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HIGH PERFORMANCE POWER AMPLIFIER



CADENCE

- QR 600.1
- QR 1000.1
- QR 2000.1
- QR 80.2
- QR 80.3
- QR 80.4
- QR 80.5



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INSTRUCTION MANUAL

GENERAL PRECAUTIONS

Thank you for purchasing a CADENCE QR series high audio performance amplifier.

CADENCE QR series amplifiers are using the latest technology design. This series of amplifiers contains Class D architecture that significantly improves efficiency, Timbre is exquisite delicate, lowers heat output and current draw. Don't be fooled by the small size. Class D amplifiers make more power for There size then traditional designs making installation a breeze without compromising storage space.

Warning

High powered audio systems in a vehicle are capable of generating 'Live Concert' high levels of sound pressure. Continued exposure to excessively high volume sound levels may cause hearing loss or damage. Also, operation of a motor vehicle while listening to audio equipment at high volume levels may impair your ability to hear external sounds such as; horns, warning signals, or emergency vehicles, thus contributing to a potential traffic hazard. In the interest of safety, we recommend listening at lower volume levels while driving.

Installation Instructions

We build amplifiers that 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. Paying 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 electronic and mechanical systems contact a professional installer. Paying a qualified installer is almost always cheaper than paying a dealership to repair your car.

Locating the Amplifier

The amplifiers must be securely mounted to a solid surface. Please select a dry location in the trunk or passenger compartment only. Don't mount the amplifier to any area that may have excessive 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 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 an appropriate metal 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.

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

Running 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. Depending on which of the CADENCE QR amplifiers you are connecting, use the right size of power and ground wires. We recommend a fuse to be installed on the power wire within 30-40cm of the battery for safety.

Setting the Gains

So you ' re worried that your 8 Volt output head unit will be too much for the Our 4 Volt input stage.

Our Amplifiers input stage is rated to 4 volts RMS @ 1KHz without clipping. Music is very dynamic. Nothing like a 1KHz 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 always set the head unit to 70% of maximum volume.

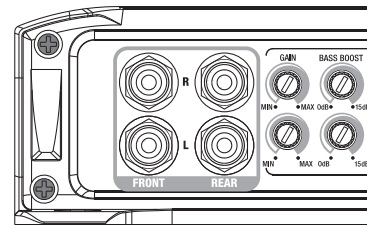


FUNCTIONAL DESCRIPTION

Input Section

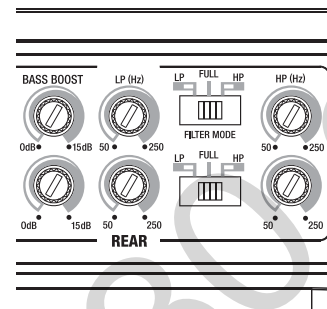
Because of the wide range of head unit output configurations all our amplifiers have an adjustable input sensitivity or 'Gain'. The gain is not a volume or a power limiting control like a throttle. It makes the amp more sensitive to input from the stereo. With the gain up the amp will reach full output at a lower volume setting on the deck. At higher gain setting 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.



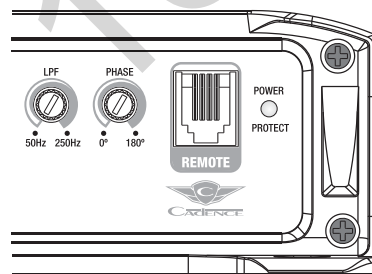
Crossover Controls

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 needed 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.



Phase Shift Control

Timing is everything." In a typical stereo installation the mid bass speakers are in the front of the car between 90-150cm from your ear. The sub woofer is all the way in the back up to 200-300cm away, sometimes more. The phase control can be used to compensate for this difference in distance by causing the sound from both speakers to arrive at your ear at the same time. This can really help bring the bass up from making the system sound more like a live performance.



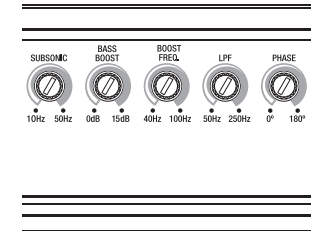
3

FUNCTIONAL DESCRIPTION

Bass Boost

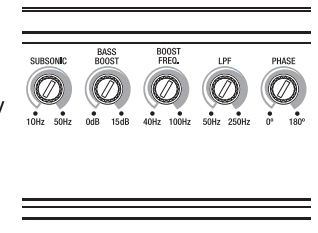
The series amplifier feature a Quasi Parametric Bass EQ Bass Boost with adjustments for both Boost Level and Boost Frequency. Begin your adjustments at low volume. Turn the Bass Boost Level control about 1/2 way up. Next, turn the Bass Boost Frequency up and down. This will take some tweaking but try to find the setting that gives you a richer and fuller Sound without over working the subwoofer.

Play several different kinds of music to test your adjustment. You may find you have to go back and make some changes and compromises to get it sounding right with an assortment of music. Use Bass Boost carefully. The Demands on power output are tremendous. Try to minimize the use by changing woofer Position or the enclosure size.



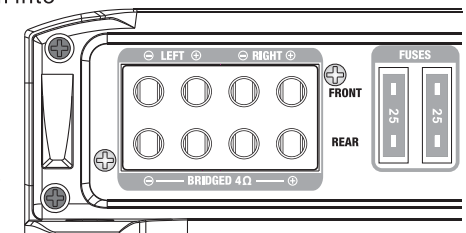
Subsonic Filter

A Subsonic filter acts like a crossover but at very low frequencies. It removes sounds that are so low in frequency that the speaker cannot reproduce them. You see the cone moving but hear no sound. This can be very hard on your woofer especially at high power. If you are using a ported subwoofer enclosure at high power you should use a Subsonic Filter to limit cone movement at Very low frequencies.



