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› Axton A594DSP 6-Channel DSP Amplifier 4x150 Watts Hi-Res Compatible User Manual

Axton A594DSP

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Model: A594DSP

1. INTRODUCTION

Thank you for choosing the Axton A594DSP 6-Channel DSP Amplifier. This amplifier is designed to deliver high-quality audio performance and extensive sound customization for your car audio system. Featuring an integrated Digital Sound Processor (DSP), it allows for precise tuning and optimization of your sound environment. This manual provides essential information for the proper installation, operation, and maintenance of your A594DSP amplifier.



Figure 1.1: Axton A594DSP amplifier, top view. This image shows the sleek design and the Axton branding on the amplifier's casing.

2. KEY FEATURES

- **6-Channel DSP Controller:** Offers comprehensive control over audio parameters for up to 6 channels.
- **4-Channel Class D Amplifier:** Integrated amplifier provides 4 x 50 W RMS at 4 Ohms (4 x 76 W RMS at 2 Ohms) output power, suitable for driving standard or upgraded speakers.
- **Stereo Pre-Out for Subwoofer Channels:** Dedicated pre-outputs allow for separate adjustment of subwoofer channels, ideal for 3-way systems with under-seat, footwell, or kick-bass configurations.
- **Advanced Equalization:** Each DSP channel features a 31-band parametric equalizer. A 9-band parametric INPUT EQ ensures consistent frequency response across all input sources.
- **Flexible Crossovers:** Freely adjustable active crossovers (High/Low/Band/Bypass) with slopes of 6/12/18/24 dB/Oct. Filter characteristics include Butterworth, Linkwitz, and Bessel.
- **Time Alignment and Phase Correction:** Precise time alignment (0 – 550 cm / 0 – 15.8 ms) and phase correction per channel for optimal sound staging.
- **Channel Routing:** Simplified assignment of input channels to various output channels via the DSP app.

- **Optical Input and Output:** Optical input for high-resolution audio (via ABT50 interface) and optical output for lossless signal transmission to additional Axton DSP amplifiers, enabling expandable DSP channel configurations.
- **Bluetooth Audio Streaming:** Integrated Bluetooth for wireless music streaming with automatic source switching.
- **Plug & Play Installation:** Compatible with optional vehicle-specific connection cables for easy integration.
- **Auto-Turn-On Function:** Automatic power-on via high-level input.
- **DSP App Control:** All settings are configured via the free Axton DSP app for iOS and Android smartphones.
- **Memory Slots:** 5 custom settings can be stored on the amplifier, with unlimited storage on your smartphone.
- **Dynamic Bass and Noise Gate:** Features for enhanced bass performance and reduction of radio background noise.

3. SETUP AND INSTALLATION

3.1. Unpacking and Inspection

Carefully remove the A594DSP amplifier from its packaging. Inspect the unit for any signs of damage during transit. Ensure all components listed in the package contents are present.

3.2. Connection Overview

The A594DSP offers various input and output options for flexible integration into your vehicle's audio system. Refer to the diagram below for a visual guide to the connections.



Figure 3.1: Rear view of the A594DSP showing connection terminals. This image illustrates the various ports for power, ground, remote control, speaker outputs, line inputs, optical input/output, and coaxial input.

- **Power Terminals (BATT+, GND):** Connect to the vehicle's battery (BATT+) and chassis ground (GND). Ensure proper gauge wiring for power delivery.
- **Remote Control (REMOTE CONTROL):** Connect to the remote output of your head unit or use the auto-turn-on function via high-level input.
- **Speaker Level Input (SPEAKER LEVEL INPUT):** For connecting to factory head units without RCA pre-outs. The auto-turn-on function can be activated via this input.

- **Line In (CH1-CH4 RCA):** For connecting to head units with RCA pre-outs.
- **Line Out (CH5-CH6 RCA):** Stereo pre-outputs for connecting external amplifiers, particularly for subwoofer channels.
- **Optical In/Out (OPTICAL IN/OUT):** For high-resolution audio input (requires ABT50 interface) and for linking to other Axton DSP amplifiers.
- **Coaxial In (COAXIAL):** For high-resolution audio input (requires ABT50 interface).
- **Antenna (ANT):** Connect the provided Bluetooth antenna for wireless streaming.

