

Operation and Installation Manual



XL 150.2
XL 300.2
XL 300.4

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CERWIN-VEGA!
MOBILE AUDIO
POWER AMPLIFIER



INTRODUCTION

Thank you for purchasing a Cerwin-Vega! car audio amplifier. This power amplifier has been designed to provide high quality performance with a minimum of maintenance. However, it's performance will only be as good as the care and quality of components with which it is installed. We therefore advise that you read these instructions very carefully to familiarize yourself with the product and it's features.

Before installing the power amplifier please read this instruction manual carefully. The instructions for mounting and connecting the unit have to be followed precisely. If necessary, a service center should be consulted.

All connections for DC power, signal input and speaker outputs can be carried out easily and safely by way of RCA and screw terminals.

INSTALLATION INSTRUCTIONS

This section lists Mounting and Wiring Precautions for installing Cerwin-Vega! XL Series amplifiers. Combined with the experience of a professional installer, these safeguards provide enough detail to successfully complete an installation. If you do not have the necessary skills, do not install the amplifier yourself. Instead, see your authorized Cerwin-Vega! dealer for installation recommendations.

2. Mount the amplifier on a rigid surface. Avoid mounting to subwoofer enclosures or areas prone to vibration. Do not install the amplifier on plastic or other combustible materials.
3. Prior to drilling, make sure proposed mounting holes will not cut into the fuel tank, fuel lines, brake lines (under chassis) or electrical wiring.

MOUNTING PRECAUTIONS

Although Cerwin-Vega! EXL Series amplifiers incorporate heat sinks and protection circuits, mounting the amplifier in a tight space without any air movement can still damage internal circuitry over time. Choose a site that provides adequate ventilation around the amplifier. For easy system set-up, mount the amplifier so the front panel controls will be accessible after installation. In addition, observe the following precautions:

1. For the most efficient cooling, mount the amplifier so cool air runs along the length of the fins rather than across them. Remember, any moving air will dissipate heat.

WIRING PRECAUTIONS

Read all wiring precautions. If you are not sure of the connections, contact your authorized Cerwin-Vega! dealer.

1. Before installation, make sure the source unit Power switch is in the OFF position.
2. Disconnect the negative (-) lead of the battery before making any power connections.
3. When making connections, be sure that each connection is clean and secure. Insulate final connections with electrical

OPERATION AND INSTALLATION MANUAL

tape or shrink tubing. Failure to do so may damage your equipment.

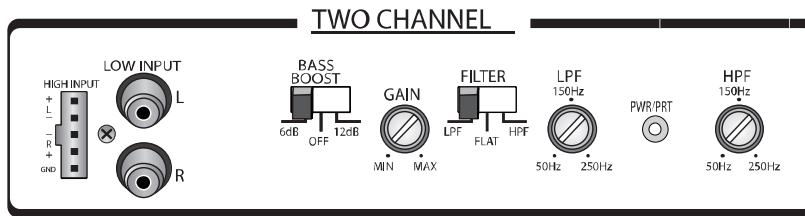
4. A secure clean ground connection is critical to the performance of your Cerwin-Vega! amplifier. Use the shortest ground wire possible and securely connect to the car chassis to minimize resistance and avoid noise problems.
5. Add an external fuse on the amplifier's positive (+) power lead and connect it as close as possible to the vehicle's (+) battery

terminal. Use a rating that equals the total current consumption at full output of all amplifiers in the system. Adding an external fuse will protect the electrical system from short circuits that can cause a fire.

