

OWNER'S MANUAL



DEQ-230  
30 BAND EQUALIZER



**CONGRATULATIONS**

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Thank you for choosing *PrecisionPower*<sup>™</sup> audio equipment. At *PrecisionPower* we proudly design and engineer the world's finest audio products. Our award winning products utilize innovative design and technology to consistently deliver ***Absolutely State of the Art***<sup>™</sup> performance, sound quality, reliability, and value. This *PrecisionPower* product reflects our commitment to offer you unparalleled versatility and quality for years of dependable service and listening enjoyment.

**SERVICE**

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Do not attempt to service *PrecisionPower* products yourself. Performing exploratory surgery on your audio equipment yourself will void the warranty. Many parts of your *PrecisionPower* gear are custom built to our specifications. Our factory parts are not made available to anyone else nor are they for sale. Our goal is to make sure that your *PrecisionPower* product will always sound as good as the day it was purchased. Contact your authorized *PrecisionPower* dealer about obtaining any warranty service through *PrecisionPower*. (See Warranty inside back cover.)

<b>FOR YOUR RECORDS:</b>
<b>MODEL:</b>
<b>SERIAL NUMBER:</b>
<b>PURCHASE DATE:</b>

**CAUTION**

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Caution! The extended use of a high powered audio system may result in hearing loss or damage. While *PrecisionPower* systems are capable of "Concert Level" volumes with incredible accuracy, they are also designed for you to enjoy at more reasonable levels all of the sonic subtleties created by musicians. Please observe all local sound ordinances.

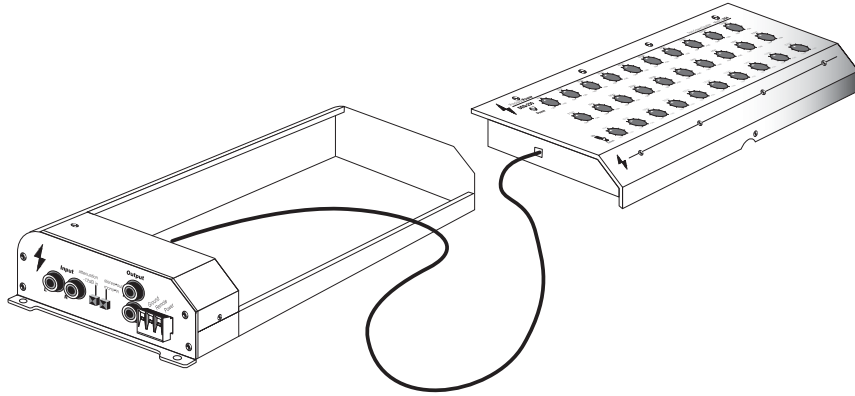
## *FEATURE / SPECIFICATIONS*

- Stereo/Mono 1/3 Octave Equalizer
- Detachable Control Panel with 20 ft. Extension Cable for Remote Adjustment
- 30 Center Detented Controls with  $\pm 12$ dB gain
- Balanced Differential Input Stage
- Input Attenuation Switch
- Mono/Stereo Switch
- Defeat Switch
- Gold RCA input and output connectors
- PWM Power Supply
- Completely Designed and Engineered in the USA

## *FEATURE / SPECIFICATIONS*

● Signal-to-Noise Ratio	>102dB
● Total Harmonic Distortion (1KHz, 1VRMS)	0.017%
● Boost/Cut Range	$\pm 12$ dB
● Maximum Input Voltage (EQ Defeated)	4VRMS
● Maximum Output Voltage	8VRMS
● Supply Voltage	11-15 VDC
● Frequency Centers	25Hz, 31.5Hz, 40Hz, 50Hz, 63Hz, 80Hz, 100Hz, 126Hz, 156Hz, 200Hz, 250Hz, 320Hz, 400Hz, 500Hz, 635Hz, 800Hz, 1KHz, 1.27KHz, 1.6KHz, 2KHz, 2.5KHz, 3.2KHz, 4KHz, 5KHz, 6.4KHz, 8KHz, 10KHz, 12.8KHz, 16KHz, 20KHz
● Dimensions (LxWxH)	15.7" x 5.065" x 1.783"

