

Making Good Sound Great[™]

600

1200

AND



HIGH-POWER SUBWOOFER AMPLIFIERS

Installation Manual

Important Safety Instructions

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- 1. Read these instructions.
- 2. Keep these instructions.
- 3. Heed all warnings.
- 4. Follow all instructions.
- 5. Do not use this apparatus near water.
- 6. Clean only with a dry cloth.
- 7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8. Do not install near any heat sources such as mufflers, silencers, exhaust pipes, or other apparatus (including amplifiers) that produce heat.
- 9. **WARNING:** Improper installation may lead to permanent injury or death. Installation of the apparatus must be done with great care by qualified personnel, to prevent damage to fuel lines, power and other electrical wiring, hydraulic brake lines, and other systems, that might compromise vehicle safety.
- 10. Provide +12V and Ground wiring of sufficient size to ensure adequate current to the amplifier. For the Epicenter 600 / 1200 this means 4 gauge wire or lower.
- 11. Use rubber grommets to protect wiring whenever passing wires through metal openings or bulkheads.
- 12. Only use attachments/accessories specified by the manufacturer.
- 13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as the power input terminals are damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

- 14. This apparatus shall not be exposed to dripping or splashing, and no object filled with liquids, shall be placed on the apparatus.
- 15. Fuses shall be replaced only with the correct type and fuse value, and only when the apparatus is powered off.
- 16. Exposure to high sound pressure levels may lead to permanent hearing loss. Take every precaution to protect your hearing.



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



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

Caution: to reduce the risk of electric shock, do not disassemble the apparatus, other than to remove the top panel to access the controls. There are no user-serviceable parts inside. Refer servicing to qualified personnel.





⁷ Recycling notice: If the time comes and this apparatus has fulfilled its destiny, do not throw it out into the trash. It has to be carefully recycled for the good of mankind, by a facility specially equipped for the safe recycling of electronic apparatii. Please contact your local or state recycling leaders for assistance in locating a suitable nearby recycling facility. Or, contact us and we might be able to repair it for you.

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Introduction

Simply the most advanced subwoofer amplifiers in car audio today! The Epicenter® 600 and 1200 amplifiers incorporate our patented bass restoration processor to deliver earth-shaking power to your subwoofer system. Carefully applied signal processing at just the right spot, enhances the listening experience and maximizes your bass quality. In a real-world listening environment, we invite you to compare this amplifier to any other amplifier in the same power category, at any price, and you will quickly learn that the Epicenter amplifiers will always have more bass! It's time to hear what you have been missing.

More than that

The Epicenter amplifier is not a cold heartless box for increasing the loudness of bass frequencies in your system. It *restores* the bass frequencies to how they were meant to be. It is a bass-frequency re-enactor. Your favorite music will come alive and breath, and live again, and you will hear its presence like you haven't heard it before. That's how good it is.

AudioControl's engineering department designed these amplifiers from the ground up. They feature a black brushed aluminum finish, with black powder-coated cast alloy heat sinks and bottom panel in one single piece. A black-brushed aluminum cover is also provided to protect the controls from the prying hands of carnival clown folk who have wronged you.

Congratulations!

You are now installing a component which will dramatically improve the performance of any low-frequency car audio system, especially those requiring lots and lots of low-frequency earth-shattering, teacup rattling, denture crumbling performance, in a car.

The Epicenter amplifiers provide high levels of power, pristine sound quality, flexible inputs, plus a number of installation-friendly features that makes them the perfect product for performance oriented audio systems. The amplifiers are American-designed "set and forget" components which will provide a lifetime of trouble-free service for your Earth-surface roving vehicle, and orbital, interplanetary, and interstellar transportation systems.

The Epicenter amplifiers are designed by AudioControl, the only electronics company in the world that specializes in amplifiers, equalizers, signal processors and audio analyzers. Our passion for high quality, meticulous attention to detail, and pro sound heritage shows itself in the dozens of awards we have won for our designs, products, and service.

Now, as when we began, our greatest satisfaction is our reputation for sonic excellence and reliability among people just like you throughout the world.

This manual is designed to help you get the best out of this amplifier. So, even though you're dying to see it in action, please take a few minutes to slog through our not-so-weighty prose and learn how to get the most from your Epicenter amplifier.

Features

Here are some of the features that make the Epicenter 600 and 1200 amplifiers very unique and unlike any other amplifiers:

Superior Sound Quality

Pristine sonics happens first in all AudioControl designs and is not compromised by any other feature. (You often get the feeling that sound quality is an afterthought with products from other companies.)

High Power Levels

The high-efficiency Class D monoblock subwoofer amplifier is a high-current design, capable of driving subwoofer loads down to 1 Ohm impedance.

The output power of the Epicenter 600 is 600 Watts into 1 Ohm, and the Epicenter 1200 is 1200 Watts into 1 Ohm.

Unparalleled Energy Efficiency

Whether from the point of view of reducing current draw, or from the viewpoint of less heat in the trunk, the Epicenter 600 and 1200 subwoofer amplifiers have no equal. They are VERY energy efficient during operation.

