



Signature Edition

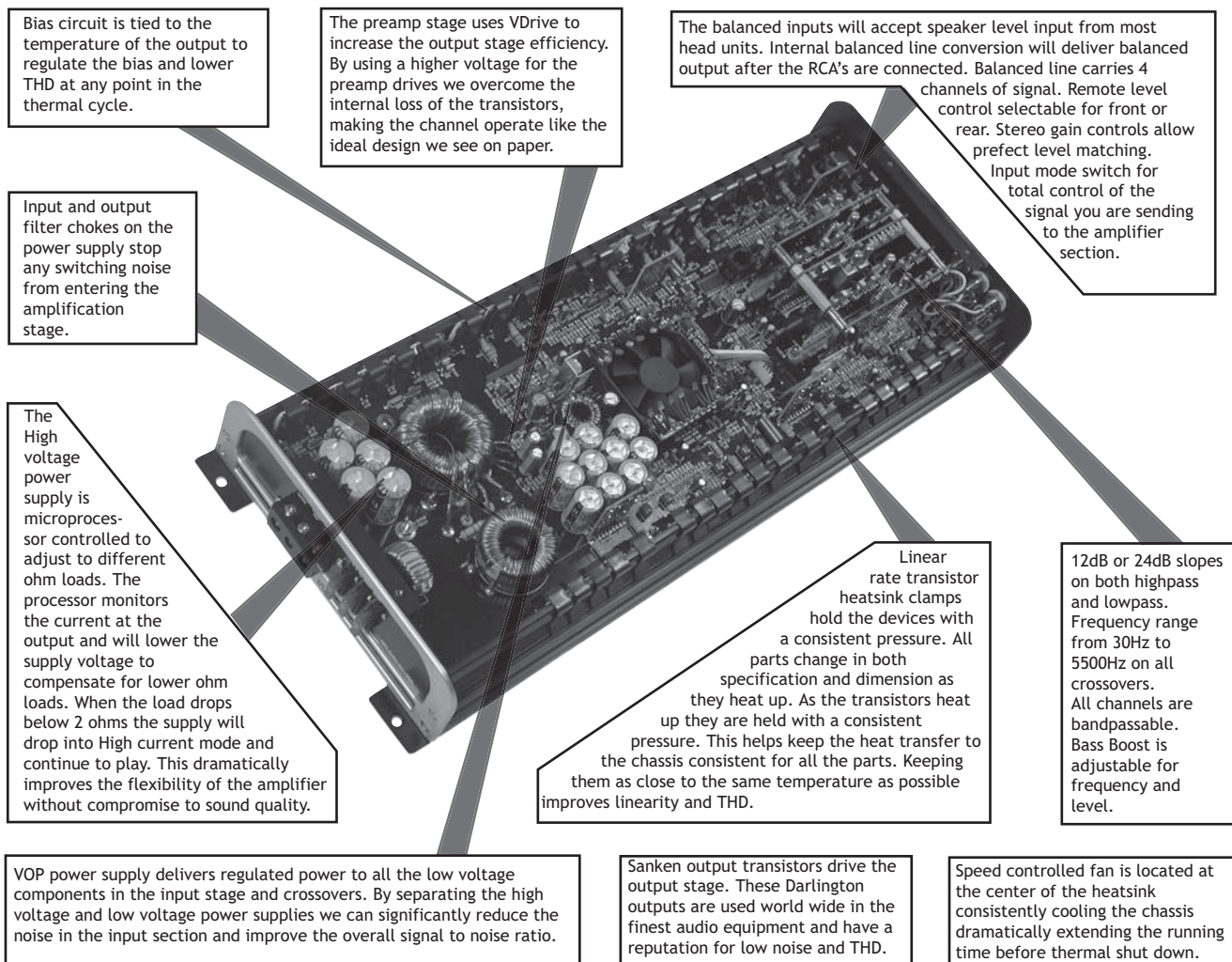
MANUAL AND USER GUIDE



By *Robert Zipp*

"This is the finest amplifier I have ever made."

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Congratulations!

Thank you for purchasing an ARC Audio Signature Edition amplifier.

This amplifier was designed by Robert Zeff to the highest standards and using only the finest components. No compromises were made at any point in the design or manufacture of this product.

“This is the Finest Amplifier I have Ever Made”



A car is the most challenging place for an amplifier. The battery voltage is constantly changing and full of noise. It has to operate in an extreme range of temperature. The signal from the headunit passes every noise producing device in the car before reaching the amp. It's no wonder people are so often disappointed with the end result.

No one understands these problems better than we do and no one has more experience engineering an amplifier to work properly in this very challenging environment.

Warning

We build all ARC Audio products to play at high volumes for extended periods of time. However your ears are not designed for high volume listening. This product can easily generate volumes that can permanently damage your hearing. We urge you to limit your exposure to very high volume sound.

You may also find your state has laws governing the volume of an audio system in a car. Please be aware of all local and state laws in your area.

A properly tuned and operated audio system will deliver years of enjoyment when used properly.

ARC Audio and Robert Zeff take no responsibility for any personal loss, damage or injury associated with the use of this product.

Installation Instructions

ARC Audio Signature Edition Amplifiers are designed for easy installation in your vehicle. To ensure proper operation of your new purchase, please follow the suggestions we have listed below:

Warning

Please check the suitability of the installation location before you begin. Do not cut any of the car's structure. Pay close attention to what is behind the panels or carpet. Often the manufacture will hide wires, computers or other electronic devices in the exact areas you wish to install in.

If you do not have experience with automotive electrical and mechanical systems contact a professional installer. Paying a qualified installer is almost always cheaper than paying a dealership to repair your car.

Finding a Suitable Location for the Amplifier

The amplifier must be securely mounted to a solid surface. Please select a dry location in the trunk or passenger compartment only. Do not mount the amplifier to any area that may have excess vibration (like the subwoofer box). Position the amplifier in an area that receives sufficient airflow for proper heat dissipation.

Supplying Enough Power

The Laws of Nature

Your amplifier Does NOT make power. It converts power, or current, from your cars electrical system and turns it into a high power musical energy. If the amp can't get all the power it needs it will not produce its full output. Your ARC Audio amplifier will produce full output for longer than other amps on the market today. If the Voltage or Current drops too low even our amplifiers will drop below their rated output. Make sure your vehicle charging system is in good working order. Any Hi-Performance audio amplifier will increase the demand on your alternator and battery. If you are unsure have your charging system tested by a professional technician.

The Ground!!!

Warning: Read this Carefully

The ground wire should be connected directly to the chassis of your vehicle. Find a clear location close to the amplifier and remove all the paint and sound deadener. Use a #10 or larger screw to secure it. Never use seat belt bolts for grounding.

Remember, the ground must carry the same high current as the positive power wire.

Warning: Some vehicles use alloys in their constructions that DO NOT offer a suitable ground. It is recommended that you test the resistance between the battery and the grounding point with an ohm meter. If it does not fall below 1 ohm you should look for an alternative grounding point.

To reduce the risk of noise, run all signal cables away from any vehicle or power supply wiring.

Running the Cables

Carefully run the power and signal cables through the passenger compartment of the vehicle. Always use a rubber grommet to prevent the power wire from shorting and to reduce the risk of fire. A 4 gauge or larger wire should be used for power and ground connections. We recommend a fuse be installed on the power wire as close as possible to the battery for safety.

Setting the Gains

So you're worried that your high output head unit will be too much for the ARC Audio's input stage.

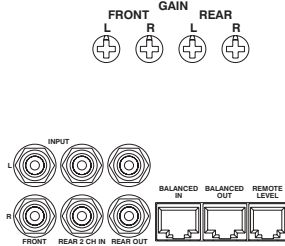
Don't Be

Music is very dynamic. Nothing like a 1KHz test tone. It would be rare to see a peak as high as a test tone. Furthermore, your head unit produces its output at full volume but when you tune your system you typically set the head unit to 70% of maximum volume.

Input Section

Because of the wide range of head unit output configurations all ARC Audio amplifiers have an adjustable input sensitivity or "Gain." The gain is not a volume or a power limiting control like a throttle. It makes the amp more sensitive to input from the stereo. With the gain up the amp will reach full output at a lower volume setting on the deck. At higher gain settings the amp also becomes more sensitive to noise from the car's electrical system. Try to run the gain at the lowest setting possible for you system.

There is no correct gain setting. Because speakers require different power demands to reach the same output, the gains most often need to be used to compensate for these differences. If you tried to set all the gains at half way you would probably find the system didn't sound very good. Using good judgment and listening carefully to each speaker is still the best way to tune a system.

