

# powerbass®

AutoSound



## ALC-4

---

### 4-Channel LINE OUTPUT CONVERTER

## User's Manual

*Please read through this manual to familiarize yourself with your new signal processor. Should your PowerBass AutoSound line output converter ever require service, you will need to have the original dated receipt.*



### Thank you and Congratulations

Thank you for your decision to purchase a PowerBass ALC-4 Line Output Converter. The ALC-4 is a 4-channel LOC (Line Output Converter) that changes the high level (speaker) output from your factory radio to a low level (RCA) signal for use with aftermarket amplifiers.

Your PowerBass ALC-4 has been designed and engineered using the latest in microprocessor technology and will afford you many years of listening enjoyment.



## LINE OUTPUT CONVERTER

This installation manual contains valuable information on how to get the most from your new PowerBass ALC-4 Line Output Converter.

To learn more about PowerBass Autosound, please visit us on the World Wide Web at <http://www.powerbassusa.com>

#### Δ Warning Δ

Continuous exposure to sound pressure levels in excess of 100 dB can cause permanent hearing loss. PowerBass Autosound Speakers are capable of producing sound pressure levels well over 170 dB. Please observe all local sound ordinances while listening to your PowerBass Autosound system. PowerBass USA, Inc. accepts no liability for hearing loss, bodily injury, or property damage due to the result of use or misuse of this product.

## 4-CHANNEL LINE OUTPUT CONVERTER FEATURES

**4-Channel LOC:** Line Output Converter electronically adjusts high level speaker outputs to low level RCA outputs. Necessary when integrating OEM (factory) radios with aftermarket amplifiers and speakers.

**2CH / 4CH Mode Switch:** Allows you to select between 2-channel or 4-channel input without the use of a "Y" Adaptor.

**Wired Remote Level Controller:** Provides up to 18dB of boost @45Hz on the Rear Output only.

**Variable Gain:** Matches the output level from the radio to the LOC for maximum signal.

**LED Clipping Indicator:** An Orange LED gives you visual confirmation when setting the Gain control.

**RCA Low Level Output:** Tiffany style RCA jacks for maximum signal transfer.

**13Vrms Output:** As a line driver the ALC-4 can boost the output voltage of the radio (head unit) up to 13 volts before delivering it to the amplifier inputs.

**Compact Size:** Thanks to the extensive use of Surface Mount Devices the ALC-2 can be mounted under dash, behind the dash or virtually anywhere.

**Additional Features:** Mounting brackets, hardware and plug-in connectors for easy pre-wiring.

## ALC-4 SPECIFICATIONS

Maximum Input Power (High Level): 100 watts

Rear Channel Level Boost: 18dB

Maximum Output Voltage: 13 volts

Frequency Response: 10Hz-100KHz +/-3dB

Total Harmonic Distortion: <0.4%

Signal to Noise Ratio: 81dB Front / 68dB Rear

High Level Input Impedance: >180 ohms

Output Impedance: <100 ohms

Power Supply: PWM DC/DC

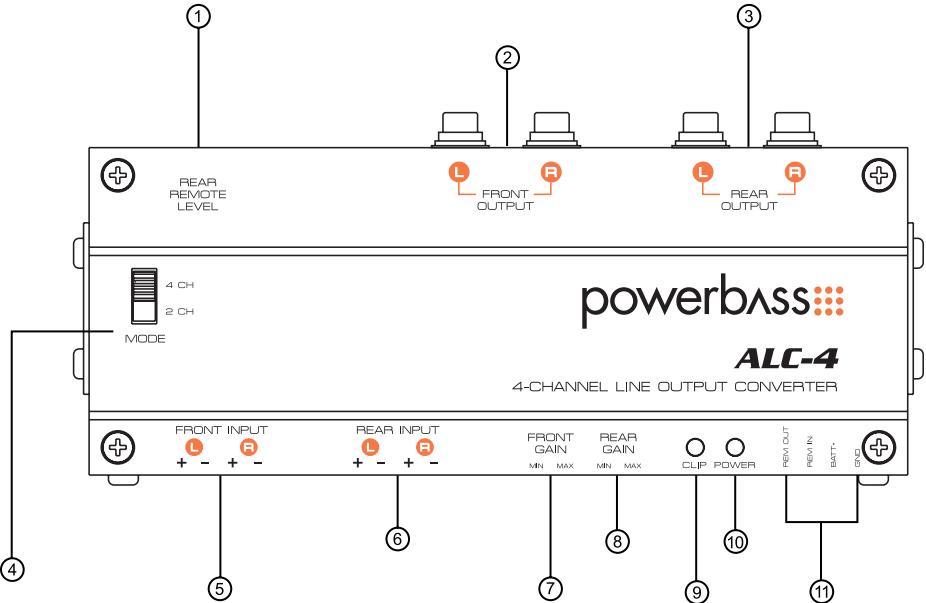
Current Draw: 220mA

Recommended Fuse: 1-amp

Chassis Measurements (W x L x H): 5.8" x 2.3" x 1.1" (148mm x 58mm x 28mm)

Due to continuing improvements these specifications are subject to change without any notice.