• The Epicenter Bass Restoration

The Epicenter Sweep and Epicenter Width controls allow you to restore any low frequencies that may be affected by the vehicle acoustics, speaker and enclosure design and location, and the performance recording process.

MILC[™] Maximum Input Level Control

The Epicenter amplifier analyses the incoming audio signals and detects any signal clipping. This gives you the chance to optimize the audio signal levels going in to the Epicenter amplifier.

ACR-3 Wired Remote

This dash-mounted remote allows easy adjustment of the output level, and the level of the Epicenter bass restoration.

Self Resetting Protection Features

Protection features are extensive and include thermal, short circuit, clipping, under voltage, over voltage, and DC offset among others. If the fault is removed, the unit may reset. The protection LED flashes with various codes that indicate the fault detected.

Pacific Northwest Heritage

The engineers who designed this amplifier are native Northwesterners, steeped and learned in the long and impressive audio engineering history of Washington State, and all able to reach their catch limit during razor-clam digging season. We are very proud of that fact. What is more important is the care we craft in at every step, and the extensive knowledge we have in all aspects of the product. Plus, we back this up with a conditional five year warranty.



Complimentary bullet points

- Class D Monoblock Subwoofer Amplifier
- High Current Design 1 Ohm Stable
- 600 Watts @ 1 Ohm (The Epicenter 600 Amplifier)
- 1200 Watts @ 1 Ohm (The Epicenter 1200 Amplifier)
- The Epicenter Digital Bass Restoration
- MILC[™] Maximum Input Level Control (Patent Pending)
- 24 dB/Octave Linkwitz-Riley Alignment Crossover
- GTO Signal Sense
- PFM Subsonic Filter
- · Line-Level RCA Inputs and Active Speaker-Level Inputs
- Solid One-Piece Aluminum Chassis
- Wired ACR-3 Remote Control for Subwoofer Level and the Epicenter Processor
- Expansion Bus
- Adds a weird blue glow of mystery to your trunk/boot installation
- Kind to Kittens™
- Calculus-enriched

Quick View

Front Panel



- 1. Fuses 40A
- 2. Power Input Terminal +12V
- 3. Remote Power Input Terminal
- 4. Power Input Terminal Ground
- 5. Speaker-Level Inputs
- 6. RCA Analog Line-Level Inputs
- 7. Expansion Bus In and Out
- 8. Remote Control Connector
- 9. Speaker-Level Outputs

- 10. Power LED
- 11. Protection LED
- 12. GTO Signal Sense
- 13. Epicenter Controls: On/Off, Sweep, Wide
- 14. PFM Subsonic 16Hz/32Hz
- 15. Crossover Frequency
- 16. Gain Control
- 17. Polarity
- 18. Expansion Bus Mode
- 19. MILC[™] Source Clip LED
- 20. Gain Maximized LED

Controls (top panel removed)



Note: The Epicenter 1200 is shown. The Epicenter 600 has the same controls and features, except for two fuses, and different power terminals and speaker-level output terminals.



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Quick Start

- It only takes a few steps to get your Epicenter amplifier up and running in a flash! The steps below are explained in more detail throughout this manual.
- 2. Undo the +12V and Ground connections to the car battery before making any connections to the amplifier.
- 3. When making connections, designate red RCA plugs as right, and designate white, black, or grey plugs as left. This is a good idea for all signal connections made in your audio system. The key is consistency. Stick with the same color coding and you'll reduce possible problems.
- 4. Use quality interconnect cables. We know from experience that really cheap cables can cause a multitude of problems. They tend to break inside or corrode, causing a loss of signal or hum. They also have poor shielding.
- 5. Connect the +12V input terminal of the unit to the +12V terminal of the vehicle battery.
- 6. Connect the Ground terminal of the unit to the chassis of the vehicle.
- 7. Connect the remote power terminal of the unit to the remote turn-on switch of your source unit. Alternatively, you can skip this connection and use the GTO Signal sensing which is explained later in this manual.

- 8. Connect your audio inputs to the unit either speaker-level or line-level RCA... not both.
- 9. Run the ACR-3 remote to the front of the vehicle to adjust the bass level and the Epicenter effect on the fly.
- 10. Connect your subwoofer (1 Ohm minimum load).
- 11. When all connections are made, reconnect the vehicle battery.
- 12. Adjust your input source gain using the Patent Pending MILC. This will indicate if the incoming audio signals are clipping.
- 13. Set the Epicenter's crossover to the frequency recommended by the subwoofer manufacturer.
- 14. Adjust the Epicenter sweep and wide controls for maximum bass restoration. The ACR-3 adjusts the level of this effect, and the overall output level.
- 15. Enjoy the drive!





In this example, the head unit has a +12V trigger output that is connected to the Epicenter's remote input terminal. When the head unit is turned on, it will turn on the Epicenter amplifier.

Alternatively, the GTO signal sense feature can be used to gently turn on the Epicenter amplifier when an audio input signal is detected. (And the connection to the Epicenter's remote input terminal is not required.)





