



CADENCE

momentum

CSA SERIES AMPLIFIER // OWNERS MANUAL



INTRODUCTION

Thank you for purchasing this Cadence Momentum CSA Series amplifier. Over the years, the technology used to create audio amplifiers has grown by leaps and bounds. We have tens of thousands of satisfied customers still using our first generation Ultra Drive amplifiers which are more than 19 years old. Our competition is satisfied with just continuing to build the same units year after year without thought for improvement, but not Cadence. We consider it our mission to use our expertise in developing the latest technologies and to bring you the absolute best sounding, most powerful amplifiers on the market and of course at a reasonable price. You will be amazed at the quality and power that these new amps offer. You will “Boom-Harder!” with Momentum CSA Series amplifiers.

We have spared no expense in designing these amplifiers, creating the most rugged, reliable, powerful and best performing amplifiers. In fact we are so sure of the quality we backup every Momentum amplifier with our exclusive two-year warranty which exemplifies our commitment to excellence in car audio musical reproduction. (See enclosed warranty card for details.)

Please read this installation guide carefully for proper use of your Cadence amplifier. Should you need technical assistance during or after your installation please call our technical line M - Th between 9:30 am and 5:00 PM EST at (732) 370-5400. Read this entire guide fully before attempting your installation.

WARNING: BE AWARE! Use of this amplifier at extreme high volumes for extended periods of time may cause hearing loss and or hearing damage. During periods of prolonged high volume levels it is recommended that you use ear safety devices. Playing Cadence amplifiers at high volume levels while driving will impair your ability to hear necessary traffic sounds. While driving always keep your sound volume at reasonable levels. We at Cadence want you listening for many years to come.

When installing the amplifier, secure it tightly. An unmounted amplifier in your car can cause serious injury to passengers and damage to your vehicle if it is set in motion by an abrupt driving maneuver or short stop.

INSTALLATION

BATTERY VOLTAGE:

Cadence Momentum CSA amplifiers are rated and regulated to 14.4 volts and below. Maximum input voltage is 16 volts while the minimum voltage is 12 volts.

***** DO NOT EXCEED 16 INPUT VOLTAGE. *****

PROTECTION CIRCUITRY:

Cadence amplifiers incorporate many outstanding protection circuits to help protect the amplifier from being damaged during operating conditions.

Thermal Protection: When the amplifier reaches an unsafe operating temperature of 80 degrees Celsius the amplifier will turn off. Once the amplifier cools down, simply reset the amplifier by its Remote connection, (turn the amplifier off and then on again once you have given the amplifier a chance to cool down) and the amp will once again begin to play.

If you live in a hot climate we suggest installing additional cooling fans in your trunk to exhaust the hot air which can build up in the trunk this will help keep the ambient temperature in the trunk as low as possible so that your amps work flawlessly and without any musical interruption.

Clipping or total shutdown may also be a result of a bad ground connection or loose ground. If you find that your speakers and speaker wires are not shorted, please check your ground connection.

Input Overload Protection: This circuit will either shutdown the amplifier completely or make the amplifier spurt on and off indicating that it is in a diagnostic condition. Turn the system off and reduce the gain on the amplifier or volume from your head unit, this should result in a corrected condition.

DC Offset Protection: Should any DC voltage try to enter the amplifier via the speaker terminals it will cause the amplifier to shut down and not operate until this condition is remedied. This circuit will also protect damaging high DC voltages from reaching your speakers should your amplifier ever malfunction.

INSTALLATION BASICS:

Before you begin with your installation, disconnect the NEGATIVE (-) terminal from your car's battery. This safety precaution will avoid possible short circuits while wiring your amplifier. Cadence amplifiers operate on 12-volt negative ground systems only.

It is recommended that you layout your sound system design on paper first. This will help you during the installation so that you will have a wiring flow chart and not miss-wire any of your components.

Mount the amplifier in the trunk or hatch area of your vehicle. Never install an amplifier in the engine compartment or on the fire wall. Please be sure to leave breathing room around the amplifier heat sink so that it can dissipate the heat it produces efficiently. The amplifier can be installed either horizontally or vertically.

When mounting the amplifier on the trunk floor, be sure to watch for your gas tank, gas lines and electrical lines. Do not drill or mount any screws where they might penetrate the gas tank of your car.

REMOTE TURN ON CONNECTION:

The remote turn on connection is located on the barrier strip next to the power and ground connections. This connection is responsible for turning the amplifier on and off with the rest of the system. A smaller gauge wire can be used to make this connection to your radio's power antenna lead. Should your system not have any turn on leads, you can wire the remote terminal to an accessory lead, which turns on, with your car's ignition.

POWER/GROUND WIRING:

The Momentum CSA series amplifiers are supplied with built-in fuses, never replace the fuse that the amp came with, with one of a larger value.

We suggest you construct a Red wiring harness with 2 additional fuses. One fuse should be located near the car battery. This fuse near the battery offers protection against damage from short circuits to the car chassis between the battery and the amplifier. A second fuse closer to the amplifier offers additional safety to the amplifier itself. This fused red power wire should be attached to the amplifier power terminal marked **+12V**.

The wire harness should be made of red primary cable of at least 8 gauge for the CSA1000.2 and at least 4 gauge for all other larger models. The harness should terminate in a large ring terminal for connection directly to the positive terminal of the car battery. Use a spade plug to attach the wire, which connects to the amplifier location marked **+12V**.

A second black color wire of equal gauge should be used as a ground connection to a welded chassis member. When connecting the ground wire make sure that there is no paint or other insulator blocking a good ground connection. When installing multiple amplifiers, mount them in close proximity so that they can all share the same ground point. Attach the black ground wire to the amplifier screw terminal marked **Ground**.

We recommend that you use the Cadence AMPKIT4 or AMPKIT8 amplifier installation kits, which contains all the cabling and accessories necessary for a good, reliable installation.

Over the years we have received amplifiers back to our service department with melted power/ground terminals. The cause of this is a bad ground connection. When there is a lack of good ground, heat builds up at the weakest point which happens to be the contact screw of the amplifier terminal. Over time the heat generated will begin to melt the terminal. It is a good practice to feel the power and ground wires with your hands, near their amplifier connection after having played the amp for a while. If the wires feel hot to the touch you probably have a bad or loose connection. If you are sure of your connections and the wires still feel hot to the touch, you should upgrade the gauge of wire to next heaviest gauge (see wiring diagram, page 5).

SETTING THE CONTROLS:

AUDIO PREAMP INPUT

The Momentum CSA series amplifiers feature RCA pre amp inputs. Run RCA cables from your sound source to the inputs of the amplifier. We suggest the use of high quality shielded RCA patch cords to help reduce and eliminate unwanted electrical noise to your system. Be sure to run the RCA cables on the opposite side of the vehicle that you used to carry the power and ground leads of the amplifier.