Speaker output

This amplifier is a multi channel amplifier design. Meaning it has more than one channel of speaker outputs. It is equipped with a large block style terminal for speaker connection. Make this connection carefully and neatly. Strip your wire back and twist the exposed leads and insert them into the block terminal while being careful that there is no loose or frayed strands of wire and tighten the Allen head screws down on the terminal till the wire is tightly secured in place. If the wires ever come in contact with each other the amplifier will go into protection.



Know your total ohm load before You make any connections.

4

Installation Instructions

1. Before you start, disconnect the negative cable from the car battery. Tape up the end so it is isolated from the battery.
2. Run an appropriate gauge wire from the battery to the amplifier. Plan this part of the installation carefully. This cable will carry very high current. If it should short to the body and it is not properly fused it could catch fire.
3. Connect the power wire to the battery using a fuse capable of the total current load of all amplifiers connected. Don't install the fuse yet. Wait until the end of the installation. Locate the fuse as close as possible to the battery. If the fuse is further than 45cm (wire length) from the battery you should re-evaluate the wire and fuse location.
4. Find the closest clear metal area to the amp for a ground. Sand, grind or scrape all paint and undercoating from the body and screw the ground securely in place.

It is advisable to test the ground with an ohmmeter between the Ground cable and the negative battery cable to insure a good low resistance connection. Some alloys used in modern cars do not offer the best ground. If you believe this is the case consult with the vehicle manufacturer.

5. Run the speaker wire to the speakers. It is advised that you leave some extra wire at this point. You can "clean it up" later.
6. If you have already done so, mount the amp now.
7. Connect the power and ground to the amplifier.

Only after this step should you install the fuse at the battery.

Installation Instructions

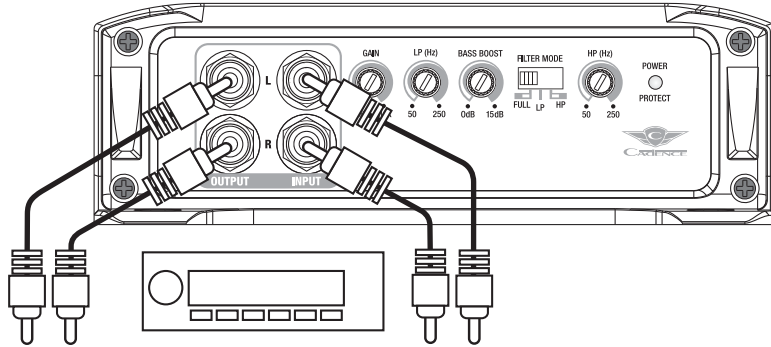
8. Connect the remote wire from the head unit to the amplifier. Now is a good time to turn on the amp for the first time. Make sure it turns on properly and does not go into protection.
9. Connect the speaker wires to the amp and speakers (make sure the amp is off first). Make sure the polarity (+ and-) is correct.
10. Connect the RCA cables to the amp.
11. Double check the amplifier controls at this time. Make sure everything is set correctly for your system.
12. Now you're ready to play it for the first time. It is best to leave the gain all the way down at first. Start with the head unit volume low and work your way up.
13. Now you can tune the amp. Take your time and make only one adjustment at a time. It may take some time to get the system fully adjusted. During this time the amp is drawing current from the battery. You should check the battery voltage from time to time and re-charge it if it gets low. That's it. You're done. Now have fun.

The Typical Connecting Scheme

QR 80.2 STEREO 2CH FULL RANGE

Low Level Input Wiring

Low-level (RCA) input wiring is preferred for best audio performance. Always use a high-quality RCA cable for best audio performance.