System #1: Adding Subwoofers to a Factory Radio



System #2: Using the Expansion Bus to run multiple Amplifiers, linked to one Master set of Controls





System #3: Using the Expansion Bus to run two Amplifiers to double the power into one Subwoofer



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Installation Manual

Installation

We recommend mounting the Epicenter amplifier in the trunk/boot or cargo area of the vehicle. An alternative location would be under the front seat of your vehicle if there is enough room to install and also to reach the controls. When choosing a location, please keep these things in mind:

- Before you start, disconnect the +12V positive and negative cables from the battery in the vehicle to prevent any damage to the vehicle or the amplifier during the installation process.
- 2. Pick a mounting location that will provide access to the controls and connections, provide adequate ventilation, and also protect the amplifier from heat, moisture, and dirt. Make sure the ventilation slots on the sides are not blocked, and that the heatsink fins are not covered.
- 3. The Epicenter amplifier needs to be securely mounted using the four mounting holes located in each corner of the Epicenter amplifier. See page 29 and 30 for dimensioned drawings that show the mounting hole locations.
- 4. Before drilling any holes, take every precaution to prevent damage to fuel lines, power and other electrical wiring, hydraulic brake lines, and other systems, that might compromise vehicle safety.

- 5. Always mount the amplifier as far from the antenna in the vehicle as possible. At the same time you will want to install your amplifier away from the radio or any other RF sensitive electronics in the vehicle.
- 6. Use a sufficient gauge power cable that is connected to and fused properly at the positive terminal of the battery. Use this table to determine the correct wire gauge for your particular installation.

System Amperage	7-10 Feet	10-13 Feet	13-16 Feet	16-19 Feet	19-22 Feet	22-28 Feet
35 – 50	8	6	4	4	4	4
50 – 65	6	4	4	4	4	2
68 - 85	4	4	2	2	2	0
85 – 105	4	2	2	2	2	0
105 – 125	4	2	0	0	0	0
125 – 150	2	0	0	0	0	0

7. The amplifier should be grounded with a short, heavy gauge wire connected directly to the car chassis at a bare metal surface clear of any paint, undercoating, etc. Do not use factory ground locations, seat bolts, or brackets that have spot welds. Many newer vehicles incorporate crumple zones, and what may appear to be a good ground may not be. Always verify using an Ohm meter.



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- 8. The Epicenter amplifier has speaker-level inputs that are designed to accept an amplified, speaker-level signal from a factory source unit or amplifier. You may need to refer to a factory service manual or wiring-harness schematic to determine which wires are the speaker wires for your system. If you are unsure which are the speaker wires, we recommend you look at the color of the speaker wires connected to the speakers and follow them back to the source. Connect the speaker wires to the Epicenter amplifier's green speaker-level input plug using the correct polarity. It is critical that the audio output you use is full frequency range, so the factory rear speaker wires would generally be the optimum choice. Connecting to the factory subwoofer wire is not recommended.
- 9. Line-level audio signals will generally come from your aftermarket radio, or if you are really getting the most out of your car audio system they may be coming from a really awesome product like the AudioControl DQDX!! (Shameless plug). There are generally only two things to consider when using the line-level RCA inputs: 1. Use good shielded or twisted pair RCA cables and 2. Run your RCA cables at least 18" away from power and speaker cables to avoid picking up radiated noise in your system.

ACR-3 Dash Control Installation



The AudioControl ACR-3 dash control is a dual-function remote for your Epicenter amplifier. It may be mounted under the dash using its own bracket, or through a custom hole in the dash. The endless knob should be within reach of the driver, and in a spot where the two LEDs are plainly visible. Disconnect the vehicle battery +12V and Ground connections before installation.

- **Dash Bracket Installation:** The dash control mounts with two screws, which attach to the underside of the dashboard. Slide under the dash and place the dash control in its mounting position, mark the two best mounting holes, drill pilot holes, and secure with two screws.
- **Custom Installation:** For that custom, finished look, the dash control can be flush-mounted directly on the dashboard (or anywhere else). Disassemble the ACR-3 from its mounting bracket. Start by pushing the LEDs from their holders, followed by removing the circuit board and rotary control knob from the bracket. Carefully drill a 9/32" hole in the dashboard for the control, a 1/8" hole for the lock tab and two 13/64" holes for the LED holders. Reassemble the dash control components securely onto the dash.



- When the red LED is on, turn the remote knob clockwise to turn the subwoofer level up, and counterclockwise to turn it down. As it is an endless knob, turning it more than one turn clockwise would be maximum, and more than one turn counterclockwise is minimum. During the 'set-up' part of your installation, make sure that the remote knob is turned all the way up in subwoofer mode (red LED on) before you make any adjustments to the amplifier. In this way you will not overdrive anything if the knob was set at a lower level.
- 2. Press the remote knob, and the blue LED turns on and red turns off. The knob can now adjust the overall level of the Epicenter bass restoration effect. (The sweep and width are set by the controls on the main unit, the remote knob sets its wet/dry level.)



