

## Power Acoustik CB1-2500D

# Power Acoustik CB1-2500D 2500W Class D Amplifier User Manual

Model: CB1-2500D

## 1. INTRODUCTION

This manual provides detailed instructions for the installation, operation, and maintenance of your Power Acoustik CB1-2500D Class D Amplifier. This single-channel amplifier is designed to deliver 2500 Watts of power, featuring direct short, thermal, and overload circuit protection, high/speaker level and low level/RCA inputs, and variable 12dB high and low pass crossovers. A dash-mount remote control is also included for convenient bass level adjustment.



Figure 1.1: Top view of the Power Acoustik CB1-2500D Class D Amplifier, showing the brand logo and model number.

## 2. SAFETY INSTRUCTIONS

Read all instructions carefully before installing and operating the amplifier. Failure to follow these guidelines may result in damage to the amplifier, vehicle, or personal injury.

- **Professional Installation Recommended:** Due to the complexity of car audio systems and high power requirements, professional installation is highly recommended.

- **Power Source:** Ensure the vehicle's electrical system can support the amplifier's power requirements. Use appropriate gauge wiring for power and ground connections to prevent overheating and potential fire hazards.
- **Fusing:** Always install an external fuse on the main power cable within 18 inches (45 cm) of the vehicle's battery. The fuse rating should match the amplifier's current draw (208.33 Amps for this model).
- **Ventilation:** Mount the amplifier in a location that allows for adequate air circulation to prevent overheating. Avoid mounting in enclosed spaces without airflow.
- **Grounding:** Ensure a secure, direct-to-chassis ground connection using the shortest possible cable.
- **Avoid Moisture:** Do not expose the amplifier to moisture or water.
- **Secure Mounting:** Securely mount the amplifier to prevent it from becoming a projectile in the event of a sudden stop or accident.

### 3. PACKAGE CONTENTS

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Verify that all items are present in the package:

- Power Acoustik CB1-2500D Class D Amplifier
- Dash Mount Remote Control
- Mounting Hardware (screws, etc.)
- User Manual (this document)

### 4. INSTALLATION

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#### 4.1. Mounting Location

Choose a mounting location that provides sufficient ventilation for the amplifier. Avoid mounting it directly on carpet or in enclosed spaces without airflow. The amplifier can be surface mounted. Ensure the mounting surface is solid and can support the amplifier's weight.

#### 4.2. Wiring Connections

Refer to the diagram below for proper wiring connections. Disconnect the vehicle's negative battery terminal before making any electrical connections.



**Figure 4.1:** Rear panel of the CB1-2500D amplifier showing power, speaker, and input connections.

- **Power (+12V):** Connect a heavy gauge power cable (0 AWG recommended due to 208.33 Amp current draw) from the vehicle's positive battery terminal to the +12V terminal on the amplifier. Install an appropriate fuse (200-250A) within 18 inches of the battery.
- **Ground (GND):** Connect a heavy gauge ground cable (0 AWG recommended) from the amplifier's GND terminal to a clean, bare metal point on the vehicle's chassis. Ensure the connection is secure and free of paint or rust.
- **Remote (REM):** Connect a remote turn-on wire from your head unit's remote output to the REM terminal. This wire turns the amplifier on and off with your head unit.
- **Speaker Output:** Connect your subwoofer(s) to the SPEAKER terminals. This is a single-channel (mono) amplifier. Ensure correct polarity.

- **Input (RCA):** Connect RCA cables from your head unit's pre-amp output to the INPUT RCA jacks on the amplifier.
- **High/Speaker Level Input:** If your head unit does not have RCA outputs, use the high-level input. Connect the speaker wires from your head unit to the high-level input connector (typically a multi-pin connector).
- **Remote Level Control:** Connect the included dash-mount remote control to the "REMOTE" port on the amplifier.



Figure 4.2: Dash-mount remote control for bass level adjustment.

## 5. CONTROLS AND ADJUSTMENTS

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The amplifier features several controls on its rear panel to fine-tune audio output. (Refer to Figure 4.1 for control locations).

