



PBX-800.1D
PBX-1200.1D
PBX-2000.1D
PBX-3000.1D

PBX High Efficiency Class D Mono Amplifier

Owners Manual

Please read through this manual to familiarize yourself with your new amplifier. Should your PowerBass PBX mobile 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 PBX mobile amplifier! Our new high efficiency amplifiers are the result of extensive engineering, and testing, to develop the best sounding and most efficient power delivery we have ever produced. With the success of our previous XMA Series our engineers went to work on the PBX Series with the goal of creating true works of art featuring high quality parts and an ultra efficient circuit design proving to be some of the best Class D amplifiers on the market today.

Their versatility enables compatibility with optional signal and audio processors. These high quality MOSFET amplifiers may be configured to allow maximum flexibility in designing different types of speaker systems.

CLASS D HIGH EFFICIENCY AMPLIFIERS

The PowerBass PBX Series high efficiency amplifiers are ultra high quality MOSFET amplifiers that are capable of running a system full range, or they may be selected only to power subwoofers. It is important that you closely follow the wiring instructions contained in this Owners Manual so that you get the most from your PowerBass PBX mobile amplifier.

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 could 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

- Front Load Terminal Design
- PWM MOSFET Power Supply
- International Rectifier® Chip Set
- Ultra Low Current Draw
- High Damping Control Circuit
- High Efficiency SMD Circuit Technology
- Digital Sound Optimization Circuitry
- Quiet Switching
- High Current Voltage Ripple Rejection Circuitry
- Virtual Silence Turn On/Off Mute Circuit
- Temperature Controlled Output Current Limiting Protection
- Wired Remote Level Control
- Calibrated Visual Clip Indicator
- Balanced RCA Input Connectors
- 41 Click Sub Sonic Filter Control
- 41 Click LPF Control
- Selectable Auto Turn-On Circuitry
- Quiet Fan Cooling

CONTROL PANEL LAYOUT

1. Line INPUT (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.

2. GAIN Control

Used to match the input sensitivity of the amplifier to the particular source unit that you are using up to 10 volts.

3. SUB SONIC Control 41 Click Detent Control

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

4. LPF (Low Pass Filter) Control 41 Click Detent Control

This filter allows low pass of frequency and is adjustable from 25Hz through 250Hz to eliminate unwanted high frequencies.

5. REMOTE LEVEL (RJ12 Jack)

This is the 6-pin connector port for the Remote Level Control. Now the amplifiers secondary gain circuit can be adjusted from the driver's seat. The PBX Remote also features a Calibrated Clipping Indicator light to show when the amplifier output is clipping.

6. SELECTABLE AUTO-TURN ON

Eliminates the need to run a dedicated remote wire for amplifier power on/off. Works with high level only (HL-AD2 adapter required as shown on page 7)

7. SPEAKER Output Terminals

As shown in the wiring diagrams, be sure to observe speaker polarity through the system and speaker impedance.

8. POWER/STATUS Indicator Light

The LED lights up GREEN for power on and normal operation. The second LED will light up RED when there is a problem when the built-on protection circuitry is activated. The PBX Series Amplifiers also have a built in clipping indicator LED that will light up RED when the signal is clipped indicating you will need to make adjustments to your gain control settings.

9. BATT+ (Power Input Connection)

This solderless terminal is the main power input for the amplifier and must be connected directly to the positive (+) terminal of the car battery. This solderless terminal accepts up to 4 gauge wire on PBX-800.1D /1200.1D, 0 Gauge on PBX-2000.1D/3000.1D models. (see Power Cable Selection Chart for recommended wire gauge for each model).

10. REM (Remote Input Connection)

All PowerBass PBX Series 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.

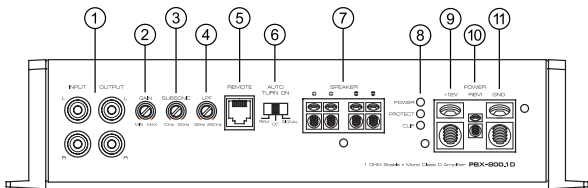
11. GND (Ground Input Connection)

A good quality ground is required for your PowerBass PBX Series Class D 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. Make sure that all of the paint is sanded or scraped away to ensure a quality ground connection.