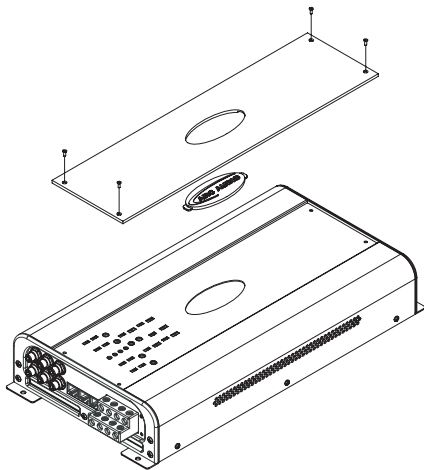


Getting Access to Your Controls

The crossover and gain controls are located under the top plate on top of the amp. You must first remove the 4 attaching screws that hold the plate in place. Put them and the plate in a safe place for later.

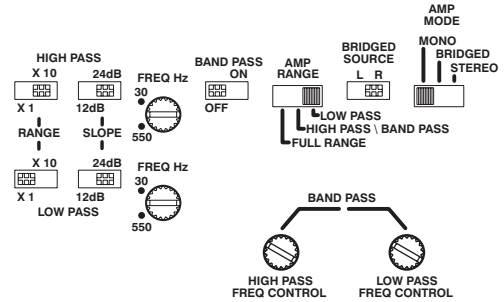
When you have made all your adjustments replace the plate. You may wish to rotate it so the logo faces the desired direction.

Now all your controls are safe from dirt and accidental changes.



Crossover Controls

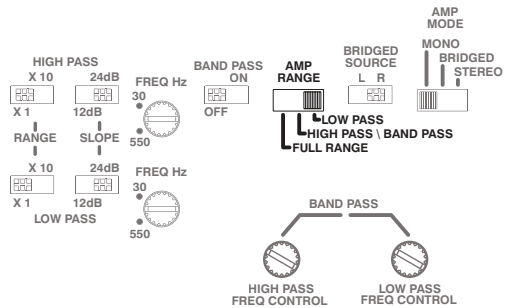
A crossover is a device that removes unwanted frequencies from a speaker or amplifier. A tweeter can easily be destroyed by bass notes if they are not filtered out. Likewise a subwoofer will not sound natural if it is playing midrange notes. A crossover removes these sounds from the speaker. As you might guess, careful adjustment is need to ensure that all the speakers are playing the right sounds and that you are left with no "holes" or low spots in the frequency response.



The Robert Zeff Signature Edition incorporates a highly advanced audiophile crossover. Every set of channels includes the option to bandpass at a very wide range of frequencies and at either 12dB or 24dB crossover slope.

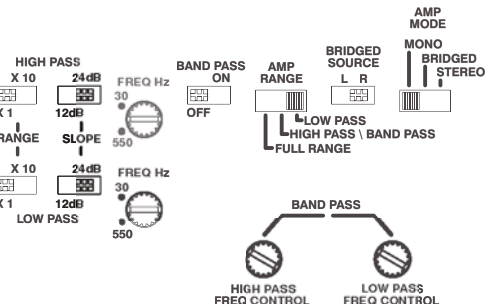
Crossover Switch

Use the "AMP RANGE" switch to select between "FULL RANGE", "HIGH PASS" and "LOW PASS". *Note: You must use the "HIGH PASS" before engaging the "BAND PASS" Mode.*



Crossover Slope

The 12dB/24dB switch is used adjust how fast the crossover removes unwanted frequencies. 24dB will filter out sound twice as fast. EXAMPLE: You set a LOW PASS crossover at 50Hz using the 12dB mode. At 1 octave above the crossover point the sound will be 12db quieter. By adjusting the slope you can change it to 24dB quieter.



Input Mode Switch

All ARC Audio amplifiers include an input mode switch. This switch controls the signal being sent to the amplifier sections. Most 2 channel amplifiers can be bridged into a single channel however if the signal to the channels is not exactly the distortion will increase significantly. The mode switch solves this problem by offering 3 modes of operation.

Stereo

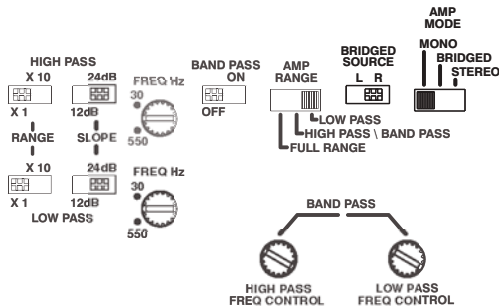
This is simple 2 channel stereo operation. Use this setting for most applications that do not involve bridging the output.

Bridge

On a 2 channel amp you can select to have only the left or right channel input sent to both outputs. You need only use the one gain. This is repeated on the 4 channel but you have individual switches for front and rear.

L+R SUM MONO

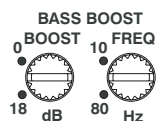
This is the mode for bridging a subwoofer. Both the left and right channels are combined into a mono signal that is then split and sent to both output. This will give you a true mono output.



Bass Boost

This amp has a fully adjustable bass boost. Both the frequency and the level of the boost are adjustable. Start with a small increase in the level control. Then "sweep" the frequency up and down. Listen carefully for an improvement in the sound of the bass. If you do not hear any improvement then the woofer does not need any boost.

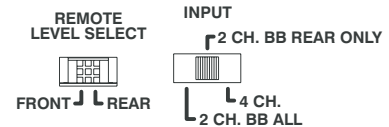
Use Bass Boost carefully. The demands on power output are tremendous. Try to minimize the use by changing woofer position or the enclosure size.



Bass Boost & Level Remote

All 4 channel SE amplifiers are equipped with a "REMOTE LEVEL SELECT" switch. This will select level control for the front or rear channels.

The "INPUT selection switch functions like internal Y connectors. In "4 CH" all 4 RCA's or 4 channels from the balanced cable work. In "2 CH. BB REAR ONLY" all input comes from the front channels but with "BASS BOOST" on the rear only. If you are bridging the unit on all channels it may be desirable to have "BASS BOOST" on all 4 channels. Use the "2 CH. BB ALL" for the setup.



Diagnostic Mode

All Signature Edition amplifiers include a diagnostic mode that will flash fault codes whenever the amplifier goes into protection.

The "ARC Audio" logo display will begin to fade slowly from blue to red when the unit reaches 160 degrees Fahrenheit. As the amp heats up it will change faster. When it is flashing quickly this is your first indication that it is beginning to over heat.

Code 11 Short Protection

If any channel of the amplifier detects an ohm load lower than 1 ohm it will go into "Short Protection". This could be caused by a shorted ("Blown") speaker, a speaker wire that is touching the metal of the car body or too many speakers on the channel.

Code 12 Thermal Protection

Should the amp over heat and shut off the display we turn red and begin to flash a code 12. This is 1 flash. A short pause followed by 2 flashes. The fan will continue to run and cool the amp off very quickly. You should turn the volume down until the display or status light is flashing slowly.

Display Color

The color of the display can be changed from the default color (Blue) to red or any color of purple in between.

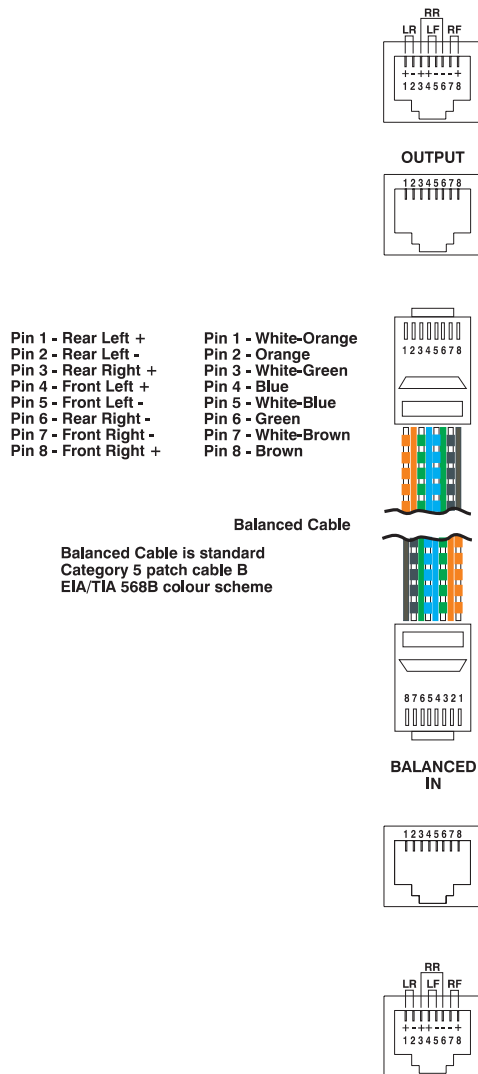
To change the display color unplug the level remote (if it is installed) and turn the amplifier on. After the unit is powered up plug the level remote back in. The knob now changes the display color. To exit this mode simply turn the amp back off. You may remove the remote at any time. As long as you do not plug it in with the unit on it will not enter the display mode.

