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› Zapco HB-46-ADSP DSP EQ Bluetooth 4-Channel Amplifier User Manual

## Zapco HB 46 ADSP

# Zapco HB-46-ADSP DSP EQ Bluetooth 4-Channel Amplifier

Model: HB 46 ADSP

## INTRODUCTION

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The Zapco HB-46-ADSP, part of the Harmony series and known as "Charlie," is a sophisticated 6-channel Digital Sound Processor (DSP) integrated with a powerful 4-channel Class D amplifier. This unit is designed to provide high-quality audio processing and amplification for various audio setups, including seamless OEM integration. It features a comprehensive Graphical User Interface (GUI) for precise audio tuning, including a 15-band equalizer, and offers modern connectivity options like Bluetooth 5.1 streaming and an integrated high-quality music player.

## KEY FEATURES

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- 6-Channel DSP with 15-band Equalizer for precise audio tuning.
- Integrated 4-Channel Class D Amplifier, providing 4 x 70 Watt (Max) output.
- Versatile Input Options: 4-Channel High-Level Inputs for OEM integration and 2-Channel RCA Inputs.
- 6-Channel RCA Outputs for expanded system configurations.
- Plug & Play readiness for simplified installation.
- Bluetooth 5.1 for high-quality wireless audio streaming.
- Integrated Music Player supporting various formats: MP2, MP3, MP4, WMA, APE, FLAC, AAC, M4A, WAV, AIF, AIFC.
- PC and Mobile DSP tools for comprehensive system control and tuning.
- Dedicated Mobile Music Player App for convenient playback control.

## SPECIFICATIONS

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Attribute	Value
Model Number	HB 46 ADSP
Amplifier Power	4 x 70 Watt (Max)
DSP Channels	6-Channel
Equalizer Bands	15-band
Bluetooth Version	5.1
Input Types	4-Ch. High Level, 2-Ch. RCA
Output Types	6-Ch. RCA
Supported Audio Formats	MP2, MP3, MP4, WMA, APE, FLAC, AAC, M4A, WAV, AIF, AIFC
Product Dimensions (L x W x H)	135mm x 115mm x 45mm (5.31 x 4.53 x 1.77 inches)
Weight	4 Pounds
Voltage	12 Volts (DC)
Minimum Supply Voltage	12 Volts
Mounting Type	Surface Mount

## PRODUCT OVERVIEW

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### Front View



*This image displays the sleek, brushed black top panel of the Zapco HB-46-ADSP amplifier, highlighting its compact design and the prominent 'Harmony Blue Note Zapco HB 46 ADSP Charlie' branding.*