## REMOTE TUNING FEATURE



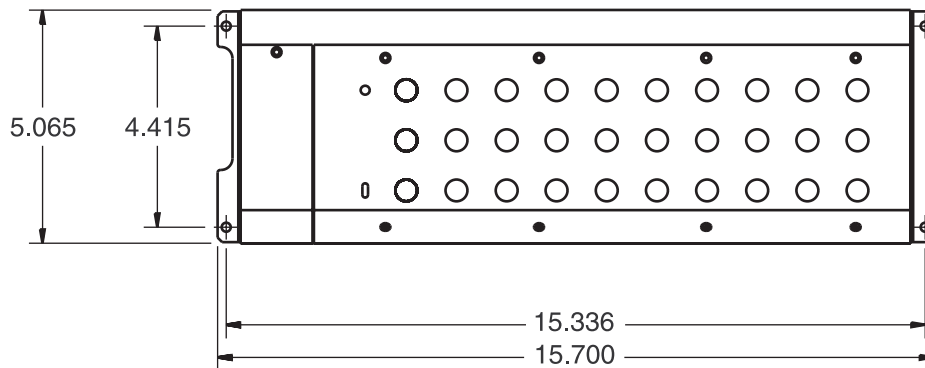
The DEQ-230's detachable control panel design greatly simplifies system tuning. It allows real time adjustment of system equalization from the front seat or outside the vehicle. In order to operate the DEQ-230 in this mode, simply remove the Allen head screw (located to the right of the thumb notch on the front bezel) that holds the main control panel to the docking bay, and carefully remove the main control panel. You will notice that it is connected to the docking bay via a short eight conductor phone cord. Make sure that the power is off! Remove the control panel, disconnect the short cord at both ends and then replace it with the 20 ft. cable (supplied). After plugging the control panel into the docking bay, turn power back on, and begin your pink noise analysis, or make final adjustments to sound quality from the front seat.

## MOUNTING

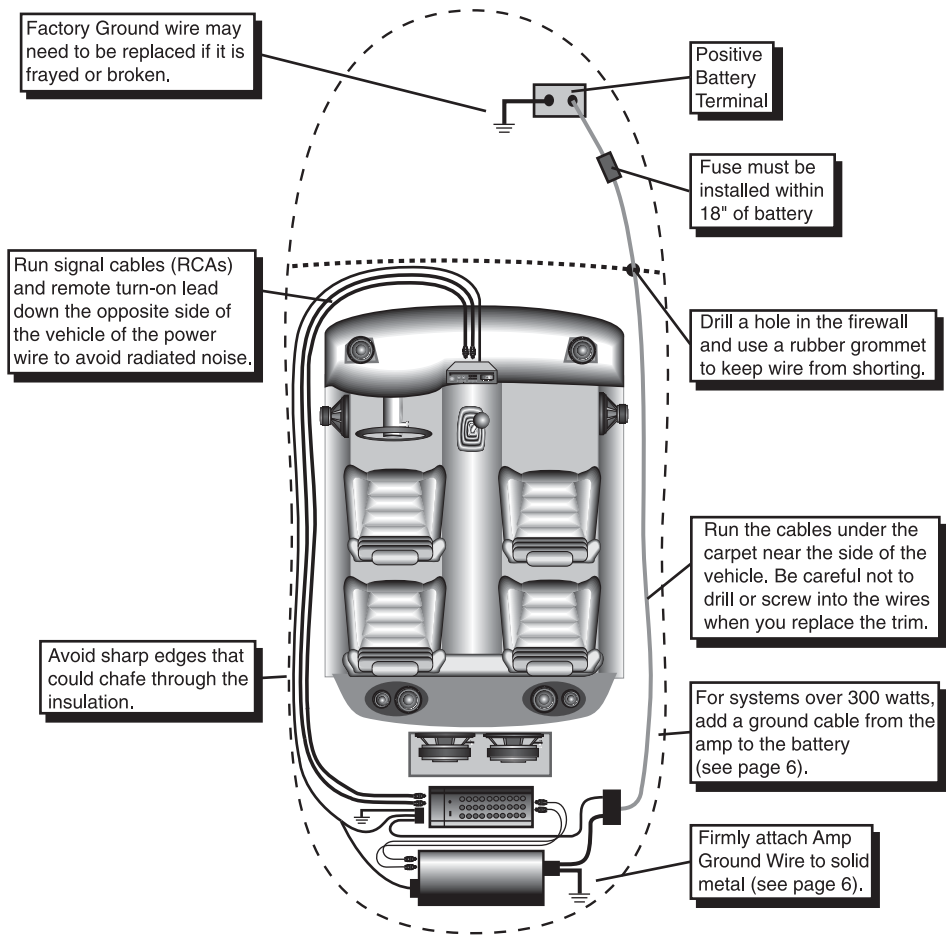
**NOTE:** Before beginning, disconnect the negative (-) terminal of the battery prior to working on the positive (+) terminal to prevent an electrical short to ground. This is important, unless you want to spend the rest of your life with a nickname like "Sparky" or "Smokey." Reconnect the negative terminal only after all connections have been made.