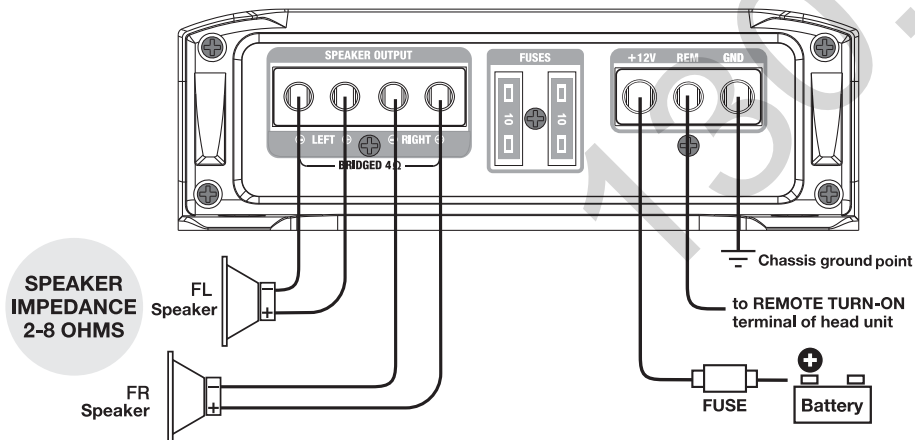


To another input of the Car Audio power amplifier

To FRONT Audio Outputs of head unit or signal processor

Power and Speaker Wiring

2 Channel Mode



SPEAKER IMPEDANCE 2-8 OHMS

FL Speaker

FR Speaker

Chassis ground point

to REMOTE TURN-ON terminal of head unit

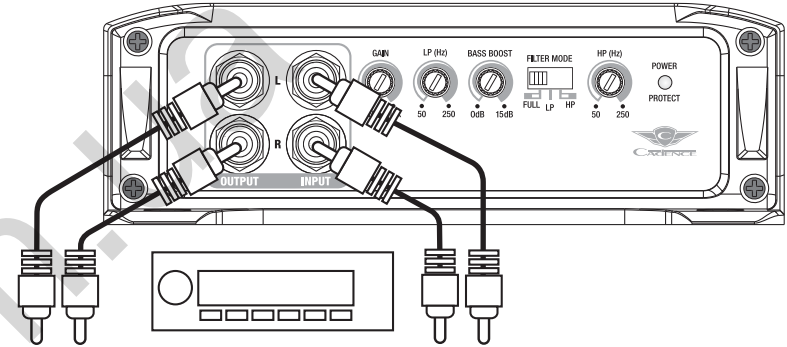
FUSE Battery

The Typical Connecting Scheme

QR 80.2 BRIDGED MONO SUBWOOFER

Low Level Input Wiring

Low-level (RCA) input wiring is preferred for best audio performance. Always use a high-quality RCA cable for best audio performance.

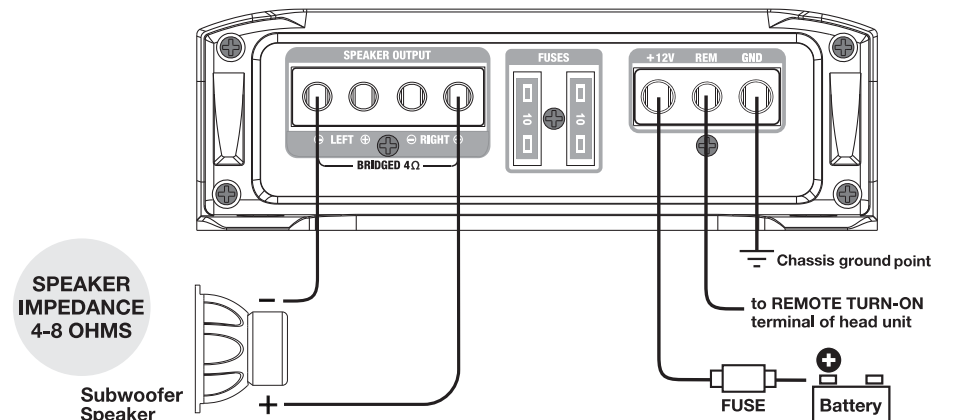


To another input of the Car Audio power amplifier

To FRONT Audio Outputs of head unit or signal processor

Power and Speaker Wiring

Bridged Mode



SPEAKER IMPEDANCE 4-8 OHMS

Subwoofer Speaker

Chassis ground point

to REMOTE TURN-ON terminal of head unit

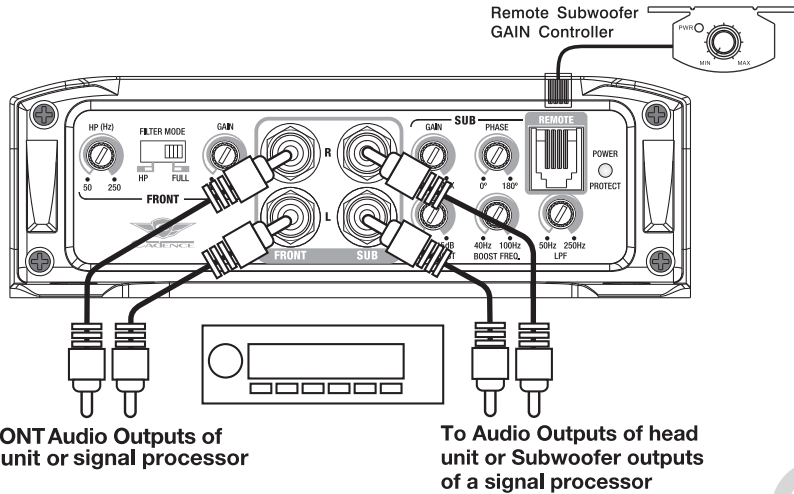
FUSE Battery

The Typical Connecting Scheme

QR 80.3 STEREO 3CH FULL RANGE

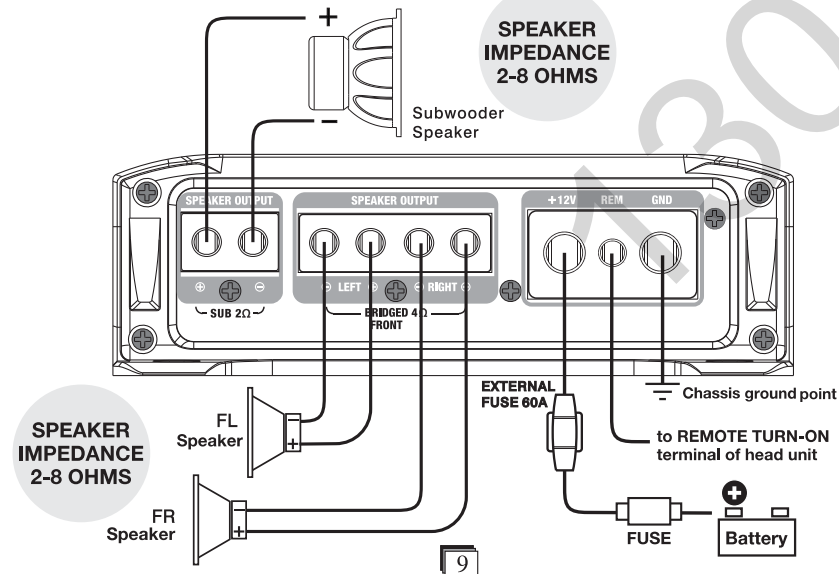
Low Level Input Wiring

Low-level (RCA) input wiring is preferred for best audio performance. Always use a high-quality RCA cable for best audio performance.



