

ARRAROWN ZK-1002

ARRAROWN ZK-1002 Bluetooth 5.0 HiFi Audio Amplifier Board User Manual

Model: ZK-1002

1. INTRODUCTION

Thank you for choosing the ARRAROWN ZK-1002 Bluetooth 5.0 HiFi Audio Amplifier Board. This compact yet powerful stereo amplifier is designed for DIY audio enthusiasts, offering high-fidelity sound with both Bluetooth and AUX input options. This manual will guide you through the setup, operation, and maintenance of your amplifier board to ensure optimal performance and longevity.

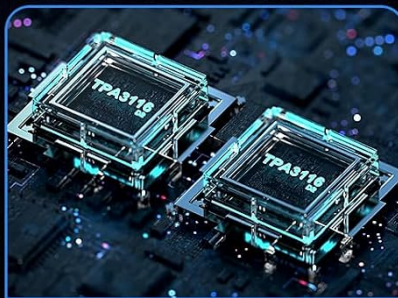
2. PRODUCT OVERVIEW

The ZK-1002 is a 2.0 channel stereo power amplifier board capable of delivering 100W + 100W output. It features advanced TPA3116D2 chips and multiple protection mechanisms, making it a reliable choice for connecting passive speakers (20-200W, 4-8 Ohm). Its compact design allows for versatile integration into various audio projects.

WITH TPA3116D2 HI-FI AUDIO CHIP



Red and Gray Ring Inductors



DUAL TPA3116D2 CHIP



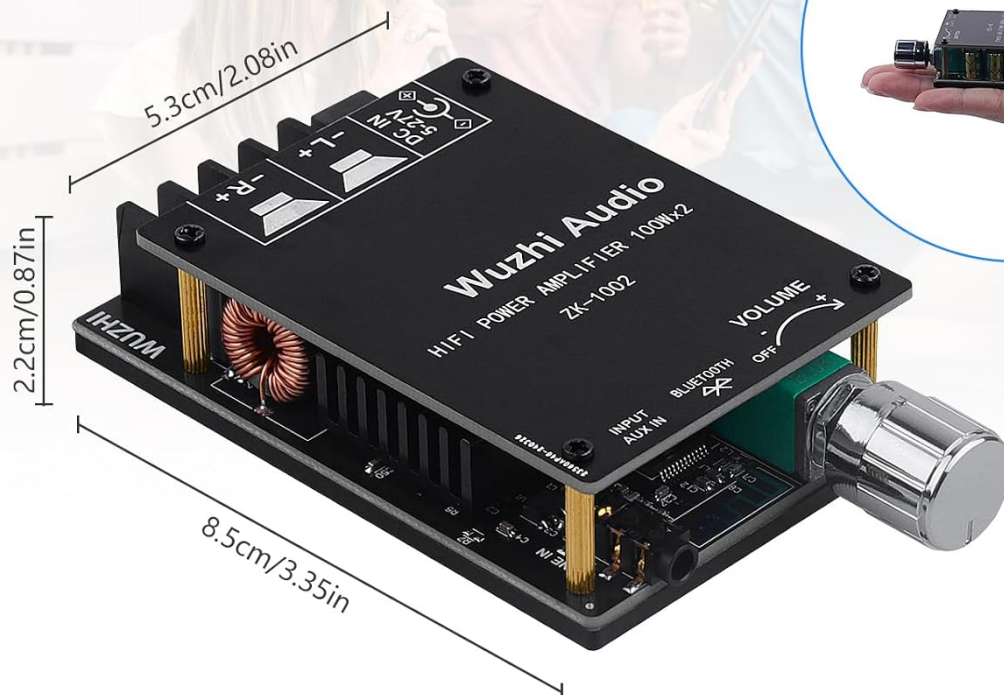
Large Heat Sink

Image: ZK-1002 Amplifier Board with TPA3116D2 chips, red and gray ring inductors, and a large heat sink. This image highlights the core components responsible for the amplifier's performance.