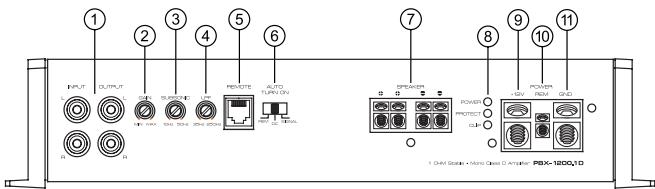
12. COOLING FAN

Variable speed fan pulls cool air in.

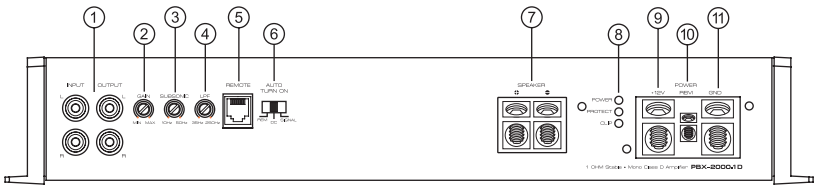
CONTROL PANEL LAYOUT (continued)



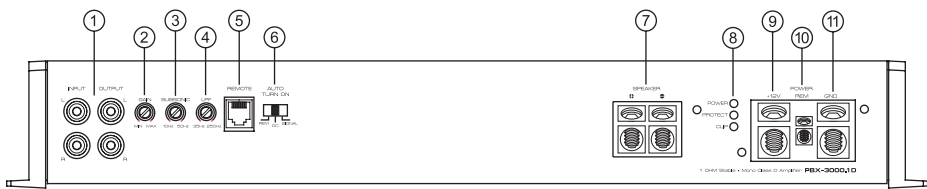
12
PBX-800.1D



12
PBX-1200.1D



12
PBX-2000.1D



12
PBX-3000.1D

This amplifier is designed to work within a 9-16 volt DC range. Before any wires are connected, the vehicles electrical system should be checked for correct voltage supply with the help of a voltmeter.

NOTE: Bare wires should be tinned with solder for maximum current flow.

FUSE REQUIREMENTS

It is absolutely vital that the main power lead to the amplifier(s) in the system be fused within 18-inches (45cm) of the connection to the vehicle battery. The value of this fuse (or circuit breaker) should be no greater than the sum of the fuses found on all of the equipment being connected to that power wire.

NOTE: Due to space limitations, the PBX-Series Amplifiers do NOT use chassis mounted protective fuses. Therefore you must add a fuse and fuse holder (not included) Please refer to the recommendations: [PBX-800.1D - 80A] [PBX1200.1D - 120A] [PBX-2000.1D - 175A] [PBX-3000.1D - 250A]

AUTO TURN-ON -SELECTOR SWITCH

When put in the REM position the AUTO ON is disabled , and you will need to run a remote turn on wire and attach it to the terminal marked REM located between the amplifiers BATT+ and GND power terminals. Enabling the High Level Auto Turn-on circuit eliminates the need to run a separate Remote Turn-on Lead but does Require the use of the optional HL-AD2 wiring Harness (see page 7).

When this is in the DC position it will sense DC Voltage offset or change and will turn on and off the amplifier. When this is in the SIGNAL position it will sense the input signal voltage and will turn on the amp or turn off when the signal is not being passed through its input.

CONNECTIONS TO AMPLIFIER FOR BATT+, GND, REM AND SPEAKERS

Your PowerBass Xtreme amplifier features specially tooled solderless terminals for Power (BATT+), Ground, Remote, and Speaker connections. For maximum transfer of Voltage and Signal the bare wire needs to be inserted as far as possible into the terminal before tightening the set screw. For Power (BATT+) and Ground connections it is highly recommended that the bare ends of the wires are tinned with solder before inserting them into the terminal. Hand tighten the set screw and make sure the connection is secure to prevent possible arcing due to loose screws.



HIGH INPUT PLUG

The balanced input of this PBX series amplifier can receive either low RCA or high speaker lead level signals from the source unit (radio). A high level signal can be run from the source units speaker lead outputs to the low level RCA amplifier inputs via the PowerBass HL-AD2 wiring harness (available separately as shown below).