Balanced Input

All Robert Zeff Signature Edition amplifiers are equipped with a Balanced Input. Balanced Inputs isolate the signal from the ground of the vehicle. They offer significantly improved noise rejection.

There are many different styles of balanced connector available on the market today. We have chosen to use a RJ45 computer network connector. This is the easiest type to find locally. Most computer stores will have a wide selection of cables, components and tools to make any custom cable you need.

It will at times be necessary to use a different connector on the input end of the cable to hook up with other brands of equipment. We have included the wiring diagram for our balanced cable below to help you make the right connections.



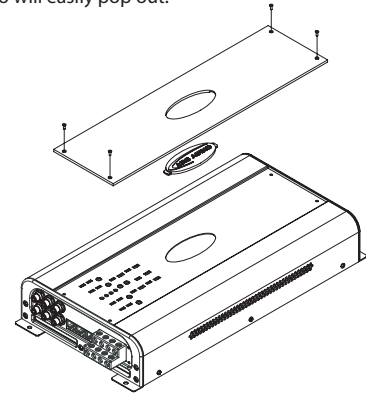
Customizing you Amplifier

Realizing that we can't build the perfect amplifier for everyone we have designed the Signature Edition to be easily customized. The steal chassis cover and the back lit logo can be painted or plated to almost any desired color.

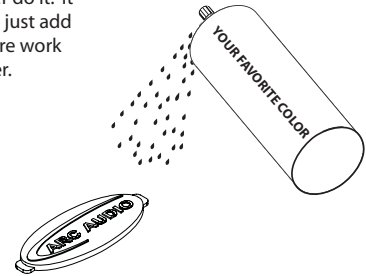
A few examples would be, chrome, copper, nickel, painted to match the upholstery, painted to match the car, totally custom paint with flames or tribal, cloth or vinyl upholstery or 2 inch shag carpet. If you can think of it, it will probably work.

Painting Your Logo

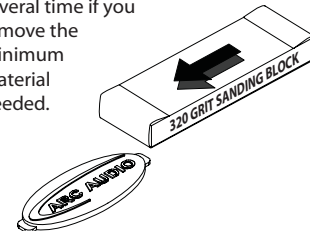
First remove the top plate with the 4 attaching screws. The logo will easily pop out.



Paint the plastic logo any color you desire. Use a quality Enamel paint. Spray until you get full coverage. Don't over do it. It will just add more work later.



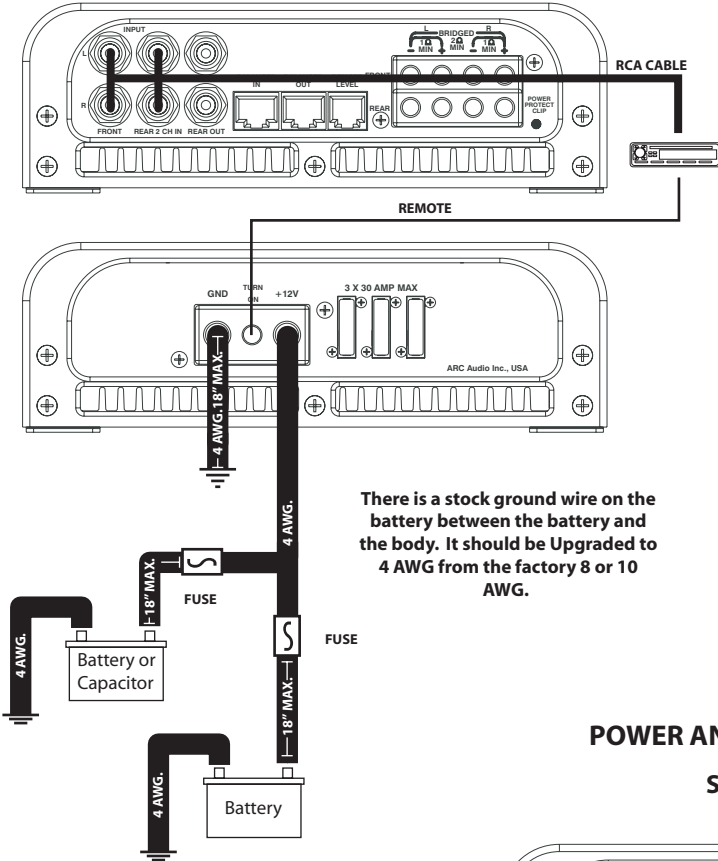
After it has thoroughly dried, gently sand the top with 320 grit sand paper on a flat sanding block. This will remove the paint from the top of the logo and allow the lighting to show through. Be careful not to remove too much plastic. The logo is thick enough to sand several time if you remove the minimum material needed.



Power Wiring and Connections

POWER AND INPUT CONNECTIONS

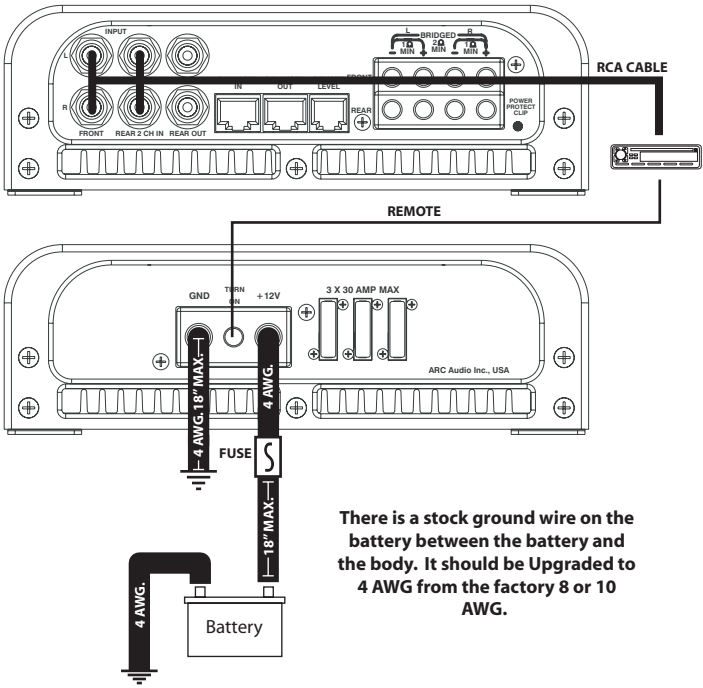
DUAL BATTERY or BATTERY AND CAPACITOR



There is a stock ground wire on the battery between the battery and the body. It should be Upgraded to 4 AWG from the factory 8 or 10 AWG.