Power and Speaker Wiring

3 Channel Mode



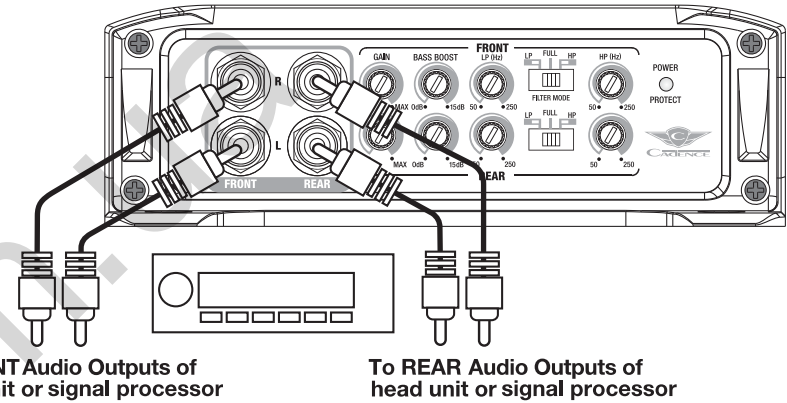
9

The Typical Connecting Scheme

QR 80.4 STEREO 4CH FULL RANGE

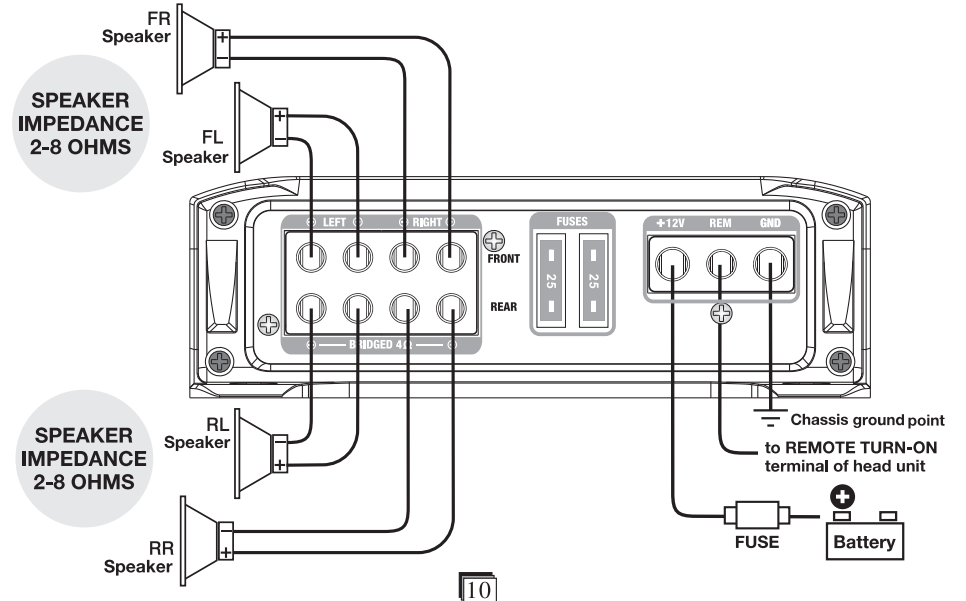
Low Level Input Wiring

Low-level (RCA) input wiring is preferred for best audio performance. Always use a high-quality RCA cable for best audio performance.



Power and Speaker Wiring

4 Channel Mode



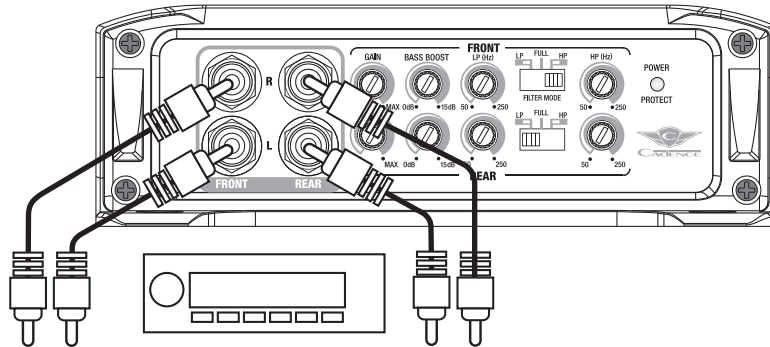
10

The Typical Connecting Scheme

QR 80.4 STEREO 2CH HPF WITH BRIDGED MONO SUBWOOFER

Low Level Input Wiring

Low-level (RCA) input wiring is preferred for best audio performance. Always use a high-quality RCA cable for best audio performance.