# CONTROL PANEL LAYOUT



## 1. REAR REMOTE LEVEL Port

This is the connector port for the included Remote Level Control. You can use this to remotely adjust the secondary gain of the Rear Output up to 18 dB at 45 Hz.

## 2. FRONT OUTPUT (Low Level)

These RCA output jacks provide signal to your amplifiers front channels.

## 3. REAR OUTPUT (Low Level)

These RCA output jacks provide signal to your amplifiers rear channels.

## 4. MODE Switch

Allows you to select between 2-channel or 4-channel input without the use of a “Y” adaptor.

## 5. FRONT INPUT (High Level)

This terminal block allows for a high level speaker left and right front channel signal input from the source unit.

## **6. REAR INPUT (High Level)**

This terminal block allows for a high level speaker left and right rear channel signal input from the source unit.

## **7. FRONT GAIN Control**

This control matches the input level of your ALC-4 with the front output level of your source unit.

## **8. REAR GAIN Control**

This control matches the input level of your ALC-4 with the rear output level of your source unit.

## **9. CLIP Indicator**

This LED indicates when the signal is at its maximum level before distortion occurs. When the input GAIN adjustment is set correctly and the source unit is at its maximum volume this LED should flicker orange intermittently.

## **10. POWER Indicator**

This LED glows blue when the ALC-4 is powered on.

## **11. REM OUT / REM IN / BATT+ / GND Power Terminal**

These connections are for remote turn-on, input power and chassis ground. Use a minimum of 18-gauge wire for the power (BATT+) and ground (GND) connections. The power (BATT+) should be fused with a 1-amp fuse.

# **INSTALLATION EXPERIENCE**

Installation of PowerBass mobile sound equipment requires detailed knowledge of electronics wiring and proper speaker impedance. We strongly recommend installation by an authorized PowerBass dealer. This Owner's Manual only provides general installation and operation instructions. If you have any reservations about your installation skills, please contact your local PowerBass dealer for assistance.

## **PREPARING FOR INSTALLATION**

***NOTE: The tools listed below may be required for basic installation***

- An electric drill with bits
- Philips head and standard screwdrivers
- Wire strippers
- Crimping tool
- VOM (electronic volt ohm meter)
- Heat shrink tubing and heat gun
- Soldering iron

## MOUNTING THE LINE OUTPUT CONVERTER

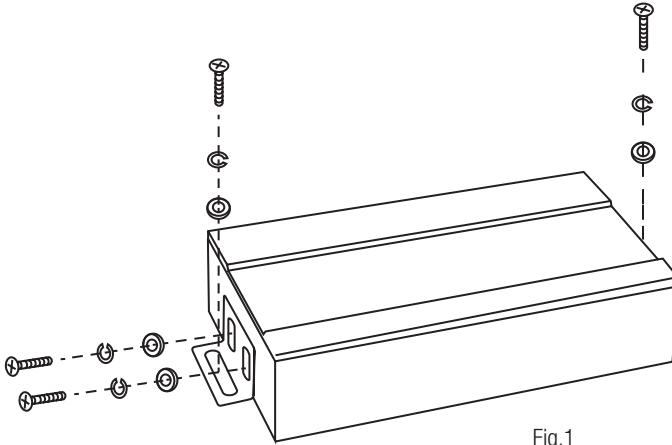


Fig.1

There are two basic mounting options for your PowerBass Line Output Converter. One is to mount the unit using the supplied brackets as shown in Fig 1. Once attached, you may use the brackets as a template and mark the two screw locations with a felt tip pen. Use caution to make sure there are no objects behind the installation surface that may become damaged during drilling.

The other option is to use a large cable or wire tie and secure it behind the dash by wrapping it around the chassis of the unit. Make sure the Line Output Converter is secure and do not let the unit hang by the wiring. Doing so may cause the wiring plugs to become loose and even disconnected over time due to road vibrations which will cause the Line Output Converter to stop working.

It is highly recommended to complete the wiring of the Line Output Converter and set the GAIN adjustment prior to mounting the unit.