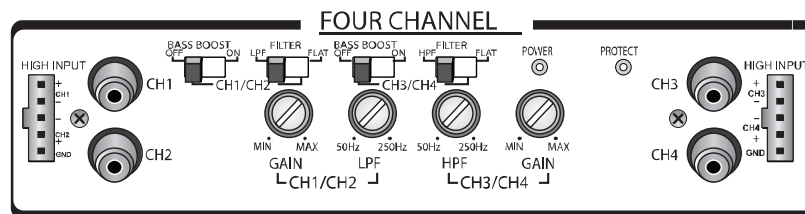


FEATURES

2 CHANNEL



4 CHANNEL



- 2 & 4 Channel power amplifier
- 4 Ohm stable in bridge mode
- 2 Ohm stable in stereo mode
- Low&High level input
- X-over control
- Crossover Switch
- Gain (input level) controls
- Bass boost control
- Thermal protection
- Short circuit protection
- Remote Turn-on
- Protection LED indicator
- Power on LED indicator

PRECAUTIONS

- This unit is designed for negative ground 12V DC operation only.
- Use speakers with an impedance of 2 or 4 Ohms
- Avoid installing the unit where:
 - *It would be subject to high temperatures, such as from direct sunlight or hot air from the heater.*
 - *It would be exposed to rain or moisture.*
 - *It would be subject to dust or dirt.*
- If your car is parked in direct sunlight and there is a considerable rise in temperature inside the car, allow the unit to cool off before operation.
- When installing the unit horizontally, be sure not to cover the heatsink fins with the floor carpet.
- If this unit is placed too close to the car radio, an interference may occur. In this case, separate the amplifier from the car radio.
- This power amplifier employs a protection circuit to protect the transistors and speakers if the amplifier malfunctions. Do not attempt to test the protection circuits by covering the heatsink or connecting improper loads.
- Do not use the unit with a weak auto battery as its optimum performance depends on a normal battery supply voltage.
- For safety reasons, keep the volume of your car audio system moderate so that you can still hear normal traffic sounds outside your car.



FUSE REPLACEMENT

If the fuse blows, check the power connection and replace the fuse. If the fuse blows again after replacement, there may be an internal malfunction. In this case, consult your dealer.



Warning

Use the specified amperage fuse. Use of a higher amperage fuse may cause serious damage.

Protection Circuit

This amplifier is provided with a protection circuit which operates when:

- *the unit is overheated or when the speaker terminals are short circuited.*

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WIRING INSTRUCTIONS

POWER CONNECTION

- The battery terminal (BATT) must be connected directly to the positive terminal of the vehicle battery to provide an adequate voltage source and minimize noise. Connecting the battery terminal lead to any other point (such as the fuse block) will reduce the power output and may cause noise and distortion. Use only #12 gauge or thicker (smaller gauge #) wire for this lead and connect it to the terminal of the battery after all other wiring is completed. This connection must be fused at the battery terminal.

GROUND CONNECTION

- The ground terminal (GND) connection is also critical to the correct operation of the amplifier. Use a wire of the same gauge as the power connection (#12 or thicker) and connect it between the ground terminal (GND) of the amplifier and a metal part of the vehicle close to the mounting location. This wire should be as short as possible and any paint or rust at the grounding point should be scraped away to provide a clean metal surface to which the end of the ground wire can be screwed or bolted.

REMOTE TURN-ON CONNECTION

- The amplifier is turned on by applying +12V to the remote turn-on terminal (REM). The wire lead to this terminal should be connected to the "Auto-Antenna" lead from the car stereo which will provide the +12V only when the car stereo is turned on. If the car stereo does not provide an "Auto-Antenna" lead, the remote turn-on lead may be wired to an "Accessory" or "Radio" terminal in the car's fuse block. This will turn the amplifier on and off with the ignition key, regardless of whether the car

stereo is on or off. The remote turn-on lead does not carry large currents. So #20 gauge wire may be used for this application.

SPEAKER CONNECTIONS

- Depending on the type and number of speakers used with the amplifier wire them to the speaker terminals as per the appropriate wiring diagram. For most applications #18 gauge wire should be used for the speaker leads but in no case thinner than #20 gauge. For leads in excess of 10 feet #16 gauge is recommended. When wiring the speakers, pay careful attention to the polarity of the terminals on the speakers and make certain they correspond to the polarity of the corresponding terminals on the amplifier. Do not ground any speaker leads to the chassis of the vehicle. Please see your authorized Cerwin-Vega! dealer for specific wire recommendations.

