



PBM-600.4

PBM-360.4

PBM-300.2

PBM-500.1

PBM SERIES MINI CLASS D AMPLIFIER Owners Manual

*Please read through this manual to familiarize yourself with your new amplifier.
Should your PowerBass amplifier 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 USA mobile amplifier! Our amplifiers are the result of extensive engineering, testing, and bullet proof construction. Their versatility enables compatibility with optional signal and audio processors. These high quality Class D amplifiers Have been configured to allow maximum flexibility in a mini size chassis resulting in more power in less space.



Δ Caution Δ

High powered audio systems in a vehicle are capable of generating higher than "Live Concert" levels of sound pressure. Continued exposure to excessively high volume sound levels will cause hearing loss or damage. Also, operation of a motor vehicle while listening to audio equipment at high volume levels may impair your ability to hear external sounds such as horns, warning signals, or emergency vehicles—thus creating a potential traffic hazard. In the interest of safety, PowerBass USA highly recommends listening at lower volume levels when driving.

TECHNICAL FEATURES

- High Efficiency Class D Design
- Full Range and Mono Block configurations
- Soft Delay Remote Turn On/Off Circuit Eliminates Pops and Clicks
- Variable high / Low Pass Electronic Crossover - PBM-600.4 / PBM-360.4 / PBM-300.2
- Variable Low Pass Electronic Crossover - PBM-500.1
- 12db @ 45Hz Variable Bass Boost Eq - PBM-300.2 / PBM-500.1
- Variable Subsonic Filter 10Hz-50Hz - PBM-500.1
- Self Diagnostic Protection Circuit with LED Status Indicator for; Impedance Over-load, Speaker Short Circuit, Thermal Overheating, and DC Output.
- Conformal Coated PCB for Dust, and Water Spray Protection
- Variable Gain Control
- Remote Level Control Included - PBM-300.2 / PBM-500.1

INSTALLATION EXPERIENCE

Installation of PowerBass mobile amplifiers requires detailed knowledge of electronics wiring and proper speaker impedance. We strongly recommend installation by an authorized PowerBass dealer. This Owners 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.

IMPORTANT: This amplifier is designed for operation in vehicles with 12-volt Negative ground electrical systems only.

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
- Electronic (Rosen Core not Acid Core) Solder

INSTALLATION PRECAUTIONS

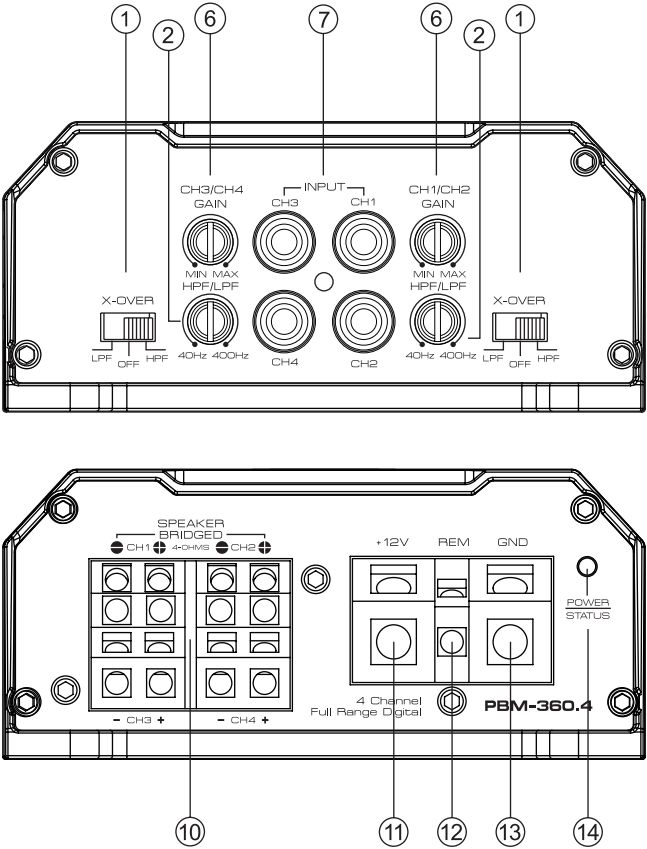
NOTE: Proceed only if you are a qualified installer, otherwise; see your Authorized PowerBass Dealer to professionally install this amplifier. Always wear protective eyewear when using tools.

