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› ZK-502A Bluetooth Amplifier Board User Manual

DAJUNGUO ZK-502A

ZK-502A Bluetooth Amplifier Board User Manual

Model: ZK-502A | Brand: DAJUNGUO

1. INTRODUCTION

The DAJUNGUO ZK-502A is a compact and versatile 2.0-channel Bluetooth power amplifier board designed for DIY audio enthusiasts. It features a peak power output of 50W + 50W and operates within a wide voltage input range of 9-24V DC. This amplifier board supports multiple audio input methods, including Bluetooth, AUX, and USB sound card/USB flash disk, making it compatible with a variety of playback devices such as mobile phones, tablets, CD players, and computers. A key feature of the ZK-502A is its dedicated mobile application (Android only), which allows for in-depth control and customization, including Bluetooth name modification, password setting, and tone adjustments.



Figure 1.1: ZK-502A Amplifier Board with APP Control Interface.

2. PRODUCT COMPONENTS AND OVERVIEW

Before beginning installation, ensure all components are present and familiarize yourself with the board's layout.

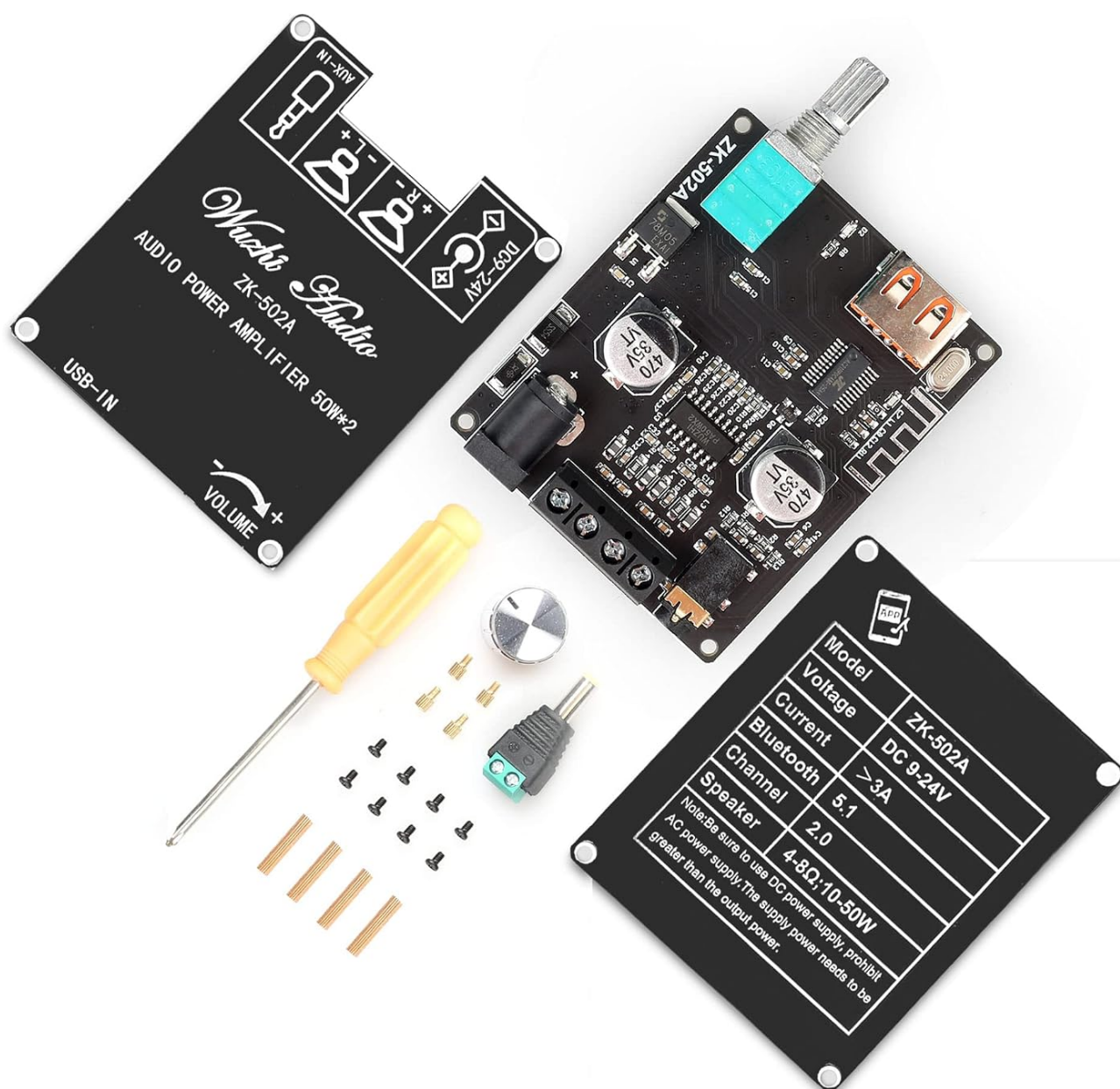


Figure 2.1: ZK-502A Amplifier Board and Included Accessories.