3.3. Power Connection

1. Disconnect the vehicle's negative battery terminal before starting any wiring.
2. Connect the BATT+ terminal of the amplifier to the positive terminal of the vehicle's battery using an appropriate gauge power cable. Install a fuse holder with the correct fuse rating (20A) as close to the battery as possible.
3. Connect the GND terminal of the amplifier to a clean, unpainted metal surface on the vehicle's chassis. Ensure a secure connection for optimal performance and safety.
4. Connect the REMOTE CONTROL terminal to the remote turn-on lead from your head unit. If using high-level inputs, the amplifier features an auto-turn-on function, making a separate remote wire unnecessary.
5. Once all connections are secure, reconnect the vehicle's negative battery terminal.

3.4. Speaker and Signal Connections

Connect your speakers to the amplifier's speaker output terminals. For optimal sound quality, ensure correct polarity (+/-) for all speakers. If using external amplifiers for subwoofers or additional channels, connect them to the Line Out (CH5-CH6) RCA outputs.

For high-resolution audio playback via optical or coaxial inputs, the optional Axton ABT50 interface (ASIN B08LPNTHKQ) is required.

4. OPERATION

4.1. Initial Power-Up

After completing all wiring, turn on your vehicle's ignition and head unit. The A594DSP amplifier should power on automatically if connected correctly. Observe the power indicator light on the amplifier.

4.2. Bluetooth Pairing

To stream audio via Bluetooth, ensure the Bluetooth antenna is connected. On your smartphone or other Bluetooth device, search for available devices and select "Axton A594DSP" (or similar name) to pair. Once paired, you can stream audio directly to the amplifier. The amplifier features automatic source switching.

4.3. DSP App Control

The Axton A594DSP is primarily controlled and configured via its dedicated smartphone application.

1. Download the free Axton DSP app from the App Store (iOS) or Google Play Store (Android).
2. Ensure your smartphone's Bluetooth is enabled and paired with the A594DSP.
3. Open the Axton DSP app. The app should automatically connect to the amplifier.
4. Within the app, you can access and adjust all DSP functions, including:
 - Channel Routing
 - Input Equalizer (9-band)

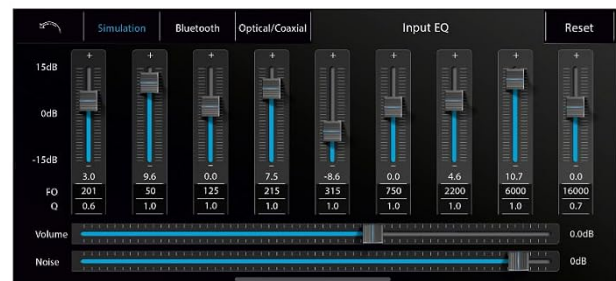
- Output Equalizer (31-band parametric per channel)
- Crossovers (High/Low/Band/Bypass, various slopes and filter types)
- Time Alignment
- Phase Correction
- Gain Control
- Dynamic Bass
- Noise Gate