INPUT CONNECTIONS

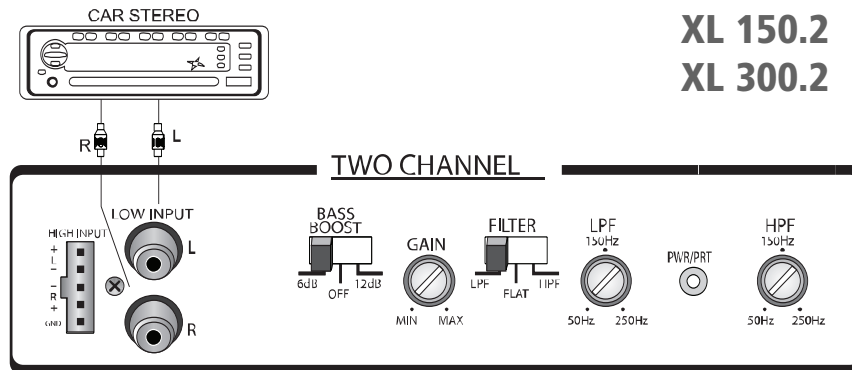
- This amplifier features both and high low-level input capability. Use either the low-level or high-level inputs, not both.
- If the car stereo does not provide low-level outputs, the amplifier may be connected via the speaker (high-level). Outputs from the stereo. Wire the speaker leads from the car stereo to the 5-pin adapter harness as shown in the diagram (shielded cables is not required for this application) and plug the connector into the mating high level input connector on the amplifier. Carefully splice and insulate all wire connection.

CAUTION: Use either the low-level or the high-level inputs on the amplifier. Do not use both input levels at the same time.

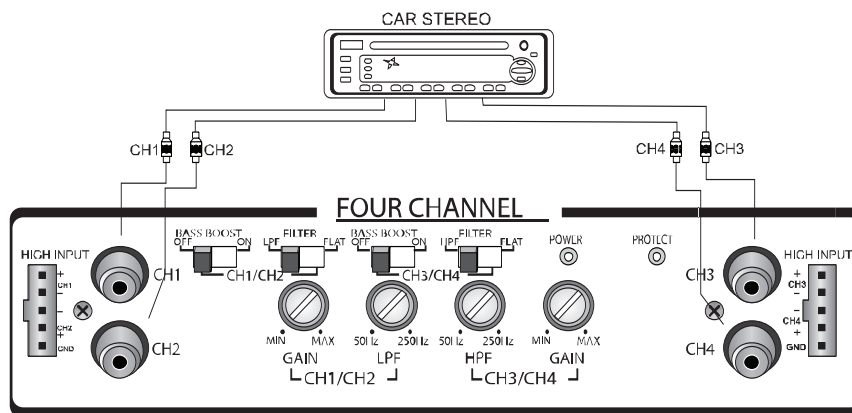
CERWIN-VEGA! XL150.2 | XL300.2 | XL300.4 POWER SYSTEM AMPLIFIERS