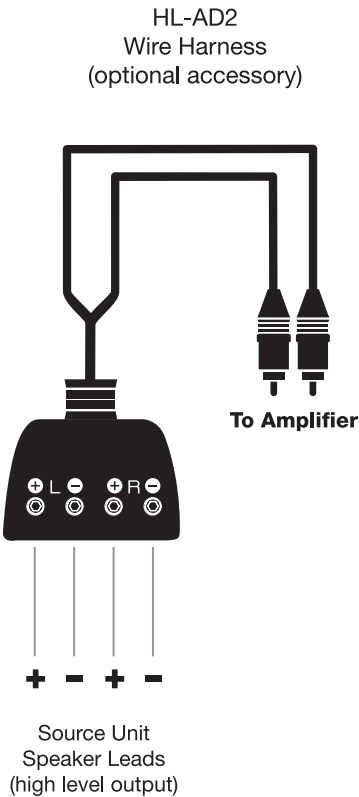


Fig.1 Optional High Level Input

SET UP ADJUSTMENTS



Fig.2 GAIN Control

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 level 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 GAIN control clockwise until the sound just begins to distort, then back off slightly to cut distortion and operate at optimum gain.
5. Pay attention to the CLIP indicator light, once illuminated you are clipping the outputs signal and need to lower your gain setting.

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



Fig.3 Sub Sonic Adjustment

SUB SONIC 41 Click Detent Control

The subsonic control will filter out all frequencies below where the control is set and prevent those frequencies from going to your subwoofer(s). This will prevent your subs from playing any low frequencies that may harm the speaker. When this amplifier is used with a subwoofer in a Vented Woofer application it is important to set the frequency of the filter to cutoff $\frac{1}{2}$ octave below the vent frequency. This will prevent the woofer unloading from bass notes which are too low for the vented woofer. Once the woofer is unloaded it is operating as a free air driver and may experience damage by striking the back plate or by shearing off the spider. Proper setting of the subsonic filter is critical.

See the chart on page 12 to set the subsonic filter to the precise cutoff frequency.



Fig.4 Low Pass Control

LPF (Low Pass Filter) Adjustment

The crossover frequency adjustment filters out frequencies that you don't want your subwoofer(s) to reproduce. Using the LPF control, adjust the Low Pass Frequency to limit the amount of mid range you want going to your woofer(s). 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.

See the chart on page 12 to set the Low Pass filter to the precise frequency.

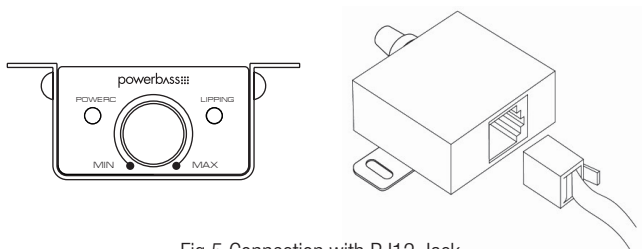


Fig.5 Connection with RJ12 Jack

REMOTE LEVEL Controller Connection

Your PowerBass PBX Series Class D amp includes a Remote Level control module. It uses standard telephone wire and telephone RJ12 connectors. To connect the Remote Level Control to the amplifier, simply insert one end of the 6-pin telephone plug into the REMOTE LEVEL port.

Plug the other end into the remote module. Install the module within easy reach on or under your dash. With this remote level control you are able to adjust the output level desired for various tracks or musical situations. The Calibrated Visual clip Indicator located on the remote level control will also give you a visual indication that you have exceeded clean output levels and need to reduce the level to ensure you do not do damage to your subwoofers.

SPEAKER WIRING AND CONFIGURATIONS

Speaker Load

The minimum speaker impedance is 1 ohm. If you are unsure of calculating impedance loads please consult your Authorized PowerBass Dealer before damaging your amplifier.

Lower impedance will send the amplifier into protection and possibly damage the electronics inside.

Note: Know your load before connecting speakers.

Speaker Wiring

Choose the correct speaker wire for your application. We recommend a minimum of 14 gauge wire. Route these using the same precautions as you did when you ran the power cable. Terminate these wires at the speaker end using insulated speaker terminals (not supplied) or by soldering the connection to the speaker. Be certain to maintain correct polarity throughout the system. Make sure the speaker connections are positive-to-positive and negative-to-negative. Most speaker wire has some indicator (color code, ribbing, or printing) on one of the two wires to help you distinguish the positive (+) and negative (-) leads.

