunfire Amplifier can be connected in Parallel Mono to create an immensely powerful system. You will need one amplifier for each speaker, unless you are driving a single subwoofer for example.

- Using insulated speaker wire, join the amplifier's right and left **positive current source** outputs together.
- Using insulated speaker wire, join the amplifier's right and left **negative current source** outputs together.
- Connect your speaker to the **current source** outputs as shown. Your speaker will receive the combined power of both amplifier channels.

- Connect your preamplifier's right output to the amplifier's right **Normal** input jack.
- Connect the amplifier's right **Lab Direct** input to the left **Lab Direct** input with a short patch cord.
- Alternatively, you can use a "Y" cable to split the preamp output into two, one to feed the left **Normal** input and one to feed the right **Normal** input.
- The left speaker connects to your second amplifier in **exactly** the same way as shown. The left preamp output connects to the right **Normal** input jack of the second amplifier.



Never use the **voltage source** outputs for Parallel Mono, as this will may cause overheating, distortion and shutdown.



This diagram shows two short lengths of insulated speaker wires joining:

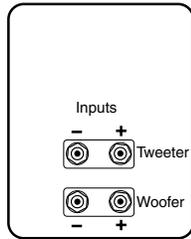
- The current source right positive output post to the left positive post,
- The current source right negative output post to the left negative post.

Biwiring

If your speakers can be biwired or biamped, they will have separate input terminals for the woofer section and the upper range.



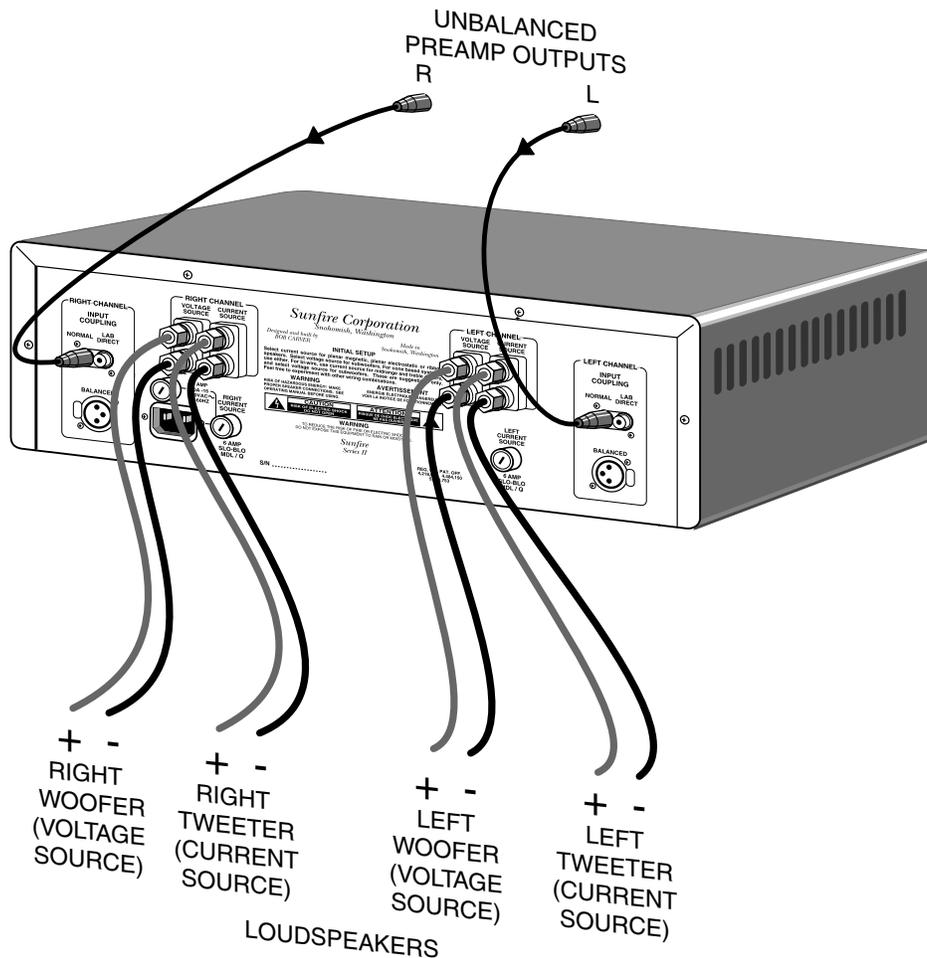
Make sure that any links between the woofer and upper range posts are removed from the speakers when you want to biamp or biwire them. Consult your speaker owner's manual for details.