3. FEATURES

- **High-Fidelity Audio:** Equipped with dual TPA3116D2 chips and four red and gray ring inductors, ensuring low distortion (less than 0.3%) and clear sound.
- **Powerful Output:** Delivers 100W + 100W stereo output, suitable for 4-8 Ohm passive speakers ranging from 20W to 200W. For best results, 50-100W speakers are recommended.
- **Dual Input Modes:** Supports both Bluetooth 5.0 and AUX audio inputs.
- **Advanced Bluetooth 5.0:** Features low latency and a stable connection range of up to 15 meters (49 feet), compatible with smartphones, tablets, and laptops.
- **Compact Design:** Measures approximately 8.5 x 5.3 x 2.2 cm (3.35 x 2.08 x 0.87 inches), making it ideal for space-constrained applications.
- **Multiple Protection Mechanisms:** Includes over-voltage, under-voltage, over-heat, short-circuit, and DC detection protection for enhanced safety and durability.

SIZE



PROTECTIVE MECHANISMS



Over-voltage
protection



Under-voltage
protection



Over-heat
protection



Short-circuit
protection



DC detection
protection

Image: This image illustrates the compact dimensions of the ZK-1002 amplifier board and highlights its protective features, including over-voltage, under-voltage, over-heat, short-circuit, and DC detection protection.

4. SAFETY INFORMATION

Please read and understand the following safety precautions before operating the device:

- Ensure the power supply voltage is within the specified range (DC 5-27V, 5A or above). Using an incorrect voltage can damage the device.
- Do not expose the amplifier board to moisture, water, or extreme temperatures.
- Avoid short-circuiting the speaker outputs or power input.
- Always disconnect power before making any connections or disconnections.
- Keep the device away from children.
- Ensure proper ventilation to prevent overheating, especially during prolonged use at high volumes.

5. PACKAGE CONTENTS

Verify that all items are present in your package:

- ZK-1002 Bluetooth 5.0 HiFi Audio Amplifier Board
- Top and Bottom Acrylic Plates
- Mounting Hardware (standoffs, screws)
- Power Cable (DC barrel jack pigtail)
- Volume Knob
- Small Screwdriver