INPUT WIRING DIAGRAM

2 CHANNEL

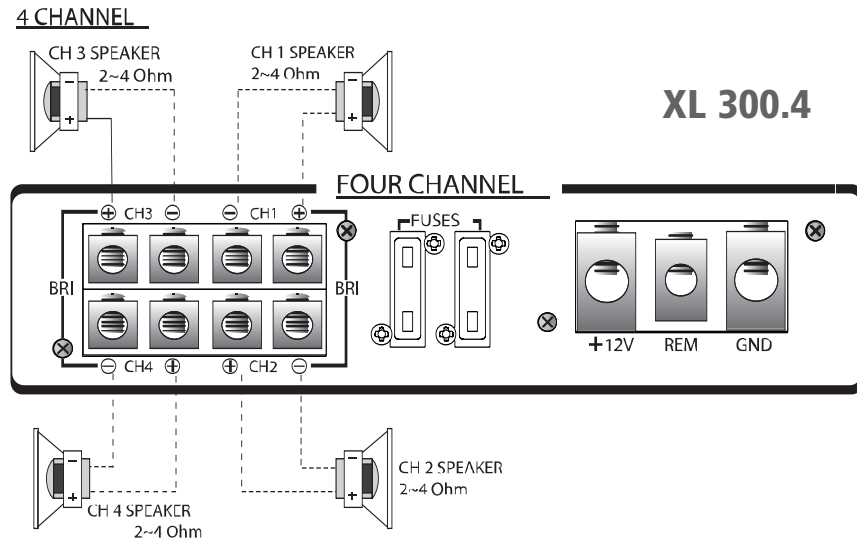
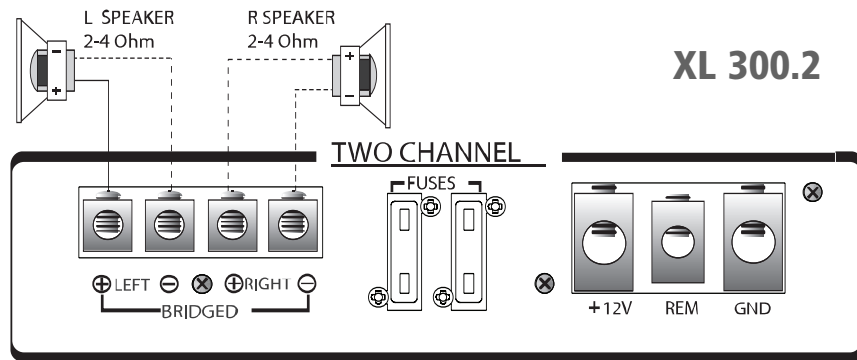
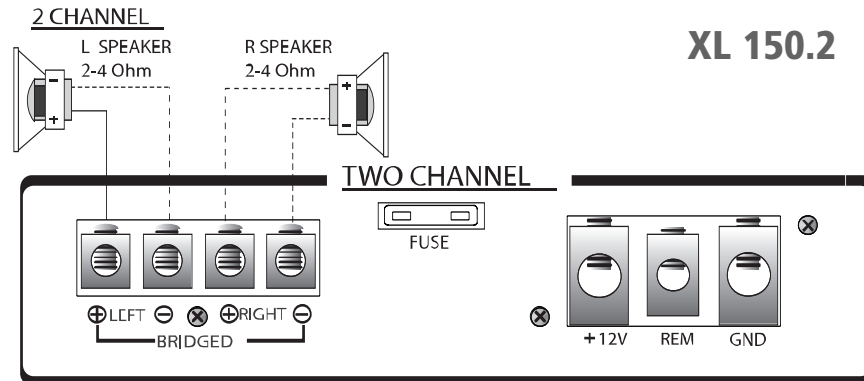