- Turn off all stereo and other electrical devices before you begin.
- Disconnect the negative (-) lead from your vehicles battery.
- Locate all fuel lines, brake lines, oil lines, and electrical cables when planning the install.
- Make sure there is at least 2-inches (5 cm) around the air vents on the amplifier.
- When connecting ground points, make sure all paint is carefully scrapped away from the vehicle's chassis and contact is made with bare metal.
- Use a utility knife to trim away fabric from hole locations before drilling or cutting.
- When running power cables through sheet metal, be sure to use grommets to properly insulate the metal edges from the wire insulation.
- If possible, use tubing through grommets.

*** WARNING ***

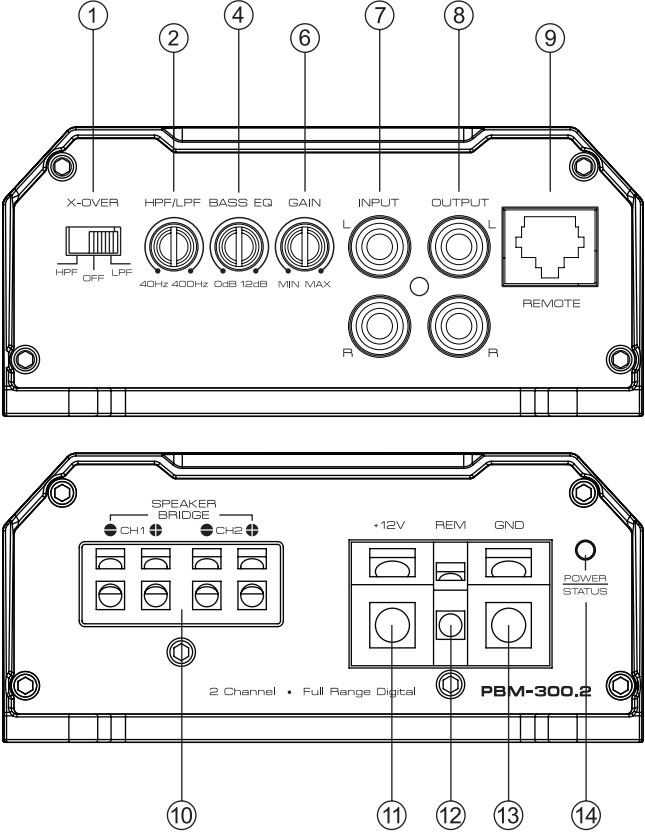
- Upside down mounting will compromise heat dissipation through the heatsink and could engage the thermal protection circuit.
- Try to avoid mounting the amplifier on a subwoofer enclosure, as extended exposure to vibration may cause malfunction of the amplifier.
- Don't mount the amplifier so that the wire connections are unprotected or are subject to pinching or damage from nearby objects.
- The DC power wire must be fused at the battery positive (+) terminal connection. Before making or breaking power connections at the amplifier power terminals, disconnect the DC power wire at the battery end.
- The battery of the car audio system must be disconnected until the entire wiring and installation is completed.
- Don't use a power drill to tighten the power, ground, remote or speaker output terminals on the amplifier to avoid stripping the terminal screws. It is best to hand tighten these connections.
- The use of Ring and Spade terminals (not included) provides the best electrical connection for use with the clamp style connections on this amplifier.