Each channel of the Sunfire Amplifier has two pairs of outputs. One idea is to use the voltage source to drive the woofer, and the current source to drive the upper range. This will offer improved performance compared to conventional wiring.

Stereo Biwire Connections

- Connect the amplifier's right **voltage source** output to the right speaker's woofer input terminals.
- Connect the amplifier's right **current source** output to the right speaker's upper range input terminals.
- Connect the amplifier's left **voltage source** output to the left speaker's woofer input terminals.
- Connect the amplifier's left **current source** output to the left speaker's upper range input terminals.
- Connect your preamplifier's outputs to the amplifier's corresponding inputs.

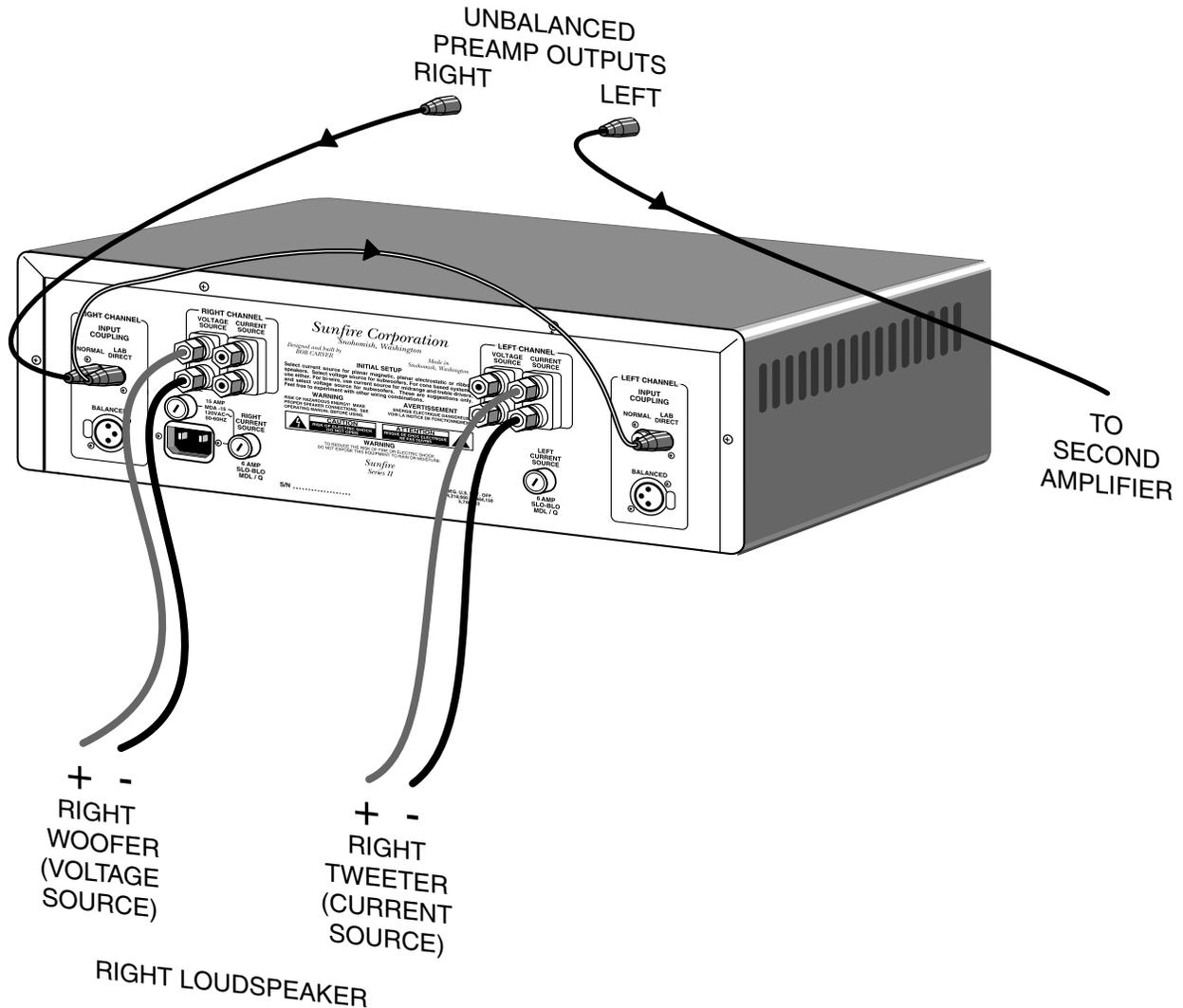


Mono Biwire connections

If you have two Sunfire amplifiers and your speakers can be biwired, you can create a very powerful and efficient system as follows:

- Connect one amplifier's right **voltage source** output to the right speaker's woofer input terminals.
- Connect the same amplifier's left **current source** output to the right speaker's upper range input terminals.
- Connect your preamplifier's right output to the amplifier's right **Normal** input jack.

- Connect the right **Lab Direct** input to the left **Lab Direct** input with a short patch cord.
- Alternatively, you can use a "Y" cable to split the preamp output into two, one to feed the left **Normal** input and one to feed the right **Normal** input.
- The left speaker connects to your second amplifier in **exactly** the same way as shown. The left preamp output connects to the right **Normal** input jack of the second amplifier.



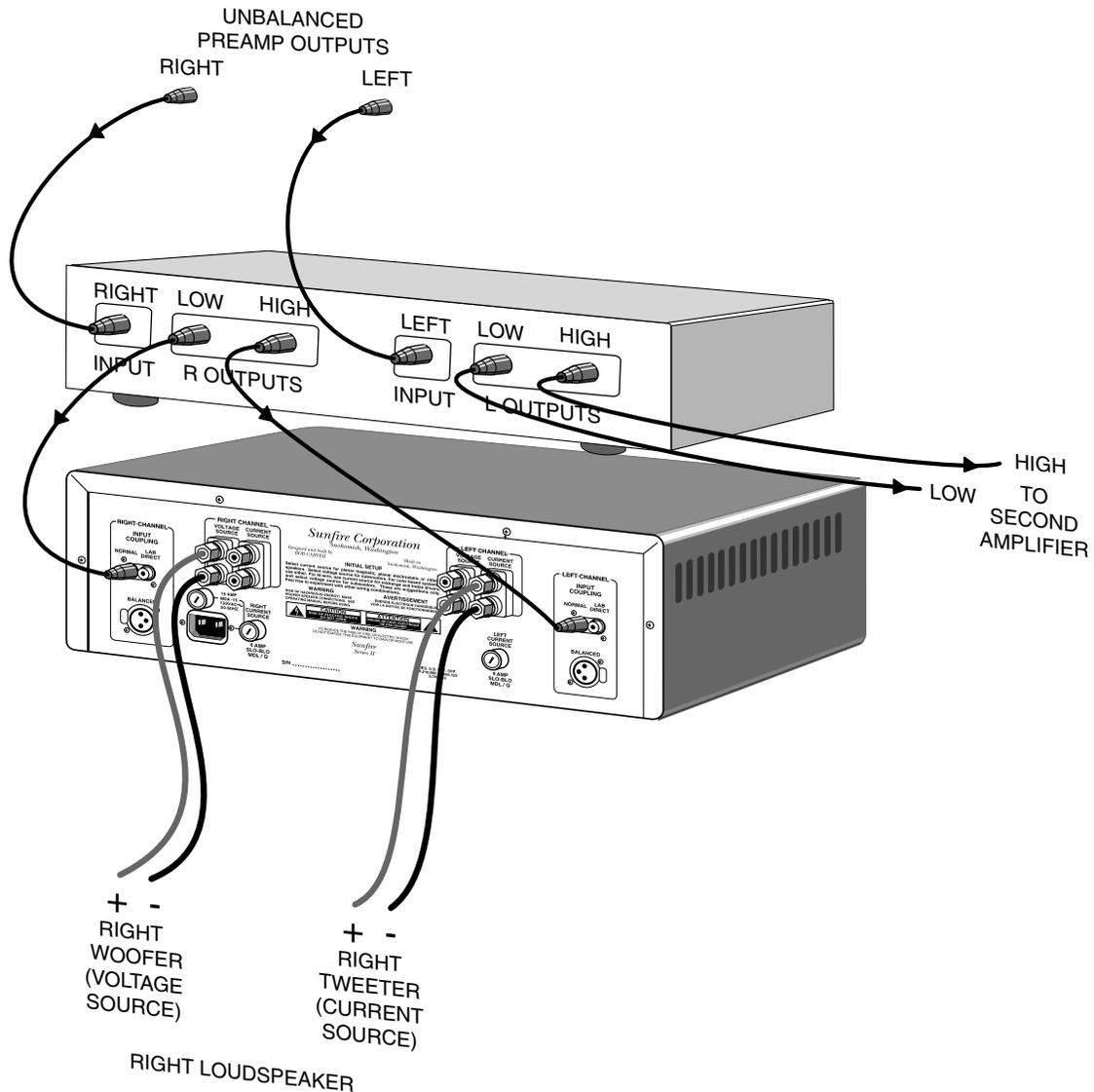
Biamping connections

This diagram shows how to create a very efficient system with an external active crossover. The crossover will split your incoming preamp signal into two frequency ranges: one above and one below the crossover frequency.

True biamping is very efficient because each amplifier channel only receives and amplifies the range required for its driver. For example, in the diagram below, the right channel only amplifies the low frequencies, and the left channel only amplifies the high frequencies.

Make sure that you adjust the crossover frequency to suit your speakers. Check the speaker's specifications.

An alternative connection method is to have one amplifier running the two woofers and the other running the two tweeters. This is useful if your amplifiers have different power ratings. Use the more powerful amplifier to run the woofers.



Speaker connections

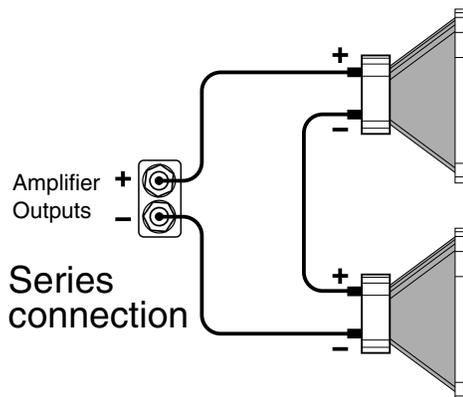
If your speakers cannot be biwired, the normal configuration is to have one speaker connected per channel. The connection of more than one per channel will tend to degrade the speaker's frequency response. For the best results use one speaker per channel.