4 CHANNEL



OPERATION AND INSTALLATION MANUAL

SPEAKER CONNECTIONS

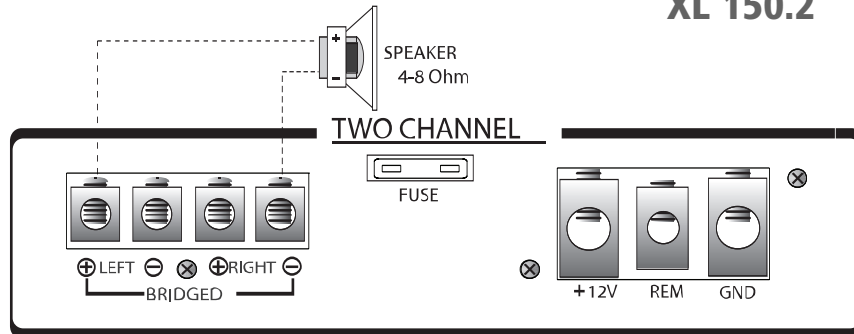


CERWIN-VEGA! XL150.2 | XL300.2 | XL300.4 POWER SYSTEM AMPLIFIERS

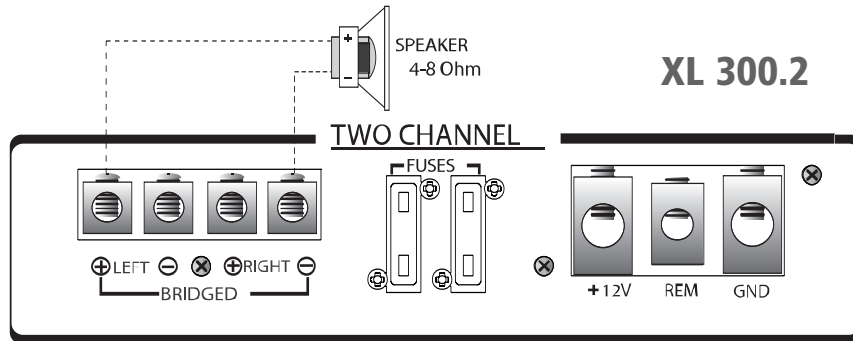
BRIDGED MODE

2 CHANNEL

XL 150.2

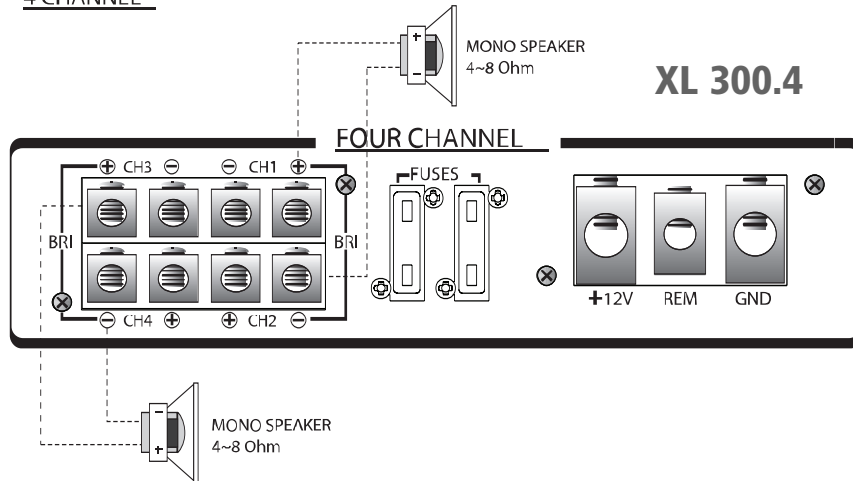


XL 300.2



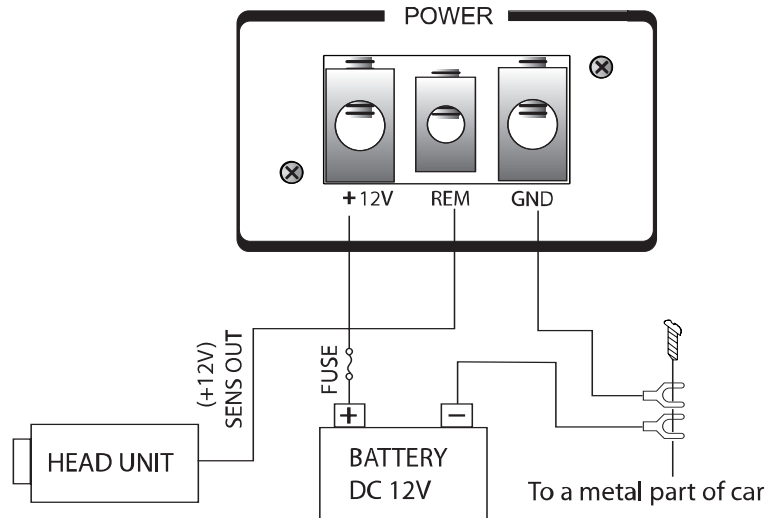
4 CHANNEL

XL 300.4



OPERATION AND INSTALLATION MANUAL

POWER CONNECTION LEADS



NOTES ON THE POWER SUPPLY

- Connect the +12V power input lead only after all other leads have been connected.
- Be sure to connect the ground wire of the unit securely to a metal part of the car. A loose connection may cause a malfunction of the amplifier.
- REM: The unit is turned on by applying +12 Volts to this terminal. This terminal does not draw heavy current like the tow Power Terminals so a thinner connecting wire is acceptable. Standard 18 GAUGE is fine and the standard color is yellow. If the radio is equipped with a Power Antenna control wire, it can drive this terminal. If the Power Antenna wire is already in use, you can still splice into it. With this method, the unit will turn on automatically with the radio.
- Use the power supply lead with a fuse attached whose value is the same as original fuse.
- **Place the fuse in the power supply lead as close as possible to the car battery.**
- During a full power operation, Maximum current will run through the system. Therefore, make sure that the leads to be connected to the +12V and GND terminals of the unit respectively must be larger than 10-Gauge (AWG.10).

OPERATION

After the amplifier has been installed and all connections have been secured, turn the radio on so that the amplifier is switched on automatically. After a short power-on period, the amplifier reaches its full performance.

Now turn up the volume slowly using the volume control of the radio. If there is no sound or only distortion, switch off the radio immediately. The amplifier will also switch off automatically - and check if all connections have been made correctly.

- **POWER = LED POWER INDICATOR**

After the orderly connection of the three power terminals, the LED indicator shines green and goes out with off.

- **PROTECT = LED PROTECTION INDICATOR**

This unit is equipped with an overload protection. Immediately upon overloading (due to short circuit or extreme temperature) the overload protection is activated, and the red LED indicator is illuminated. The amplifier is now protected against damage. In case of thermal protection a short cooling time must be allowed after which the amplifier automatically resumes operation.