CONTROL PANEL LAYOUT 4-CH PBM-360.4 / PBM-600.4



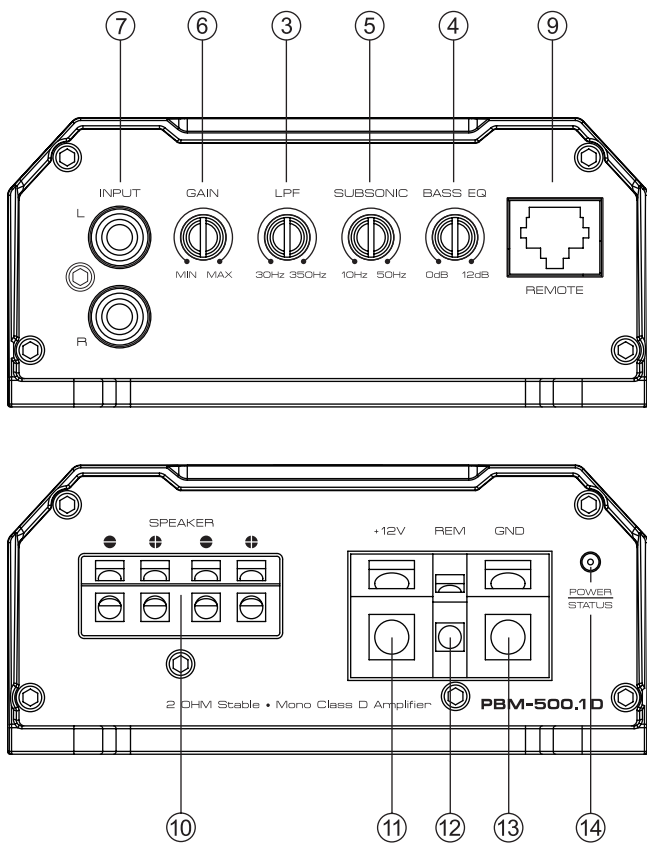
4-CH Panel Layout

CONTROL PANEL LAYOUT 2-CH PBM-300.2



2-CH Panel Layout

CONTROL PANEL LAYOUT MONOBLOCK PBM-500.1



1-CH Panel Layout

CONTROL PANEL

NOTE: Panel Layout and Controls may differ by model.

1. X-OVER Switch for FULL/HPF/LPF

Activates the built in electronic crossover network. Works in conjunction with the LPF and HPF adjustable control. PBM-300.2, PBM-360.4, PBM-600.4

2. HPF/LPF Control

This control is continuously adjustable from 40Hz through 400Hz at 12dB per octave when the X-OVER switch is set to HPF/LPF.

3. LPF (Low Pass Filter) Control

This filter controls low pass of frequencies and is adjustable from 30Hz through 350Hz to eliminate unwanted high frequencies.

4. Variable BASS EQ

This equalization circuit is used to enhance the low frequency response of the vehicle's interior. Selectable for 12dB of boost centered at 45Hz, the BASS EQ can be adjusted to meet your own personal taste.

5. SUBSONIC Control

This control is continuously adjustable from 10Hz through 50Hz at 12dB per octave to provide an extra level of subwoofer protection from bass robbing power at unheard frequencies.

6. GAIN Control

This control is used to match the input sensitivity of the amplifier to the particular source unit that you are using up to 10 volts.

7. LINE IN (RCA) Jacks

These RCA style input jacks are for use with source units that have RCA line level outputs. A source unit with a minimum output of 250mV is required for proper operation. However, this input will accept levels up to 10Vrms.

8. LINE OUT (RCA) Jacks

RCA style pass through output jacks allow for a signal to be sent to other amplifiers.

9. REMOTE LEVEL PORT

This is the connector port for the optional Remote Gain Control. Now the amplifiers secondary gain circuit can be adjusted from the driver's seat. PBM-300.2, PBM-500.1

10. SPEAKER Output Terminals

As shown in the wiring diagrams, be sure to observe speaker polarity through the system and speaker impedance. The clamp style wire terminal is designed to accommodate up to 12 gauge speaker wire.

11. BATT+ (Power Input Terminal)

This terminal is the main power input for the amplifier and must be connected directly to the positive (+) terminal of the car battery. The clamp style wire terminal is designed to accommodate up to 4-gauge wire. See Power Cable Selection Chart for recommended wire gauge for each model.

12. REM (Remote Input Terminal)

All PowerBass amplifiers can be turned on by applying 12 volts to this terminal. This can be found on the rear of the source unit in the form of a remote output. If this is not available you can wire to the ACC position on the key. An 18 gauge wire is sufficient to run the REMOTE.

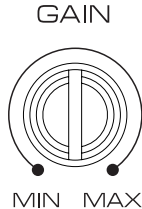
13. GND (Ground Input Terminal)

A good quality ground is required for your PowerBass amplifier to operate at peak performance. A short length of cable the same gauge as your power cable should be used to attach the ground terminal directly to the chassis of the vehicle. The clamp style wire terminal is designed to accommodate up to 4-gauge wire (#10 ring). Make sure that all of the paint is sanded or scraped away to ensure a quality ground connection.