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Top Lid Removal and Installation

The top lid must be removed to gain access to the controls, and then put back on again to protect the controls from dust bunnies, food crumbs, and other dirt and grime.

Removal Procedure

1. Locate the two M3 x 10 mm screws that hold the straight edge of the lid onto the connector side of the amplifier.



- Use the supplied 2.5 mm hex key to loosen both screws just enough until this edge of the lid can lift freely up just a little. (There is no need to remove the screws all the way, in case you lose them.)
- 3. Slide the lid toward the heatsink fins just a tad, before further lifting the straight edge of the lid about 2", then disengage the remaining two points of contact (under the wavy edge).
- 4. Place the lid in a safe and handy place, ready for the time when you have finished adjusting the controls to your immense satisfaction.

Re-installation Procedure

- 1. Ensure that the two M3 x 10 mm screws on the straight edge of the lid are present and backed out a tad until the front edge of the screws are flush with the threads in the lid. If you have lost them (tut-tut), then use only M3 x 10 mm screws and no longer than that.
- 2. Align the wavy edge of the lid along the heatsink fins, and lower the straight edge of the lid to 2" above the surface of the amplifier.
- 3. Slide the lid towards the connectors, engaging the top two points of contact under the wavy edge of the lid.
- 4. Lower the lid flat onto the surface of the amplifier.
- 5. Secure the two M3 x 10 mm screws near the connectors using the 2.5 mm hex key*

* If your school metalwork teacher was a 6'5" rugged giant of a man, an ex-Royal Marine Commando called Tiny, and he insisted that these be called hexagonal wrenches and not hex keys or Allen Keys, then so be it.

Speaker Connections

Establish a standard connection color code and stick with it. One conductor of the speaker wire is normally marked by a different color (silver versus copper) or there is a ribbing on one side. Typically this marked conductor is used for the positive (+) speaker leads. Really good wire has Positive and Negative printed right onto the wire jacket.

Match the polarity markings on the unit with the polarity markings on your speakers.

Speaker and Wiring Impedance

Speaker impedance often is and should be straight forward. Speakers, like other resistors, if wired in parallel "show" lower values than the individual components. Here are two examples for calculating speakers wired in parallel:

Calculating Impedance

For three 8 Ohm speakers wired in parallel (pluses connected to pluses) the impedance is 1/8 + 1/8 + 1/8 = 3/8Then take the inverse or $8/3 = 2.66 \Omega$

For two 8 Ohm speakers wired in parallel (pluses connected to pluses) the impedance is 1/8 + 1/8 = 2/8Then take the inverse or $8/2 = 4 \Omega$ Often the real world is more complicated than theory, and for speakers this is the case. An eight Ohm speaker is not eight Ohms at all frequencies. Plus passive crossover networks add their own changing conditions. Be aware of speakers that have significant dips from "nominal" values in portions of their frequency range, and speakers that are rated at unusual impedances, for example 3.5 Ohms. The Epicenter is tolerant of lower impedance loads down to 1 Ohm, however, all good designs use some margin of error.

Your choice of speaker wire gauge and the length of the runs, also affects the speaker impedance load presented to the amplifiers. Even fairly short speaker runs can have significant resistance if you use a smaller wire gauge. This can be a benefit if you are paralleling lots of speakers. The wire itself acts as an impedance limiter, since the amplifier cannot see a speaker load lower than the resistance of the wire. The downside of this wire resistance is that you waste some part of the total power available to the speakers.



- #EPICENTER 600/1200

Connection Panel Features



- 1. **Fuses 40A** There are two fuses on Epicenter 600, and three on the Epicenter 1200 as shown. Replace the fuses only with the exact same style and Ampere rating. Disconnect 12V power before changing or inspecting the fuses.
- 2. Power Input Terminal +12V This screw terminal connects to the +12V battery binding post of the vehicle. Use quality insulated wiring of the recommended wire gauge, such as wire gauge 4 or thicker. Thinner wire may cause an overheating hazard due to the large currents involved.
- 3. Remote Power Input Terminal This screw terminal connects to the 12V remote trigger output of some head units. When the head unit is turned on, then the Epicenter amplifier will turn on. Alternatively, you can use the GTO feature of the amplifier so it will turn on when an audio signal is detected at the speaker-level or line-level inputs.
- **4. Power Input Terminal Ground** This screw terminal connects to a good ground connection on the vehicle.

- 5. Speaker-Level Inputs The Epicenter amplifier is supplied with a standard greenish plug that allows for easy installation and removal. The speaker-level output from amplifiers and factory installed radios can connect here, so the Epicenter will receive the audio signals and do its subwoofer thing. The left and right audio signals are summed internally to produce a mono subwoofer signal. Always use the full frequency range outputs of the head unit or radio, otherwise the Epicenter may be missing some important bass information. Make sure that you follow the plus and minus polarity markings on the Epicenter and match it to the polarity of the speaker wiring. Do not use the RCA Line-level inputs if you are using the speaker-level inputs
- 6. RCA Analog Line-Level Inputs The line-level output from the head unit or factory installed radios can connect here, so the Epicenter will receive the line-level audio signals. The left and right signals are summed internally to produce a mono subwoofer signal. Always use the full frequency range outputs of the head unit or radio, otherwise the Epicenter may be missing some important bass information. Do not use the speaker-level inputs if you are using the RCA line-level inputs.