If you want to connect more than one speaker per channel, there are two main ways: series or parallel.

Series

For example, if you want to series-connect two speakers to the front right channel of the amplifier:

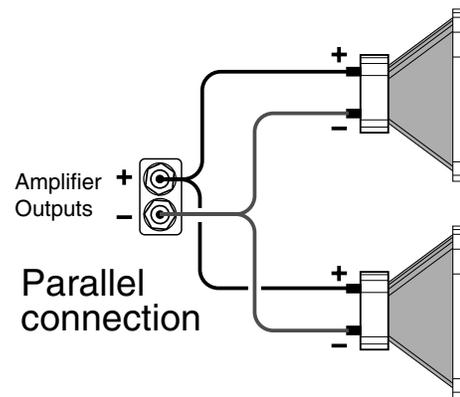
- The positive output terminal of the front right channel connects to the positive input of the first speaker.
- The negative input of the first speaker connects to the positive input of the second speaker.
- The negative input of the second speaker connects to the negative output terminal of the front right channel.
- The total impedance of speakers in series is found by adding their impedances together. For example, two four ohm speakers in series is an eight ohm load.
- Series connections are easier on the amplifier than parallel connections as the total impedance is higher than driving a single speaker.



Parallel

For example, if you want to parallel-connect two speakers to the front right channel of the amplifier:

- The positive output terminal of the front right channel connects to the positive input of the first speaker and to the positive of the second speaker.
- The negative output terminal of the front right channel connects to the negative input of the first speaker and to the negative of the second speaker.
- The total impedance of equal speakers in parallel is found by dividing the impedance of one speaker by the number of speakers. For example, two eight ohm speakers in parallel is a four ohm load (eight ohms divided by two), four eight ohm speakers in parallel is a two ohm load (eight ohms divided by four).
- Parallel connections are harder on the amplifier than series connections, as the total impedance is lower compared to driving a single speaker, and the amplifier must produce more current to drive them.
- You must make sure that the lower impedance does not cause the amplifier to overheat, shut down, blow the line fuse, or pop your circuit breaker. If this happens, you should reduce the number of speakers wired in parallel, or rewire them in series.