POWER AND INPUT CONNECTIONS

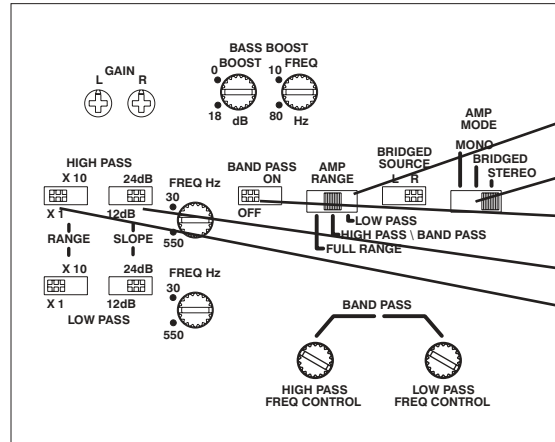
SINGLE BATTERY



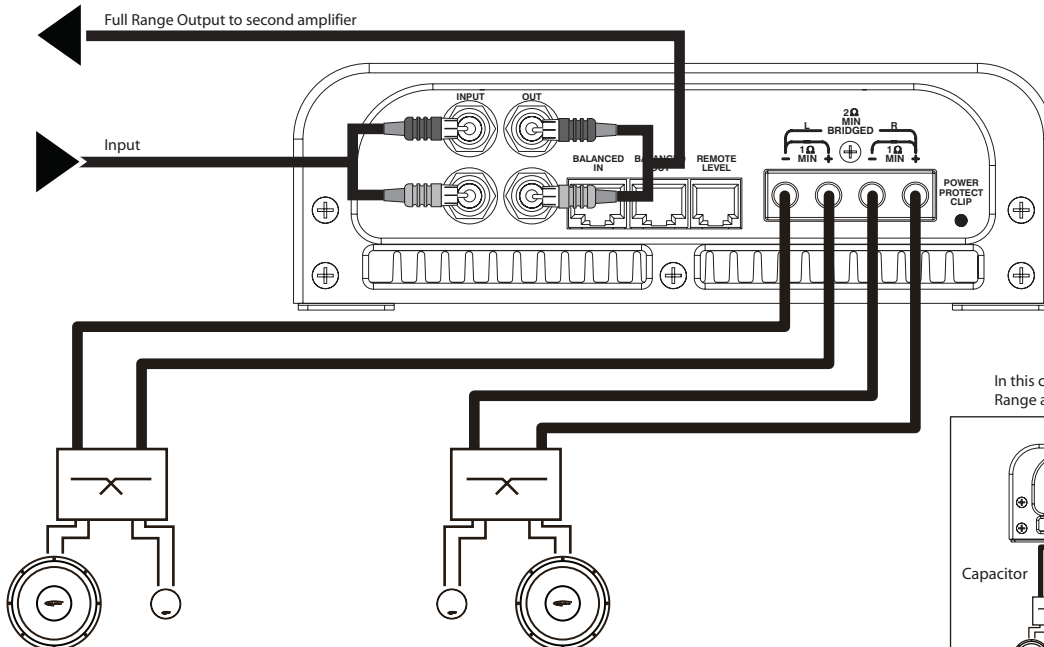
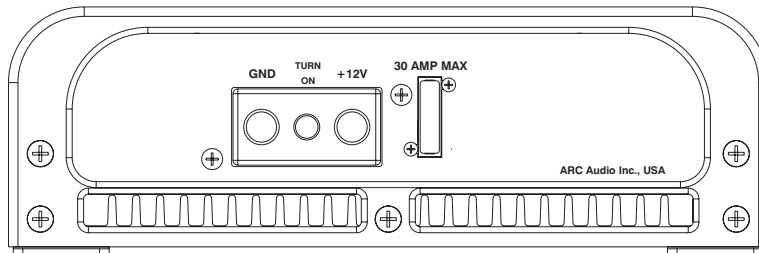
There is a stock ground wire on the battery between the battery and the body. It should be Upgraded to 4 AWG from the factory 8 or 10 AWG.

Stereo High Pass

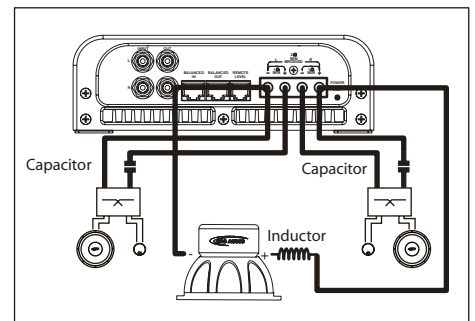
Most commonly used for front or rear midrange or tweeters. Most component sets or coaxial will benefit from this configuration with improved power handling. This is very useful even if you are not using a Subwoofer. Stereo wiring can be used in Full Range, High Pass, Band Pass or Low Pass.



- HIGH PASS**
- STEREO**
- OFF**
- 12dB OR 24dB**
- X1 (X10 If higher then 550Hz is needed)**

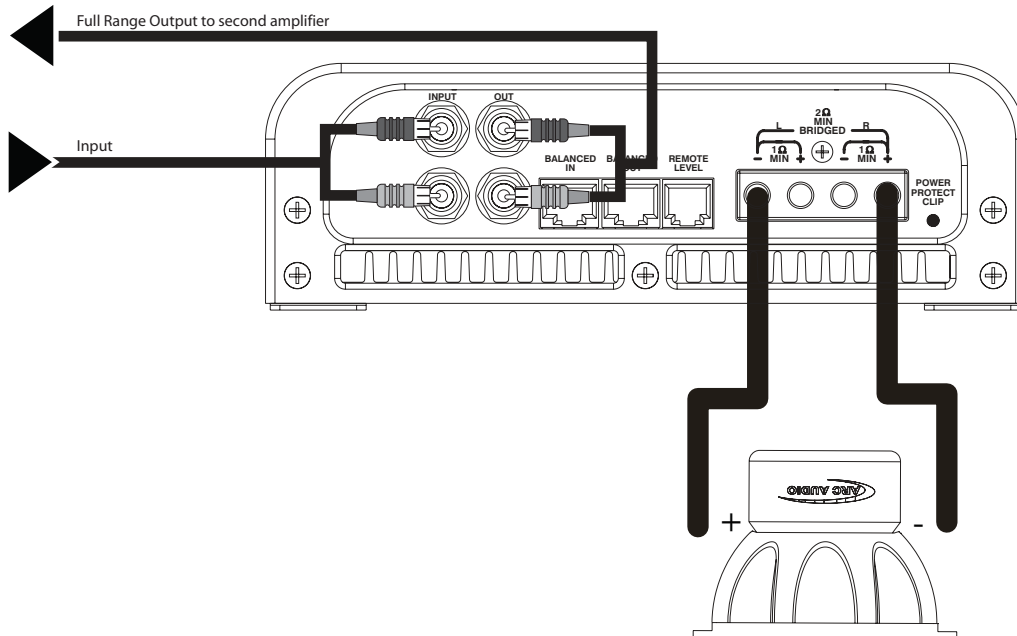
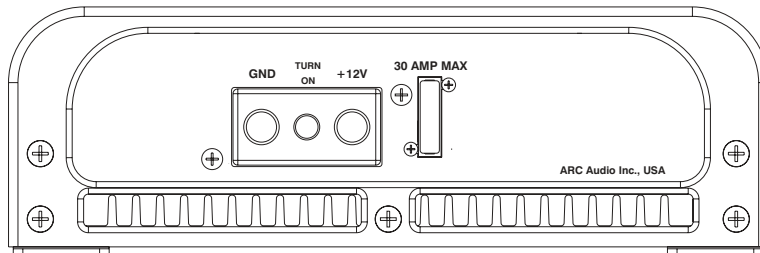
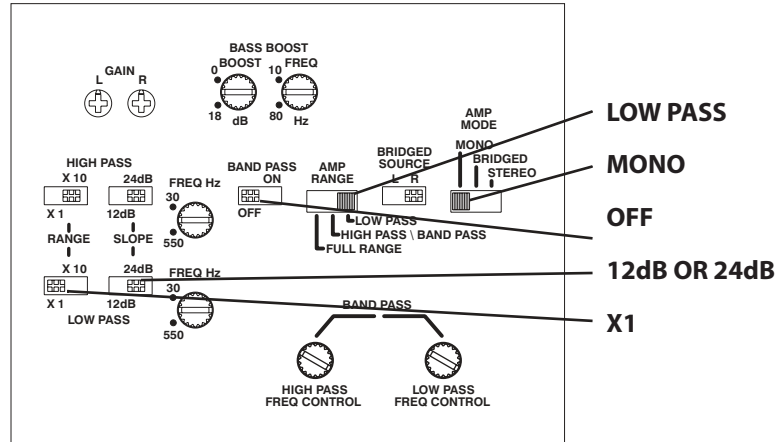


OPTION Stereo Mixed Mono
In this configuration you will set the crossover to Full Range and use Passive crossovers at the speakers.



Bridged Low Pass

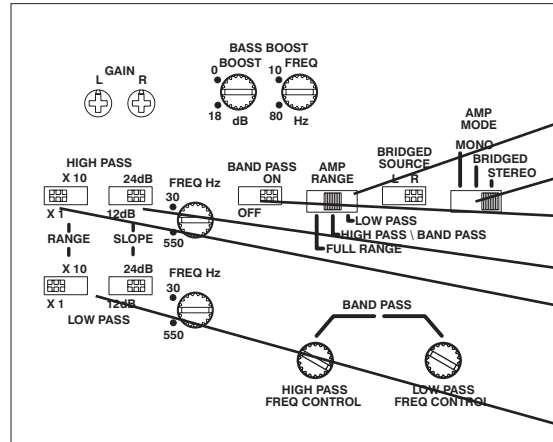
Most commonly used for subwoofers. This configuration can be used in Full Range, High Pass, Band Pass or Low Pass shown here. It is very important that both channels receive the same signal. We recommend you use either the MONO or BRIDGED position on the AMP MODE switch.