5. Save your custom settings to one of the 5 memory slots on the amplifier or an unlimited number on your smartphone.

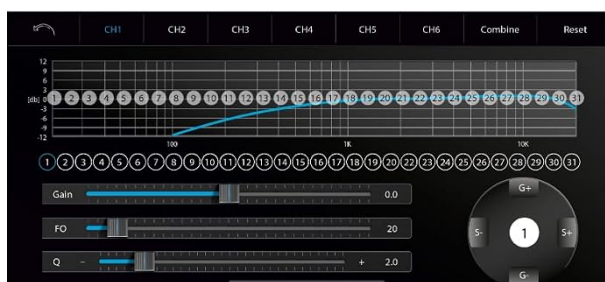
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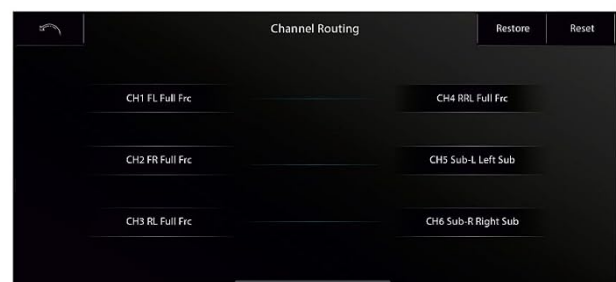
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INPUT EQUALIZER



OUTPUT EQUALIZER



CHANNEL ROUTING

Figure 4.1: Axton DSP App Interface. This image displays the main screen of the Axton DSP application, showing controls for various audio parameters.

4.4. Optional Remote Control

An optional remote control (ASIN B08MFFSZ7L) can be connected to the A594DSP for quick adjustments of global volume, bass boost, and mute functions without needing to access the app.

5. SPECIFICATIONS

Feature	Specification
Model	A594DSP
Amplifier Type	4-Channel Class D with 6-Channel DSP
RMS Output Power (4 Ohms)	4 x 50 W
RMS Output Power (2 Ohms)	4 x 76 W
Max Output Power (4 Ohms)	4 x 150 W
DSP Channels	6 (4 amplified, 2 pre-out)
Input Equalizer	9-band parametric
Output Equalizer	31-band parametric per channel
Crossover Slopes	6/12/18/24 dB/Oct.
Crossover Filter Types	Butterworth, Linkwitz, Bessel
Time Alignment Range	0 – 550 cm / 0 – 15.8 ms
Frequency Response	20 Hz – 48 kHz
Inputs	Speaker Level, RCA (4-channel), Optical, Coaxial
Outputs	Speaker (4-channel), RCA Pre-out (2-channel), Optical Out
Bluetooth	Integrated for audio streaming
Dimensions (L x W x H)	218 x 114 x 40 mm
Country of Origin	China

6. TROUBLESHOOTING

If you encounter issues with your Axton A594DSP amplifier, refer to the following common troubleshooting steps:

- **No Power:**

- Check the vehicle's battery connections and ensure they are secure.
- Verify the fuse in the power cable is intact. Replace if blown.
- Ensure the ground connection is clean and secure.
- If using a remote turn-on wire, check its connection to the head unit. If using auto-turn-on, ensure high-level inputs are correctly connected.

- **No Sound:**

- Check all speaker connections for correct polarity and secure contact.
- Verify input signal connections (RCA, speaker level, optical, coaxial).
- Ensure the head unit is powered on and sending an audio signal.
- Check the DSP app settings for muted channels, low gain, or incorrect channel routing.

- **Distorted Sound:**

- Reduce the gain settings in the DSP app if the input signal is too high.

- Check speaker impedance compatibility with the amplifier.
 - Inspect speaker wiring for shorts or damage.
 - Adjust equalizer and crossover settings in the DSP app to optimize sound quality.
- **Bluetooth Connection Issues:**
 - Ensure the Bluetooth antenna is securely connected.
 - Verify Bluetooth is enabled on your device and the amplifier.
 - Try unpairing and re-pairing the device.
 - Move your device closer to the amplifier to rule out range issues.

7. MAINTENANCE

The Axton A594DSP amplifier requires minimal maintenance.

- Keep the amplifier clean and free from dust and debris. Use a soft, dry cloth for cleaning.
- Ensure adequate ventilation around the amplifier to prevent overheating.
- Periodically check all wiring connections for tightness and corrosion.

8. WARRANTY AND SUPPORT

The Axton A594DSP amplifier comes with a manufacturer's warranty of 2 years. Please retain your proof of purchase for warranty claims.

For technical support, warranty service, or further inquiries, please contact your authorized Axton dealer or visit the official Axton website.

Manufacturer: Axton

Warranty: 2-year manufacturer's warranty