BUILT IN LOW PASS ELECTRONIC FILTER

All Momentum CSA series amplifiers feature 12dB per octave fully adjustable low-pass and high pass electronic filters.

For Low Pass sub woofer systems, set the FILTER switch to LOW PASS. Now the knob marked LPF or LOW PASS will control the low pass frequencies anywhere from 50Hz to 500Hz depending on the model. A frequent error made is setting the low pass frequency too low, especially when using a vented sub woofer enclosures. We recommend that for most installations you do not set the frequency knob lower than 80 to 100Hz (the 12 o'clock position).

When using the amplifiers for component speakers or co-axials, you will want to set the FILTER switch to HIGH PASS. The HPF control knob adjusts the high pass frequencies between 120Hz and 3KHz. Do not attach tweeters directly to the amplifier, (even in the high pass mode) without a passive crossover to protect them.

SUBSONIC FILTERING

For sub woofer installations with passive LP crossover, you can set the amplifier's FILTER switch to HIGH PASS while setting the SUB SONIC knob to 30Hz, this will act as SUBSONIC FILTER for all signals below 30Hz. This is especially useful for vented enclosures where the port tuning frequency falls below the sub woofer tuning frequency to protect against sub woofer unloading.

GAIN (INPUT LEVEL CONTROL)

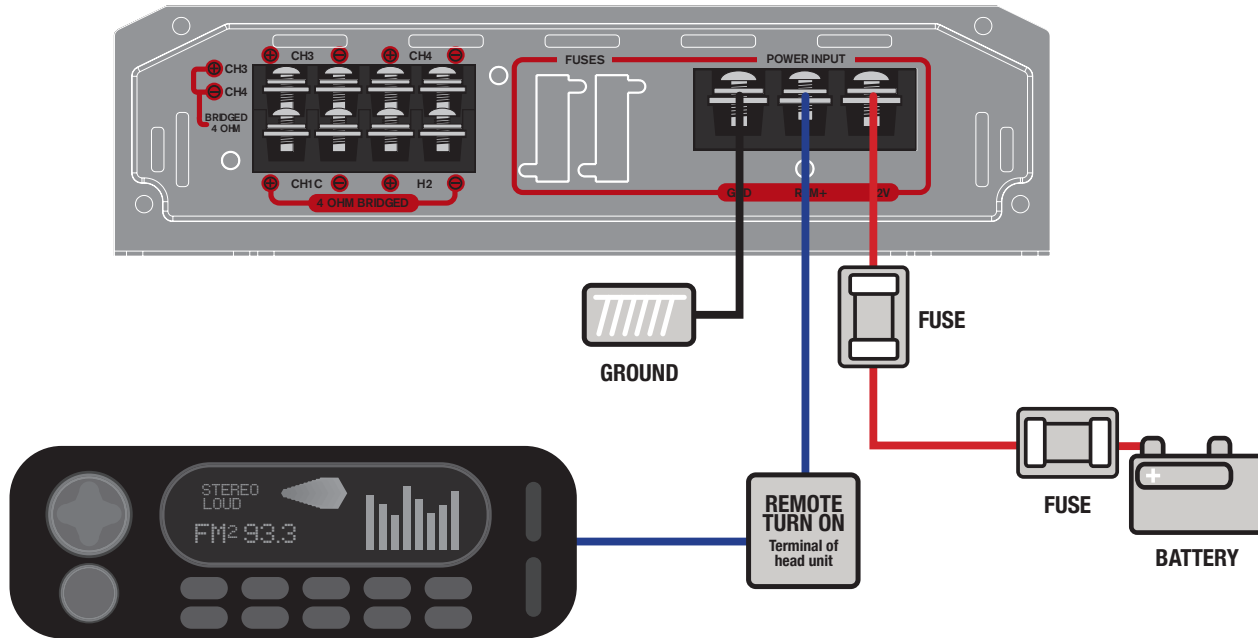
To adjust the GAIN turn the control using a small flat head screwdriver fully counter clock wise to the minimum position. Do not apply any pressure while turning as this might break the control unit. Adjust your radio volume level to maximum volume. Now turn the level control on the amplifier clockwise towards the Maximum marking until audible distortion occurs. When you begin to hear any distortion in the sound, back down one notch and your amp is set. It is helpful to have a second person to help you set the gain.

When setting up a multi-amp system, set each amplifier's gain separately. Start off with the bass amplifier, then adjust the highs amplifier's level control to match.

Once you are satisfied with the level control settings, use any equalizer controls to adjust the system tonal level for personal preference. Keep in mind that after equalizing, you may have to go back and reset the amplifiers level controls.

*The level control of any car amplifier should not be mistaken for a volume control. It is a sophisticated device designed to match the output level of your source unit to the input level of the amplifier. Do not adjust the amplifier gain to maximum unless your input level requires it.

POWER / GROUND / REMOTE WIRING DIAGRAM



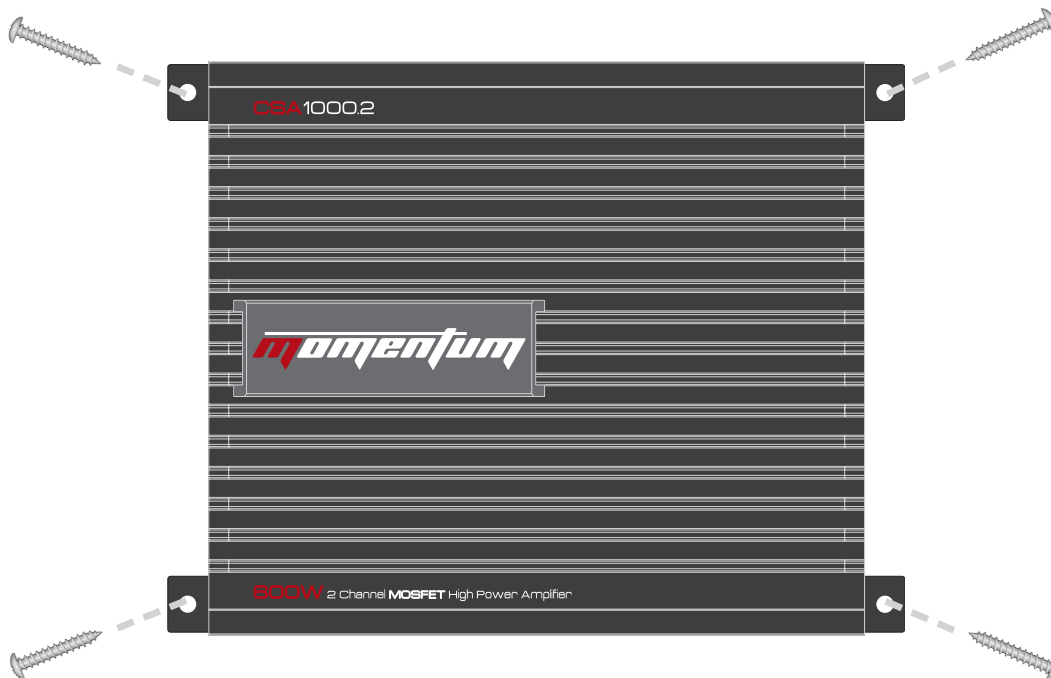
MOUNTING

MOUNTING THE AMPLIFIER:

Choose a convenient mounting location with unobstructed airflow.