Troubleshooting

The Sunfire Amplifier is expertly designed and built to provide years of trouble-free performance. Most problems that occur can usually be solved by checking your setup or making sure that the components connected to the amplifier are on and fully operational.

The following information will help you deal with common setup problems you may experience during normal use of your unit. If the problems still persist, please contact your Sunfire Dealer for assistance.

No sound from one or more speakers

- Speaker cables may have come undone. Turn off your system and check the cables
- The preamplifier volume level is low for the channels concerned. Recheck the preamplifier calibration procedure.
- The preamplifier mute switch is on
- The correct preamplifier surround mode is not selected
- A tape or external processor loop may be engaged on the preamp.

Current source outputs not working

- Check the current source fuse. If it blows often, it is acceptable to replace with a slo-blo 7 ampere fuse.

The amplifier shuts down often or the line fuse blows often

- Check that the positive and negative speaker wires are not shorted.
- Make sure that no speakers are shorted internally. If you have an ohm-meter, disconnect the speaker wires and measure the resistance between the speaker's positive and negative terminals. If the reading is less than 2 ohms, the speakers may have an internal short. Measure all speakers and check their impedance specifications.

- If you have connected speakers in parallel, the overall impedance may be too low. It is recommended that you rearrange the speakers in series to increase the overall impedance, thus taking some of the load off the amplifier.
- Make sure that the amplifier has good ventilation and is not overheating. Use the crystal base to allow good airflow underneath. If the amplifier is in a closed rack, open up the rear panel or use a quiet fan for improved ventilation.

Hum in your speakers

This may be due to a system ground loop, rather than a problem with the amplifier. Take the following steps to isolate the cause of any hum.

Remember to turn off all components in your system before disconnecting or connecting any cables.

- If your preamplifier has XLR outputs, use them for their improved noise rejection.
- Try to have all of your equipment on the same electrical outlet or circuit. Group all the low power components (preamp, CD player, DVD etc.) on a single outlet or power strip. This is provided that the overall current draw from your equipment does not exceed the rating of the outlet or breaker.
- Disconnect all cables which come from outside of the room, such as cable TV, satellite TV, or roof top antennas. If the hum is caused by the cable TV line, then you will need a "ground loop isolator." This is an inexpensive device fitted in line with the coaxial cable feed, see your TV/video dealer.
- As a test, disconnect any other component which has a grounded power cord.



NOTE: Never remove the ground pin from any power cords. This is very dangerous.

- If the hum persists, disconnect all the source components one at a time from the back of the preamp, until you identify the problem.
- Try moving the speaker cables away from any power cords. Try just one speaker, connecting it to different channels and see if an amplifier channel is bad.
- Check there are no broken connections inside the interconnect cables.

Other causes of noise

- Speaker noise may also be caused by interference or noise on your AC line. Make sure there are no large appliances sharing the line, or halogen lamps or lamps with dimmer controls.
- Try connecting your system to another AC socket on a separate line.
- If the hum is heard from within the amplifier and not through the speakers, this may also be caused by interference on the AC line. Internal hum can be made worse by a shelf or cabinet resonating, so try moving the amplifier to another location.
- Try moving your preamplifier further away from your amplifier.
- Never place your preamplifier on top of the amplifier as it may pick up interference from the amplifier's massive power supply.
- Try moving your components further away from the TV, especially if you ever notice the screen has changed color in the area closest to the component.
- If you are still having a problem, remember that Sunfire's dealers and technical support staff will assist you. Make a list of the things you have tried.

Poor bass performance

- Make sure that your preamp does not have the bass level turned down.
- Many surround preamplifiers have controls which can direct all the bass to subwoofers, or let your main speakers play the full range. Make sure that the preamplifier has been correctly set.
- Check that the speaker wires have been connected correctly: Make sure that the positive of each speaker connects to a positive output of the amplifier, and the negative of each speaker connects to a negative output. If one speaker is wired incorrectly, than it will be "out of phase" with the others, resulting in poor bass performance.
- If you have connected the amplifier using the XLR inputs, make sure that the XLR cables are wired correctly. If one has the hot and cold reversed, then this will also cause a speaker to be out of phase.