## SETUP ADJUSTMENT



Fig.2

### GAIN Controls (Front and Rear)

Set the GAIN to increase the amount of signal coming from the Line Output Converter to your amplifier(s). Start with the control at the MIN position (completely counter clock wise). Adjust the GAIN control clockwise until the orange CLIP indicator begins to flicker, then back off slightly to cut distortion and operate at optimum gain.

# POWER WIRING AND SIGNAL CONNECTIONS

Use the supplied 4-pin wiring plugs to wire up the Power and Speaker connections on the side panels of the Line Output Converter. Carefully follow the markings on the top of the ALC-2 for proper wire location. The silver set screws on the top of the 4-pole wiring plug should face up. Fig. 3

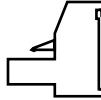


Fig. 3 Wiring Plug  
(Silver screws on top)

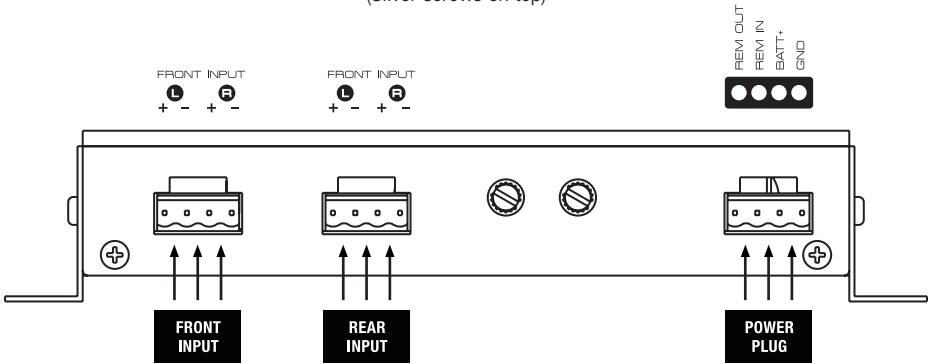


Fig. 4

## REM OUT (Remote Out)

The ALC-4 is equipped with a signal sensing circuit that can detect a signal on its input to provide a +12 volt output signal to turn on an aftermarket amplifier. Prepare the remote-out turn on wire for attachment to the power plug the same way you did for the power and ground. We recommend using a 18-gauge wire (preferably with a blue jacket). Insert one end into the REM OUT location on the power plug and the other end to the remote terminal on the amplifier.

## REM IN (Remote In)

Prepare the remote-in turn on wire for attachment to the power plug the same way you did for the power and ground. We recommend using an 18-gauge wire (preferably with a blue jacket). Insert one end into the REM IN location on the power plug and connect the other end to the remote lead from the car radio (source unit). This remote lead from the source unit will trigger a +12 volt output only when the car radio is turned on. If the source unit does not provide a remote turn on, you can use the accessory terminal in the vehicles fuse block. This method will turn on and off the ALC-4 with the key regardless of whether the source unit is on or off.

### **BATT+ (Power)**

The ALC-4 should be wired directly to a constant +12 volt source. We recommend using minimum 18-gauge wire (preferably with a red jacket) and an In-line fuse holder containing a 1-amp fuse. The use of an in-line fuse is a must to protect the unit in case of electrical short. Insert the other end of the fused power wire into the power plug BATT+ position after stripping off 3/8" of insulation from the end of the wire.

### **GND (Ground)**

The main ground connection should be made between the GND position on the power plug and a metal part close to the ALC-4 mounting location. The ground wire needs to be as short as possible to minimize the possibility of induced noise. The metal point on the vehicle where the ground connection is to be made needs to have all paint sanded away to bare metal and removed for better contact of the ground. Use the same gauge of wire as you did for the positive connection (instead this time preferably using wire with a black jacket). Strip the jacket and prepare the other end of the ground wire the same way you did the power wire for insertion into the GND position on the power plug.

Once you have completed wiring the Power Plug, gently push it into the power socket on the side panel of the PowerBass ALC-4.