To prevent damage to the equalizer while driving, mount it in a secure place. Choosing the appropriate location will depend upon your vehicle and the complexity of your system design. Typical mounting locations include the trunk and passenger compartment (floor or under seat). Never mount the equalizer in a location that would subject it to immersion or exposure to water.

Once a location has been chosen, securely mount the DEQ-230 with four mounting screws. **Be Careful!** Inspect the area underneath to be sure you are not drilling into wires, brake or fuel lines, etc. that could be damaged by the drill bit or screws.



# WIRING



## WIRING

The next step is to connect the Power, Ground, and Remote wires to your DEQ-230. The power wire should run from the mounting location through the vehicle to the battery or power distribution block. Avoid sharp corners, creases, and sharp body parts. When passing through any metal wall (i.e. firewall etc.), a grommet must be used to prevent the wire from chaffing and shorting to ground.

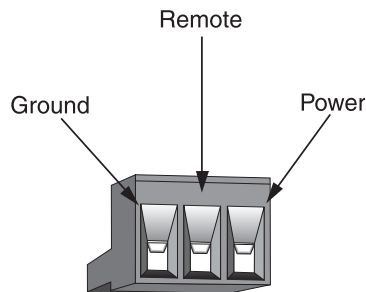
The ground wire should be of the same gauge as the power wire. As a rule of thumb, use as short a length of wire as possible.

Find a location near the equalizer that is metal (the floor is ideal) and clean an area about the size of a quarter to bare metal. Drill a pilot hole in the middle of this area. **Be Careful!** Inspect the area underneath to be sure you are not drilling into wires, brake or fuel lines, etc. Terminate the wire with a ring connector and attach it to the bare metal using a #8 sheet metal screw and washer (not supplied). We suggest crimping and/or soldering this connection. After the connection is complete, coat the area with silicone or some similar material to prevent rust from developing.

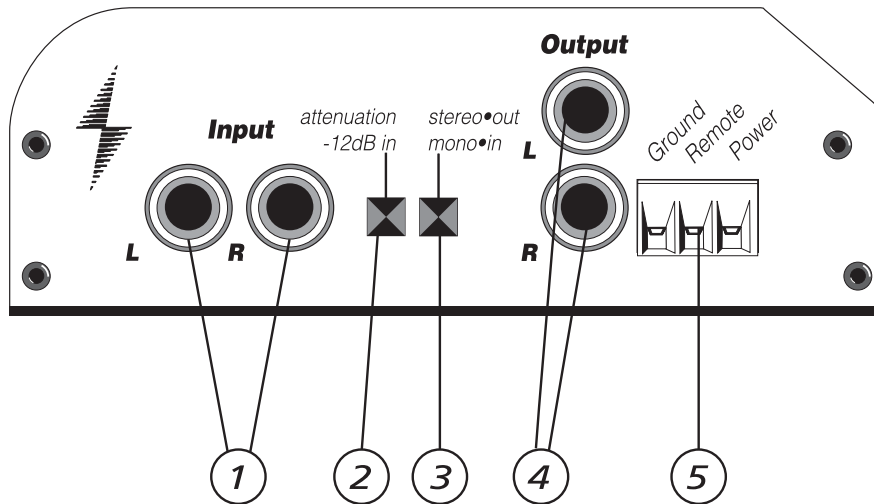
Finally, the remote wire needs to run to the amplifier remote or power antenna lead of the head unit. This wire supplies a 12 volt signal to the DEQ-230 when the main system is activated.