The package typically includes the ZK-502A amplifier board, a top protective plate, mounting hardware (screws, standoffs), and a small screwdriver for assembly.

50W+50W STEREO OUTPUT

BT 5.1 | AUX INPUT | USB FLASH DISK | USB sound

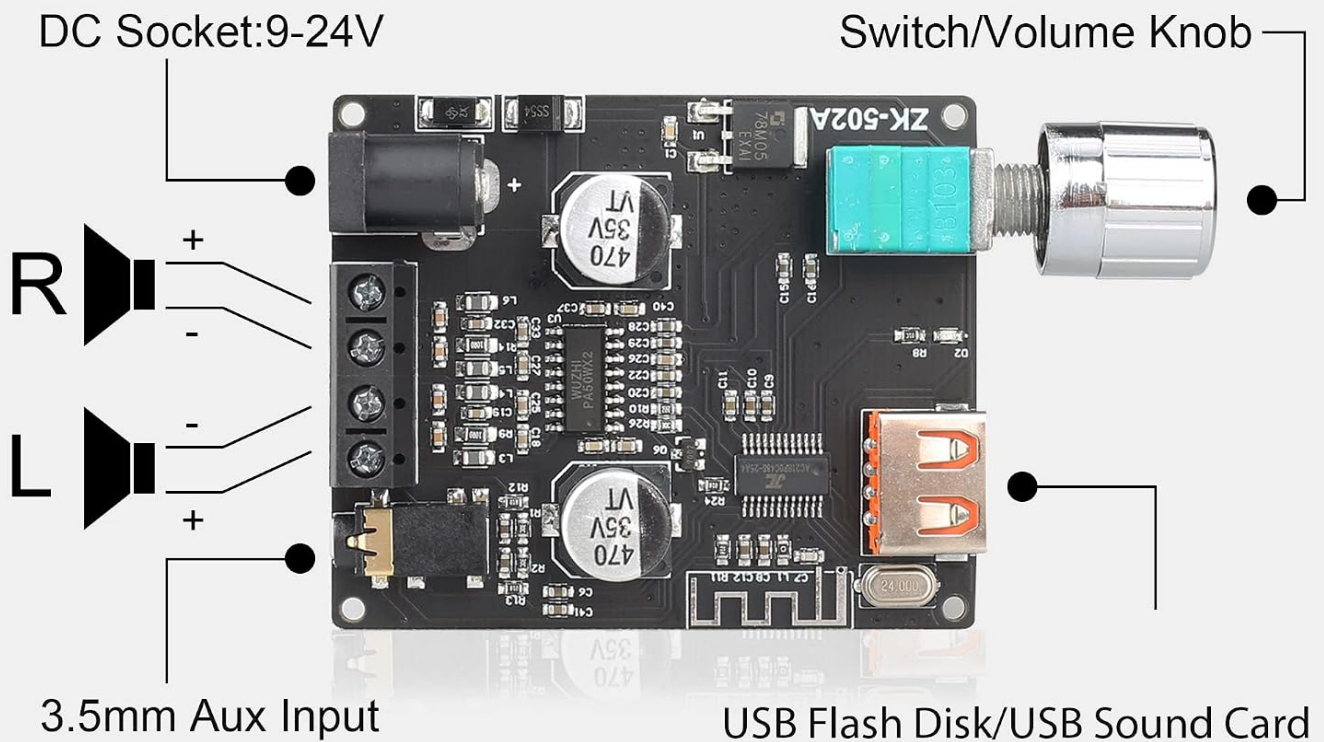


Figure 2.2: ZK-502A Amplifier Board Port Layout.

Key components and ports include:

- **DC Socket (9-24V)**: For power input.
- **R/L Speaker Outputs**: For connecting passive speakers.
- **3.5mm Aux Input**: For wired audio connection.
- **USB Flash Disk/USB Sound Card**: For playing audio from a USB drive or using the board as a USB sound card.
- **Switch/Volume Knob**: Controls power and audio volume.

3. SETUP AND INSTALLATION

3.1 Assembly

The ZK-502A board requires minimal assembly. Attach the protective top plate using the provided standoffs and screws. It is highly recommended to apply thermal paste between the main chip and the heatsink (if not pre-applied) to ensure optimal heat dissipation and prolong the lifespan of the device, especially when operating at higher volumes or for

extended periods.