Stereo Band Pass

Sub Sonic Filter

Most commonly used for all active systems where no passive crossovers are used. Very often you will use this for mid bass drivers where added control is needed. This configuration can be mixed with passive crossovers for even more flexibility. It is worth noting that with the High Pass set to 30Hz a Band Pass can be used as a Sub Sonic filter if you use the 24dB slope.



HIGH PASS

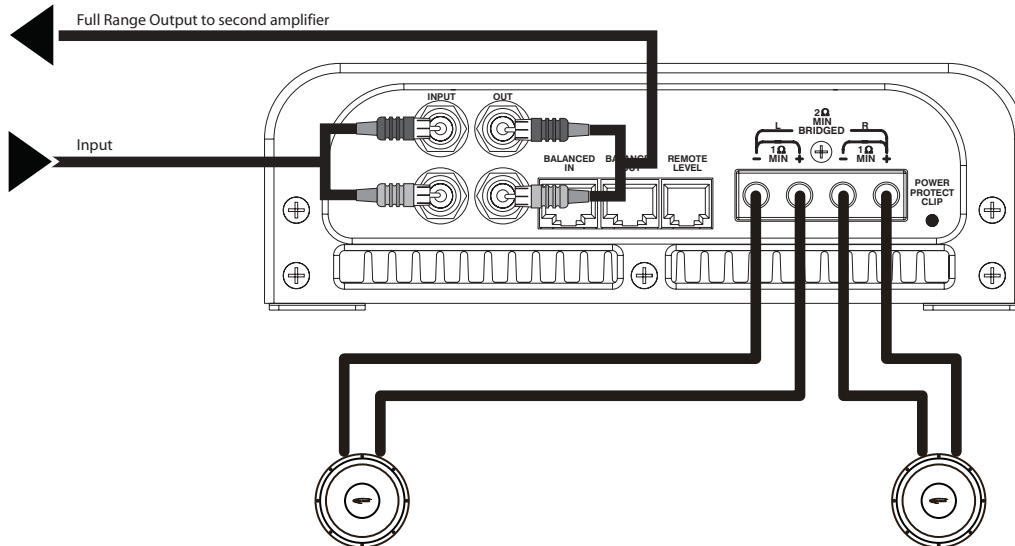
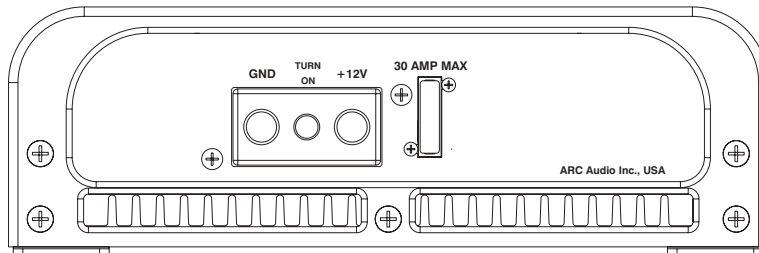
STEREO

ON

12dB OR 24dB

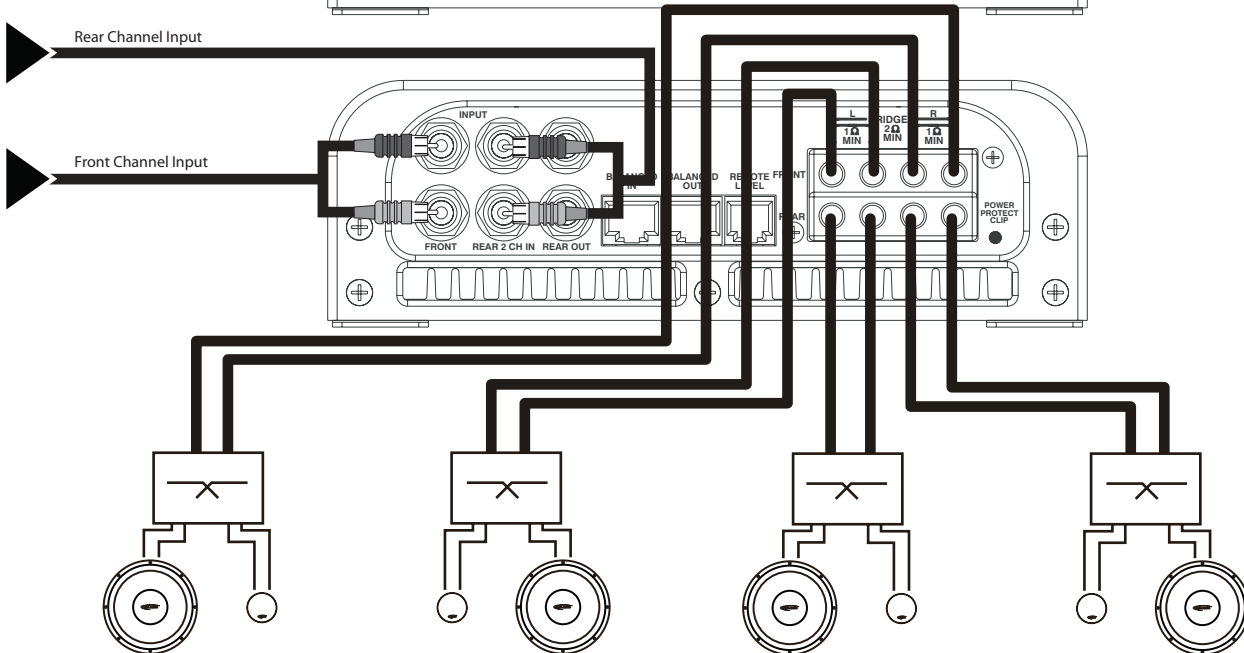
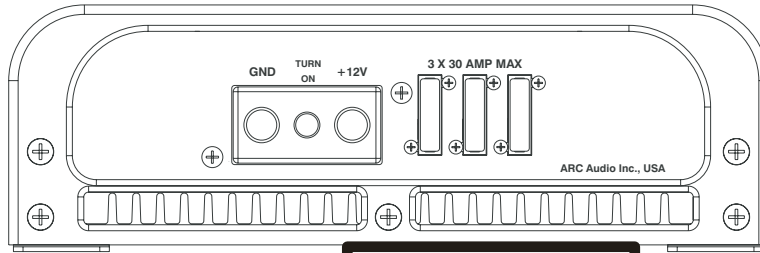
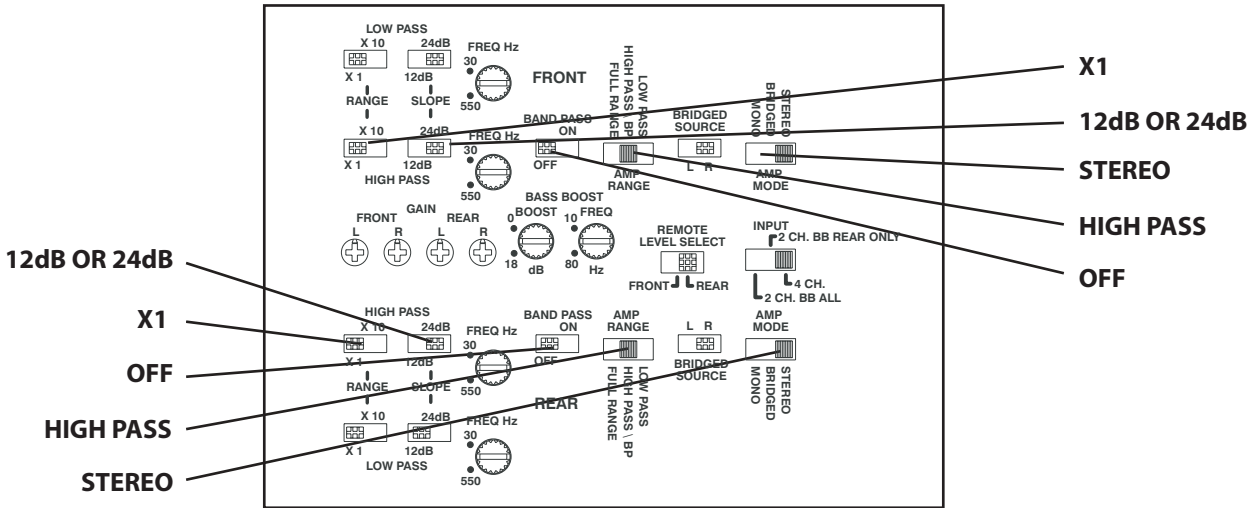
X1 or X10 (High Pass must be set at a low frequency then Low Pass)

Use Low Pass to adjust the High frequency cut off point.