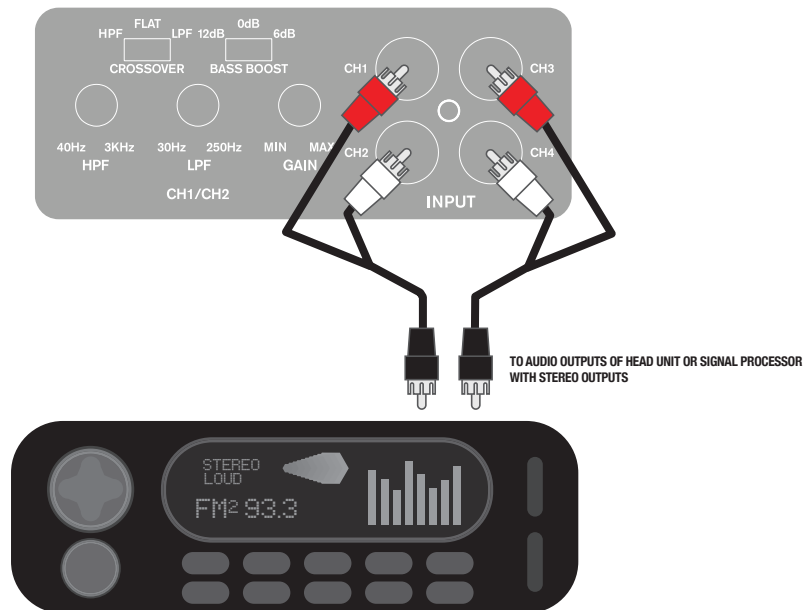
The Momentum CSA series amplifiers feature four mounting tabs located near the amplifiers four corners. Using the supplied screws and grommets, gently mount the amplifier into position.

*** Do not over tighten the screws.***



4 CHANNEL AMP WITH 2 CHANNEL INPUT (CSA1000.4)

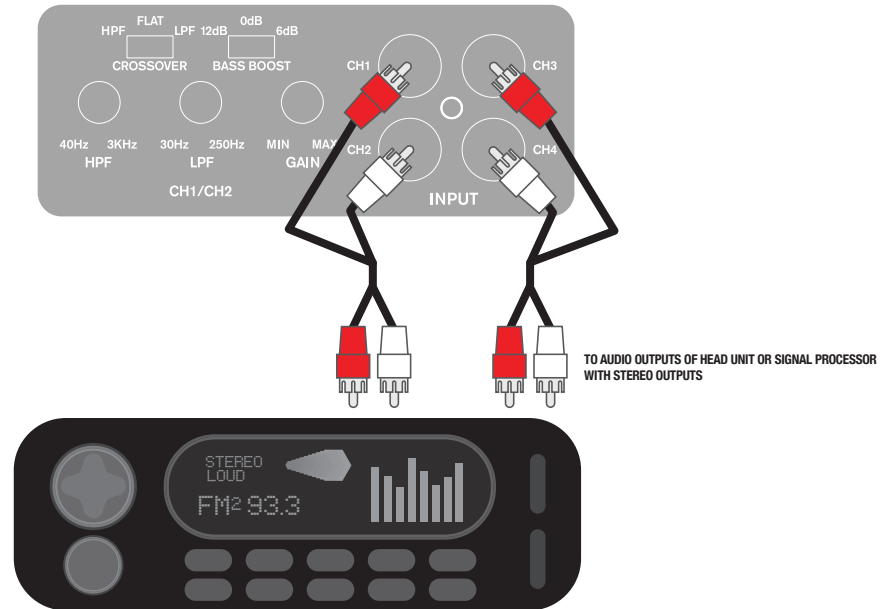
If your head unit has only one pair of Left and Right RCA out put jacks use RCA Y adaptors to split the signal. Right output should go to Channel 1/2 inputs, Left output should got to Channel 3/4 inputs.



4 CHANNEL AMP WITH 4 CHANNEL INPUT (CSA1000.4)

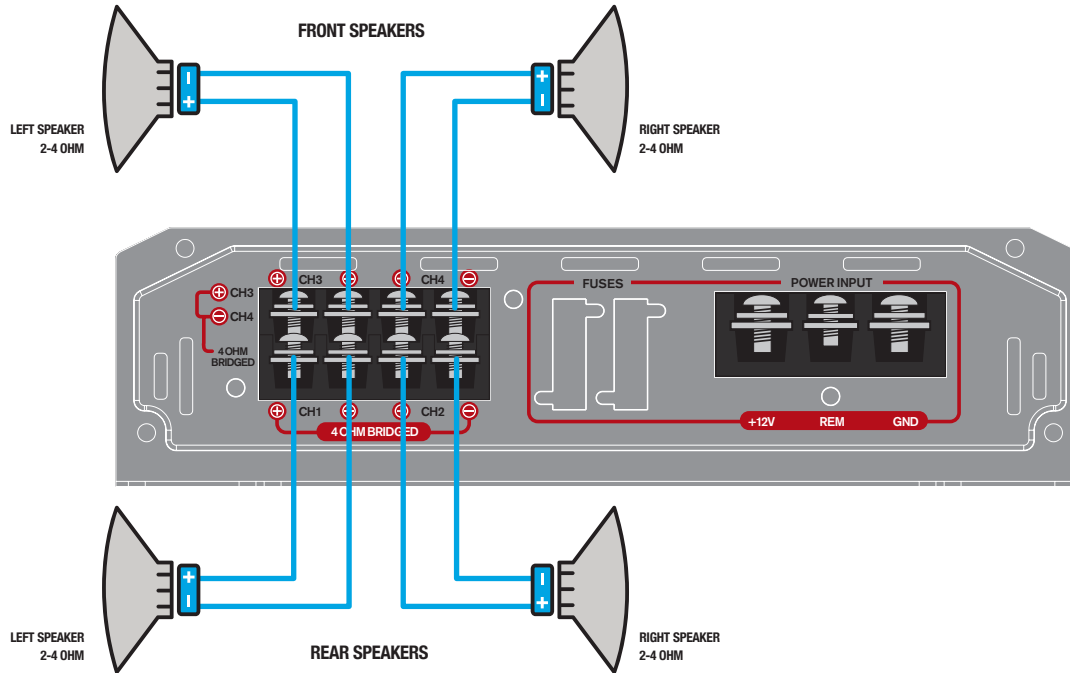
If your head unit has 2 pairs of RCA output jacks, input Front Left and Front Right in to Channels 1 and 2. Then attach radio output Rear Left and Rear Right to Channels 3 and 4. Should your head unit have an additional subwoofer RCA output, that typically needs to be attached to a separate subwoofer amplifier.