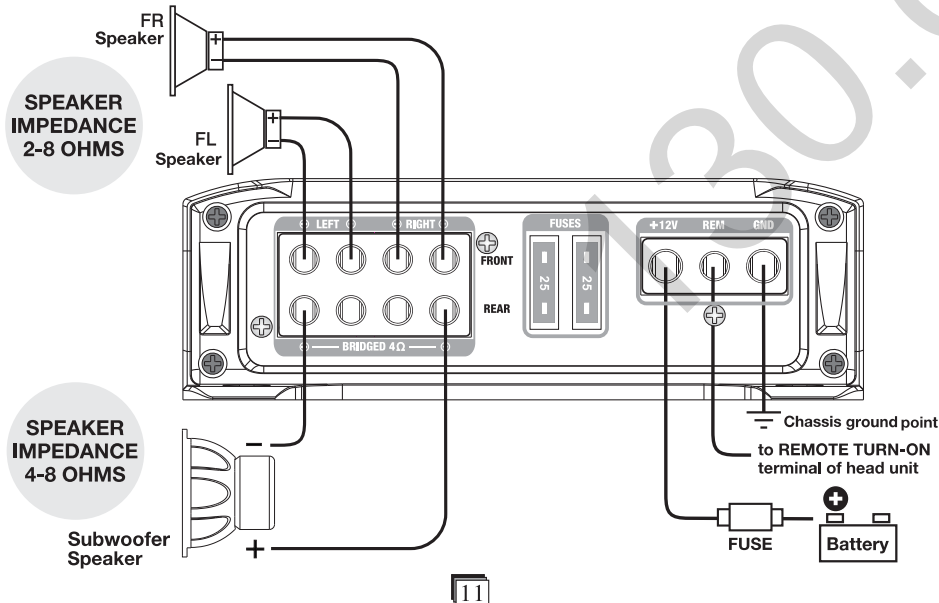


To FRONT Audio Outputs of head unit or signal processor

To Audio Outputs of head unit or Subwoofer outputs of a signal processor

Power and Speaker Wiring

3 Channel Mode

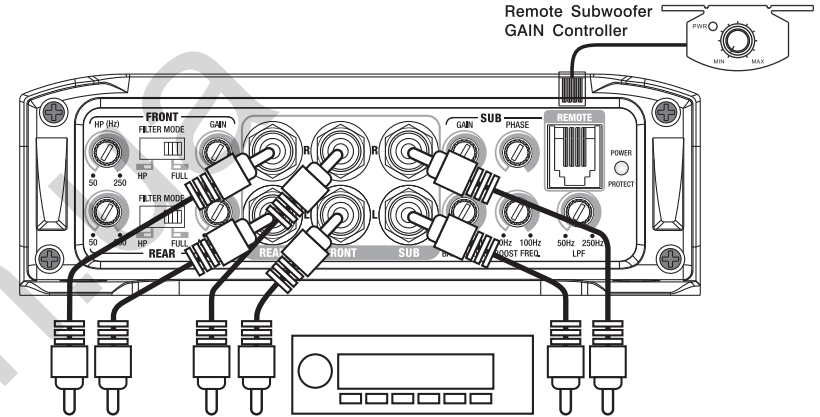


The Typical Connecting Scheme

QR 80.5 STEREO 4CH FULL RANGE WITH MONO SUBWOOFER

Low Level Input Wiring

Low-level (RCA) input wiring is preferred for best audio performance. Always use a high-quality RCA cable for best audio performance.



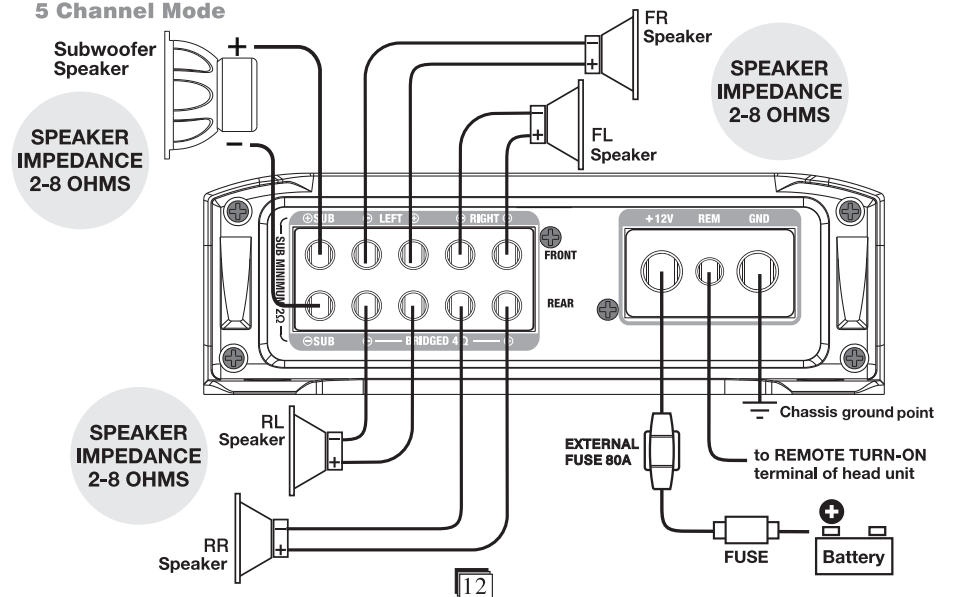
To REAR Audio Outputs of head unit or signal processor