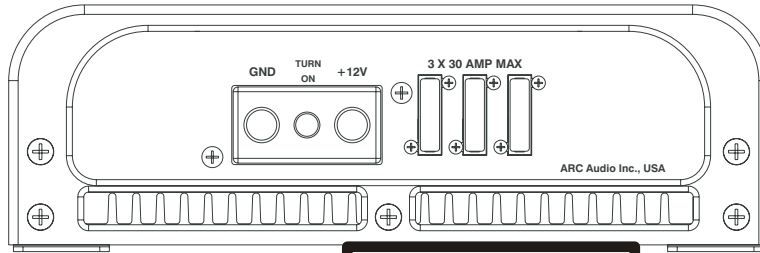
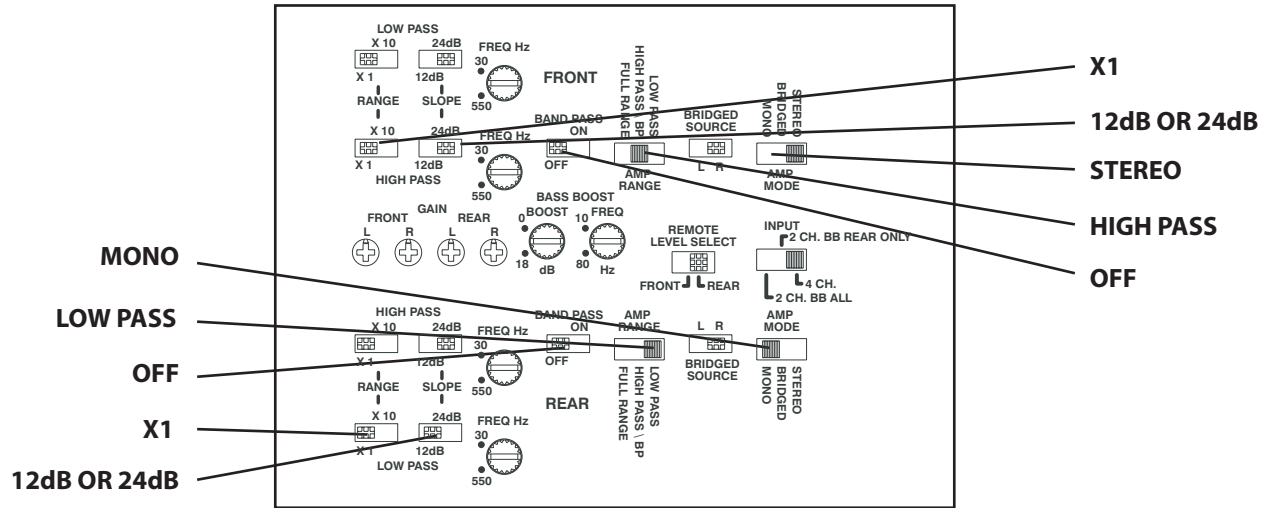
Stereo 4 Channel High Pass or Full Range

When used with a Subwoofer this will make for a very complete system. It can also be used Full Range if a sub is not used. You have a few options with this setup. The input switch can be set to "4 CH." if you are using 2 set of inputs. This will leave the "Fader" working for front and rear. You may choose to use 2 CH. BB ALL if you are using only a single input.

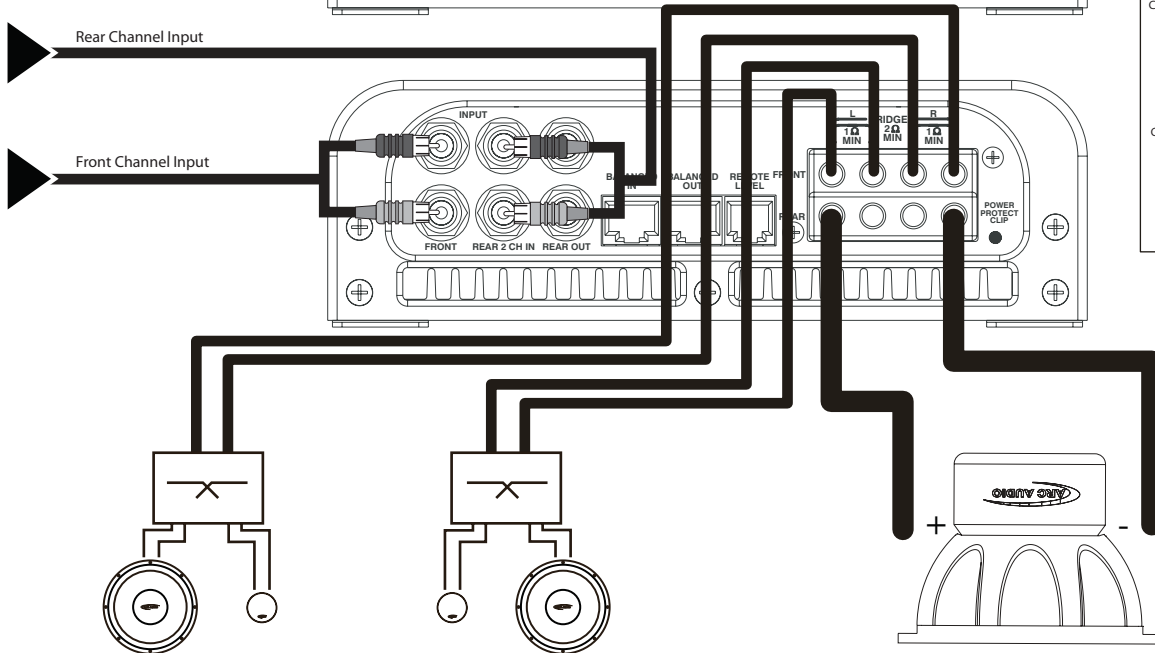
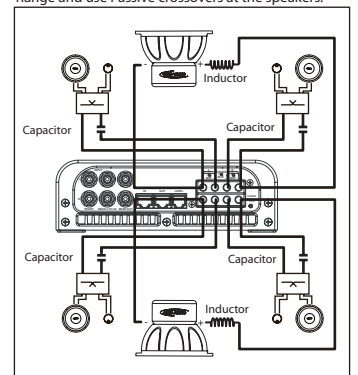


Mixed Stereo and Bridged Mono

This is the most common use of a 4 channel amplifier. A full system can be installed using a single amp. You have a few options with this setup. The input switch can be set to "4 CH." if you are using 2 set of inputs or 2 CH. BB REAR ONLY if you are using only a single input.