No high frequency output

- If you are biamping or biwiring, make sure that the **current source** fuses have not blown.

Turn-on and turn-off thumps

- Plug the amplifier into a separate switched power strip or outlet from your other components. This will allow you to do the following to reduce any turn-on or turn-off noises in your speakers:
- Turn on your preamplifier and components before turning on the amplifier.
- At the end of your listening session, turn off the amplifier first.

Limited Warranty

Sunfire Corporation is proud of its products which have been built with care using advanced technology and premium component parts. Your unit has been crafted to perform properly for many years. Sunfire Corporation offers the following warranty to you, the owner of a new Sunfire product:

The Sunfire Corporation Warranty for the Sunfire Amplifier is in effect for FIVE years from the date of original retail purchase. The Sunfire Corporation Warranty covers defects in materials and workmanship. However, the following are excluded: a) damage caused during shipment, b) damage caused by accident, misuse, abuse of operation contrary to the instructions specified in the Sunfire Corporation user's manual, c) units where the serial number has been defaced, modified or removed, d) damage resulting from modification or attempted repair by any person other than authorized by Sunfire Corporation.

The Sunfire Corporation Warranty extends to the original owner or subsequent owner(s) during the five year warranty period so long as the original dated purchase receipt is presented whenever warranty service is required.

All implied warranties, including warranties or merchantability and fitness for particular purposes, are limited in duration to the five year length of this warranty, unless otherwise provided by state law.

Sunfire Corporation's liability is limited to the repair or replacement, at our option, of any defective product and shall not in any event include property or any other incidental or consequential damages which may result from the failure of this product.

Some states do not allow limitations on how long an implied warranty lasts and/or do not allow the 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 which vary from state to state. We suggest that you attach your purchase receipt to this Warranty and keep these in a safe place. Thank you for your choice of a Sunfire Corporation product.

Service Assistance

We suggest that you read the Limited Warranty completely to fully understand your Warranty/Service coverage.

If your Sunfire Corporation product ever requires service, write or call to:

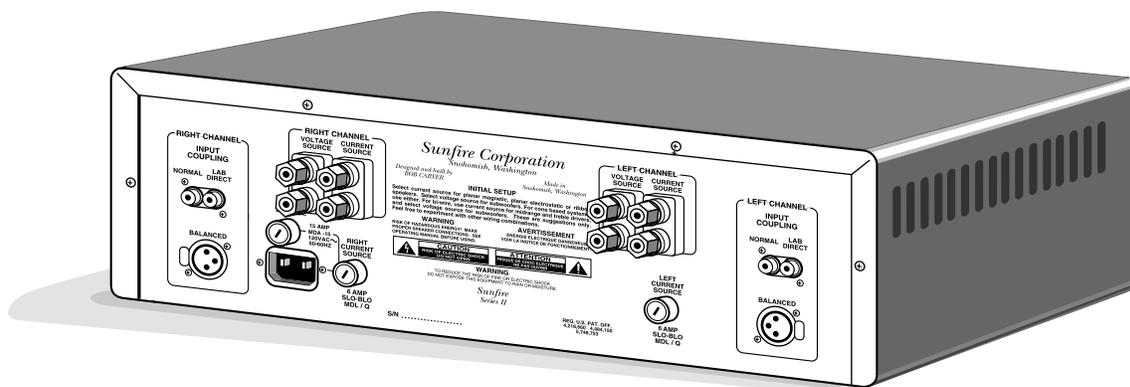
Sunfire Corporation
Technical Services Department
P.O.Box 1589,
Snohomish, WA 98291
Tel (425) 335-4748
Fax (425) 335-4746

You will be directed to an authorized Sunfire Corporation Service Station or receive instructions to ship the unit to the factory. Please save the original shipping carton and packing materials in case shipping is required. Please do not ship Parcel Post.

NOTE: Before sending in your unit for repair, you must call Sunfire for return authorization.

Include a complete description of the problem, indicating how you have it connected, the associated equipment in your system and a copy of your purchase receipt. Initial shipping costs are not paid by Sunfire Corporation; return ground shipping costs will be prepaid if repairs were covered by the scope of this warranty.

Bob Carver's
Sunfire
...from his mind & soul



Sunfire
Standard and Signature Edition
Stereo Power Amplifiers
Series II

Sunfire Corporation
P.O. Box 1589
Snohomish
WA 98291