When configuring a 4 channel amplifier to a 3 channel system, you can use an RCA Y adaptor to send the subwoofer preamp signal to channels 3 and 4 and bridge those channels to the subwoofer. Use Y adaptors to mix channels 1 and 3 and input them into RCA Channel 1, then mix channels 2 and 4 and input them into RCA channel 2. The result will be preserved Left and Right balance with constant subwoofer output.



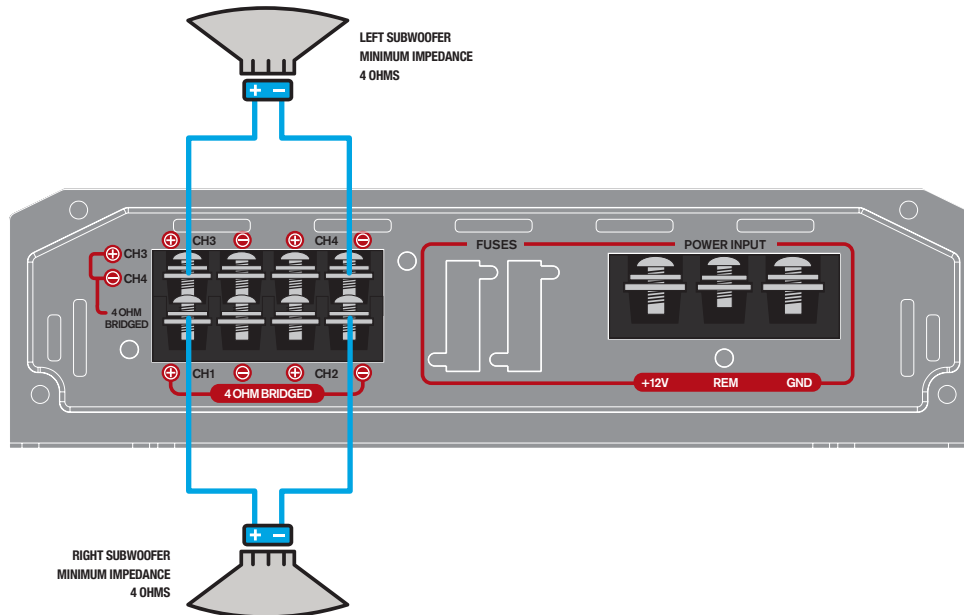
4 CHANNEL AMP WITH 4 CHANNEL OUTPUT (CSA 1000.4)

Install any combination of speakers independently on all 4 channels being careful not to load any single channel below 2 ohm stereo.



4 CHANNEL AMP BRIDGED TO 2 CHANNELS (CSA 1000.4)

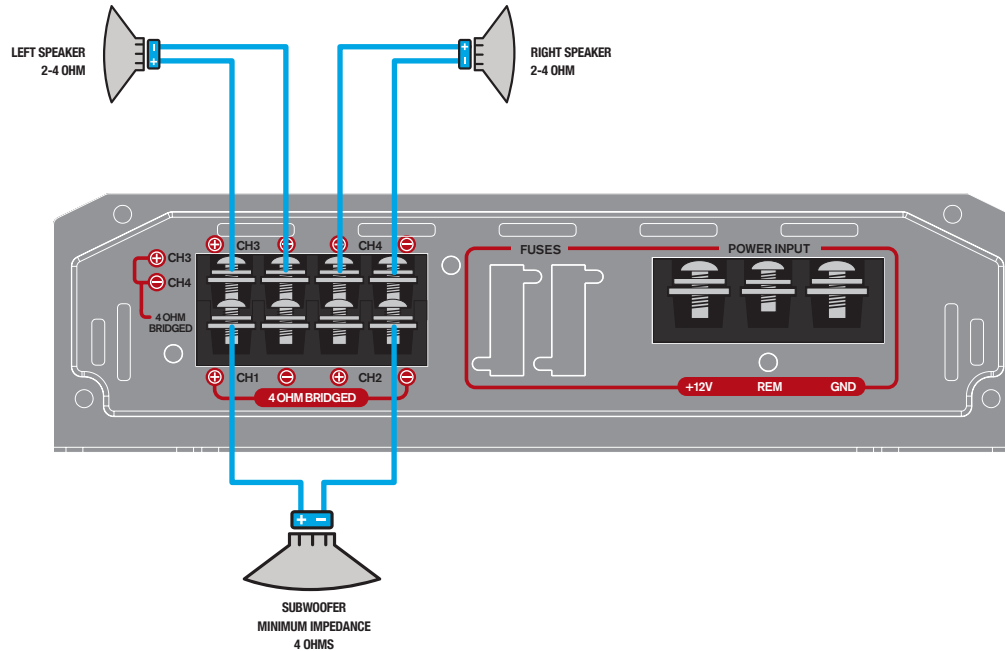
When bridging the four channel amplifier, make sure that your final woofer impedance on each bridged channel is no lower than 4 ohms. Set the Crossover mode switch to Low Pass and begin by setting the crossover frequency control to 100Hz and tuning from there.