14. POWER/STATUS Indicator

The clear LED turns GREEN when the power is on. Should the LED turn RED this is an indicator there is a problem with the system in relation to the amplifier (see Troubleshooting Tips).

SET UP ADJUSTMENTS



Input Gain Adjustment

This control allows you to match the input level of the amplifier to the output level of your head unit. Matching the input can be accomplished in four simple steps:

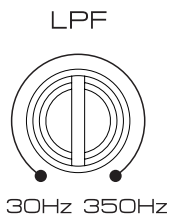
1. Make sure that the remote gain control is not plugged in until after the master gain control is set.
2. Set the GAIN control on the amplifier to Min (completely counter clock wise).
3. Turn on the head unit and adjust volume to 2/3 maximum, and set the BASS and TREBLE to zero.
4. Adjust the LEVEL control clockwise until the sound just begins to distort, then back off slightly to cut distortion and operate at optimum gain.

Remember, the **GAIN control is not a volume control**. Ignoring these four steps above may leave you with damaged speaker and/or a damaged amplifier.



Subsonic Adjustment

The subsonic filter is a 12 dB/octave high-pass filter, with a fully variable cutoff frequency between 10 - 50 Hz. When set at frequencies lower than 33 Hz, it conserves amplifier power without audibly affecting the quality of the sub-bass output.



LPF (Low Pass Filter) Adjustment

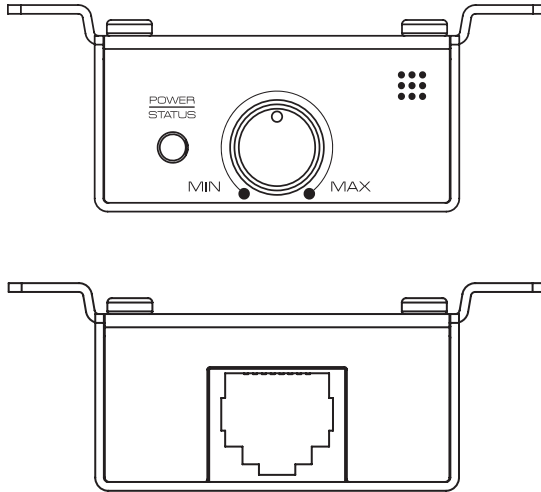
The crossover frequency adjustments filters out frequencies to fine tune your speakers to reproduce sound the way each one was intended. Since musical tastes vary, adjust the crossover by ear while listening to the music of your choice. Be sure to set the tone controls of your source unit to flat before adjusting the crossover. To use the HPF/LPF Network you must select the type you want to apply using the selector switch. Note the PBM-500.1 is only equipped with an LPF Low Pass Crossover.

BASS EQ



Variable Bass EQ

This special feature is designed to provide you more powerful sound quality, and it allows you to boost the Bass EQ to 12dB. Keep in mind that more is not always better. Setting the control to the max (12dB) will stress the amplifier and the speakers and could result in damage.



Remote Level Controller Connection

A Remote Level control module is included with the PBM-500.1 and PBM-300.2 Amplifiers. Simply insert one end of the REMOTE CABLE into the REMOTE LEVEL port. Plug the other end into the remote module. Install the module within easy reach on or under your dash.

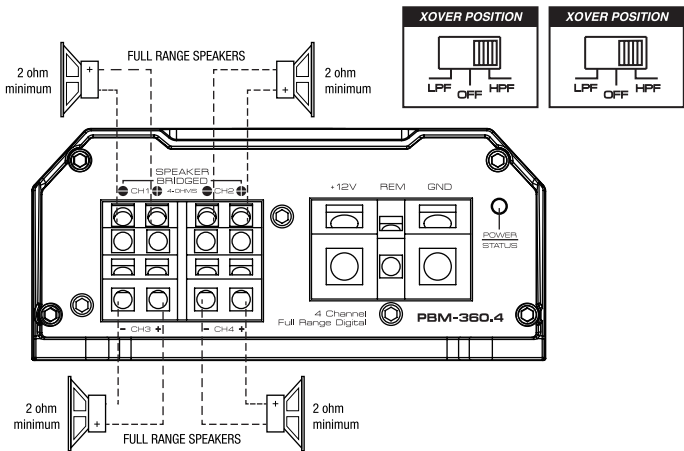
 **Tech Support**
8:30am-5:30pm Pacific Time
(909) 923-3868
www.powerbassusa.com