Once you have routed the power, ground, and remote wires through the vehicle, it is time to connect the wires to the DEQ-230. Be sure that you have not reconnected the ground cable to the negative post of the battery.

Cut off excess wire and, using wire strippers, strip the power, ground and remote cables about 1/8 inch. Locate the power, ground, and remote **Powerlock™** connector (supplied). On the top of the connector are three slotted screws. With a small flat-bladed screwdriver, loosen the screws before attempting to insert the cables. After you have inserted the stripped end of each cable into the connector, secure it by tightening the associated screw. Check that each connection is tight. If the wires are secure, the connector may be plugged into the DEQ-230.



## WIRING



- 1. INPUT-**  
Connect RCA cables from your head unit or other signal source here.
- 2. Attenuation -**  
Push this switch in to accept high level RCA inputs (up to 8v) or direct speaker lead inputs from common grounded (not high powered) headunits. See diagram below for wiring.
- 3. Stereo/Mono Switch -**  
Push this switch IN to send Left Input to both channels of the **DEQ-230** for Mono operation. Leave the switch OUT for Stereo operation.
- 4. OUTPUT -**  
Connect RCA cables to your Preamp, Crossover or Amplifier here.
- 5.** After connecting Ground, Remote, and Power wires, plug in the **POWERLOCK™** connector here.



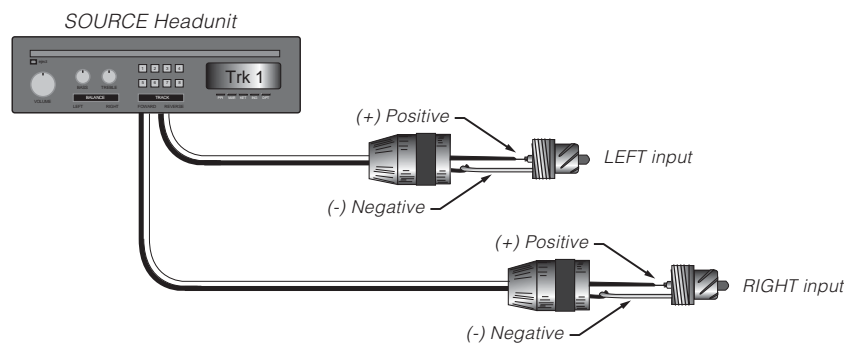
## ADJUSTMENTS

The **DEQ-230** Equalizer puts an incredible amount of control in your hands. Correctly adjusted, it can solve many of the problems you will encounter along your road to perfect sound. Incorrectly adjusted, it can cause just as many problems. By following these guidelines, you will avoid common pitfalls in system tuning and get your sound quickly dialed in. We recommend that you use a Real Time Analyzer (RTA) to speed things up, but it is possible to tune your system without it.

