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› NVX XDSP28 8-Channel Digital Signal Processor User Manual

NVX XDSP28

NVX XDSP28 8-Channel Digital Signal Processor User Manual

MODEL: XDSP28

1. Introduction

The NVX XDSP28 is an advanced 8-channel Digital Signal Processor (DSP) designed to enhance your car audio system. It features a 15-band parametric equalizer, adjustable high and low-pass filters, and various crossover types for precise sound customization. With 2 RCA inputs and 8 RCA outputs, built-in Bluetooth for audio streaming, and a remote level controller, the XDSP28 provides comprehensive control over your vehicle's sound environment. This manual provides detailed instructions for installation, operation, and troubleshooting to ensure optimal performance of your device.

2. Safety Information

- Read all instructions carefully before installation and use.
- Disconnect the vehicle's negative battery terminal before making any electrical connections.
- Ensure proper grounding to prevent electrical hazards.
- Do not expose the unit to moisture or extreme temperatures.
- Mount the unit securely to prevent movement during vehicle operation.
- Consult a professional car audio installer if you are unsure about any installation steps.

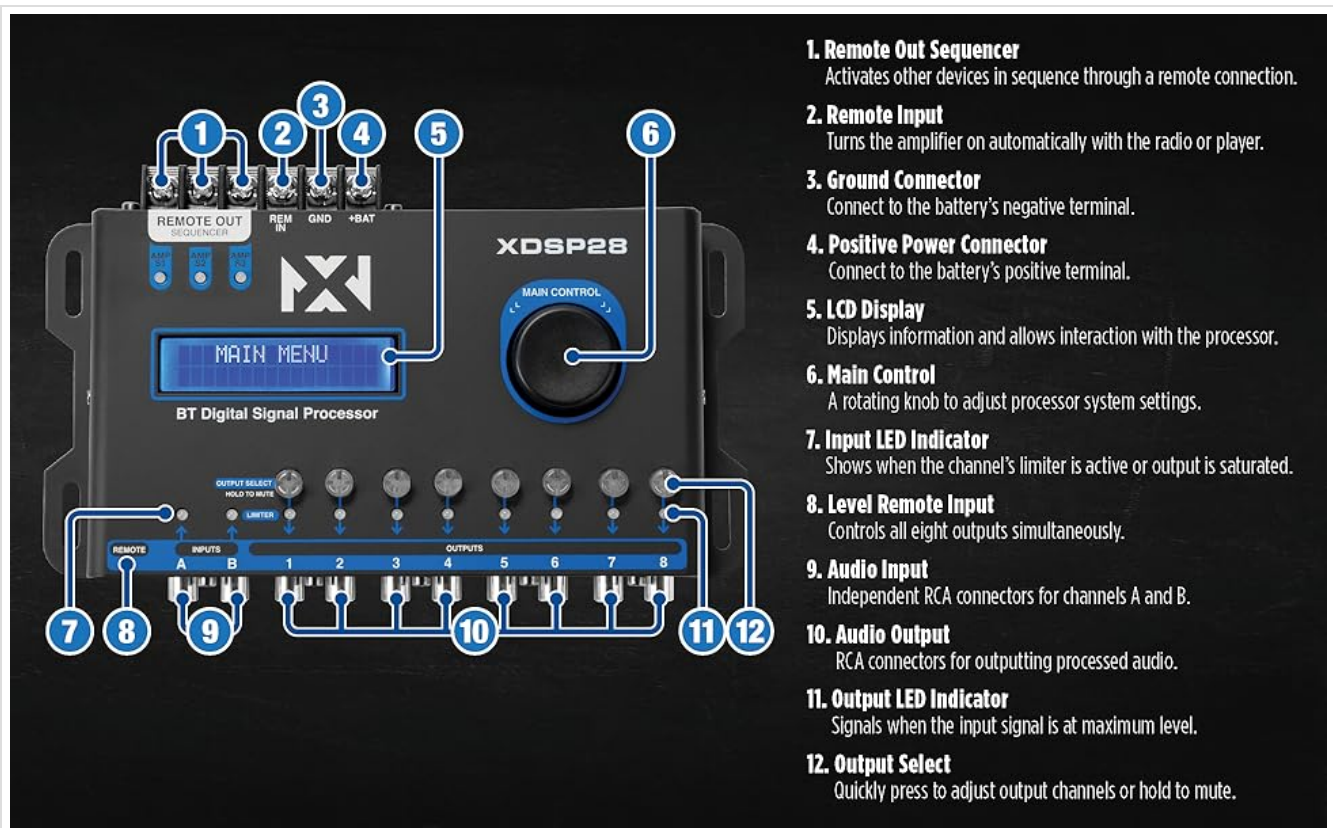
3. Package Contents

Verify that all items are present in the package:

- NVX XDSP28 Digital Signal Processor Unit
- Remote Level Controller with Cable
- User Manual
- Mounting Hardware (screws, etc.)