## **RCA INTERCONNECTS**

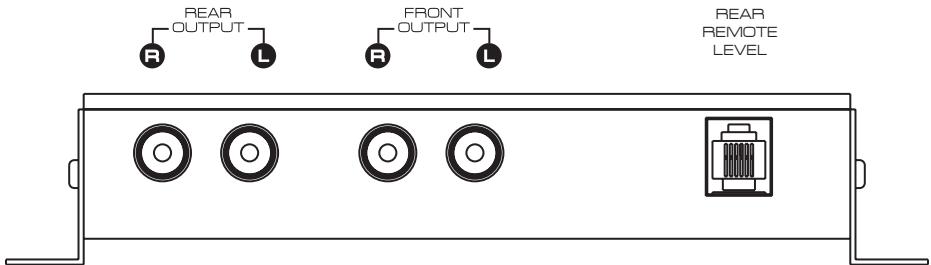


Fig.5

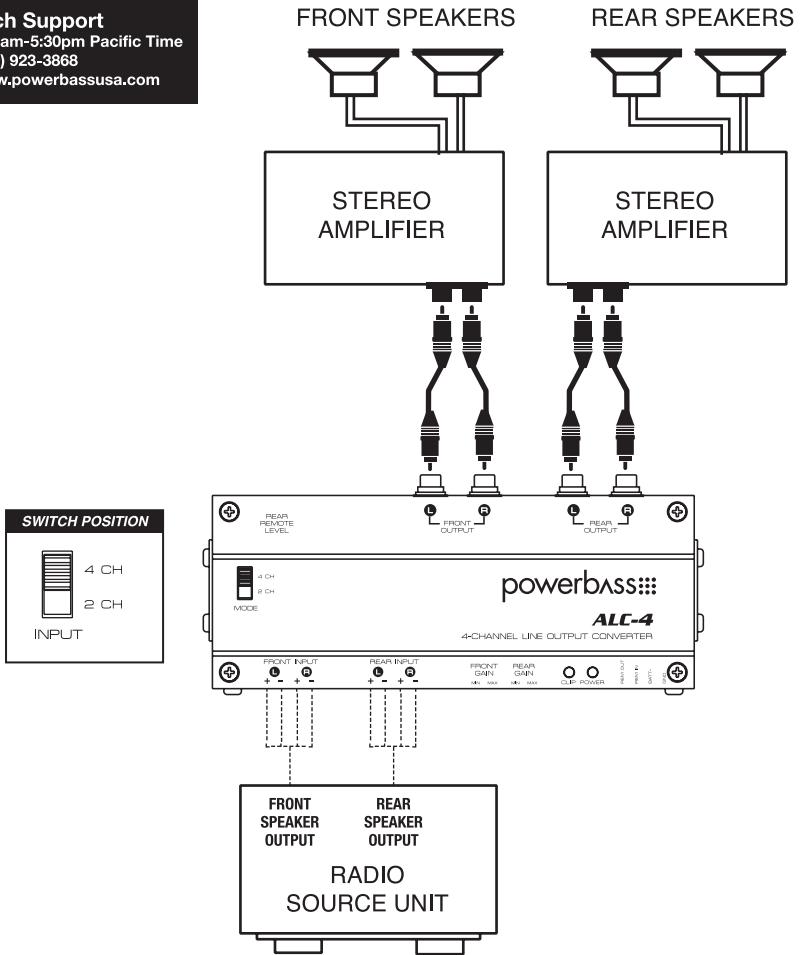
Choose the correct length and style of RCA interconnects for your needs (not included). Run the RCA cables from the amplifier to the location of the PowerBass ALC-4. Make sure all the RCA cables are run on the opposite side of the vehicle from where you ran the power cables to the amplifier(s). Hiss, engine noise, and fan noise can easily be picked up through the RCA cables if run incorrectly.

Attach the RCA cable from the amplifier to the OUTPUT jacks on the side panel of the processor.