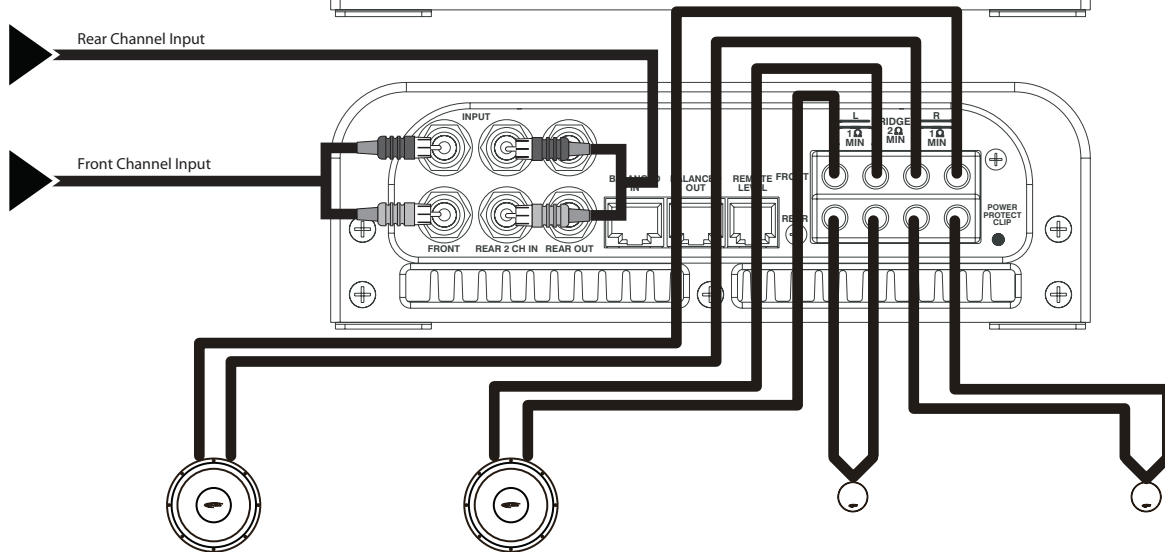
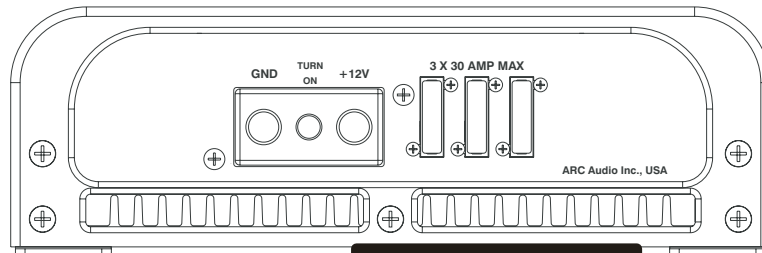
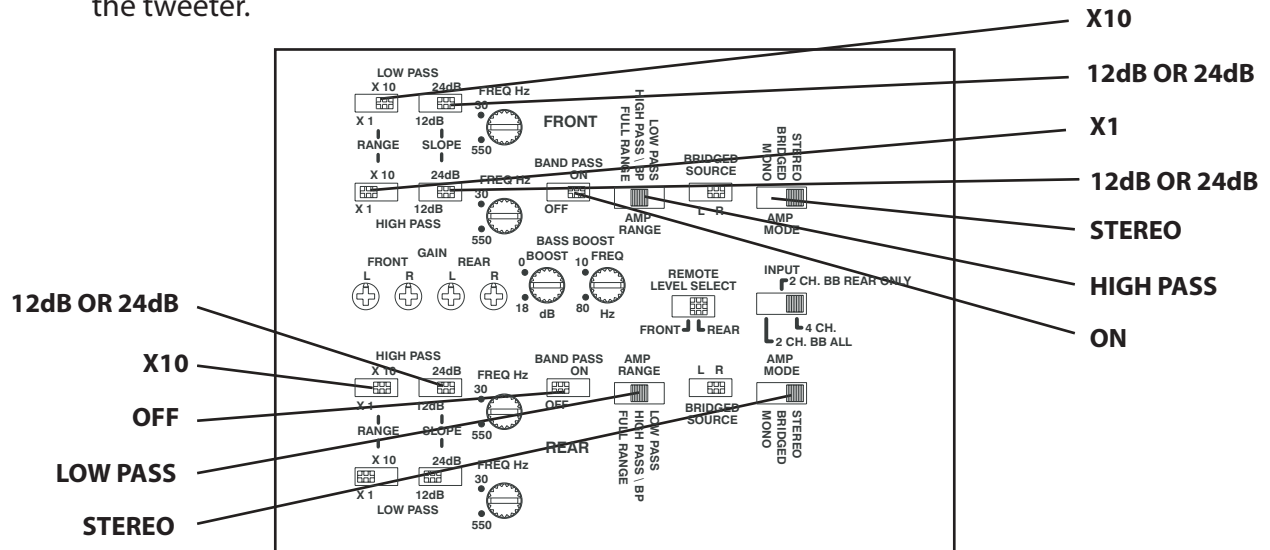


OPTION Stereo Mixed Mono
In this configuration you will set the crossover to Full Range and use Passive crossovers at the speakers.



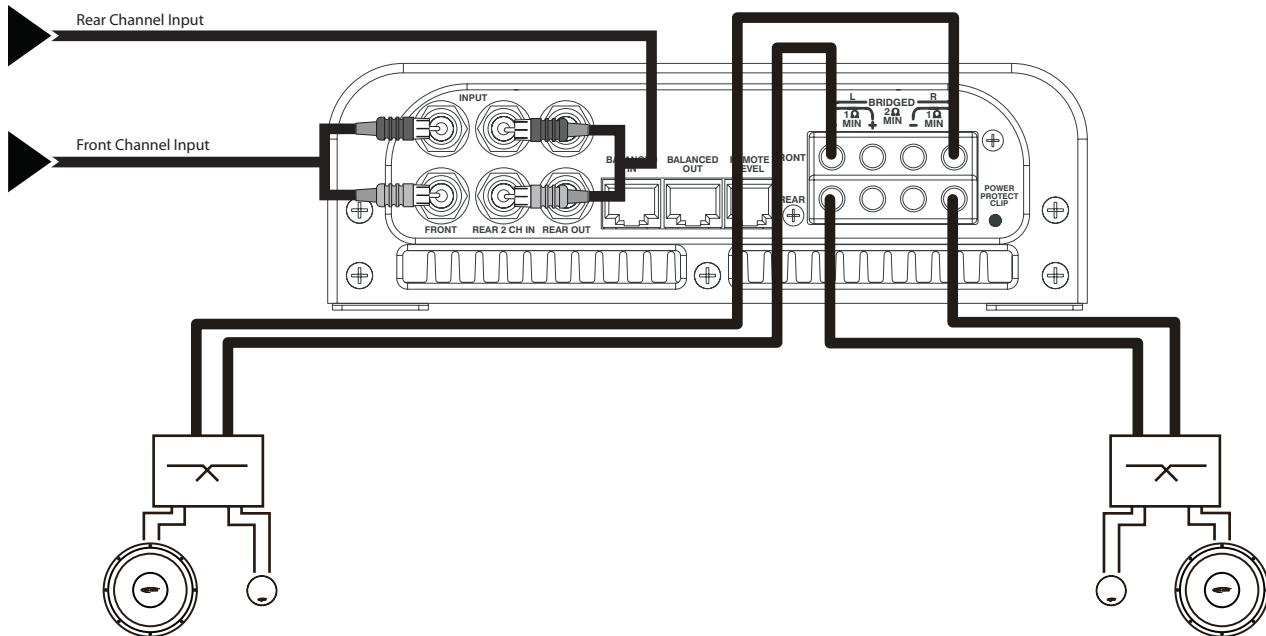
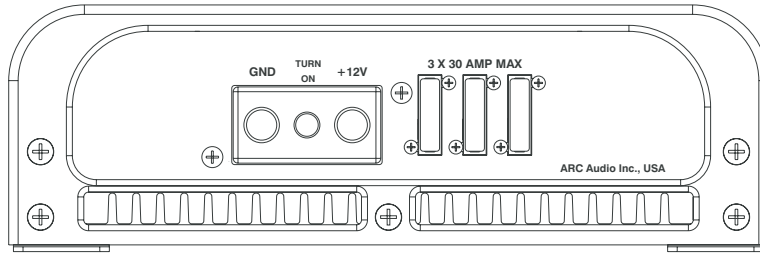
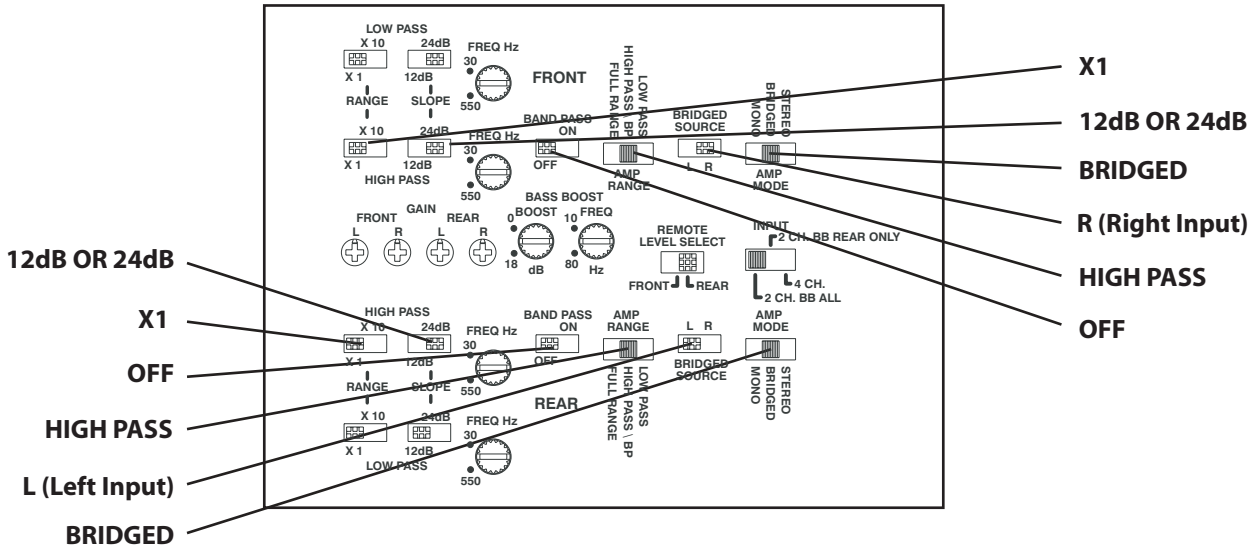
Stereo 4 Channel High Pass or Full Range

When used with a Subwoofer this will make for a very complete system with the highest degree of control. This setup is very specific to the speakers you are using. Special care must be taken when you adjust the crossover for the tweeter. You may use 2 CH. or 4 CH. inputs but be careful not to direct any Bass Boost to the tweeter.