4. Product Overview

Familiarize yourself with the components and controls of the NVX XDSP28.



- 1. Remote Out Sequencer**
Activates other devices in sequence through a remote connection.
- 2. Remote Input**
Turns the amplifier on automatically with the radio or player.
- 3. Ground Connector**
Connect to the battery's negative terminal.
- 4. Positive Power Connector**
Connect to the battery's positive terminal.
- 5. LCD Display**
Displays information and allows interaction with the processor.
- 6. Main Control**
A rotating knob to adjust processor system settings.
- 7. Input LED Indicator**
Shows when the channel's limiter is active or output is saturated.
- 8. Level Remote Input**
Controls all eight outputs simultaneously.
- 9. Audio Input**
Independent RCA connectors for channels A and B.
- 10. Audio Output**
RCA connectors for outputting processed audio.
- 11. Output LED Indicator**
Signals when the input signal is at maximum level.
- 12. Output Select**
Quickly press to adjust output channels or hold to mute.

Figure 4.1: NVX XDSP28 Front Panel with Labeled Components

1. **Remote Out Sequencer:** Activates other devices in sequence through a remote connection.
2. **Remote Input (REM IN):** Turns the amplifier on automatically with the radio or player.
3. **Ground Connector (GND):** Connect to the battery's negative terminal.
4. **Positive Power Connector (+BAT):** Connect to the battery's positive terminal.
5. **LCD Display:** Displays information and allows interaction with the processor.
6. **Main Control:** A rotating knob to adjust processor system settings and navigate menus.
7. **Input LED Indicator:** Shows when the channel's limiter is active or output is saturated.
8. **Remote Level Input:** Connects the external remote level controller. Controls all eight outputs simultaneously.
9. **Audio Input (Inputs A, B):** Independent RCA connectors for channels A and B.
10. **Audio Output (Outputs 1-8):** RCA connectors for outputting processed audio.
11. **Output LED Indicator:** Signals when the input signal is at maximum level.
12. **Output Select:** Quickly press to adjust output channels or hold to mute.



Figure 4.2: Top view of the NVX XDSP28 unit, showing the main control knob, LCD display, and input/output connections.



Figure 4.3: Rear view of the NVX XDSP28, highlighting the power and remote connections.



Figure 4.4: The remote level controller for the NVX XDSP28, used for simultaneous output control.

5. Setup and Installation

Proper installation is crucial for optimal performance. Follow these steps carefully:

1. **Mounting:** Select a secure, dry location in your vehicle, away from heat sources and moisture. Use the provided mounting hardware to firmly attach the DSP unit.
2. **Power Connections:**
 - Connect the **+BAT** terminal to the vehicle's positive battery terminal (or a constant 12V source) using appropriate gauge wire and an inline fuse (not included).
 - Connect the **GND** terminal to a clean, unpainted metal surface on the vehicle chassis, ensuring a solid ground connection.
 - Connect the **REM IN** terminal to the remote turn-on output of your head unit or ignition switch.

3. **Audio Input Connections:** Connect your head unit's RCA outputs to the **Inputs A** and **B** on the XDSP28.
4. **Audio Output Connections:** Connect the **Outputs 1-8** of the XDSP28 to the RCA inputs of your amplifiers. Ensure correct channel assignment for your speaker configuration.
5. **Remote Level Controller:** Plug the remote level controller cable into the **REMOTE** port on the DSP unit. Mount the controller in an accessible location for easy adjustment.
6. **Initial Power-Up:** Reconnect the vehicle's negative battery terminal. The DSP should power on, and the LCD display will illuminate.

6. Operation

The NVX XDSP28 offers extensive control over your audio system. All settings are adjusted via the Main Control knob and the LCD display.

6.1 Menu Navigation

- Rotate the **Main Control** knob to scroll through menu options.
- Press the **Main Control** knob to select an option or confirm a setting.
- Press and hold the **Main Control** knob to exit a menu or return to the previous screen.

6.2 Equalization (EQ)

The XDSP28 features a 15-band parametric equalizer for precise frequency adjustments.