- 1) With the system turned OFF, remove the control panel from the chassis of the **DEQ-230**, replace the short connecting cable with the 20' cable, and take the control panel to the adjusting location (either inside the car or next to the RTA).  
**NOTE:** If you are using a Real Time Analyzer (RTA), go to step 2. If not, go to step 8.
- 2) The first step is to locate a suitable source of "pink noise." A good choice would be the current IASCA competition reference disc. Also, some RTAs have a built-in pink noise source. Ideally, the pink noise should play through your head unit, allowing you to compensate for any frequency response changes caused by it, or anything else, before the amplifiers.
- 3) Next, place the microphone from the RTA in the driver's seat at approximately head level. Initially, set the analyzer to read at 3dB per step, and set the speed of the RTA's readout to "medium." Turn on your system and start the pink noise. Raise or lower the volume until you can see all (or most) of your frequency response on the RTA scale (a little above or below is OK). Make sure all of the equalizer's frequency controls are at zero and look at the RTA screen.
- 4) You are trying to achieve a target frequency response, or "curve" that reflects your preference. You might think that a perfectly straight line would be best, but it really doesn't sound very good. Instead, shoot for a curve that starts about 9dB up at the low frequencies (25Hz to about 100Hz) dropping gently to 0dB in the midrange (250Hz to 3KHZ), then dropping gently to -9dB at 16KHZ and 20KHZ.
- 5) If electronic crossovers are used, any large frequency sections corresponding to your crossover points that are low or high should be brought in line using crossover level controls or amp gain adjustments, not with the equalizer.
- 6) Beginning at either the lowest or the highest frequency, adjust the control on the **DEQ-230** that corresponds to a large peak or dip on the RTA display until it moves into line with adjacent frequencies. Move to the next frequency and repeat until you run out of frequencies to adjust. Try to remove the peaks before filling the dips. Periodically, while you are making adjustments, compare the new curve you are making to the system in an unequalized state by using the defeat switch on the lower left corner of the control panel. This allows you to compare your original starting point to the present state of equalization in the system.

## ADJUSTMENTS

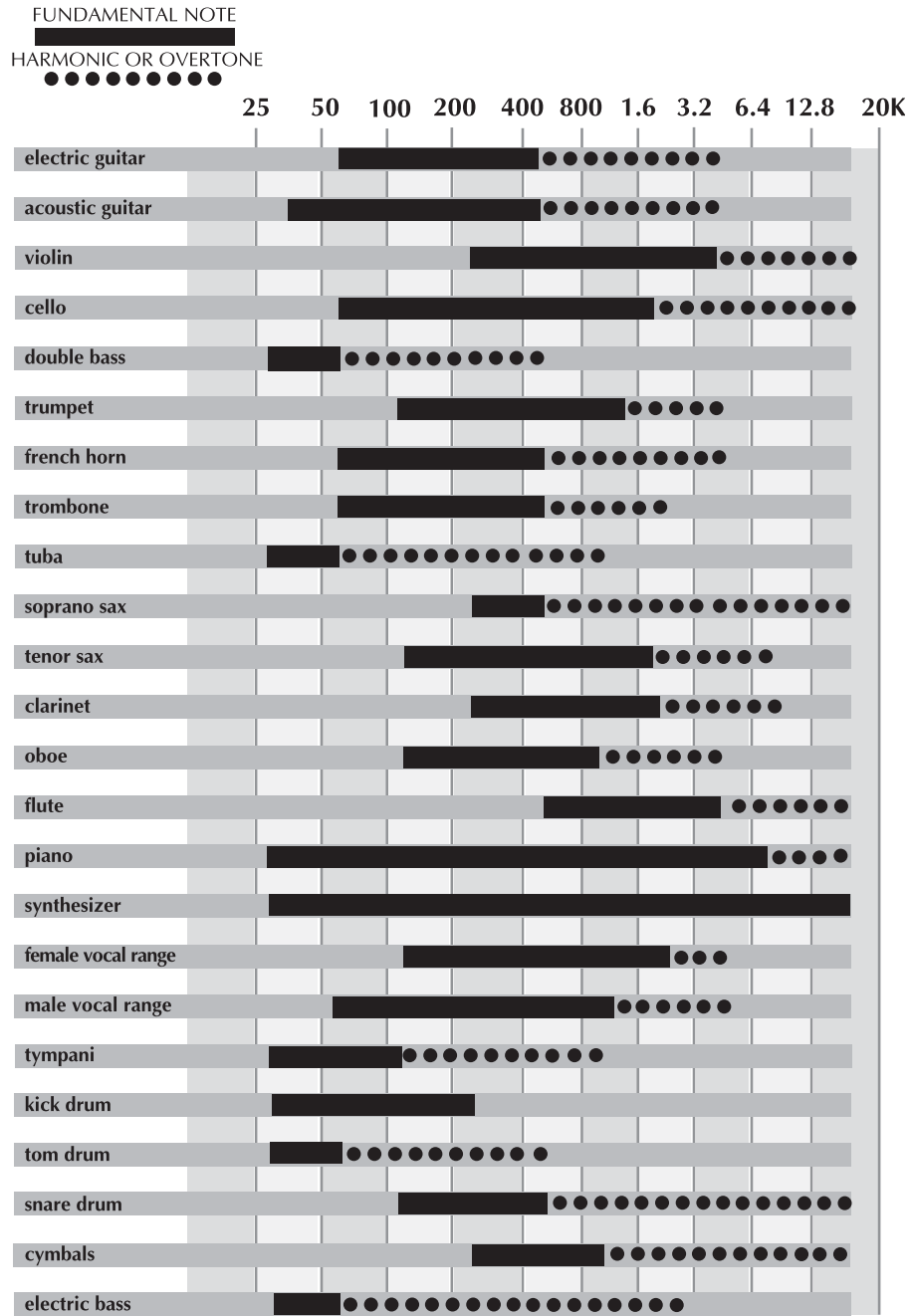
- 7) Play your favorite music. If the sound isn't what you're looking for, go back to the pink noise and smoothly adjust your curve for more bass, less midrange or whatever you think will correct the sound. Remember that this is your system don't let someone else tell you how it should sound! When the sound is close to what you want, move to step 8.
- 8) Play several different music tracks. If you hear an instrument or voice, or other sound that is too loud, find the sound on the chart on page 9. This will give you clues as to what frequencies need to be adjusted on the **DEQ-230**. (If you have already tuned using an RTA, this step is icing on the cake.)