- **GAIN = INPUT LEVEL CONTROL**

The input level control allows the system to work well within a wide range of output level. Choose the adjustment in the way that you achieve a sound most possibly without any distortion. As a guideline the following procedure is recommended: If you use several

amplifier, the adjustment has to be made for each set separately tune in the volume of your car radio to 2/3 of the maximum volume. Now turn the gain control of the amplifier from "Min" to "Max" direction until you can hear distortions. Then turn the level control a little back to "Min". The gain control adjustment is finished now.

Attention!: *If you use 2 Ohm speakers in stereo mode. Tri-mode or 4 Ohm speakers in bridge mode and the overload protection is triggered out, turn the gain control to "Min" direction, until the operation is free of trouble.*

- **LPF & HPF CONTROL**

- a. When the crossover control is in the LPF position, this control becomes active allowing you to select your crossover point. For example: If you select 50Hz the amplifier will operate below 50Hz.
- b. When the crossover control is in the HPF position, this control becomes active allowing you to select your crossover point. For example: If your select 50Hz the amplifier will operate above 50Hz.

- **CROSSOVER SWITCH**

Flat: Full range frequency

Low pass: the lower frequency under setting point can be pass.

High pass: the higher frequency above setting point can be pass.

- **BASS BOOST CONTROLS**

Boosts bass frequencies

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OPERATION (cont.)• **GND(-) = GROUND CONNECTION**

Connect the GND terminal to the chassis ground of your car and take care of best electrical and mechanical contact. In doing so, drill a hole in to the car chassis near the amplifier then remove color, dirt or any other substance from the ground point . After that fasten the cable end with added ring terminal by using a screw. Ensure that the ground connection is as short as possible and that the cable diameter is sufficient (min 4mm"). Route the ground cables from the radio and all other equipment parts. like equalizer. active crossover network or other amplifiers, to the same ground point.

• **+12V = POWER SUPPLY**

Connect the BATT terminal to the positive pole of the battery with a lead cable and add a fuse into the power cable in a distance of not more then 12" from the battery.

• **REM(ON/OFF) = REMOTE CONTROL**

Connect the REM terminal to the automatic antenna connector of your car radio. Now when turning on and off your car radio. the amplifier automatically switches ON and OFF.