7. Expansion Bus Input and Output – These two RCA connectors allow multiple Epicenter amplifiers to be used in a system, with one as a Master source unit whose controls can affect all other Epicenter amplifiers in line. A switch in the control section under the top lid, allows the Epicenter amplifier to be set to Link or Source. Pages 11 and 12 show some charming illustrations of two Epicenter amplifiers using the Expansion Bus.

If set to Source, the amplifier gets its audio input signals either from the speaker-level inputs or the line-level inputs, and all its controls work normally. The Expansion Bus output sends a line-level output (a preamp out) to the Expansion Bus input of the next Epicenter amplifier. This output signal is affected by all the controls of the first Epicenter amplifier.

If set to Link, then the Epicenter amplifier gets its audio input from the RCA Expansion Bus output of the first Epicenter amplifier, and this first one can control all linked amplifiers.

- 8. Remote Control Connector This connects to the ACR-3 remote control and allows you to remotely control the bass level and the Epicenter effect level.
- **9. Speaker-Level Output Terminals** These screw terminals connect with speaker wire to the subwoofer, or multiple subwoofers. Make sure that the average combined speaker impedance does not dip below 1 Ohm. The Epicenter 600 has two connections (plus and minus) and the Epicenter 1200 has two of each (two plus, in parallel, two minus, in parallel).



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Control Panel Features





- **10. Power LED** If you have connected your battery power, vehicle ground, and turn-on lead (or GTO signal sensing) correctly, then this light should be green to indicate the power is ON. An internal blue glow will also emanate from the heatsink area to indicate that the power is ON. There are times when this blue glow will flash, such as during power-up, and when the protection circuits have detected a problem. See the table below.
- 11. Protection LED The Epicenter amplifier has built in diagnostic codes to tell you exactly what is going wrong should the amplifier detect a problem. Below is a list of diagnostic codes to help you understand what is going on with your amplifier:

Р	ower (Blue) Codes																
	Power Up	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Reset Boot	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Protection Activated	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Р	rotection (Red) Codes																
1	Short	•	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Repeated Short	•	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Under Voltage	•	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Over Voltage	•	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	DC Offset	•	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Thermal Heatsink	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Thermal Transformer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Epicenter Amplifier Codes:

If the protection LED should come on, read the red codes quickly before turning off the system and investigating. Shorts, like crushed-velvet hot pants, are not a good thing. Note that the blue power codes mentioned in the table are for the internal blue glow from behind the heatsink area, and not the power LED which is green. You might not notice the subtle blue glow at first, unless you are in the dark or the shade.

12. GTO Signal Sense – In the ON position, the Epicenter amplifier will turn on gracefully when it detects an incoming audio signal, and it will turn off after a period of time when the audio signal fades away to silence. In some situations, factory installed audio systems may turn on or "wake up" due to convenience features like door chimes, alarms, and cell phone signals that trigger the source unit in the vehicle to come on. To prevent these from turning your audio system on unexpectedly, you can bypass the GTO circuit by moving the GTO switch to the OFF position and use a switched 12-volt signal connected to the Remote In terminal instead.



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EPICENTER Controls: On/Off, Sweep, Wide – The bass response in a system is affected by four factors;

The acoustics of the vehicle

The location of the speakers

The music: how it was recorded AND how it is being played back Speakers and speaker enclosures

Because of the variations in the recording process, we developed the Epicenter to help restore any low frequencies lost during the recording process; however, the acoustics of various environments are different. With this in mind, our engineers developed the unique Para BASS system for the Epicenter amplifier.

The **Sweep** control allows you to select a center frequency (the frequency most affected) between 27 and 63 Hz.

The **Width** control then allows you to control the shape of the filter centered on the Sweep frequency.

The **On/Off switch** allows you to turn this bass restoration system on or off.

In operation, once the sweep and the width have been set, the ACR-3 remote (in blue-LED mode) is used to adjust the level of the bass restoration.

14. PFM Subsonic 16 Hz/32 Hz – Many car

audio systems truly push the limits of

their subwoofer without really knowing it. Tuned enclosures affect the roll-off of many speakers, and yet lots of source material forces the speakers to play lower than is good for them. The net result is wasted amplifier power and damaged speakers. The AudioControl PFM filter is a programmable subsonic filter that allows the speaker to play only as low as it should be playing. Because every system is different, we allow you to select the PFM frequency (either 32 Hz or 16 Hz). Follow the recommendations of your subwoofer manufacturer. If in doubt, try 32 Hz and see if that will work just as well as 16 Hz.