3.2 Connections

1. **Power Supply:** Connect a DC power supply (9-24V) to the DC socket. Ensure the power supply provides sufficient current (e.g., $\geq 3A$) for optimal performance, especially with 4Ω speakers.
2. **Speakers:** Connect your passive speakers to the R (Right) and L (Left) speaker output terminals. Pay attention to polarity (+ and -). The board is designed for 10-50W, 4-8 Ω speakers. For 4Ω speakers, the power supply voltage should not exceed 12V.
3. **Audio Input (Choose One):**
 - **Bluetooth Mode:** Power on the device. It will automatically enter Bluetooth pairing mode.
 - **AUX Mode:** Connect an audio source (e.g., phone, CD player) to the 3.5mm Aux Input jack.
 - **USB Mode:** Insert a USB flash drive (FAT32 format, up to 32GB) into the USB-IN port for direct audio playback, or connect to a computer via USB to use the board as a USB sound card.

4. OPERATING INSTRUCTIONS

4.1 Power On/Off and Volume Control

Rotate the Switch/Volume Knob clockwise to power on the amplifier. Continue rotating clockwise to increase the volume. Rotate counter-clockwise to decrease volume and turn off the device.

4.2 Bluetooth Connection

1. Ensure the amplifier board is powered on.
2. On your Bluetooth-enabled device (e.g., smartphone, tablet), search for available Bluetooth devices.
3. Select "Wuzhi Audio" (or the customized Bluetooth name if changed via the app) from the list to pair.
4. Once connected, a confirmation tone will sound. You can now play audio from your device through the amplifier.



Figure 4.1: Bluetooth Mode Operation.

4.3 APP Control (Android Only)

The ZK-502A offers advanced control via a dedicated mobile application, currently available for Android devices only. This app allows for customization and enhanced functionality.

- **Download the APP:** Search for "Wuzhi Audio" in the Google Play Store.
- **Connect to the APP:** Open the app and connect to your ZK-502A amplifier board.
- **APP Functions:**
 - Modify Bluetooth Name
 - Set Bluetooth Password
 - Adjust Beep Volume
 - Toggle Prompt Tone On/Off
 - Select Sound Effects (e.g., Jazz, Rock, Classical, Nature, Custom)
 - Manage USB Flash Disk Playlists

- Access Sleep Aid Songs / Lullabies
- Set Timer Switch

CAN BE CONTROLLED BY APP

- **Modify the bluetooth name**
- **Switch Beep**
- **Set bluetooth password**
- **Beep volume adjustment**
- **Mode Switch**
- **Sleep Aid Songs**
- **Timer Switch**
- **Sound effect adjustment**
- **U flash disk selection**

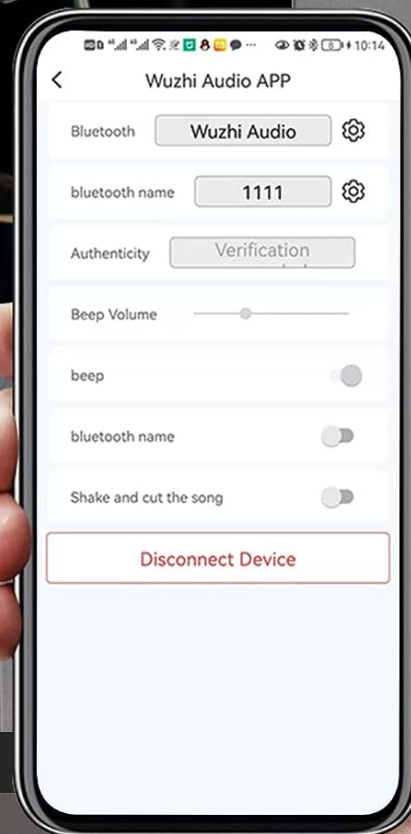


Figure 4.2: APP Control Features Overview.



Figure 4.3: APP Setting Interface and Natural Sounds Feature.

Note: If your phone is not an Android device, you will not be able to utilize the APP functions.

5. MAINTENANCE

To ensure the longevity and optimal performance of your ZK-502A amplifier board, follow these maintenance guidelines:

- **Keep Clean:** Regularly clean the board with a soft, dry cloth to prevent dust accumulation, which can affect performance and lead to overheating.
- **Ventilation:** Ensure adequate airflow around the amplifier board, especially if enclosed in a case, to prevent overheating.
- **Thermal Paste:** Verify that thermal paste is properly applied between the main chip and its heatsink. Reapply if necessary, especially if you notice the board running excessively hot.
- **Power Supply:** Always use a stable and appropriate DC power supply within the specified voltage range (9-24V). Using an incorrect or unstable power supply can damage the board.
- **Avoid Moisture:** Keep the amplifier board away from water and high humidity environments.