## **Rear Panel Connections**

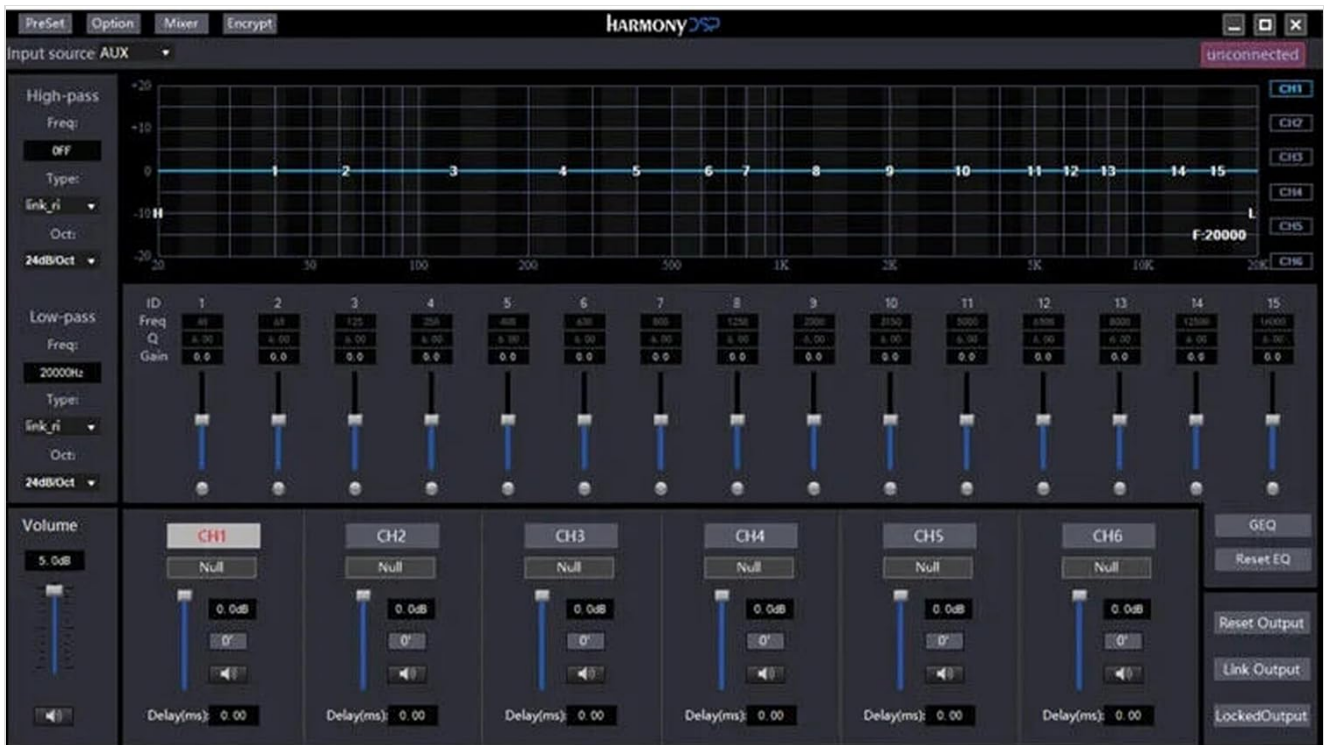


*This image provides a detailed view of the rear panel, showcasing the various input and output connections including USB, RCA outputs for channels 1-6, and RCA inputs for channels 1-6, along with auxiliary inputs.*



*This image shows the underside of the amplifier, detailing the high-level input connector, power and remote terminals, and the dedicated audio USB port for connecting to a computer.*

## Software Interfaces



*This image displays the comprehensive PC software interface for the Harmony DSP, illustrating the 15-band equalizer, individual channel controls, and various audio processing settings available for precise tuning.*

# SETUP

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## Unpacking

Carefully remove the Zapco HB-46-ADSP amplifier from its packaging. Inspect the unit for any signs of damage during transit. Retain all packaging materials for future transport or storage.

## Mounting

The HB-46-ADSP is designed for surface mounting. Choose a secure, dry, and well-ventilated location for installation, away from direct heat sources or excessive vibration. Ensure adequate space around the unit for proper airflow and cable management. Use appropriate screws or fasteners to secure the amplifier firmly to the chosen surface.

## Wiring Connections

Before making any connections, ensure your vehicle's battery is disconnected to prevent electrical shorts. The HB-46-ADSP operates on a 12 Volts DC power supply.

- **Power Connection:** Connect the main power cable (B+) to the positive terminal of your vehicle's battery, ensuring an inline fuse is installed close to the battery. Connect the ground cable (GND) to a clean, unpainted metal surface on the vehicle chassis.
- **Remote Turn-On:** Connect the remote turn-on wire (REM IN) from your head unit or ignition source to the amplifier's remote input. This will turn the amplifier on and off with your audio system.
- **High-Level Inputs:** For OEM integration, connect the speaker outputs from your factory head unit directly to the 4-channel high-level input connector on the amplifier. Ensure correct polarity.
- **RCA Inputs:** For aftermarket head units, connect the RCA pre-out cables from your head unit to the 2-channel RCA inputs (AUX R, AUX L) on the amplifier.
- **RCA Outputs:** If expanding your system with additional amplifiers, connect RCA cables from the 6-channel RCA outputs (CH1-CH6) to the inputs of the external amplifiers.
- **USB Connection:** Use the AUDIO USB port to connect the amplifier to a PC for DSP software configuration.

## OPERATING INSTRUCTIONS

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### Powering On/Off

The amplifier will power on automatically when a remote turn-on signal is received from your head unit or ignition. It will power off when this signal is removed.

### Audio Input Selection

The HB-46-ADSP automatically detects the active input source (High-Level or RCA). For Bluetooth streaming, ensure no other wired input is actively playing, and pair your device as described below.