15. Crossover Frequency – Since component speakers (like woofers) are designed to reproduce certain frequency ranges, a crossover allows you to match the speaker to the appropriate frequency range. Most manufactures list a recommended crossover frequency as part of the speaker specifications. (You did read their manual didn't you?) Choosing the correct crossover point will provide increased speaker reliability and optimum sound quality. the Epicenter amplifiers come with an adjustable-frequency 24/dB Octave Linkwitz-Riley crossover. Adjust the crossover frequency on the Epicenter amplifier to match the value specified by your subwoofer's manufacturer. If you do not know this value, start out with the crossover selector turned all the way to the left (counter clockwise) and adjust it until you find a position that suits your subwoofer system best.

- 16. Gain Control This control allows you to adjust the overall volume output level in the normal way, with counterclockwise decreasing the volume, and clockwise increasing. Note that the ACR-3 gain control should first be set to maximum, before setting this gain control. The setting procedure is given on the next page, and involves nerves of steel, a steady hand, grit, determination, and the thought that you are making the world a better place for deep bass.
- 17. Polarity This switch allows you to select the polarity of the subwoofer, either 0 degrees (in-phase) or 180 degrees (out of phase). This is useful if you are using two Epicenter amplifiers to run a single subwoofer. (See the hookup diagram on page 11.)
- 18. Expansion Bus Mode There are two positions: Source and Link. This super feature allows multiple Epicenter amplifiers to be used in a system, one as a master source and controller, and the others as Links, getting their inputs from the master. (See pages 11 and 12 for examples.)

Source: the Epicenter amplifier receives audio input signals either from its speaker-level inputs or the line-level inputs. The expansion bus RCA output sends a line-level output (a preamp out) to the expansion bus RCA input of the next Epicenter amplifier (set to Link). This line-level output signal is affected by all the controls of the first Epicenter amplifier.

Link: the Epicenter amplifier gets its audio input from the RCA expansion bus output of the first Epicenter amplifier, and this first one can control all linked amplifiers.

19. Source Clip LED – The Epicenter amplifier features our MILC[™] (Maximum Input Level Control) patent-pending level-setting circuit that prevents clipping and damaging distortion. It calculates when the waveform of an incoming audio signal is clipping, and if it is, this LED will fulfill its prime objective and shine forth.

With this advanced feature, you are able to optimize the level of the incoming audio signal until the Source Clip LED is just-prior to lighting. If the LED comes on during normal operation, you should adjust the level of the audio signals before they reach the Epicenter.

After an interview with the lead engineer included the words "differential calculus," and some hieroglyphics on a chalk board, the technical writer's eyes glazed over and he had to be brought round with a nice cup of tea and a donut or two with sprinkles.

20. Gain Maximized LED – This LED indicates when the Epicenter amplifier gain has been maximized for optimum performance.



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ËPICENTER 600/1200

Adjusting the System

If you have ever listened to a friend's "Killer" car audio system and were sad to hear lots of hiss, clicks, or pops, then you have experienced an improperly level-matched system. When a performance autosound system is properly level-matched, you should get the maximum output from your source unit and your amplifier without any clipping. The following steps will help guide you through the process:



- Before you begin, make sure that you are wearing good quality hearing protection, as it is going to get very loud, enough to damage your hearing. Bits of cotton wool in the ears is not going to cut it. Do not attempt this on a quiet Sunday morning in the church car park.
- 2. Turn down, or turn off the amplifiers that power your main speakers. This will help prevent damage to the other speakers in your system.
- 3. Set the ACR-3 Remote (in red-LED mode) to **maximum**. (As it is an endless control, then turning it more than one turn is considered the maximum.)
- 4. Set the Epicenter amplifier's Gain control to minimum.
- 5. Set the source volume to **minimum**, and set the source bass and treble controls as you expect them to be used during listening.
- 6. Start playing the signal material at the source device. The ideal material would be an uncompressed, 100 Hz sinewave at -1 dBFS. If you do not have such a test signal, choose uncompressed, full

volume music in the region of interest. This is a subwoofer amplifier, so the region of interest is 20 Hz to 200 Hz. A good choice would be "Shake Your Rump" from Paul's Boutique (Capitol CDP 7 91743 2) where there is some prolonged passages of heavy bass. A poor choice would be "Clair de Lune", a lullaby, or a recording of finger cymbals.

- 7. Increase the source volume just enough until the MILC Source Clip LED begins to flicker on the Epicenter amplifier. This is an indication of low frequency clipping, and represents the very maximum output of the source unit. (Behold the power of calculus at play within the Epicenter amplifier to detect clipping.) Note: If the head unit has RCA line-level outputs, then there may not be enough signal to reach clipping anyway. If you are using the speaker-level outputs, then chances are that clipping is possible.
- 8. Now that the source is playing its loudest but not clipping, slowly increase the Epicenter amplifier's Gain control until the "Gain Maximized" LED begins to flicker, or if you hear the woofers begin to bottom out, whichever comes first. This represents the maximum playback level for the system.
- 9. Your system gain has now been optimized.
- 10. Reset the source volume to **minimum** and the ACR-3 Remote (in red-LED mode) to **minimum**, so there are no surprises when you turn the system back on.