To FRONT Audio Outputs of head unit or signal processor

To Audio Outputs of head unit or Subwoofer outputs of a signal processor

Power and Speaker Wiring

5 Channel Mode

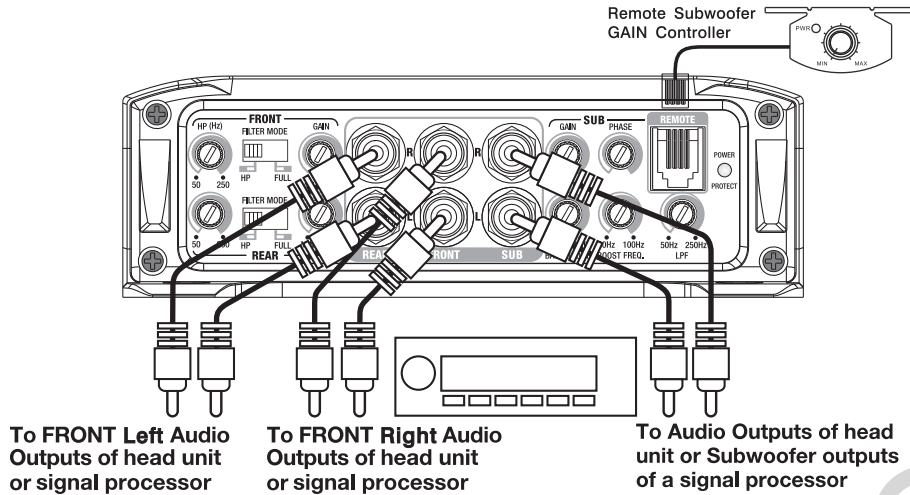


The Typical Connecting Scheme

QR 80.5 STEREO BRIDGED 2CH HPF WITH MONO SUBWOOFER

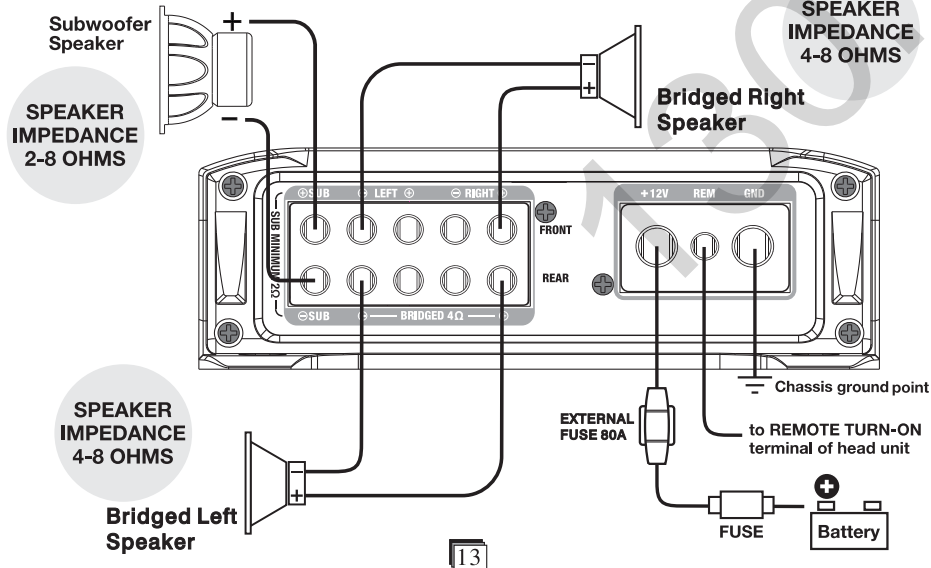
Low Level Input Wiring

Low-level (RCA) input wiring is preferred for best audio performance. Always use a high-quality RCA cable for best audio performance.



Power and Speaker Wiring

3 Channel Mode

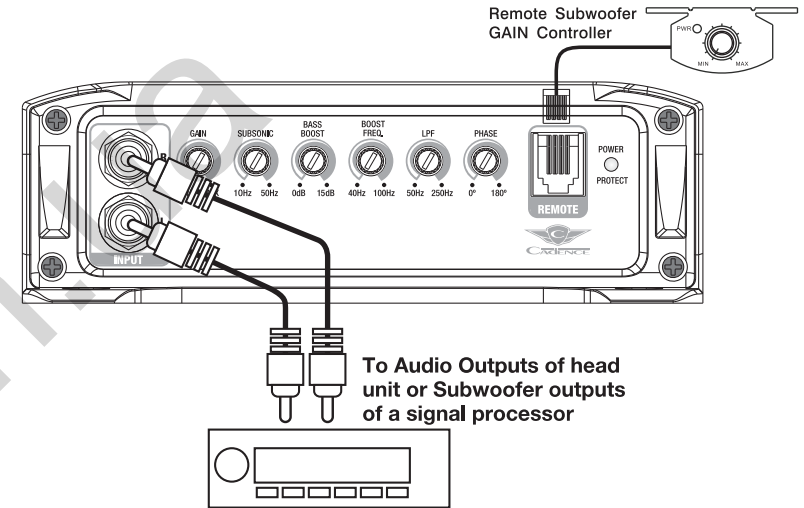


The Typical Connecting Scheme

QR 600.1 1 OHM STABLE MONO SUBWOOFER

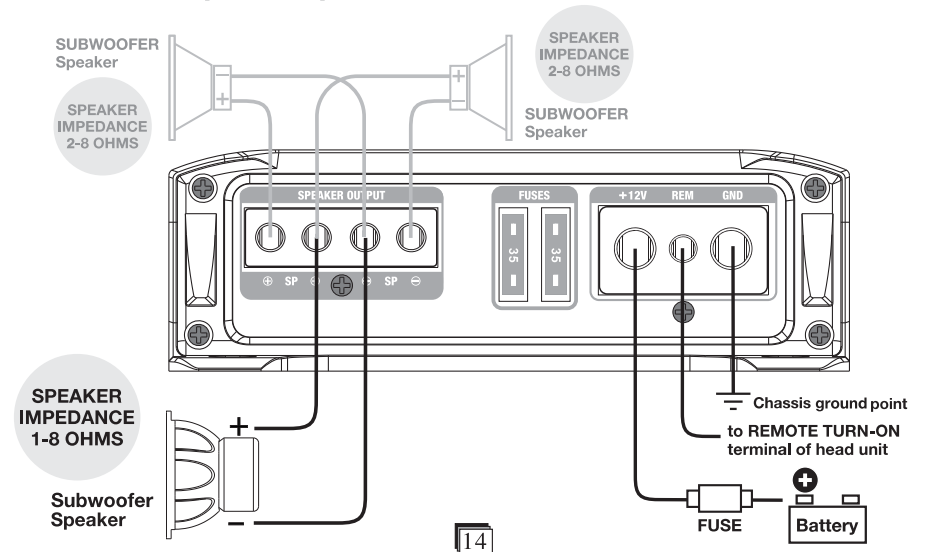
Low Level Input Wiring

Low-level (RCA) input wiring is preferred for best audio performance. Always use a high-quality RCA cable for best audio performance.