6. TROUBLESHOOTING

If you encounter issues with your ZK-502A amplifier board, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
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Problem	Possible Cause	Solution
No sound output	• Incorrect power supply connection • Speakers not connected properly or faulty • Incorrect input mode selected • Volume too low	• Check DC power input (9-24V) and polarity. • Verify speaker connections and ensure speakers are functional. • Confirm correct audio input (Bluetooth, AUX, USB). • Increase volume using the knob.
Bluetooth connection issues	• Device not in pairing mode • Interference • Incorrect Bluetooth name/password	• Ensure the amplifier is powered on and discoverable. • Move closer to the amplifier; reduce other wireless interference. • If a password is set via the app, ensure it's entered correctly. Try resetting Bluetooth on both devices.
APP not working	• Non-Android phone • App version incompatibility • Bluetooth not connected	• The APP is only compatible with Android phones. • Ensure you have the latest version of the "Wuzhi Audio" app. • Verify that your phone is successfully paired with the amplifier via Bluetooth.
Distorted audio	• Over-driving speakers • Insufficient power supply • Speaker impedance mismatch	• Reduce volume. • Ensure power supply meets current requirements (e.g., $\geq 3A$). • Use 4-8Ω speakers. If using 4Ω speakers, ensure power supply is $\leq 12V$.

7. SPECIFICATIONS

Detailed technical specifications for the ZK-502A amplifier board:

Audio Input: AUX + BT + USB flash disk + USB sound card

BT Version: 5.1

Audio Output: Left channel 50W + right channel 50W

Adaptive Power Supply: DC 9~24V / $\geq 3A$ (Do not connect to AC)

Adaptive Speaker: 10-50W, 4-8 Ω

Volume Adjustment: Classic mechanical knob (with volume scale), stepless adjustment

Switch Machine: Classic mechanical switch, without long press and wait.

Protection Mechanism: Overheating, overcurrent, short circuit, anti-static protection

Characteristic Function: Support Wuzhi Audio APP. Modify BT name, password setting, prompt tone volume adjustment, on / off prompt tone, lullaby, sound effect selection + custom sound effect, USB flash disk playlist.

Size: 3.07*1.96*0.7in

Note: it is recommended to equip with 8 Ω speaker and power supply of 9-24vdc. Overpressure is not allowed. If the 4 Ω speaker is driven, the power supply shall not exceed 12V.



Figure 7.1: ZK-502A Detailed Specifications.

- **Model:** ZK-502A
- **Audio Input:** AUX + Bluetooth + USB flash disk + USB sound card
- **Bluetooth Version:** 5.1
- **Audio Output:** Left channel 50W + Right channel 50W
- **Adaptive Power Supply:** DC 9-24V / $\geq 3A$ (Do not connect to AC)
- **Adaptive Speaker:** 10-50W, 4-8 Ω
- **Volume Adjustment:** Classic mechanical knob (with volume scale), stepless adjustment
- **Switch Machine:** Classic mechanical switch, without long press and wait.
- **Protection Mechanism:** Overheating, overcurrent, short circuit, anti-static protection
- **Characteristic Function:** Support Wuzhi Audio APP. Modify BT name, password setting, prompt tone volume adjustment, on/off prompt tone, lullaby, sound effect selection + custom sound effect, USB flash disk playlist.
- **Product Dimensions (L x W x H):** 3.07 x 1.96 x 0.7 inches (7.8 x 5.0 x 1.8 cm)
- **Weight:** 2.4 ounces (68 grams)

- **Minimum Supply Voltage:** 9 Volts (DC)
- **Maximum Supply Voltage:** 24 Volts (DC)

Note: It is recommended to equip with 8Ω speakers and a power supply of 9-24V DC. Overpressure is not allowed. If a 4Ω speaker is driven, the power supply shall not exceed 12V.

8. WARRANTY AND SUPPORT

DAJUNGUO is committed to providing high-quality products and customer satisfaction. If you encounter any problems or have questions regarding your ZK-502A amplifier board, please do not hesitate to contact our customer service team.

- **Customer Service:** We offer 7*24 hours customer service. Please reach out to us through the platform where you purchased the product.
- **Satisfaction Guarantee:** We are dedicated to resolving any issues and providing a satisfactory solution.

For the most up-to-date support information, please refer to the official DAJUNGUO store page or contact details provided with your purchase.

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ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question