SPEAKER OUTPUT CONFIGURATIONS 4-CH PBM-360.4 / PBM-600.4

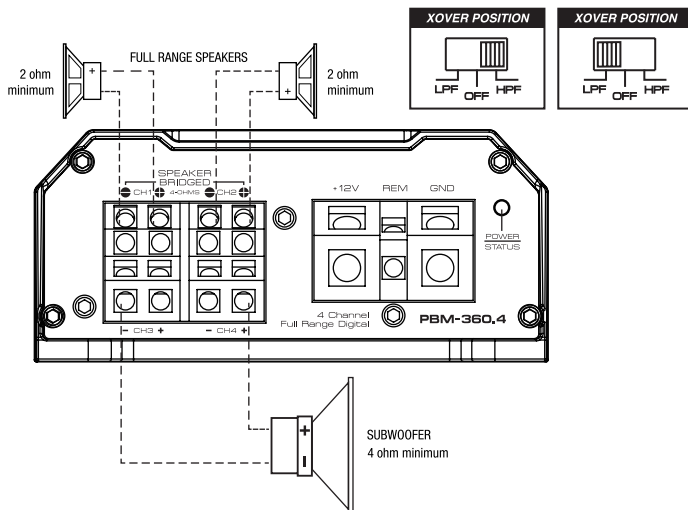
2-OHM STABLE DESIGN Minimum Impedance Load is 2-Ohm

Maintaining proper impedance is critical when wiring the Class D model amplifiers. Improper wiring can cause severe damage to BOTH the woofer and the amplifier. Detailed wiring diagrams are supplied with all PowerBass woofers. IF YOU ARE NOT EXPERIENCED OR UNCOMFORTABLE READING THE WIRING DIAGRAMS CONSULT YOUR AUTHORIZED POWERBASS DEALER BEFORE YOU ATTEMPT TO WIRE THE SYSTEM.

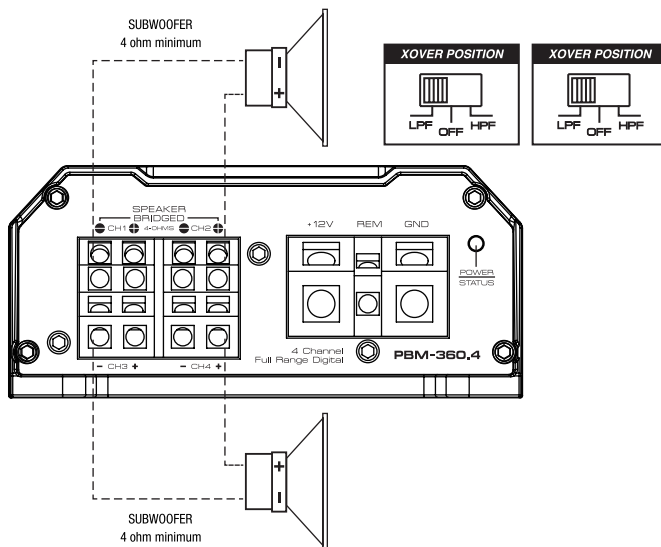
1. 4-CHANNEL SPEAKER OUTPUT CONNECTION



2. 3-CHANNEL (BRIDGED MODE) SPEAKER OUTPUT CONNECTION



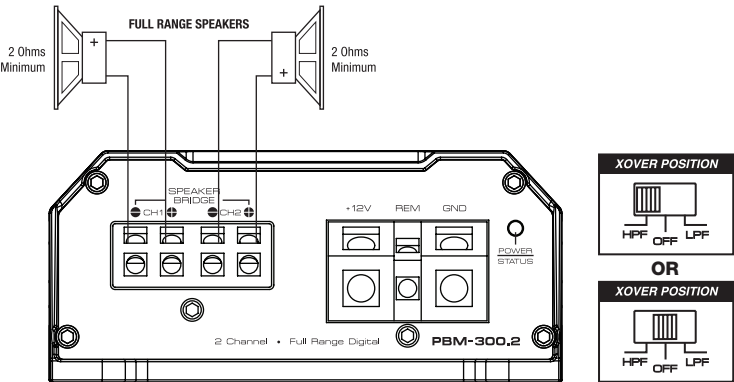
2. 2-CHANNEL (BRIDGED MODE) SPEAKER OUTPUT CONNECTION