Troubleshooting

Many problems can be eliminated by re-checking the wiring and settings of the unit. If a problem cannot be solved using the guide below, please call the AudioControl team for further assistance, or e-mail us at sound.great@audiocontrol.com

1. No Sound

- a. Verify the Power LED is a splendid green.
- b. Verify the Protection LED is Off.
- c. Verify the source unit is operating.
- d. Check the speaker connections.
- e. Check the power fuses on the Epicenter amplifier.
- f. Check the ACR-3 (in red-LED mode) is not at minimum.

2. Protection LED is flashing:

- a. Check the red protection LED flashing sequence, and compare the problem codes with this table. This will help you identify the problem, like having your very own tiny blinking service technician. (The blue mentioned in the table is the blue glow from within, near the heatsink area, and not the Power LED.)
- b. If the problem code indicates a short circuit, check the speaker wiring, and check that the speakers are not shorted internally.
- c. For under-voltage and over-voltage faults, check all the power connections to the Epicenter, and check the vehicle power generation system, loose fanbelt, duff alternator, and so on.

Epicenter Amplifier Codes:

Power (Blue) Codes	
Power Up	$\bullet \bullet \bullet \bullet \circ \circ \circ \bullet \bullet \bullet \circ \circ \bullet \bullet \bullet \bullet \bullet \bullet \bullet \bullet$
Reset Boot	$\bullet \bullet \bullet \circ \circ \bullet \bullet \circ \circ \bullet \bullet \circ \circ \circ \bullet \bullet \circ \circ \bullet \bullet \bullet \circ \circ \bullet \bullet \bullet \bullet \circ \bullet \bullet$
Protection Activated	$\bullet \circ \bullet \circ$
Protection (Red) Codes	
1 Short	• • • • • • • • • • • • • • • • • • • •
2 Repeated Short	• • • • • • • • • • • • • • • • • • • •
3 Under Voltage	$\bullet \circ \bullet \circ \bullet \circ \circ \circ \circ \bullet \circ \bullet \circ \bullet \circ \circ \circ \circ \circ \circ$
4 Over Voltage	• • • • • • • • • • • • • • • • • • • •
5 DC Offset	• • • • • • • • • • • • • • • • • • • •
6 Thermal Heatsink	$\bullet \circ \bullet \circ \bullet \circ \bullet \circ \bullet \circ \bullet \circ \circ \circ \circ \circ \circ \circ \circ \circ$
7 Thermal Transformer	$\bullet \circ \bullet \circ \bullet \circ \bullet \circ \bullet \circ \bullet \circ \bullet \circ \circ \circ \circ \circ \circ \circ$

- d. For over-heating problems, make sure the Epicenter amplifier is receiving adequate ventilation.
- e. Disconnect all speaker wires. If the protection LED is still flashing, and the unit has cooled, something rather serious has happened inside the unit. Call AudioControl's lonely folks in customer service.



3. Source Clip LED is on:

a. Turn down the level of the audio signals entering the Epicenter. The Epicenter analyses the incoming audio and detects if the signal is clipping. Make sure the settings in other equipment in your system, such as EQ controls, are not over-done and clipping the signals.

4. Speaker channels are cutting in and out:

- a. Make sure the speaker impedance is not less than 1 Ohm.
- b. There may be a short in the wires. Suspect a short if the problem happens only at the highest volumes.
- c. Make sure the subwoofers are not being overdriven, beyond their recommended level.

5. Speaker Buzzing or Crackling at high volume:

- a. Reduce any preamplifier/equalizer low-frequency boost.
- b. Check the Epicenter's Source Clip LED is not on.
- c. Check the Epicenter's Protection LED is not flashing a code such as "under-voltage."
- d. Try playing something different and see if it occurs again.
- e. Adjust the Epicenter so the levels going in (Source Clip) and going out (Gain Maximized) are optimized.
- f. Note: Scratching your ear with your car keys may cause your head to start up.

- 6. Should I notice a blue glow coming from within the unit, near the heat-sinks?
 - a. Yes. Do not be alarmed. There are blue LEDs inside the amplifier that are on when the unit is on. They also blink possible winning lottery numbers during power-up, and if the protection circuits detect a fault.

Specifications

All specifications are measured at 14.4 VDC (standard automotive voltage). As technology advances, AudioControl reserves the right to continuously change our specifications, like our Pacific Northwest weather, although we are working on changing that as well.

The Epicenter 600 Amplifier

Power Output	
S/N Ratio 104	4 dBa, Ref 600 Watts @ 1 Ohm
Damping Factor	Volts, 4 Ohms Output, 100 Hz
Bass Processing	The Epicenter
Recommended Power / Ground Wire Ga	uge 4 Gauge
Fuse Rating	2 X 40 Amps
Crossover24 dB/Octave Linkwitz-Riley	, Adjustable From 30 - 250 Hz
PFM Subsonic Filter 18 dB	3/Octave, Selectable 16/32 Hz
Weight	4.5 lbs
Dimensions	9" W X 7.95" D X 2.1" H

The Epicenter 1200 Amplifier

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Block Diagram



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Installation Manual

The Epicenter 1200 Dimensions





Making Good Sound Great™

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The Epicenter 600 Dimensions



Service

First, if you need service, it is probably best to go and see a trained health care professional.