At the amplifier end, insert the stripped (bare) speaker wires into the properly marked terminals. Use an Allen wrench to loosen the speaker terminals on the amplifier. Make certain that no bare wire ends touch each other. Such contact could result in an electrical short and cause the amplifier to turn off (short circuit protection) or malfunction.

Subwoofer Output 1 and Subwoofer Output 2

Although the PBX Series Amplifiers have two sets of speaker outputs, these are mono outputs that cannot be bridged. The two sets of outputs are paralleled inside the amp to a single channel. This gives you ease during the installation of wiring multiple voice coils or woofers.

NOTE: It is highly recommended that an Allen wrench is used to tighten the set screws in the terminal blocks by hand and NOT a power drill. This will prevent stripping or other possible damage to the amplifier.

PBX-800.1D and PBX-1200.1D SPEAKER OUTPUT CONFIGURATIONS

1-OHM STABLE DESIGN Minimum Impedance Load is 1-Ohm

1. TWO SINGLE VOICE COIL SUBWOOFER SPEAKER

(Note: Don't connect speaker impedance under 1 ohm)

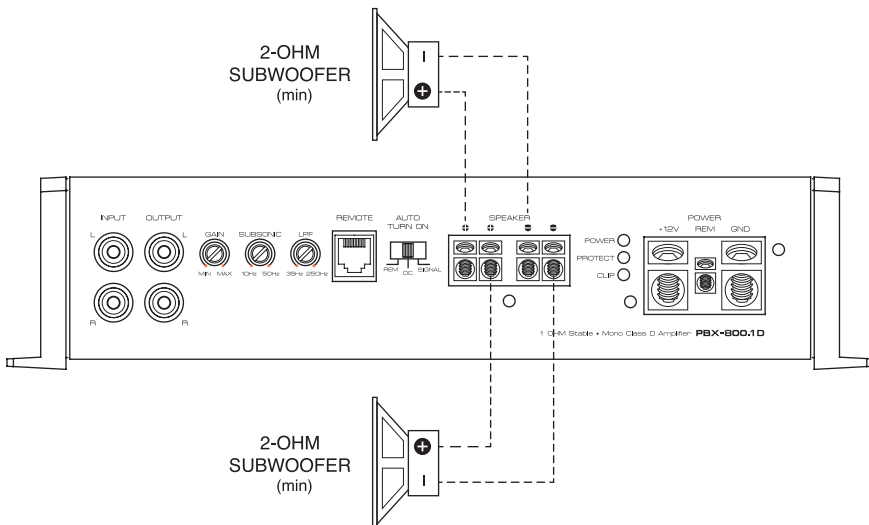


Fig.6 Two Single Voice Coil Subwoofer (2~4 ohms)

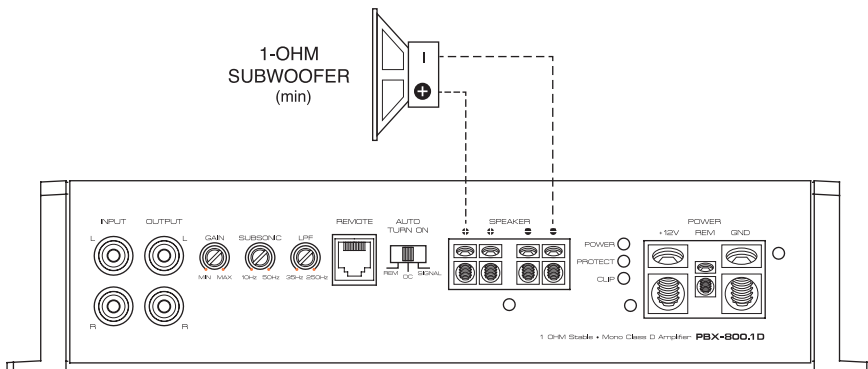


Fig.7 One Single or Dual Voice Coil Subwoofer (1~4 ohms)