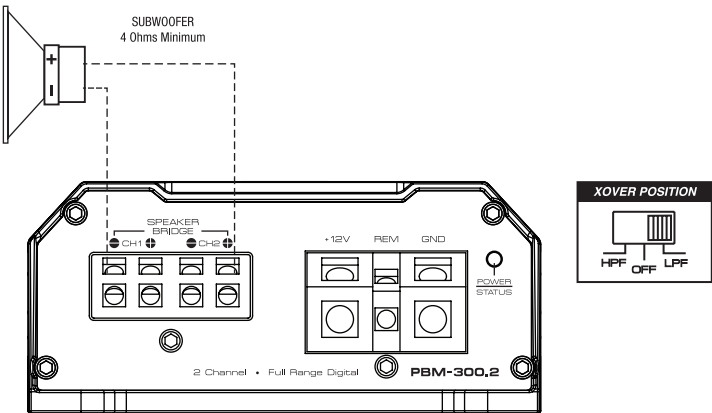
SPEAKER OUTPUT CONFIGURATIONS 2-CH PBM-300.2

2-OHM STABLE DESIGN Minimum Impedance Load is 2-OHM

1. 2-CHANNEL SPEAKER OUTPUT CONNECTION



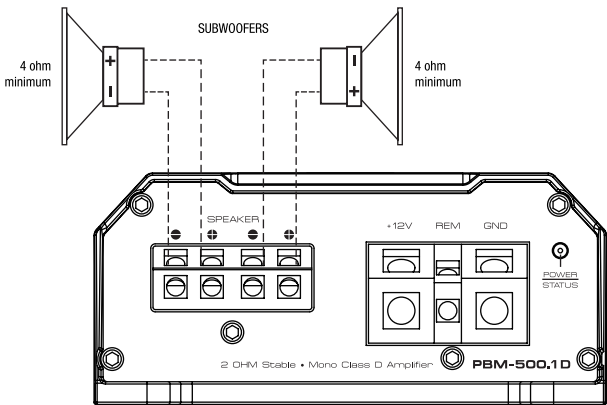
2. 1-CHANNEL (BRIDGED MODE) SPEAKER OUTPUT CONNECTION



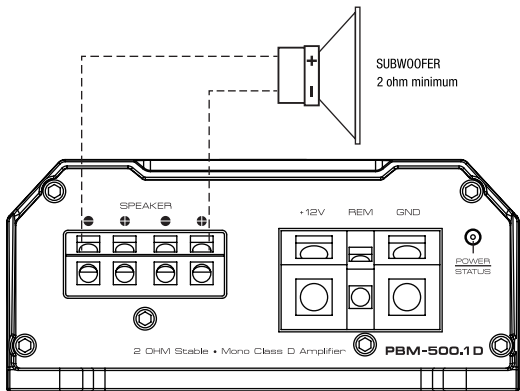
SPEAKER OUTPUT CONFIGURATIONS MONOBLOCK PBM-500.1

2-OHM STABLE DESIGN Minimum Impedance Load is 2-OHM

1. TWO SUBWOOFER OUTPUT CONNECTION



2. ONE SUBWOOFER OUTPUT CONNECTION



RECOMMENDED WIRE SIZES

Power Cable Selection Chart							
Fuse Total	4Ft	4-7Ft	7-10Ft	10-13Ft	13-16 Ft	16-19 Ft	19-22 Ft
In Amperes	Length of Wire/Gauge						
150A - 200A	2 GA	2 GA	2 GA	*1/0*	*1/0*	*1/0*	*1/0*
125A - 150A	4 GA	4 GA	4 GA	4 GA	2 GA	2 GA	2 GA
105A - 125A	8 GA	8 GA	8 GA	4 GA	4 GA	4 GA	2 GA
85A - 105A	8 GA	8 GA	8 GA	4 GA	4 GA	4 GA	4 GA
65A - 85A	10 GA	8 GA	8 GA	8 GA	4 GA	4 GA	4 GA
50A - 65A	10 GA	10 GA	8 GA	8 GA	8 GA	8 GA	8 GA
35A - 50A	10 GA	10 GA	10 GA	8 GA	8 GA	8 GA	8 GA

PowerBass makes several types of amplifier wiring kits to assist with the installation of your PowerBass amplifier. Consult your local PowerBass dealer for details. For more information about recommended power wire check out our website at www.powerbassusa.com.