### DSP Software Usage

The full potential of the HB-46-ADSP is realized through its DSP software. Connect the amplifier to a PC via the AUDIO USB port or use the mobile app via Bluetooth. The software provides access to:

- **15-Band Equalizer:** Adjust the frequency response for each channel independently to fine-tune your audio.
- **Crossover Settings:** Configure high-pass, low-pass, and band-pass filters for each channel.
- **Time Alignment:** Adjust the delay for each speaker to ensure sound reaches the listener at the same time.
- **Gain Control:** Set input and output gain levels for optimal signal matching.

- **Phase Control:** Adjust the phase of individual channels.

Refer to the dedicated DSP software manual (available for download from Zapco's official website) for detailed instructions on using all DSP functions.

## Bluetooth Streaming

To stream audio via Bluetooth 5.1:

1. Ensure the amplifier is powered on.
2. On your mobile device, enable Bluetooth and search for available devices.
3. Select "Zapco HB-46-ADSP" (or similar name) from the list to pair.
4. Once paired, you can stream audio from your device to the amplifier.

## Music Player Functionality

The integrated music player allows playback of high-quality audio files directly from a connected USB drive or via the mobile app. Supported formats include MP2, MP3, MP4, WMA, APE, FLAC, AAC, M4A, WAV, AIF, and AIFC. Use the mobile app to browse and control playback of your music library.

## MAINTENANCE

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### Cleaning

To maintain the appearance and performance of your amplifier, periodically wipe the exterior with a soft, dry cloth. Do not use harsh chemicals, solvents, or abrasive cleaners, as these can damage the finish or internal components. Ensure the unit is powered off before cleaning.

### Storage

If the amplifier will not be used for an extended period, disconnect it from the power source. Store it in a cool, dry place, away from direct sunlight and extreme temperatures. It is recommended to store the unit in its original packaging to protect it from dust and physical damage.

## TROUBLESHOOTING

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This section addresses common issues you might encounter with your Zapco HB-46-ADSP amplifier. If you experience problems not listed here, or if the suggested solutions do not resolve the issue, please contact Zapco customer support.

Problem	Possible Cause	Solution
No Power	<ul style="list-style-type: none"> <li>• Blown fuse</li> <li>• Loose power or ground connection</li> <li>• No remote turn-on signal</li> </ul>	<ul style="list-style-type: none"> <li>• Check and replace the inline fuse near the battery.</li> <li>• Verify all power and ground connections are secure.</li> <li>• Ensure the remote turn-on wire is connected and receiving 12V when the head unit is on.</li> </ul>
No Sound Output	<ul style="list-style-type: none"> <li>• Incorrect input selection</li> <li>• Loose RCA/speaker connections</li> <li>• DSP settings misconfigured</li> <li>• Amplifier in protection mode</li> </ul>	<ul style="list-style-type: none"> <li>• Verify the correct input source is selected (High-Level, RCA, Bluetooth).</li> <li>• Check all RCA and speaker wire connections for proper seating and polarity.</li> <li>• Connect to the DSP software and ensure output channels are enabled and not muted.</li> <li>• Check for shorted speaker wires or impedance mismatch. Disconnect speakers and restart.</li> </ul>
Bluetooth Connection Issues	<ul style="list-style-type: none"> <li>• Device not in pairing mode</li> <li>• Interference</li> <li>• Already connected to another device</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure the amplifier is discoverable.</li> <li>• Move closer to the amplifier and away from other wireless devices.</li> <li>• Disconnect from any other paired devices and try pairing again.</li> </ul>
DSP Software Not Connecting	<ul style="list-style-type: none"> <li>• Incorrect USB cable/port</li> <li>• Driver issues</li> <li>• Software version mismatch</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure you are using a high-quality USB data cable and the correct USB port on the amplifier.</li> <li>• Install the latest USB drivers for the amplifier on your PC.</li> <li>• Download the latest version of the DSP software from the Zapco website.</li> </ul>

## WARRANTY AND SUPPORT

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Zapco products are manufactured to the highest quality standards and are backed by a limited warranty against defects in materials and workmanship. The specific terms and duration of your warranty may vary by region and retailer. Please retain your proof of purchase for warranty claims.

For technical support, warranty service, or to obtain the latest software and firmware updates, please visit the official Zapco website or contact your authorized Zapco dealer. You can typically find contact information and support resources on the manufacturer's website:

**[www.zapco.com](http://www.zapco.com)**