4 CHANNEL AMPLIFIER IN 3 CHANNEL MODE (CSA 1000.4)

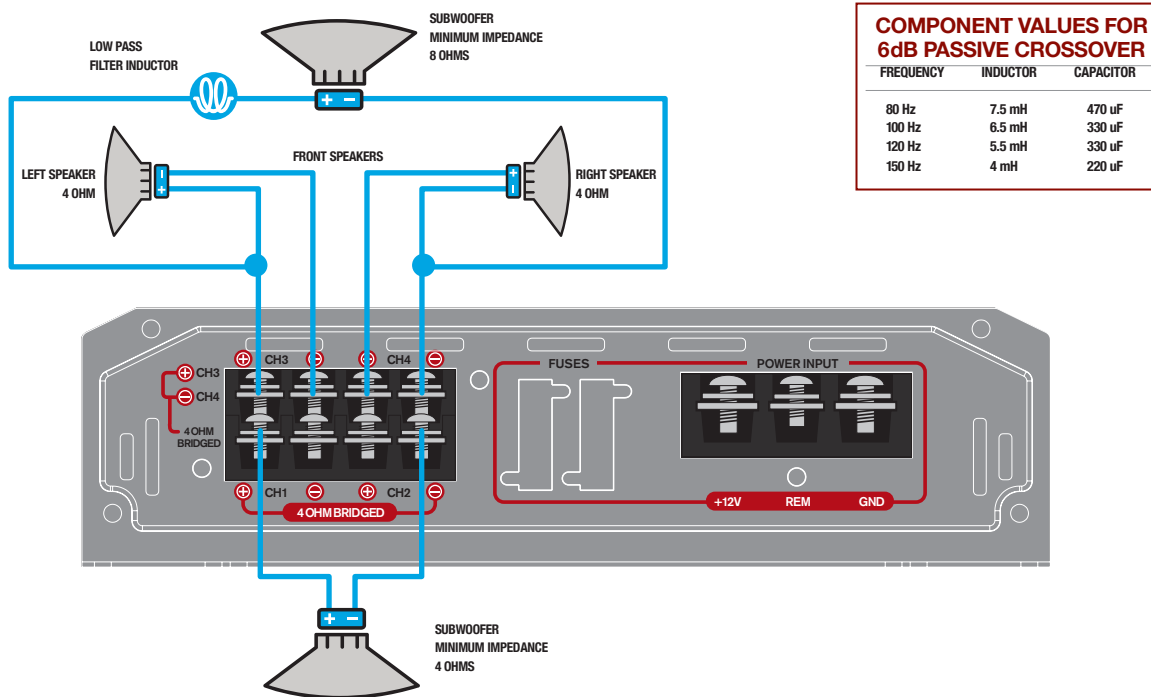
Channels 1 and 2 should be wired to speakers no lower than 2 ohm loads per channel in stereo. Channel 3 and 4 should be bridged as per the diagram wiring the woofer to Channel 3 positive side (+) and Channel 4 negative side (-) terminals.

Set the crossover mode switch of Channels 1 and 2 to High Pass, while Channels 3 and 4 should be set to Low Pass.



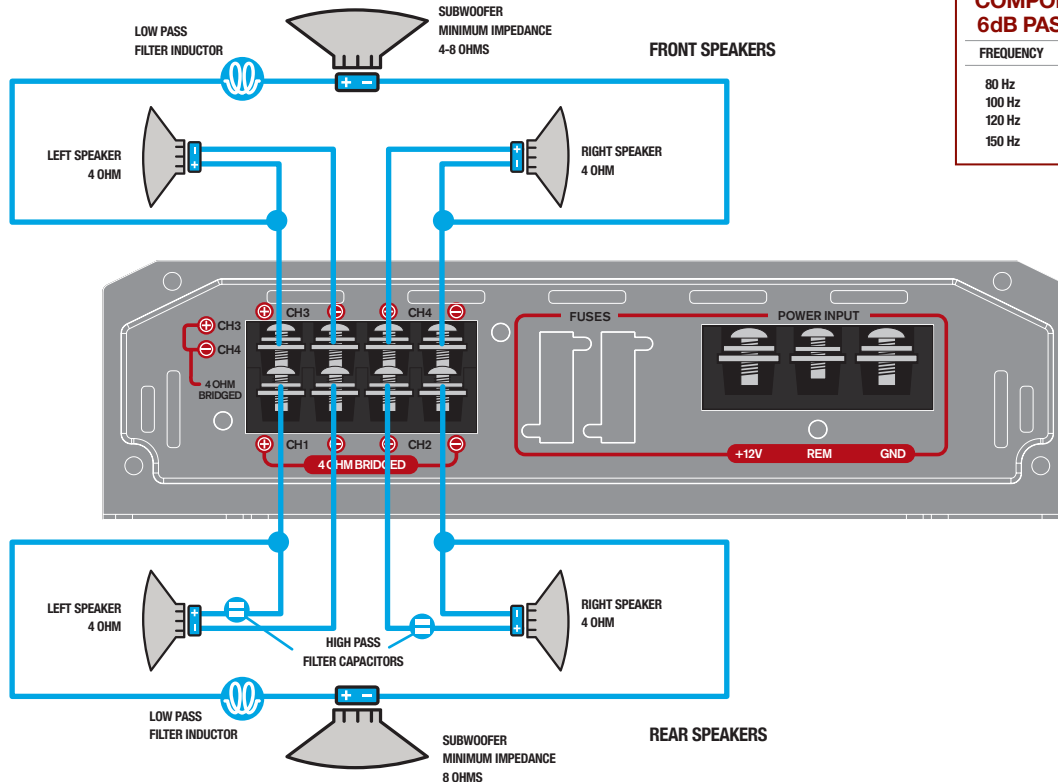
4 CHANNEL AMPLIFIER IN 3 CHANNEL MODE (CSA 1000.4)

Set the crossover mode switch of Channels 1 and 2 to High Pass, while Channels 3 and 4 should be set to Low Pass.



4 CHANNEL WITH DUAL MIXED MONO CONFIGURATION (CSA 1000.4)

ALL CROSSOVER SETTINGS IN THIS MODE SHOULD BE SET TO FULL RANGE.

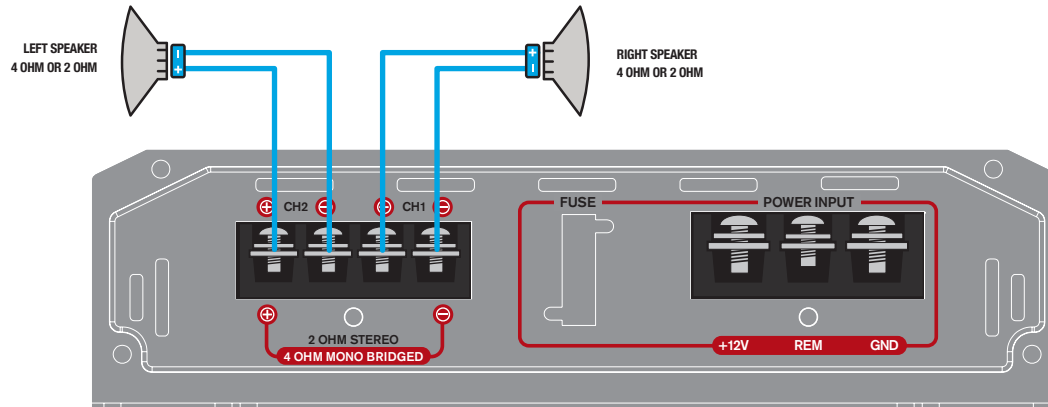


COMPONENT VALUES FOR 6dB PASSIVE CROSSOVER

FREQUENCY	INDUCTOR	CAPACITOR
80 Hz	7.5 mH	470 uF
100 Hz	6.5 mH	330 uF
120 Hz	5.5 mH	330 uF
150 Hz	4 mH	220 uF