PBX-2000.1D and PBX-3000.1D SPEAKER OUTPUT CONFIGURATIONS

1-OHM STABLE DESIGN

1. A SINGLE VOICE COIL SUBWOOFER SPEAKER

(Note: Don't connect speaker impedance under 1 ohm)

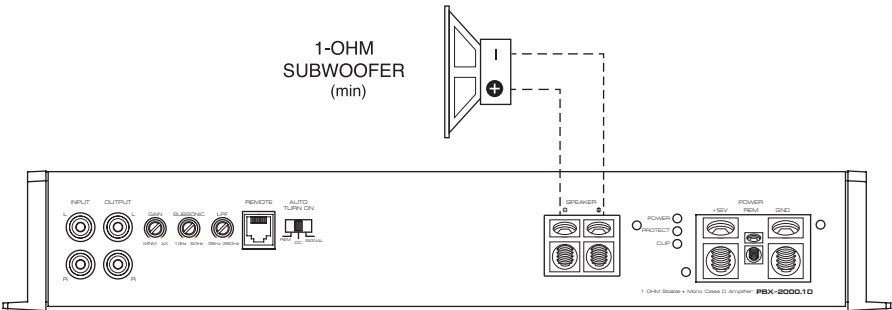


Fig.8 A Single Voice Coil Subwoofer (1~4 ohm)

1. TWO SINGLE VOICE COIL SUBWOOFER SPEAKER

(Note: Don't connect speaker impedance under 1 ohm)

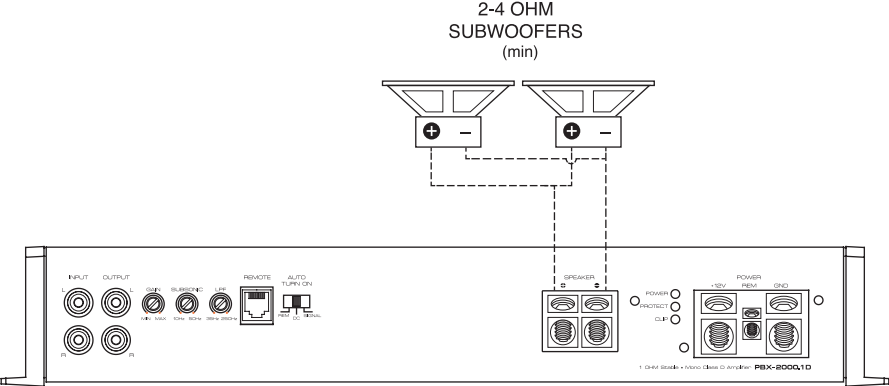


Fig.9 Two 2-ohm Subwoofers with Single Voice Coil (1 ohm min)



41 CLICK PRECISION ROTARY CONTROLS

These controls allow precise setting of the electronic crossover and subsonic settings on the amplifier, thus taking the guesswork out of tuning your speakers. Using a small slotted screwdriver make sure the controls are turned all the way to the left (counter clockwise). Refer to the chart and count the clicks (advancing one detent at a time clockwise) until you have reached the desired frequency.

This precise method of setting the crossover controls is available for the LPF and SUBSONIC FREQ features on this amplifier.

PBX Series Monoblock Amplifiers

Click Position	Low Pass Frequency	Subsonic Frequency
1	34.8Hz	11.2Hz
2	34.8Hz	11.2Hz
3	34.8Hz	11.2Hz
4	34.8Hz	11.2Hz
5	34.8Hz	11.2Hz
6	35Hz	11.4Hz
7	36.6Hz	12.1Hz
8	38.9Hz	12.9Hz
9	41.5Hz	13.9Hz
10	44.7Hz	14.8Hz
11	48Hz	16Hz
12	51.9Hz	17.5Hz
13	56.5Hz	18.9Hz
14	61.7Hz	20.7Hz
15	67.8Hz	22.9Hz
16	75.4Hz	25.1Hz
17	83.9Hz	27.8Hz
18	95.2Hz	31.5Hz
19	109.6Hz	35.4Hz
20	123.6Hz	36.3Hz
21	127.7Hz	37.3Hz
22	133.7Hz	38.1Hz
23	138.5Hz	39.3Hz
24	144.2Hz	40.3Hz
25	150.8Hz	41.2Hz
26	156.6Hz	42.6Hz
27	164Hz	43.9Hz
28	173.2Hz	45.3Hz
29	182.2Hz	46.5Hz
30	192.3Hz	48.1Hz
31	205.9Hz	49.5Hz
32	218.6Hz	51.3Hz
33	228.6Hz	51.9Hz
34	234.1Hz	52.5Hz
35	238.2Hz	52.7Hz
36	243.3Hz	53.8Hz
37	254.3Hz	54.1Hz
38	259.8Hz	54.4Hz
39	266.6Hz	55.1Hz
40	267.4Hz	55.4Hz
41	267.4Hz	55.5Hz