Power and Speaker Wiring

One and Two (optional) Speaker

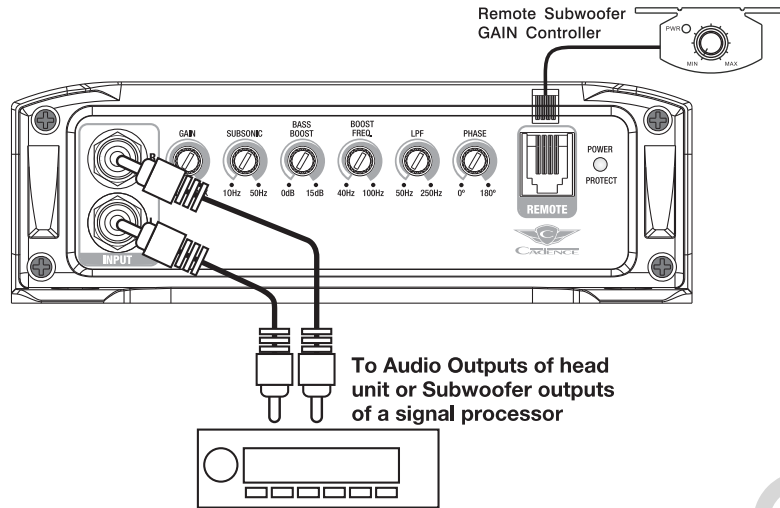


The Typical Connecting Scheme

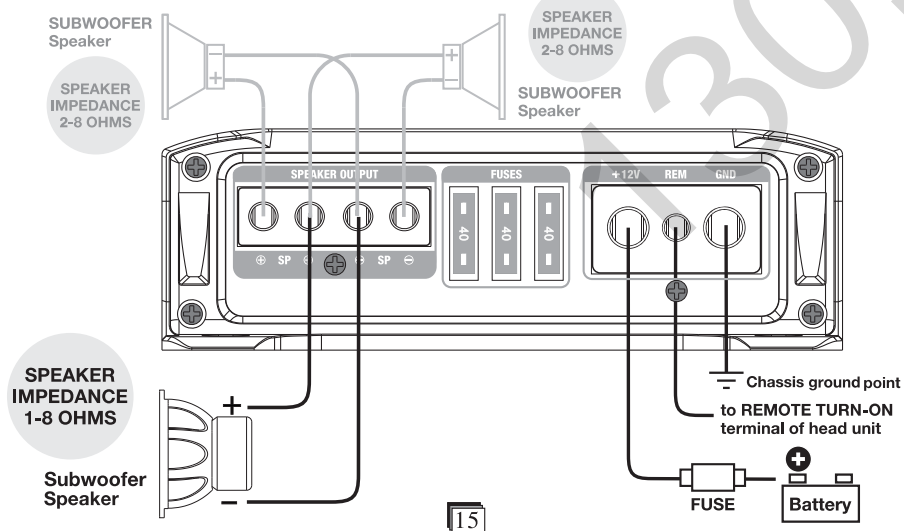
QR 1000.I | 1 OHM STABLE MONO SUBWOOFER

Low Level Input Wiring

Low-level (RCA) input wiring is preferred for best audio performance. Always use a high-quality RCA cable for best audio performance.