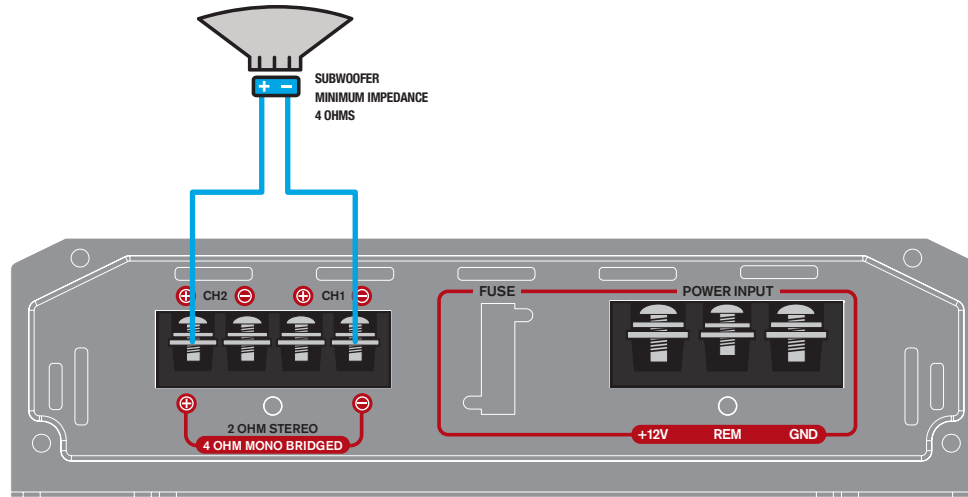
2 CHANNEL AMPLIFIER 2 OHM / 4 OHM STEREO (CSA 1000.2, 2000.2)

For this configuration place crossover mode switch in full range.



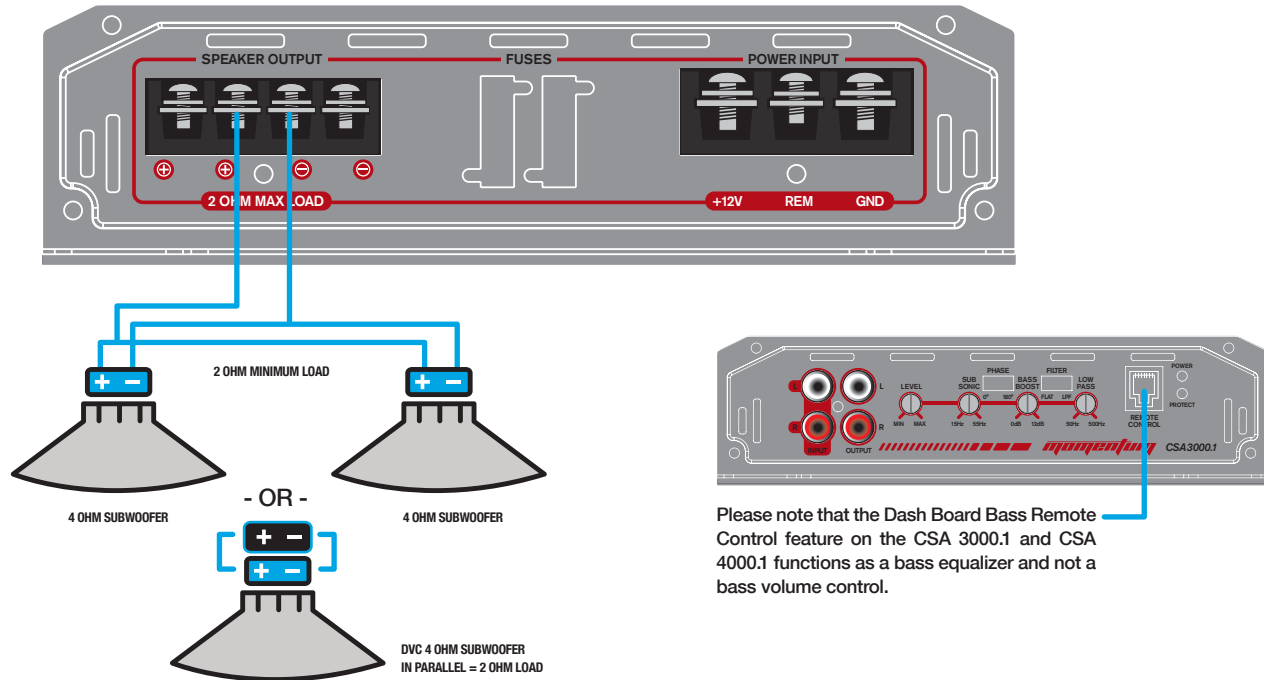
2 CHANNEL AMPLIFIER 4 OHM BRIDGED (CSA 1000.2, CSA 2000.2)

For this configuration place crossover mode switch in low pass position.



CLASS A/B MONO BLOCK 2 OHM AMPLIFIER (CSA 3000.1, CSA4000.1)

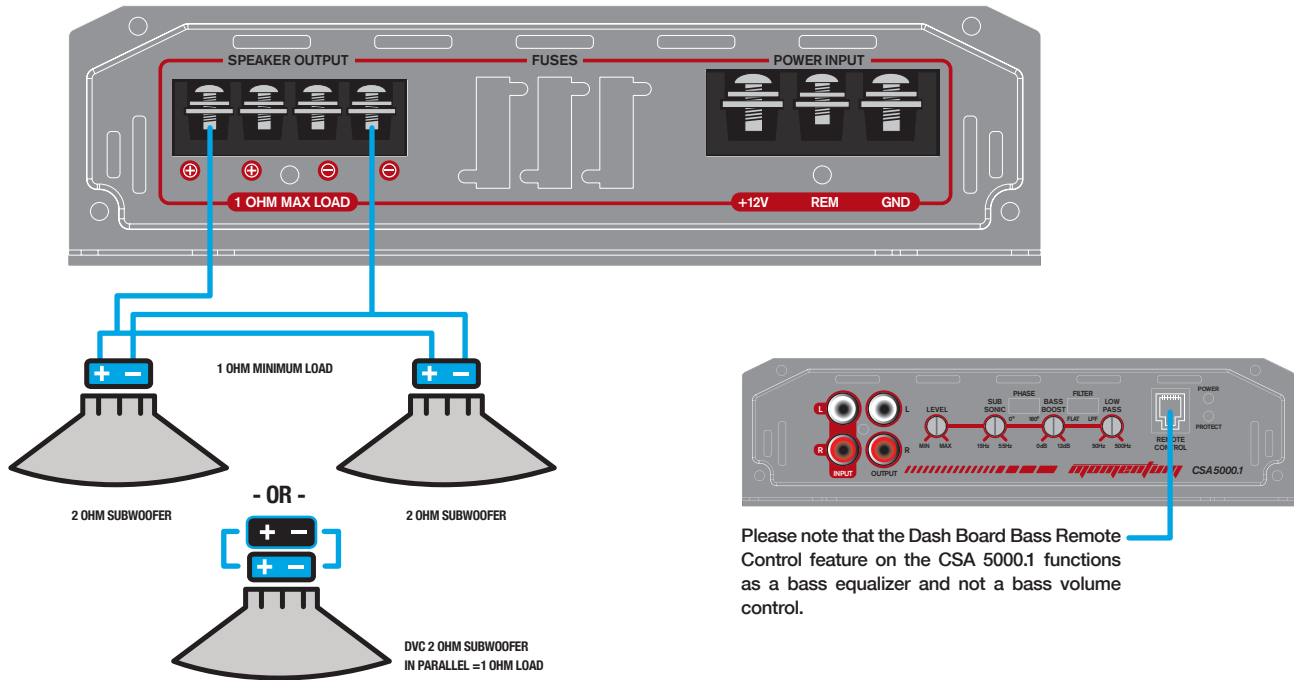
The CSA 3000.1 and CSA 4000.1 are 2 ohm Class A/B mono block amplifiers. No matter how many woofers you choose to wire up to these models, the final impedance should not fall below 2 ohms. Please see page 21 and 22 for various speaker impedance configurations.