- **Graphic EQ Presets:** Select from 12 pre-defined graphic equalization presets such as Rock, Hip Hop, Pop, Vocal, and more.
- **Parametric EQ:** Manually adjust gain, frequency, and Q-factor for each of the 15 bands on both input and output channels.

6.3 Crossover Function

Configure high-pass and low-pass filters for each output channel to optimize speaker performance.

- Adjust cut frequencies for high-pass and low-pass filters.
- Select various crossover types and filter slopes (e.g., Butterworth, Linkwitz-Riley).

6.4 Time Alignment and Phase

Achieve perfect sound staging by adjusting the delay for each output channel.

- Adjust time delays in 0.02 ms increments.
- Set phase adjustments to 0° or 180° for each output.

6.5 Independent Gain and Limiter

- **Independent Gain:** Adjust the gain level for each output channel individually.
- **Limiter:** The integrated Limiter with Dynamic Attack-Release system protects your amplifiers and speakers from over-excursion and clipping.

6.6 Audio Generator

Utilize the built-in audio tone generator for precise tuning and system diagnostics.

- Generate frequency sweeps.
- Generate pink noise for RTA (Real-Time Analyzer) measurements.

6.7 Bluetooth Connectivity

The XDSP28 features built-in Bluetooth for wireless audio streaming from your mobile device.

- Pair your device with the XDSP28 via Bluetooth settings on your phone.
- Bluetooth is for audio playback only; it does not support app-based control of DSP settings.

6.8 Remote Level Controller

The external remote level controller allows for convenient, simultaneous adjustment of all eight output levels.

7. Maintenance

- Keep the unit clean and free of dust. Use a soft, dry cloth for cleaning.
- Avoid using harsh chemicals or abrasive cleaners.
- Ensure all connections remain secure. Periodically check wiring for any signs of wear or damage.

8. Troubleshooting

Problem	Possible Cause	Solution
No power to the DSP.	Incorrect power wiring; Blown fuse; Loose ground connection.	Check +BAT, GND, and REM IN connections. Verify fuse integrity. Ensure a solid ground connection.
No sound output.	Incorrect input/output connections; DSP muted; Amplifier not powered on; Incorrect source selection.	Verify all RCA connections. Check DSP mute status (Output Select button). Ensure amplifiers are receiving remote turn-on signal. Confirm correct input source (A, B, or A+B).
Distorted or poor sound quality.	Incorrect EQ settings; Improper crossover settings; Input signal too high/low; Limiter engaged excessively.	Adjust EQ settings. Review crossover frequencies and slopes. Check input gain levels. Monitor Input LED indicators for clipping.
Bluetooth connection issues.	Device not in pairing mode; Interference; Already connected to another device.	Ensure Bluetooth is enabled on your device and the DSP. Disconnect from other Bluetooth devices. Move closer to the DSP.
Main Control knob is overly sensitive.	Characteristic of the control mechanism.	Exercise caution and precision when rotating and pressing the knob for menu navigation and setting adjustments.
Remote Level Controller causes input glitches.	Potential unit-specific issue or interference.	Ensure the remote cable is securely connected and not damaged. If issues persist, try operating without the remote controller to isolate the problem. Contact support if necessary.

9. Specifications

Feature	Specification
Model	NVX XDSP28
Number of Channels	8 (Output)

Feature	Specification
Input Channels	2 RCA
Output Channels	8 RCA (up to 2 Volts output)
Equalizer	15 Band Parametric EQ
Signal-to-Noise Ratio	> 94 dB
Total Harmonic Distortion (THD)	0.01%
Time Adjustment Increments	0.02 ms
Phase Adjustment	0° or 180°
Graphic EQ Presets	12 (Rock, Hip Hop, Pop, Vocal, etc.)
Minimum Supply Voltage	10 Volts (DC)
Maximum Supply Voltage	16 Volts (DC)
Dimensions (L x W x H)	7.87" x 3.98" x 1.46" (200mm x 101mm x 37mm)
Item Weight	0.7 Kilograms
Bluetooth	Built-in (for audio streaming)
Remote Level Controller	Included, for simultaneous output control

10. Warranty and Support

NVX products are designed for reliability and performance. For specific warranty details, please refer to the warranty card included with your product or contact the retailer where the product was purchased. Keep your proof of purchase for warranty claims.

For technical assistance, troubleshooting beyond this manual, or service inquiries, please contact NVX customer support or the authorized dealer. Contact information can typically be found on the manufacturer's official website or through your retailer.