Power and Speaker Wiring One and Two(optional) Speaker

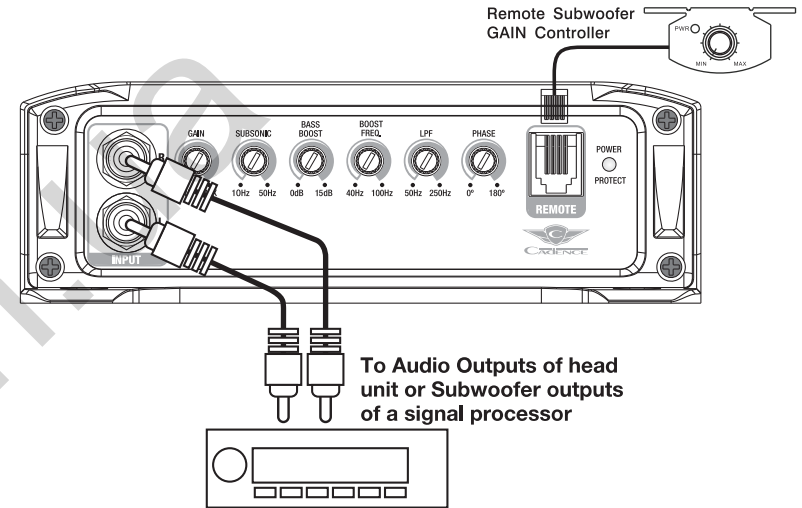


The Typical Connecting Scheme

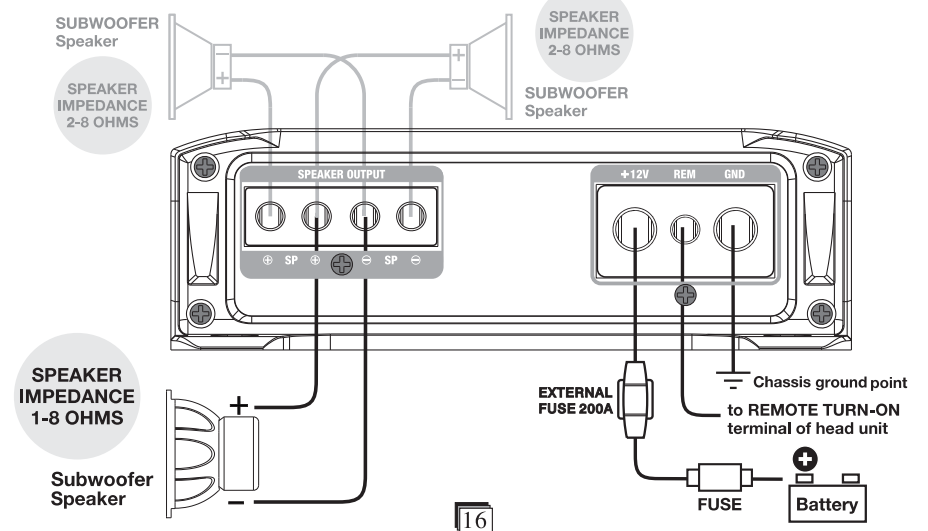
QR 2000.I | 1 OHM STABLE MONO SUBWOOFER

Low Level Input Wiring

Low-level (RCA) input wiring is preferred for best audio performance. Always use a high-quality RCA cable for best audio performance.



Power and Speaker Wiring One and Two(optional) Speaker



TROUBLESHOOTING

Before removing your amplifier, refer to the list below and follow the suggested procedures. Always test the speakers and their wires first.

AMPLIFIER WILL NO POWER UP.

Check for good ground connection.
Check that remote DC terminal has at least 8.5Vdc.
Check that there is battery power on the "+" terminal.
Check all fuses.
Check that protection LED is not lit. If it is lit, shut off amplifier briefly and then power it.

HISS OR ENGINE NOISE (ALTERNATOR WHINE) IN SPEAKER

Disconnect all RCA inputs to the amplifier. If hiss/noise disappear, then plug in the component driving the amplifier and unplug its input. If hiss/noise disappears, go on until the faulty/noise component is found. It is best to set the amplifier input level as insensitive as possible. The best subjective signal to noise ratio is obtained this way. Try to derive as high signal from the head unit as possible.

PROTECTION LED COMES ON WHEN THE AMPLIFIER IS POWERED UP

Check for shorts on speaker leads.
Check that the volume control on the head unit is turned down low.
Remove speaker leads, and reset the amplifier. If the protection LED still comes on, then the amplifier is faulty.

AMPLIFIER(S) GETS VERY HOT

Check that the minimum speaker impedance for that model is correct.
Check for speaker shorts.
Check that there is good airflow around the amplifier. In some applications, an external cooling fan may be required.

DISTORTED SOUND

Check that the level control is set to match the signal level of the head unit.
Check that all crossover frequencies have been properly set.
Check after short circuit on the speaker leads.
Check after short circuit on the signal cables.

HIGH SQUEAL NOISE FROM SPEAKERS

This is always caused by a poorly-grounded RCA patch cord.

PRODUCT SPECIFICATIONS

ITEM	MODEL	QR 80.2	QR 80.3	QR 80.4	QR 80.5	QR 600.I	QR 1000.I	QR 2000.I
RMS POWER @ 4Ω		2x80W	2x80W +1x400W	4x80W	4x80W +1x400W	1x250W	1x400W	1x650W
RMS POWER @ 2Ω		2x130W	2x130W +1x400W	4x130W	4x130W +1x400W	1x400W	1x650W	1x1250W
RMS POWER @ 1Ω		N/A	N/A	N/A	N/A	1x600W	1x1000W	1x2000W
RMS POWER BRIDGED@ 4Ω		1X255W	1x255W +1x400W	2X255W	2x255W +1x400W	N/A	N/A	N/A
Total Harmonic Distortion		0.06%	0.07%	0.06%	0.07%	0.05%	0.05%	0.05%
S/N Ratio(A WTG 10W/4Ω)		>90dB	>90dB	>90dB	>85dB	>85dB	>85dB	>85dB
Variable Gain Rangel		0.35V-8V	0.2V-7V	0.2V-7V	0.2V-7V	0.25V-8V	0.15V-7V	0.35V-8V
Frequency Response		20Hz-30KHz	10Hz-30KHz	20Hz-30KHz	10Hz-30KHz	10Hz-250Hz	10Hz-250Hz	10Hz-250Hz
LPF Variable Crossover		50-250Hz &24dB/Oct	50-250Hz &24dB/Oct	50-250Hz &24dB/Oct	50-250Hz &24dB/Oct	50-250Hz &24dB/Oct	50-250Hz &24dB/Oct	50-250Hz &24dB/Oct
HPF Variable Crossover		50-250Hz &12dB/Oct	50-250Hz &12dB/Oct	50-250Hz &12dB/Oct	50-250Hz &12dB/Oct			
Variable Bass Boost		0-15dB at45Hz	0-15dB	0-15dB at45Hz	0-15dB	0-15dB	0-15dB	0-15dB
Variable Boost Frequency			40-100Hz		40-100Hz	40-100Hz	40-100Hz	40-100Hz
Phase Adjustable			0°-180°		0°-180°	0°-180°	0°-180°	0°-180°
Variable Subsonic						10-50Hz	10-50Hz	10-50Hz
Damping Factor		>150	>150	>150	>150	>200	>200	>200
Fuse(Fast)		10A*2	EXT.60A*1	25A*2	EXT.80A*1	35A*2	40A*3	EXT.200A*1
Dimensions(LxWxH)mm		190x160x52	310x160x52	236x160x52	356x160x52	270x160x52	310x160x52	450x160x52

Specifications subject to change without notice