Please note that the Dash Board Bass Remote Control feature on the CSA 3000.1 and CSA 4000.1 functions as a bass equalizer and not a bass volume control.

CLASS D MONO BLOCK 1 OHM AMPLIFIER (CSA 5000.1)

The CSA 5000.1 is a 1 ohm Class D mono block amplifier. No matter how many woofers you choose to wire up to this amplifier the final impedance load should not fall below 1 ohm. Please see pages 21 and 22 for various speaker impedance configurations.



Please note that the Dash Board Bass Remote Control feature on the CSA 5000.1 functions as a bass equalizer and not a bass volume control.

INSTALLATION NOTES

SPECIFICATIONS

CSA 1000.2

- RATED POWER: 75 WATTS RMS @ 4 OHM x 2
- RATED POWER: 150 WATTS RMS @ 2 OHM x 2
- PEAK POWER: 300 WATTS
- DYNAMIC POWER: 600 WATTS
- MINIMUM HARMONIC DISTORTION: >0.01%
- FREQUENCY RESPONSE: 20Hz - 20KHz
- S/N RATIO: >96dB
- INPUT VOLTAGE: 200MV - 8V
- DIMENSIONS (L x W x H): 2" x 9.1" x 8"
- HIGH SPEED MOFSET POWER SUPPLY
- ADJUSTABLE BASS BOOST: 0db / 6dB / 12dB
- LOW PASS CROSSOVER: 50HZ - 250HZ
- HIGH PASS CROSSOVER: 120HZ - 3KHZ
- ADJUSTABLE SUBSONIC FILTER
- SILVER PLATE CONNECTORS
- ACRYLIC MOLDED TERMINALS
- THERMAL PROTECTION
- SHORT CIRCUIT PROTECTION

CSA 1000.4

- RATED POWER: 150 WATTS RMS @ 4 OHM x 4
- RATED POWER: 300 WATTS RMS @ 2 OHM x 4
- PEAK POWER: 600 WATTS
- DYNAMIC POWER: 1200 WATTS
- MINIMUM HARMONIC DISTORTION: >0.01%
- FREQUENCY RESPONSE: 20Hz - 20KHz
- S/N RATIO: >96dB
- INPUT VOLTAGE: 200MV - 8V
- DIMENSIONS (L x W x H): 2" x 10.7" x 8"
- HIGH SPEED MOFSET POWER SUPPLY
- ADJUSTABLE BASS BOOST: 0db / 6dB / 12dB
- LOW PASS CROSSOVER: 30HZ - 250HZ
- HIGH PASS CROSSOVER: 40HZ - 3KHZ
- ADJUSTABLE SUBSONIC FILTER
- SILVER PLATE CONNECTORS
- ACRYLIC MOLDED TERMINALS
- THERMAL PROTECTION
- SHORT CIRCUIT PROTECTION

CSA 2000.2

- RATED POWER: 150 WATTS RMS @ 4 OHM x 2
- RATED POWER: 300 WATTS RMS @ 2 OHM x 2
- PEAK POWER: 600 WATTS
- DYNAMIC POWER: 1200 WATTS
- MINIMUM HARMONIC DISTORTION: >0.01%
- FREQUENCY RESPONSE: 20Hz - 20KHz
- S/N RATIO: >96dB
- INPUT VOLTAGE: 200MV - 8V
- DIMENSIONS (L x W x H): 2" x 11.5" x 8"
- HIGH SPEED MOFSET POWER SUPPLY
- ADJUSTABLE BASS BOOST: 0db / 6dB / 12dB
- LOW PASS CROSSOVER: 50HZ - 250HZ
- HIGH PASS CROSSOVER: 120HZ - 3KHZ
- ADJUSTABLE SUBSONIC FILTER
- SILVER PLATE CONNECTORS
- ACRYLIC MOLDED TERMINALS
- THERMAL PROTECTION
- SHORT CIRCUIT PROTECTION

CSA 3000.1

- RATED POWER: 500 WATTS RMS @ 2 OHM MONO
- RATED POWER: 250 WATTS RMS @ 4 OHM MONO
- PEAK POWER: 1000 WATTS
- DYNAMIC POWER: 2000 WATTS
- MINIMUM HARMONIC DISTORTION: >0.01%
- FREQUENCY RESPONSE: 20Hz - 20KHz
- S/N RATIO: >96dB
- INPUT VOLTAGE: 200MV - 8V
- DIMENSIONS (L x W x H): 2" x 11.5" x 8"
- HIGH SPEED MOFSET POWER SUPPLY
- DASHBOARD BASE REMOTE INCLUDED
- ADJUSTABLE BASS BOOST: 0db / 6dB / 12dB
- ADJUSTABLE SUBSONIC FILTER: 15HZ - 55HZ
- LOW PASS CROSSOVER: 40HZ - 150HZ
- SILVER PLATE CONNECTORS
- ACRYLIC MOLDED TERMINALS
- RCA LINE OUTPUT
- THERMAL PROTECTION
- SHORT CIRCUIT PROTECTION