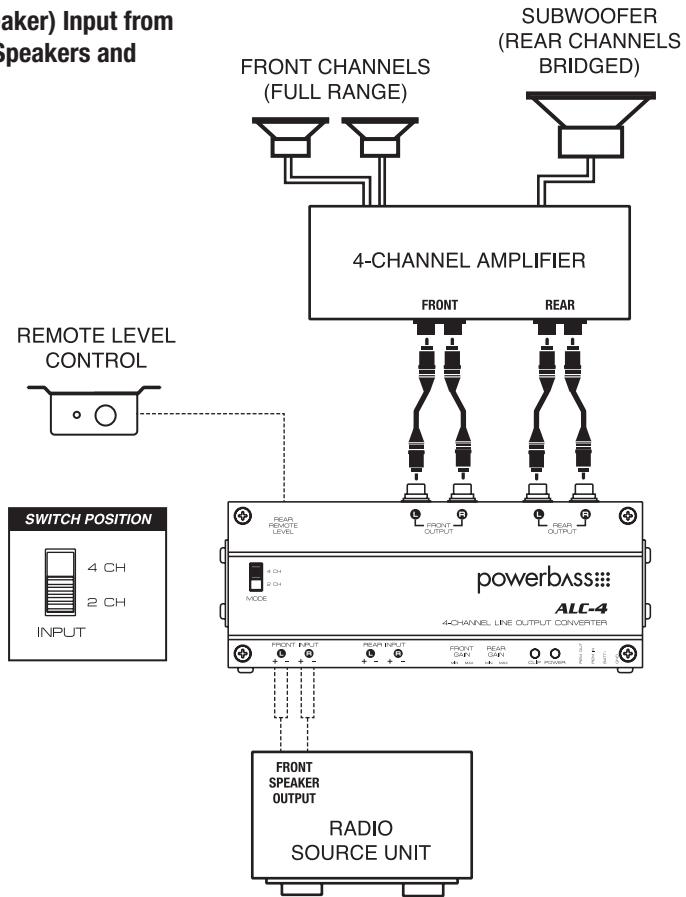
# SPEAKER OUTPUT CONFIGURATIONS

## 1. High Level (Speaker) Input from Factory Radio for Front and Rear

**Tech Support**  
8:30am-5:30pm Pacific Time  
(909) 923-3868  
www.powerbassusa.com



## 2. High Level (Speaker) Input from Factory Radio to Speakers and Subwoofer



### REMOTE LEVEL Controller Connection

The ALC-4 includes a Remote Level control module that provides up to 18dB of gain. This applies to the Rear Output channel only. The above system diagram gives one possible layout using a 4-channel amplifier where the rear channel is bridged mono for the subwoofer and the front channels operate a pair of full range speakers. Once the modular connector is plugged into the REMOTE LEVEL CONTROL and the REMOTE LEVEL PORT on the ALC-4, you can adjust the output of the signal to the woofer. If your amplifier has its own Remote Level control or Bass Control do not use that plus the Remote Level control on the ALC-4. Instead just use the controller that came with the amplifier.

**NOTE: More is not always better. By turning the REMOTE LEVEL all the up to MAX (18dB) you can overwork the amplifier and subwoofer causing potential damage to both.**

# POWERBASS AUTOSOUND LIMITED WARRANTY POLICY

PowerBass USA, Inc. offers limited warranty on PowerBass products under normal use on the following terms:

**PowerBass Autosound Electronics are to be free of defects in material and workmanship for a period of one (1) year.**

This warranty applies only to PowerBass products sold to consumers by Authorized PowerBass Dealers in the United States of America. Products purchased by consumers from a PowerBass dealer in another country are covered only by that country's Distributor and not by PowerBass USA.

This warranty covers only the original purchaser of PowerBass product. In order to receive service, the purchaser must provide PowerBass with the receipt stating the consumer name, dealer, product and date of purchase.

Products found to be defective during the warranty period will be repaired or replaced (with a product deemed to be equivalent) at PowerBass's discretion and will not be liable for incidental or consequential damages. PowerBass will not warranty this product under the following situations:

- **Electronics received with apparent rust or corrosion**
- **Any evidence of liquid damage or exposure to excessive heat**
- **Attempted repairs or alterations of any nature**
- **Product that has not been installed according to this owners manual**

Any implied warranties including warranties of fitness for use and merchantability are limited in duration to the period of the express warranty set forth above. Some states do not allow limitations on the length of an implied warranty, so this limitation may not apply. No person is authorized to assume for PowerBass any other liability in connection with the sale of this product.

**Please call (909) 923-3868 for PowerBass Customer Service.** You must obtain an RA# (Return Authorization Number) to return any product to PowerBass. **The RA number must be prominently marked on the outside of the shipping carton or the delivery will be refused.** Please pack your return carefully; we are not responsible for items damaged in shipping. Return the defective product along with a copy of the original dated retail sales receipt, plus \$12.00 for handling and diagnostic evaluation to:

**PowerBass USA, Inc.,  
Attn: Returns (RA# \_\_\_\_\_)  
2133 S. Green Privado, Ontario, CA 91761**

Residents of HI, AK and US territories will be charged for return shipping. All inquires regarding service and warranty should be sent to the above address.

**Removed or altered serial numbers will void this warranty**

**This manual is the exclusive property of PowerBass USA, Inc. Any reproduction of this manual, or use other than its intentions is strictly prohibited without the express consent of PowerBass USA, Inc. © Copyright 2014 PowerBass USA, Inc.**



PowerBass Autosound – A division of PowerBass USA, Inc.

2133 S. Green Privado – Ontario, CA 91761

Tel. (909) 923-3868 – Fax (909) 923-8048

[www.powerbassusa.com](http://www.powerbassusa.com)