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						
250A+	*1/0*	*1/0*	*1/0*	*1/0*	*1/0*	*1/0*	*1/0*
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

PowerBass makes several types of amplifier wiring kits to assist with your installation. 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: _____

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 2024 PowerBass USA, Inc.

TROUBLESHOOTING TIPS

Problem	Solution
Power LED not ON	With a Volt Ohm Meter (VOM) check: <ul style="list-style-type: none"> • +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	<ul style="list-style-type: none"> • Check RCA connections • Test speaker outputs with known good speaker • Substitute known good Source Unit • Check for signal on the RCA cable
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 has no output	<ul style="list-style-type: none"> • 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 VDC operating range. Have the battery/charging system inspected. • Possible short circuit. Check speaker wiring. Must completely turn off amplifier and restart to resume play.
Alternator noise (varies with RPM)	<ul style="list-style-type: none"> • 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
Poor Bass Response	<ul style="list-style-type: none"> • Check speaker 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 PBX SERIES MONO AMPLIFIERS

POWERBASS XTREME CLASS D	PBX-800.1D	PBX-1200.1D	PBX-2000.1D	PBX-3000.1D
1 Ohms RMS at THD <0.4%	800 x 1	1200 x 1	2100 x 1	3000 x 1
2 Ohms RMS at THD <0.4%	600 x 1	800 x 1	1600 x 1	2000 x 1
4 Ohms RMS at THD <0.4%	400 x 1	500 x 1	1100 x 1	1200 x 1
Full Power Efficiency Avg.	≥ 90%	≥ 90%	≥ 90%	≥ 90%
Signal to Noise Ratio (EIA Rated)	> 95dB	> 93dB	> 93dB	> 93dB
Frequency Response	10Hz - 300Hz	10Hz - 300Hz	10Hz - 300Hz	10Hz - 300Hz
CROSSOVER				
Low Pass Filter	35Hz - 250Hz	35Hz - 250Hz	35Hz - 250Hz	35Hz - 250Hz
Crossover Slope	24dB	24dB	24dB	24dB
Sub Sonic Filter	10Hz - 50Hz	10Hz - 50Hz	10Hz - 50Hz	10Hz - 50Hz
Input Gain Control	250mV - 7.0 V	250mV - 7.0 V	250mV - 7.0 V	250mV - 7.0 V
Fuse Rating / Style	80A	120A	175A	250A
DIMENSIONS				
Width (W) x	7.0" (178mm)	7.0" (178mm)	7.0" (178mm)	7.0" (178mm)
Height (H) x	2.25" (57mm)	2.25" (57mm)	2.25" (57mm)	2.25" (57mm)
Length (L) mm	10.25" (261mm)	11.25" (286mm)	14.0" (356mm)	16.0" (407mm)

IMPORTANT NOTES:

- Due to continuing improvements these specifications are subject to change without any notice.
- Do not attempt to fix or repair this unit. Unauthorized repairs will void the manufacturer's warranty.

***FUSE NOTE:** Due to space limitations, the PBX Series Amplifiers do NOT use chassis mounted protective fuses. Therefore you must add a fuse and fuse holder (not included) Follow the fuse rating above.

POWERBASS ELECTRONICS LIMITED WARRANTY POLICY

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

PowerBass PBX SERIES 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.

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 inquiries regarding service and warranty should be sent to the above address.

Removed or altered serial numbers will void this warranty



PowerBass Xtreme – A division of PowerBass USA, Inc.

2133 S. Green Privado – Ontario, CA 91761

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

www.powerbassusa.com