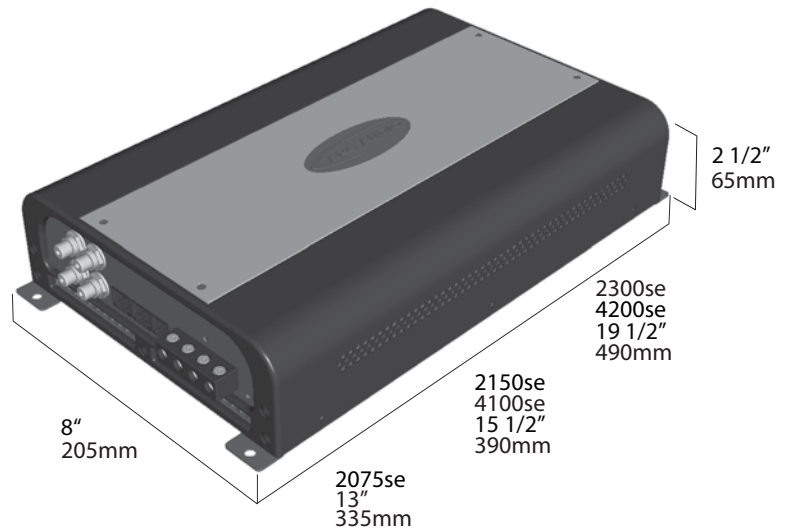


Stereo 2 Channel Bridged High Pass

This very special configuration is used for very high power component sets where the full power capability of the amp is desired. By using the "BRIDGED SOURCE" switch you can assign the front as either Left or Right. The same is true for the rear channels.



Specifications and Dimensions



4100SE

4200SE

4 Channels @ 40hms 4 Channels @ 20hms 4 Channels @ 10hm 2 Channels @ 80hms 2 Channels @ 40hms 2 Channels @ 20hms	65 Watts 24A 110 Watts 42A 85 Watts 53A 130 Watts 30A 220 Watts 57A 145 Watts 53A	110 Watts 50A 200 Watts 100A 200 Watts 116A 220 Watts 50A 400 Watts 101A 400 Watts 124A
Frequency Response Crossover Range Bass Boost	4 Hz > 100kHz 30Hz - 550Hz (x10 300Hz - 5500Hz) 0 - 15dB @ 20Hz-80Hz	4 Hz > 100kHz 30Hz - 550Hz (x10 300Hz - 5500Hz) 0 - 15dB @ 20Hz-80Hz
S/N Ratio (A wtg) ref 1Watt 40hm Seperation @ 1kHz Damping (25W 4x40hm 100Hz)	>93 dB >78 dB > 1200	>90 dB >79 dB > 1200
Low Level Input Sensitivity Balanced Input Sensitivity High Level Input Max Peak Current 20hm Stereo Efficiency at rated 2ohm Stereo Idle Current	.3V - 4V .6V - 8V NA 79A @ 540Watts 20% THD+N 60% 3A	.3V - 4V .6V - 8V NA 79A @ 540Watts 20% THD+N >60% 2.3A

Output Power (RMS) @ .03% 1000Hz 14.4v Input

2075SE

2150SE

2300SE

2 Channels @ 40hms 2 Channels @ 20hms 2 Channels @ 10hm 1 Channels @ 80hms 1 Channels @ 40hms 1 Channels @ 20hms	100 Watts 24A 175 Watts 46A 150 Watts 50A 200 Watts 24A 350 Watts 47A 300 Watts 50A	150 Watts 36A 300 Watts 73A 300 Watts 94A 300 Watts 34A 600 Watts 69A 600 Watts 95A	330 Watts 72A 650 Watts 147A 650 Watts 184A 660 Watts 72A 1300 Watts 147A 1300 Watts 184A
Frequency Response Crossover Range Bass Boost	4 Hz > 50kHz 30Hz - 550Hz (x10 300Hz - 5500Hz) 0 - 15dB @ 20Hz-80Hz	7 Hz > 50kHz 30Hz - 550Hz (x10 300Hz - 5500Hz) 0 - 15dB @ 20Hz-80Hz	4 Hz - 100kHz 30Hz - 550Hz (x10 300Hz - 5500Hz) 0 - 15dB @ 20Hz-80Hz
S/N Ratio (A wtg) ref 1Watt 40hm Seperation @ 1kHz Damping (25W 2x40hm 100Hz)	>88 dB >70 dB > 2500	>88 dB >70 dB > 2500	>86 dB >78 dB >1000
Low Level Input Sensitivity Balanced Input Sensitivity High Level Input Max Peak Current 20hm Mono Efficiency at rated 2ohm Stereo Idle Current	.3V - 4V .6V - 8V NA 70A @ 571Watts 20% THD+N 52% 1.14A	.3V - 4V .6V - 8V NA 125A @ 1060Watts 20% THD+N 59% 1.50A	.3V - 4V .6V - 8V NA 222A @ 1800Watts 10% THD+N 61% 1.50A

Output Power (RMS) @ .03% 1000Hz 14.4v Input

LIMITED WARRANTY

ARC AUDIO warrants all new Signature Edition Amplifiers against defects in material and workmanship for a period of ONE (1) YEAR from the original date of purchase on all over the counter purchases not installed by an AUTHORIZED ARC AUDIO RETAILER. This warranty is extended to Three (3) YEARS if the product is originally installed by an AUTHORIZED ARC AUDIO RETAILER and is accompanied by a valid copy of the original receipt showing a charge for the installation. This warranty is not transferable and applies only to the original retail purchaser of the product from an authorized ARC AUDIO retailer. Upon inspection by ARC AUDIO should services be necessary under this warranty for any reason due to manufacture defects ARC AUDIO will, at its sole discretion, repair or replace the defective product with new or similar conditioned product at no charge.

THIS WARRANTY DOES NOT COVER INSTALLATION OR DAMAGE RESULTING FROM ACCIDENT, MISUSE, ABUSE, IMPROPER WIRING, OPERATION OUTSIDE OF UNIT OUTSIDE OF MANUFACTURES SPECIFICATIONS, OR AGAINST INSTRUCTIONS IN OWNERS MANUAL. IN ADDITION ANY PRODUCT THAT HAS BEN OPENED, TEMPERED WITH OR MODIFIED, OR IF ANY SERIAL NUMBERS HAVE BEEN REMOVED WILL NOT BE COVERED BY ANY PART OF THE MANUFACTURES WARRANTY.

All warranty returns should be sent to ARC AUDIO freight prepaid and must be accompanied by proof of purchase (a copy of the original sales receipt). Direct returns from consumers or non-authorized retailers will be refused unless specifically authorized by ARC AUDIO with a valid return authorization number. To receive a Return Authorization number call ARC Audio Warranty Department. Be prepared to give you name, address, phone number, model number and serial number of the defective unit..

All warranty returns should be packed in original packaging and must be accompanied by a copy of the original sales receipt. Product damaged in shipment will not be covered under this warranty. The customer or retailer may choose to have this damage repaired at the normal "Out of Warranty" repair cost.

In no event will ARC AUDIO be liable for incidental, consequential, or other damages resulting from the use of this product, this includes but is not limited to, damage of hearing, property or person, damage based upon inconvenience or on loss of use of the product, and to the extent permitted by law, damages for personal injury. This warranty gives you specific legal rights, and you may have other rights, which vary from state to state. This warranty applies to products sold and used in the United States of America. In all other countries please contact your distributor.

For warranty and non-warranty repairs, send to:

**ARC Audio
4719 Green Leaf Cr. #4
Modesto CA, 95356
209-543-8706**



www.arcaudio.com