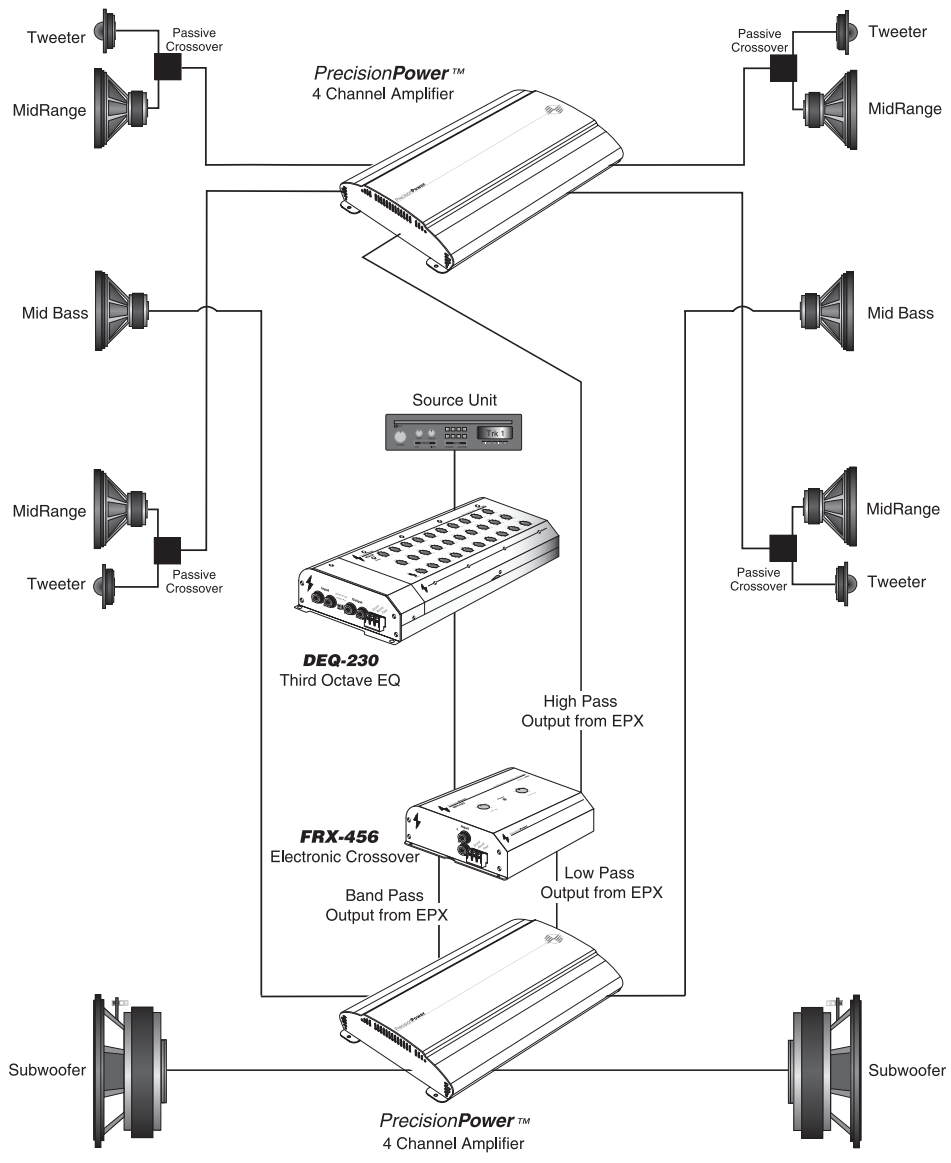
**WARNING:** If you are using a source unit with bridged high powered (or "floating ground") speaker outputs, a suitable high to low level adapter must be used. If you are unsure about your head unit see your local **PrecisionPower** dealer or call 1-800-62**POWER**.