• **FUSE**

The amplifier is equipped with a plug-in fuse protecting the set against fault conditions. Do not use a fuse with a higher value and never bridge the fuse over, as this may void the warranty.

**HOW TO PROCEED IN CASE OF FAULTS**• **NO FUNCTION:**

The connection cable is not connected correctly (=terminal +12V/GND/REM). Ensure that all connections and mechanical contact are firmly in place. The fuse is defective-pay attention to the correct value of a new fuse!

• **NO SOUND:**

Speaker cable or speaker plug are not connected correctly.

• **NO SOUND / RED LED****PROTECTION ILLUMINATES:**

The plus and minus wires of the speaker cable have contact, thus eliminate the short

circuit. If you use a 2 Ohm speaker in stereo mode, a 4 Ohm speaker in bridge mode or tri-mode and the set is overloaded, then turn the gain control to "min" until the operation is free of trouble.

• **POOR SOUND QUALITY (DISTORTIONS):**

The speakers are overloaded, therefore turn down the volume level and check the volume control positions.

• **NO STEREO SOUND AND A WEAK BASS:**

One or more speaker connections ((+) and (-) are reversed) are wired out of phase.

INTERFERENCE

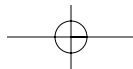
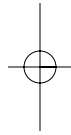
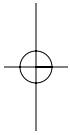
All cables are sources of interference. The power cable and RCA audio cable are very prone to interference; the remote cables are less prone. There is often interference caused by the generator (piping), ignition (cracking) or other car electronic parts. Most of these problems can be eliminated with correct and careful cable installation. These are the following guidelines:

- Use only a quality audio cable for the wiring between "low level in" of the amplifier and RCA or DIN output of the radio.
- Lay the signal, speaker and power cables separately with enough distance from another and also from each other car cable. If not possible, you can lay the circuit and ground cable together with the serial cables. Audio and speaker cable should be as far away from these as possible. The REM cable to the automatic antenna output of the radio can be laid together with the signal cables.
- Avoid ground loops by laying the ground wiring of all components to a center point. You can find the best central point in measuring the voltage directly at the battery and comparing this voltage value with the chosen ground point and the (+) terminal of the amplifier. With the amplifier playing, if there is little or no voltage difference at the amplifier input from the battery, then you have found a good location. You should measure with the ignition being switched on as well as the (rear window heating and light).
- If there are pickups from external electrical sources into the speaker cables, divide the core leads and twist them together.
- If there are noises from the car electronics, add an interference suppression choke into the power wiring.
- If there are humming noises, use thicker ground cables or add further ground cables to the chassis.
- To reduce contact resistance and loose contacts, please tie the cable ends or use multi core cable ends, spade terminals or others.
- In the event that these steps are unsuccessful, the use of a ground loop isolator may solve the problem.

PRODUCT SPECS

	XL150.2	XL300.2	XL300.4
Frequency Response	10Hz - 60kHz, +0db -3 dB	10Hz - 60kHz, +0db -3 dB	10Hz - 60kHz, +0db -3 dB
Signal Noise Ratio, 4 ohm ref.	>85 dB	>85 dB	>85 dB
THD, 4 ohm, - typical	0.05%	0.05%	0.05%
Input Sensitivity Low Level	250mV ~ >4V	250mV ~ >4V	250mV ~ >4V
4 Ohm Power output	2 x 50W @ 0.05% THD typical	2 x 105W @ 0.05% THD typical	4 x 50W @ 0.05% THD typical
2 Ohm Power output	2 x 75W @ 0.05% THD typical	2 x 150W @ 0.05% THD typical	4 x 75W @ 0.05% THD typical
4 Ohm Bridged Power	1 x 150W @ 0.05% THD typical	1 x 300W @ 0.05% THD typical	2 x 150W @ 0.05% THD typical
Dimensions	2.25" H X 10.5" W X 11" L	2.25" H X 10.5" W X 13.25" L	2.25" H X 10.5" W X 13.25" L

NOTES





 **CERWIN-VEGA!**
MOBILE AUDIO

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