PERSONAL NOTES:

Name: _____

Date Purchased: _____

Dealer: _____

Installed By: _____

Model: _____

Serial Number: _____

Miscellaneous: _____

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TROUBLESHOOTING TIPS

Problem	Solution
Power LED not ON	With a Volt Ohm Meter (VOM) check: +12 Volt power terminal (should read +12 to +16VDC) - Remote turn-on terminal (should read +12 to +16VDC) - Ground Terminal
Power LED lights GREEN, no output	- Check RCA connections - Test speaker outputs with known good speaker - Substitute known good Source Unit - Check for signal on the RCA cable with VOM in AC position
Red Status Protection LED is ON, no output and 1. Amp is VERY HOT 2. Amp shuts down ONLY when the vehicle is running 3. Amp plays at very low volume	- Thermal protection is engaged. Check for proper impedance at speaker terminals. Also check for adequate air flow around the amplifier. - Voltage protection engaged. Voltage to the amp is not within the 10-16.5 VDC operating range. Have the battery/charging system inspected. - Short circuit protection is engaged. Check for speaker wires shorted to each other or the vehicle chassis. Speakers operating below the minimum impedance can cause this to occur.
Alternator noise (varies with RPM)	- Check for damaged RCA cable. - Check routing of RCA cable - Check Source Unit for good ground - Check amp gain setting, turn down if set too high - Check for chassis Ground short on speakers
Poor Bass Response	Check woofer polarity, reverse the connection of one speaker only.

NOTE: If the Status L.E.D. is activated and glows RED with no speakers connected to the amplifier, and all the power connections are correct, this would indicate an internal problem with the amplifier. Contact PowerBass USA or your local dealer.

SPECIFICATIONS FOR PBM SERIES CLASS D MINI AMPLIFIERS

Two Channel Models	PBM-500.1	PBM-300.2	PBM-360.4	PBM-600.4
4 Ohms RMS Power (Watts)	250 x 1	75 x 2	45 x 4	75 x 4
2 Ohms RMS Power (Watts)	500 x 1	150 x 2	90 x 4	150 x 4
	n/a	300 x 1 @ 4Ω	180 x 2 @ 4Ω	300 x 2 @ 4Ω
Peak Music Power (Watts)	1000	600	720	1200
THD @ RMS Power	0.5%	0.5%	0.5%	0.5%
Frequency Response	10Hz - 400Hz	20Hz - 20kHz	20Hz - 20kHz	20Hz - 20kHz
S/N Ratio (EIA Rated)	>85dB	>99dB	>99dB	>99dB
Input Sensitivity	0.25V - 10.0 Volts	0.25V - 10.0 Volts	0.25V - 10.0 Volts	0.25V - 10.0 Volts
Crossover Slope	12dB	12dB	12dB	12dB
HPF/LPF Crossover Freq. (Hz)	30 - 350Hz	40 - 400Hz	40 - 400Hz	40 - 400Hz
Bass EQ	0-12dB	0-12dB	n/a	n/a
Subwoofer EQ Freq.	45Hz	45Hz	n/a	n/a
Recommended Fuse Size	60A	60A	40A	80A
Dimension (2.0" H x 4.5" W)	7.5" L	6.0" L	6.0" L	6.0" L
Dimensions (50mm H x 180mm W)	190.5mm L	152.4mm L	152.4mm L	152.4mm L

IMPORTANT NOTES:

- 1) Due to the small chassis size, PBM Series Amplifiers do not have on board fuses. Because of this it is critical that you fuse your 12V+ connection properly with a recommended fuse value from the chart above.
- 2) Due to continuing improvements these specifications are subject to change without any notice.
- 3) Do not attempt to fix or repair this unit. Unauthorized repairs will void the manufacturer's warranty.



Tech Support

8:30am-5:30pm Pacific Time

(909) 923-3868

www.powerbassusa.com

POWERBASS LIMITED WARRANTY POLICY

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

PowerBass Amplifiers 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:

- **Amplifiers 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



PowerBass USA Inc
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