If the Epicenter amplifier needs service, then please contact Audio-Control, either by e-mail or phone. We will verify if there is anything wrong in the system that you can correct yourself, or if it needs to be sent back to our factory for repair.

Please include the following items when returning the unit:

- 1. A copy of your proof of purchase. No originals please. We cannot guarantee returning them to you.
- 2. A brief explanation of the trouble you are having with the unit. (You'd be surprised how many people forget this.) If you can supply a really detailed description of the problem, this would be so much better, and our service technicians may add you to their Christmas Card list. Please include any notes about the system and other components you are using. Is it an intermittent problem, or all the time?
- 3. A return street address. (No PO Boxes, please).
- 4. A daytime phone number in case our technicians have a question about the problem you are having, or if they are just feeling lonely.

5. Package the unit in the original packaging if you still have it, and if the cat hasn't had three litters of kittens in the box. Use great care and plenty of good packing materials to protect the unit and prevent it from moving about inside the box. Do not use loose materials like packing peanuts or real peanuts.

You are responsible for the freight charges to us, but we'll pay the return freight back as long as the unit is under warranty. We match whatever shipping method you use to send it to us, so if you return the unit overnight freight, we send it back overnight. We recommend United Parcel Service (UPS) for most shipments.

Repair service is available at:

Attention: Service Department 22410 70th Avenue West, Mountlake Terrace, WA 98043 USA Phone 425-775-8461 FAX 425-778-3166 e-mail: sound.great@audiocontrol.com



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The Warranty

People are confused by warranties! Lots of fine print. Months of waiting around. Well, fear no more AudioControl is here. Our warranty is designed to make you rave about AudioControl. It's a warranty that looks out for our customers, plus helps you resist the temptation to have your friend, "who is good with electronics", try to repair your AudioControl product. So go ahead, read this warranty, then register your AudioControl product at www.audiocontrol.com/product-registration.

Our warranty has conditional conditions! "Conditional" doesn't mean anything ominous. The Federal Trade Commission tells all manufacturers to use the term to indicate that certain conditions have to be met before they'll honor the warranty. If you meet all of these conditions, AudioControl will, at its discretion, repair or replace any AudioControl products that exhibit defects in materials and/or workmanship during the warranty on your product for five (5) years from the date you bought it, and we will fix or replace it, at our option, during that time.

Here are the conditional conditions:

- 1. You must fully register your purchase within 15 days of the purchase date by going to the AudioControl product registration page at www.audiocontrol.com/product-registration. Failure to register your product will negate the warranty.
- 2. You need to hold on to your sales receipt! All warranty service requires original sales receipt documentation. The warranty only applies to the original purchaser from an authorized AudioControl dealer. Note: Products purchased from unauthorized dealers are not covered under warranty.

- 3. If an authorized AudioControl dealer installs your AudioControl product, the warranty is five years, otherwise the warranty is limited to one year.
- 4. Our warranty covers AudioControl products that have been installed according to the instructions in the owner's manual.
- You cannot let anybody who isn't: (A) the AudioControl factory; or (B) somebody authorized in writing by AudioControl service your AudioControl product. If anyone other than (A), or (B) messes with your AudioControl product, the warranty is void.
- 6. The warranty is void if the serial number is altered, defaced or removed, or if your product has been used improperly. Now that may sound like a big loophole, but here is what we mean by this: Unwarranted abuse is: (A) physical damage (don't use your product to level your dining room table); (B) improper connections (120 volts into the RCA jacks can fry the poor thing); (C) sadistic things! This is the best product we know how to build, but for example if you mount it to the front bumper of your car, drop it over the Niagara Falls or use it for Clay Pigeon shooting practice, something will go wrong.

Assuming you conform to 1 through 6, and it really isn't all that hard to do, we get the option of fixing your product or replacing it with a new one at our discretion.

In the event that your product is out of warranty or not covered under our warranty you may request to have any damage repaired at our normal "Out of Warranty" repair cost.

Legalese Section

This is the only warranty issued by AudioControl. This warranty gives you specific legal rights, and you may also have rights that vary from state to state. Promises of how well your AudioControl product will work are not implied by this warranty. Other than what we've said we'll do in this warranty, we have no obligation, express or implied. We make no warranty of merchantability or fitness for any particular purpose. Also neither we nor anyone else who has been involved in the development or manufacture of the unit will have any liability of any incidental, consequential, special or punitive damages, including but not limited to any lost profits or damage to other parts of your system by hooking up to the unit (whether the claim is one for breach of warranty, negligence of other tort, or any other kind of claim). Some states do not allow limitations of consequential damages.



Favorite Settings



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