

Helix Helix P SIX DSP Ultra

Helix P SIX DSP Ultra User Manual

6-Channel Class D Amplifier with Integrated 8-Channel DSP

1. INTRODUCTION

Thank you for choosing the Helix P SIX DSP Ultra. This high-performance 6-channel Class D amplifier with an integrated 8-channel Digital Signal Processor (DSP) is designed to deliver exceptional audio quality and precise sound customization for your vehicle's audio system. This manual provides essential information for the proper installation, operation, and maintenance of your device.

Please read this manual thoroughly before attempting to install or operate the device to ensure safe and optimal performance.



Figure 1: Helix P SIX DSP Ultra Amplifier. This image shows the sleek, black brushed metal casing of the amplifier with the Helix P SIX DSP MK2 logo prominently displayed on the top surface.

2. SAFETY INSTRUCTIONS

Always observe the following safety precautions to prevent injury or damage to the device:

- **Power Supply:** Ensure the power supply voltage matches the device's requirements (12V DC for automotive use). Incorrect voltage can cause damage.
- **Wiring:** All wiring should be performed by a qualified professional. Use appropriate gauge wires for power and speaker connections to prevent overheating.
- **Mounting:** Mount the amplifier securely in a dry, well-ventilated area, away from direct sunlight, heat sources, and moisture. Ensure adequate airflow around the heatsink.
- **Fuses:** Do not bypass or replace fuses with higher amperage ratings than specified. This can lead to fire or electrical damage.
- **Disassembly:** Do not attempt to disassemble or modify the device. This will void the warranty and may result in electric shock or damage.
- **Hearing Protection:** Prolonged exposure to high volume levels can cause permanent hearing damage. Adjust volume to a comfortable level.

3. SETUP AND INSTALLATION

Proper installation is crucial for optimal performance and longevity of your Helix P SIX DSP Ultra. It is recommended that installation be performed by a professional car audio installer.

3.1. Mounting

Choose a mounting location that is dry, well-ventilated, and provides sufficient space for wiring and heat dissipation.

Secure the amplifier using the provided mounting screws.

3.2. Connections

Refer to the diagrams below for proper connection of power, ground, remote, input, and output signals.



Figure 2: Input Connections. This image displays the rear panel of the amplifier, highlighting the USB port, Control input, Optical input, Input Sensitivity adjustments (A/B, C/D, E/F), Line Inputs (RCA A-F), and High-Level Inputs (A-F).

3.2.1. Input Connections

- **USB:** Connect to a PC for DSP software configuration.
- **Control Input:** For connecting optional remote controls (e.g., URC, DIRECTOR).
- **Optical Input:** Digital audio input for high-quality signal transfer.
- **Input Sensitivity:** Adjust for optimal signal matching from your source unit.
- **Line Input (RCA):** Analog audio inputs (A, B, C, D, E, F) for standard source units.
- **High-Level Input:** Connect directly to factory head unit speaker outputs (A+, A-, B+, B-, etc.) for systems without RCA pre-outs.



Figure 3: Output and Power Connections. This image shows the rear panel of the amplifier, detailing the Output Channels (A, B, C, D, E, F), Clip Fuse, Power terminals (GND, REM, +12V), and Line Output (RCA G, H).

3.2.2. Power and Output Connections

- **GND (Ground):** Connect to a clean, unpainted metal point on the vehicle chassis.
- **REM (Remote):** Connect to the remote turn-on lead from your head unit.
- **+12V (Power):** Connect directly to the positive terminal of the vehicle's battery via an appropriate fuse holder (not included).
- **Output Channels (A-F):** Connect to your speakers. Ensure correct polarity.
- **Line Output (RCA G, H):** Provides processed audio output for additional amplifiers.
- **Clip Fuse:** Integrated fuse for protection.

3.3. DSP Software Installation

Download the latest DSP PC-Tool software from the official Helix website. Install the software on your computer and connect the amplifier via the USB port. The software allows for comprehensive audio tuning, including equalization, crossovers, time alignment, and more.

4. OPERATING THE DEVICE

Once installed and configured with the DSP PC-Tool software, the Helix P SIX DSP Ultra operates automatically with your vehicle's audio system.

4.1. Initial Power-Up

After all connections are made, turn on your vehicle's ignition. The amplifier should power on, indicated by the status LED. If the LED does not illuminate, refer to the troubleshooting section.

4.2. DSP Configuration

The core functionality of the P SIX DSP Ultra lies in its integrated DSP. Use the DSP PC-Tool software to:

- Set input and output routing.
- Adjust input sensitivity for each channel.
- Configure crossovers (high-pass, low-pass, band-pass) for each speaker.
- Apply parametric equalizers to fine-tune frequency response.
- Set time alignment for precise sound staging.
- Adjust output levels for each channel.
- Save and load multiple sound setups (presets).

Detailed instructions for using the DSP PC-Tool software are available within the software's help menu and on the Helix website.

5. MAINTENANCE

The Helix P SIX DSP Ultra is designed for reliable operation with minimal maintenance. Follow these guidelines to ensure its longevity:

- **Cleaning:** Periodically wipe the exterior with a soft, dry cloth. Do not use harsh chemicals or abrasive cleaners.
- **Ventilation:** Ensure that the amplifier's heatsink fins are free from dust and debris to maintain proper cooling.
- **Connections:** Occasionally check all power, ground, and signal connections to ensure they are secure and free from corrosion.
- **Environment:** Avoid exposing the amplifier to extreme temperatures, humidity, or direct water contact.

6. TROUBLESHOOTING

If you experience issues with your Helix P SIX DSP Ultra, consult the following table before seeking professional assistance:

Problem	Possible Cause	Solution
No power / Status LED off	Blown fuse; Loose power/ground/remote connection; No remote signal.	Check and replace fuses; Verify all power, ground, and remote connections are secure; Check head unit's remote output.

Problem	Possible Cause	Solution
No sound output	No input signal; Incorrect DSP routing; Muted channels; Loose speaker connections.	Verify source unit is playing; Check input signal cables; Review DSP software routing and ensure channels are not muted; Check speaker wiring.
Distorted sound	Input sensitivity too high; Speaker impedance mismatch; Damaged speakers; Incorrect DSP settings.	Reduce input sensitivity; Ensure speaker impedance is within amplifier's specifications; Inspect speakers for damage; Review DSP settings (EQ, crossovers).
Amplifier overheats	Insufficient ventilation; Overloaded channels; Low impedance load.	Ensure proper airflow around the amplifier; Check speaker impedance and wiring; Reduce volume or gain settings.

If the problem persists after attempting these solutions, contact your authorized Helix dealer or technical support.

7. SPECIFICATIONS

The following are the technical specifications for the Helix P SIX DSP Ultra:

- **Brand:** Helix
- **Manufacturer:** Helix
- **Model:** Helix P SIX DSP Ultra
- **Part Number:** PSIXDSP
- **Voltage:** 20 Volts (Operating voltage typically 12V DC for automotive applications)
- **Mounting Type:** Independent Mount
- **Package Dimensions:** 37.6 x 27 x 6.7 cm
- **Item Weight:** 3.27 kg
- **Batteries Included:** No
- **Batteries Required:** No
- **Display Color:** No

8. WARRANTY AND SUPPORT

Your Helix P SIX DSP Ultra comes with a manufacturer's warranty. Please refer to the warranty card included with your product or visit the official Helix website for detailed warranty terms and conditions.

For technical support, troubleshooting assistance, or service inquiries, please contact your authorized Helix dealer or visit the Helix support section on their official website. Ensure you have your product model and serial number available when contacting support.