PRV AUDIO DSP 2.4X

PRV AUDIO DSP 2.4X Digital Signal Processor User Manual

Model: DSP 2.4X

1. Introduction

Thank you for choosing the PRV AUDIO DSP 2.4X Digital Signal Processor. This device is designed to enhance your car audio system by providing advanced control over sound parameters. It features digital crossover functions, graphic and parametric equalization, alignment, phase inversion, limiting, and a built-in audio generator. This manual provides essential information for proper installation, operation, and maintenance of your DSP 2.4X.

2. Safety Information

Please read all safety instructions before installing and operating the DSP 2.4X. Failure to follow these guidelines may result in injury or damage to the device or vehicle.

- **Professional Installation Recommended:** Installation should be performed by qualified personnel to ensure correct wiring and setup.
- **Power Disconnection:** Always disconnect the vehicle's battery negative terminal before making any electrical connections.
- **Proper Wiring:** Ensure all wiring is correctly connected according to the diagrams provided. Use appropriate gauge wires for power and remote connections.
- **Ventilation:** Install the unit in a location with adequate ventilation to prevent overheating.
- **Moisture and Heat:** Avoid exposing the unit to moisture, water, or extreme temperatures.
- **Secure Mounting:** Mount the unit securely to prevent movement during vehicle operation.

3. Package Contents

Verify that all items are present in the package:

- PRV AUDIO DSP 2.4X Digital Crossover and Equalizer
- User Manual (this document)
- Mounting hardware (if included)

4. Product Overview

The PRV AUDIO DSP 2.4X is a compact yet powerful digital signal processor designed for car audio systems. It features a user-friendly interface with an LCD display and a main control knob for real-time adjustments.

Image 4.1: Top view of the PRV AUDIO DSP 2.4X Digital Signal Processor. This image shows the main control knob, LCD display, input/output selection buttons, and the remote output sequencer terminals.

Image 4.2: Front view of the PRV AUDIO DSP 2.4X, highlighting the RCA input (A, B) and output (1, 2, 3, 4) connections.

Image 4.3: Side view of the PRV AUDIO DSP 2.4X, showing the power (+BAT), ground (GND), and remote input (REM IN) terminals, along with the remote output sequencer (AMP S1, S2, S3) terminals.

5. Setup and Installation

5.1 Wiring Connections

Follow these steps for proper wiring:

1. **Power (+BAT):** Connect the +BAT terminal to the vehicle's positive battery terminal using a fuse (not included) close to the battery.
2. **Ground (GND):** Connect the GND terminal to a clean, solid chassis ground point in the vehicle.
3. **Remote Input (REM IN):** Connect the REM IN terminal to the remote output of your head unit or ignition switch. This signal turns the DSP on and off.
4. **Audio Inputs (A, B):** Connect your head unit's RCA outputs to the DSP's Input A and Input B.
5. **Audio Outputs (1, 2, 3, 4):** Connect the DSP's RCA outputs (1-4) to the inputs of your amplifiers.
6. **Remote Output Sequencer (AMP S1, S2, S3):** These outputs provide sequential triggering for external amplifiers or other accessories. Connect these to the remote input terminals of your amplifiers.

5.2 Sequencer Feature

The DSP 2.4X includes a built-in sequencer feature that allows for sequential activation and deactivation of connected devices, such as amplifiers, via the remote trigger connection (REM). This helps prevent turn-on/turn-off thumps and protects your audio system components.

- The sequencer has three outputs (S1, S2, S3).
- These outputs are activated and deactivated sequentially based on the REM IN signal.
- The triggering interval between each output can be set from 0s to 4s.
- If the interval is set to 0s, all three outputs will activate/deactivate simultaneously after a 3-second delay from the REM IN signal change.
- Use cables of at least 20 AWG for remote signal connections.

Image 5.1: Example wiring diagram illustrating the connection of the DSP 2.4X sequencer feature to a radio/player, battery, and multiple amplifiers.

6. Operating Instructions

The DSP 2.4X is controlled via its LCD display and main control knob.

6.1 Basic Navigation

- **Main Control Knob:** Rotate to navigate menus and adjust values. Press to select an option or confirm a setting.
- **LCD Display:** Shows current menu, settings, and values.