CSA 4000.1

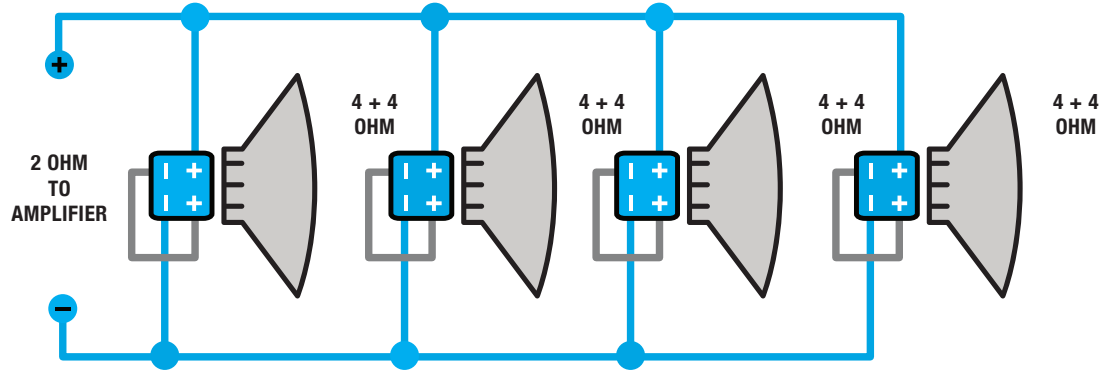
- RMS POWER: 800 WATTS RMS @ 2 OHM MONO
- RATED POWER: 400 WATTS RMS @ 4 OHM MONO
- PEAK POWER: 1600 WATTS
- DYNAMIC POWER: 2400 WATTS
- MINIMUM HARMONIC DISTORTION: >0.01%
- FREQUENCY RESPONSE: 20Hz - 20KHz
- S/N RATIO: >96dB
- INPUT VOLTAGE: 200MV - 8V
- DIMENSIONS (L x W x H): 2" x 13.9" x 8"
- HIGH SPEED MOFSET POWER SUPPLY
- DASHBOARD BASE REMOTE INCLUDED
- ADJUSTABLE BASS BOOST: 0db / 6dB / 12dB
- ADJUSTABLE SUBSONIC FILTER: 15HZ - 55HZ
- LOW PASS CROSSOVER: 40HZ - 150HZ
- SILVER PLATE CONNECTORS
- ACRYLIC MOLDED TERMINALS
- RCA LINE OUTPUT
- THERMAL PROTECTION
- SHORT CIRCUIT PROTECTION

CSA 5000.1

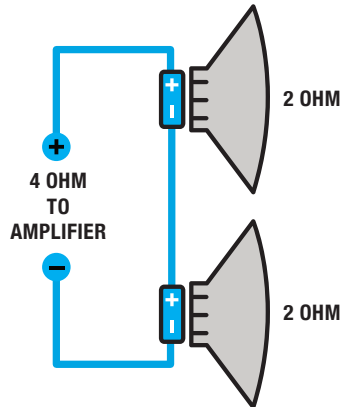
- RMS POWER: 1200 WATTS RMS @ 1 OHM MONO
- RATED POWER: 600 WATTS RMS @ 2 OHM MONO
- PEAK POWER: 2400 WATTS
- DYNAMIC POWER: 3000 WATTS
- MINIMUM HARMONIC DISTORTION: >0.01%
- FREQUENCY RESPONSE: 20Hz - 500Hz
- S/N RATIO: >96dB
- INPUT VOLTAGE: 200MV - 8V
- DIMENSIONS (L x W x H): 2" x 10.7" x 8"
- HIGH SPEED MOFSET POWER SUPPLY
- DASHBOARD BASE REMOTE INCLUDED
- ADJUSTABLE BASS BOOST: 0db / 6dB / 12dB
- ADJUSTABLE SUBSONIC FILTER: 15HZ - 55HZ
- LOW PASS CROSSOVER: 40HZ - 150HZ
- SILVER PLATE CONNECTORS
- ACRYLIC MOLDED TERMINALS
- RCA LINE OUTPUT
- THERMAL PROTECTION
- SHORT CIRCUIT PROTECTION

SPEAKER WIRING CHART

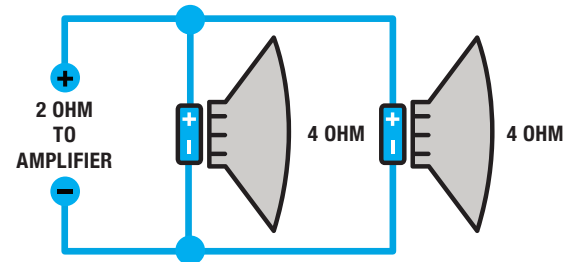
4 X DUAL VC 8 OHM
SPEAKERS WITH
SERIES VOICE COILS,
ALL IN PARALLEL



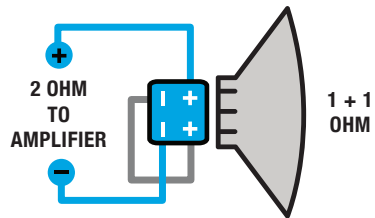
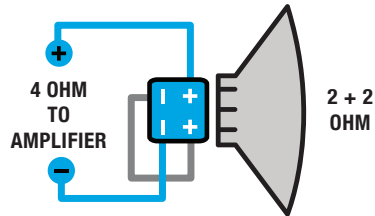
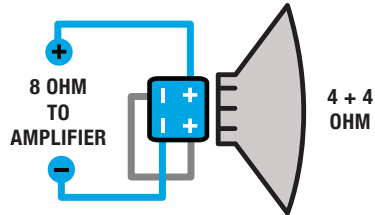
SERIES:
SINGLE VOICE
COIL SPEAKERS



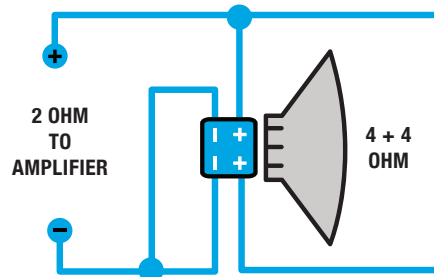
PARALLEL:
SINGLE VOICE
COIL SPEAKERS



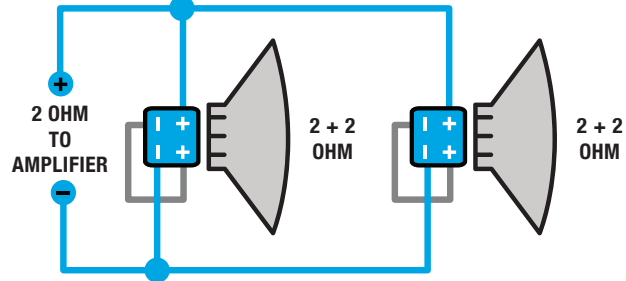
**SERIES:
DUAL VOICE COIL
SPEAKERS**



**PARALLEL:
DUAL VOICE COIL
SPEAKERS**



**2 X DUAL VC 2 OHM SPEAKERS
WITH
SERIES VOICE COILS, ALL IN
PARALLEL**



Please note that the minimum impedance load for single a Momentum CS series amplifier is 2 ohm stereo and 4 ohm mono bridged.

Lower impedance loads will cause overheating and may damage the amplifiers.

Do not mix different impedance speakers in series and / or parallel combinations, as unequal power sharing and acoustic outputs will result.

// Due to constant product improvements, these specifications are subject to change without notice.
Though we tried our best to insure that this manual is free and clear of errors please don't hold us responsible for printing errors. //

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