To use Speaker Level Inputs (common ground headunits only), connect RCA plugs to the front or rear speaker leads as shown, and push IN the Attenuation switch.

# ADJUSTMENTS



# SYSTEM DIAGRAM



**TROUBLE SHOOTING**

**Is the LED lit?**

**YES**  
Check Input cables for signal by connecting them straight to the amplifier.

**NO**  
Check power ground and remote wiring to DEQ-230.



**YES**  
Problem is in the Equalizer  
See your local Authorized Precision**Power** Dealer or call 1-800-62**POWER**

**NO**  
Problem is elsewhere in the system. Check head unit and amplifiers.

Reverse left and right RCA outputs.

**SOUND IS NOW IN**

**OPPOSITE CHANNEL**  
Reverse RCA inputs

**SAME CHANNEL**  
Problem is in the amplifier, speakers or associated wiring of the silent channel.



**OPPOSITE CHANNEL**  
Reverse RCAs at head unit (check Balance Control)

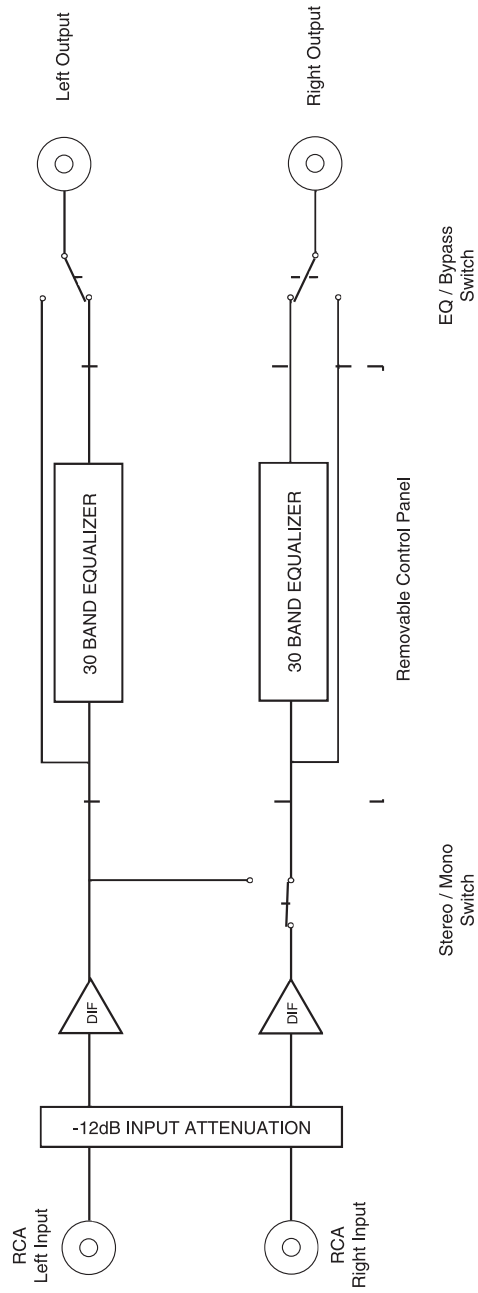
**SAME CHANNEL**  
Problem is in the Equalizer. See your local Authorized Precision**Power** Dealer or call 1-800-62**POWER**.