6.2 Input and Output Management

- **Input Channels:** The DSP 2.4X has two audio inputs (A and B).
- **Output Channels:** It features four independent output channels.
- **Source Selection:** For each output, you can select the audio source from Input A, Input B, or a combination of A + B.
- **Output Select / Hold to Mute:** Use the dedicated buttons to select outputs for adjustment or hold to mute.

6.3 Equalization

- **Graphic Equalizer:** A 15-band graphic equalizer is integrated. You can manually tune it or select from 12 preset options: Flat, Loudness, Bass Boost, Mid Bass, Treble Boost, Powerful, Electronic, Rock, Hip Hop, Pop, Vocal, and Pancadão.
- **Parametric Equalizer:** Features one input and one output parametric equalizer. This allows for fine adjustments with gain control, specific frequency setting, and adjustable equalizer bandwidth.

6.4 Digital Crossover

The digital crossover allows precise frequency distribution to different speakers.

- Configure high-pass, low-pass, and band-pass filters for each output channel independently.
- Adjust filter slopes and types (e.g., Butterworth, Linkwitz-Riley).

6.5 Other Controls

- **Limiter:** Protects speakers from over-excursion by limiting the output signal level.
- **Alignment (Delay):** Adjust time alignment for each output channel to ensure all sound waves reach the listener simultaneously.
- **Phase Inversion:** Invert the phase of individual output channels to correct acoustic cancellations.
- **Audio Generator:** Built-in audio generator for system testing and tuning.

7. Maintenance

The PRV AUDIO DSP 2.4X requires minimal maintenance.

- **Cleaning:** Use a soft, dry cloth to clean the exterior of the unit. Do not use harsh chemicals or abrasive cleaners.
- **Connections:** Periodically check all wiring connections to ensure they are secure and free from corrosion.
- **Ventilation:** Ensure that the ventilation openings are not blocked to allow for proper heat dissipation.

8. Troubleshooting

If you encounter issues with your DSP 2.4X, refer to the following table for common problems and solutions.

Problem	Possible Cause	Solution

Problem	Possible Cause	Solution
No power to the unit.	◦ Blown fuse. ◦ Incorrect power wiring. ◦ Remote input not receiving signal.	◦ Check and replace fuse if necessary. ◦ Verify +BAT, GND, and REM IN connections. ◦ Ensure head unit remote output is active.
No audio output.	◦ Incorrect RCA connections. ◦ Input source not selected. ◦ Output muted. ◦ Amplifiers not powered on.	◦ Check all RCA input and output cables. ◦ Verify correct input source is selected for each output. ◦ Ensure outputs are not muted. ◦ Check amplifier power and remote connections.
Distorted sound.	◦ Input gain too high. ◦ Output levels too high. ◦ Incorrect equalizer settings.	◦ Adjust input and output gain settings. ◦ Review and adjust equalizer settings. ◦ Ensure limiter is properly configured.
Sequencer not working.	◦ REM IN signal issue. ◦ Incorrect wiring to amplifiers. ◦ Sequencer delay settings.	◦ Verify REM IN connection and signal. ◦ Check wiring from sequencer outputs (S1, S2, S3) to amplifiers. ◦ Adjust sequencer delay settings in the menu.

9. Specifications

Feature	Detail
Model	DSP 2.4X
Input Channels	2 (A and B)
Output Channels	4 independent outputs
Display	LCD 16x2 Characters
Graphic Equalizer	15-band, with 12 presets
Parametric Equalizer	1 input, 1 output (gain, frequency, bandwidth control)
Digital Crossover	Configurable high-pass, low-pass, band-pass filters
Sequencer Outputs	3 (S1, S2, S3), adjustable delay 0-4s
Other Features	Limiter, Alignment (Delay), Phase Inversion, Audio Generator
Product Dimensions	7.87 x 3.97 x 1.45 inches
Item Weight	1 pound
Manufacturer	PRV AUDIO

10. Warranty and Support

PRV AUDIO products are manufactured to high-quality standards. For warranty information, technical support, or service inquiries, please refer to the warranty card included with your product or visit the official PRV AUDIO

website.
Website: www.prvaudio.com (This is a placeholder link, please verify the actual website for support.)