- **GAIN:** This control matches the amplifier's input sensitivity to the output level of your head unit. Start with the gain at minimum and slowly increase it until distortion is audible, then back off slightly.
- **LPF (Low Pass Filter):** Adjusts the upper frequency limit for the amplifier's output. Typically set between 80Hz and 120Hz for subwoofers.
- **SUBSONIC:** Filters out extremely low frequencies that are below the audible range or below the resonant frequency of your subwoofer enclosure. This protects the subwoofer from damage and improves sound quality.
- **BASS BOOST:** Provides an adjustable bass equalization boost at a specific frequency (e.g., 45Hz) to enhance low-frequency output. Use sparingly to avoid distortion.
- **Remote Level Control:** The dash-mount remote allows for convenient adjustment of the bass level from the driver's seat.

## 6. OPERATING INSTRUCTIONS

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1. After all connections are made and verified, reconnect the vehicle's negative battery terminal.
2. Turn on your head unit. The amplifier should power on automatically via the remote turn-on wire. The POWER indicator light on the amplifier should illuminate.
3. Start with the amplifier's GAIN control at its minimum setting.
4. Play a familiar piece of music with a good bass response.
5. Slowly increase the GAIN control until you hear any distortion, then reduce it slightly until the sound is clear.
6. Adjust the LPF, SUBSONIC, and BASS BOOST controls to achieve the desired sound balance and subwoofer performance.
7. Use the remote level control for on-the-fly bass adjustments.

## 7. MAINTENANCE

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The Power Acoustik CB1-2500D amplifier requires minimal maintenance.

- **Cleaning:** Periodically wipe the amplifier's exterior with a soft, dry cloth. Do not use harsh chemicals or abrasive cleaners.
- **Ventilation:** Ensure that the amplifier's cooling fins and surrounding area remain free of dust and debris to maintain proper airflow.
- **Connections:** Occasionally check all wiring connections for tightness and corrosion. Loose connections can cause performance issues or damage.

## 8. TROUBLESHOOTING

| Problem                                          | Possible Cause                                                                                  | Solution                                                                                                                                                                                                         |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| No Power /<br>No Indicator<br>Light              | Blown fuse, loose power/ground/remote wire, faulty wiring.                                      | Check external fuse near battery. Verify all power, ground, and remote connections are secure and correctly wired. Check for continuity in wiring.                                                               |
| No Sound<br>Output                               | No input signal, incorrect gain setting, speaker wiring issues, amplifier in protection mode.   | Check RCA or high-level input connections. Ensure head unit is on and outputting signal. Adjust gain. Verify speaker connections and impedance. If PROTECT light is on, refer to overheating/protection section. |
| Distorted<br>Sound                               | Gain set too high, incorrect crossover settings, poor input signal, speaker impedance mismatch. | Reduce GAIN. Adjust LPF and SUBSONIC settings. Ensure input signal is clean. Verify speaker impedance matches amplifier's capabilities.                                                                          |
| Amplifier<br>Overheating<br>/ Protection<br>Mode | Insufficient ventilation, speaker impedance too low, prolonged high output.                     | Ensure adequate airflow around the amplifier. Check speaker impedance. Reduce volume or gain. Allow amplifier to cool down.                                                                                      |

## 9. SPECIFICATIONS

Key technical specifications for the Power Acoustik CB1-2500D amplifier:

| Feature                | Specification                                        |
|------------------------|------------------------------------------------------|
| Model                  | CB1-2500D                                            |
| Brand                  | Power Acoustik                                       |
| Output Power           | 2500 Watts                                           |
| Number of Channels     | 1 (Mono)                                             |
| Amplifier Class        | Class D                                              |
| Supply Current         | 208.33 Amps                                          |
| Input Type             | High/Speaker Level & Low Level/RCA                   |
| Crossovers             | Variable 12dB High & Low Pass                        |
| Protection             | Direct Short, Thermal, & Overload Circuit Protection |
| Dimensions (L x W x H) | 17.5 x 12 x 3.75 inches                              |
| Mounting Type          | Surface Mount                                        |
| GTIN / UPC             | 709483054165                                         |

## 10. WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the warranty card included with your product or visit the official Power Acoustik website. Keep your purchase receipt as proof of purchase.

**Important:** Unauthorized service or modification of the amplifier will void the warranty.

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Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page’s manual context to help answer it.

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**Question**

Example: How do I reset this device or fix this error?

**Details**

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question