**OPPOSITE CHANNEL**  
Problem is in the head unit.

**SAME CHANNEL**  
Problem is in the RCA cable.

**SYSTEM DIAGRAM**



*NOTES*

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# Warranty

## LIMITED TWO YEAR CONSUMER WARRANTY

Directed Electronics, Inc. promises to the original purchaser, to replace this product should it prove to be defective in workmanship or material under normal use, for a period of two years from the date of purchase by the dealer as indicated by the date code marking of the product **PROVIDED** the product was installed by an authorized Directed dealer. During this two year period, there will be no charge for this replacement **PROVIDED** the unit is returned to Directed, shipping pre-paid. If the unit is installed by anyone other than an authorized Directed dealer, the warranty period will be 1 year from date of purchase by the dealer as indicated by the date code marking of the product. During this 1 year period, there will be no charge for this replacement **PROVIDED** the unit is returned to Directed, shipping pre-paid. This warranty is non-transferable and does not apply to any unit that has been modified or used in a manner contrary to its intended purpose, and does not cover damage to the unit caused by installation or removal of the unit. This warranty is void if the product has been damaged by accident or unreasonable use, neglect, improper service or other causes not arising out of defects in materials or construction. **ALL WARRANTIES INCLUDING BUT NOT LIMITED TO EXPRESS WARRANTY, IMPLIED WARRANTY, WARRANTY OF MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE, AND WARRANTY OF NON-INFRINGEMENT OF INTELLECTUAL PROPERTY ARE EXPRESSLY EXCLUDED TO THE MAXIMUM EXTENT ALLOWED BY LAW, AND DIRECTED NEITHER ASSUMES NOR AUTHORIZES ANY PERSON TO ASSUME FOR IT ANY LIABILITY IN CONNECTION WITH THE SALE OF THE PRODUCT. DIRECTED HAS ABSOLUTELY NO LIABILITY FOR ANY AND ALL ACTS OF THIRD PARTIES INCLUDING ITS AUTHORIZED DEALERS OR INSTALLERS.** Unit must be returned to Directed, postage pre-paid, with: consumer's name, telephone number, and address, authorized dealer's name and address, and product description. **IN ORDER FOR THIS WARRANTY TO BE VALID, YOUR UNIT MUST BE SHIPPED WITH PROOF OF INSTALLATION BY AN AUTHORIZED DIRECTED DEALER. ALL UNITS RECEIVED BY DIRECTED FOR WARRANTY REPAIR WITHOUT PROOF OF DIRECTED DEALER INSTALLATION WILL BE COVERED BY THE LIMITED 1 YEAR PARTS AND LABOR WARRANTY.** Note: This warranty does not cover labor costs for the removal and reinstallation of the unit.

**BY PURCHASING THIS PRODUCT, THE CONSUMER AGREES AND CONSENTS THAT ALL DISPUTES BETWEEN THE CONSUMER AND DIRECTED SHALL BE RESOLVED IN ACCORDANCE WITH CALIFORNIA LAWS IN SAN DIEGO COUNTY, CALIFORNIA.**