PACKING LIST

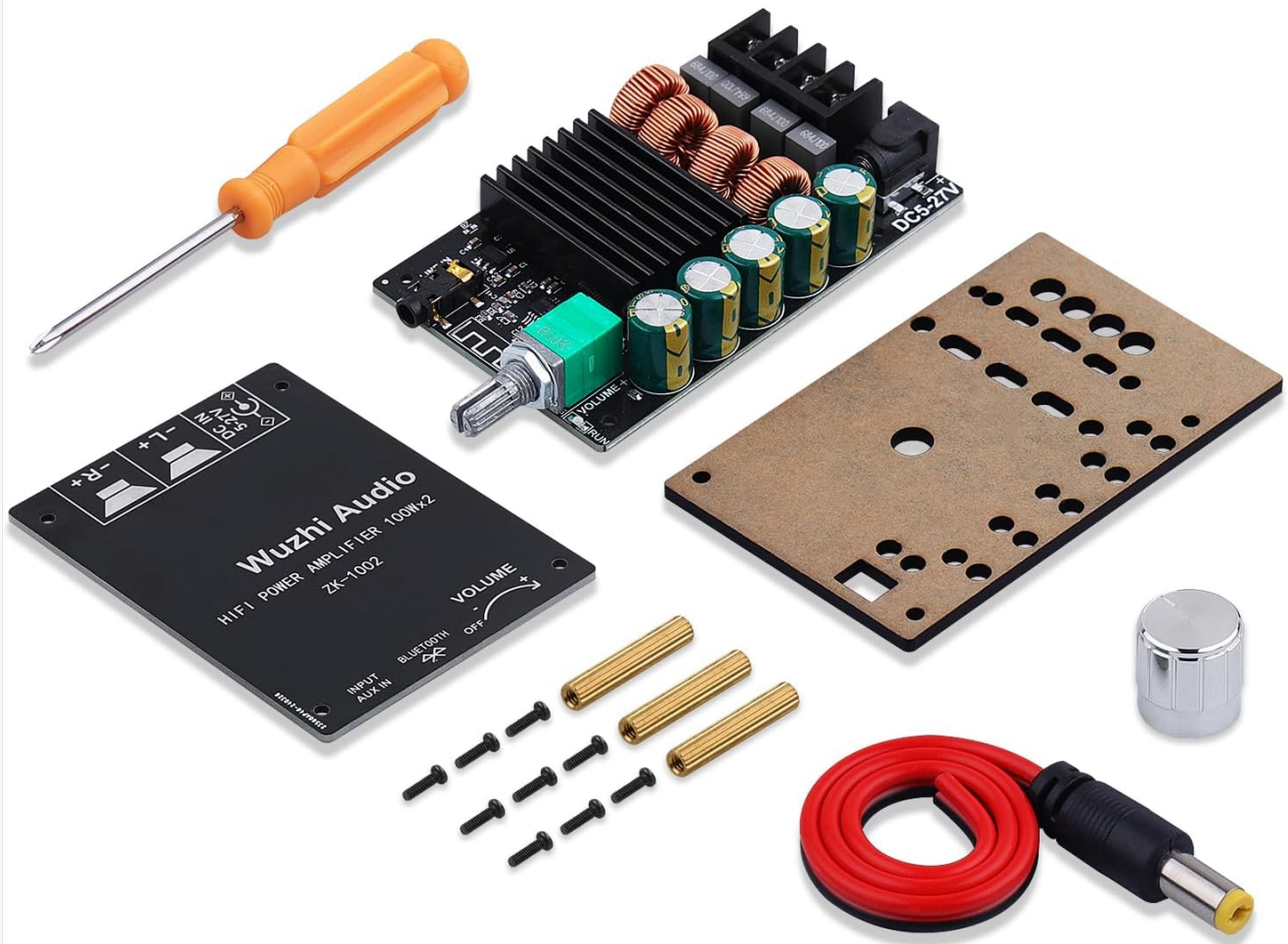


Image: This image displays the complete packing list for the ZK-1002 amplifier board, including the main board, acrylic plates, mounting hardware, power cable, volume knob, and a screwdriver.

6. SETUP INSTRUCTIONS

Follow these steps to set up your ZK-1002 amplifier board:

6.1 Assembly (Optional)

If your board came unassembled with acrylic plates, follow these steps:

1. Carefully remove the protective film from both sides of the acrylic plates.
2. Align the bottom acrylic plate with the mounting holes on the amplifier board.

3. Insert the brass standoffs through the holes and secure them with screws.
4. Place the top acrylic plate over the standoffs and secure it with the remaining screws.
5. Attach the volume knob to the potentiometer shaft.

6.2 Speaker Connection

Connect your passive speakers to the amplifier board:

1. Identify the Left Channel and Right Channel output terminals on the board.
2. Connect the positive (+) terminal of your left speaker to the Left Channel (+) terminal on the board.
3. Connect the negative (-) terminal of your left speaker to the Left Channel (-) terminal on the board.
4. Repeat for the right speaker, connecting it to the Right Channel terminals.
5. Ensure all connections are secure and that there are no loose strands of wire that could cause a short circuit.



Image: This detailed diagram of the ZK-1002 amplifier board clearly labels the audio input, Bluetooth 5.0 module, volume control with switch, LED indicator, DC power input (5-27V), and the left and right speaker output channels.

6.3 Power Connection

Connect the power supply to the amplifier board:

1. The ZK-1002 requires a DC power supply between 5V and 27V, with a current of 5A or higher. For optimal performance, especially at higher volumes, a 12V-24V/5A+ power supply is recommended.
2. Connect the DC barrel jack of your power supply to the DC 5-27V input port on the amplifier board.
3. Ensure the power supply is off or unplugged before connecting.



Image: This image demonstrates the ZK-1002 amplifier board connected to a speaker, emphasizing its 100W+100W power output. It also provides a table of adaptive speaker recommendations and input voltage requirements.

7. OPERATING INSTRUCTIONS

Once the amplifier board is set up, follow these steps to operate it:

7.1 Powering On/Off

The volume knob also functions as a power switch. Rotate the knob clockwise until you hear a click to turn the amplifier on. Rotate it counter-clockwise until you hear a click to turn it off.

7.2 Bluetooth Connection

1. Turn on the amplifier board. The LED indicator will light up, indicating it's ready for pairing.
2. On your audio source device (smartphone, tablet, etc.), enable Bluetooth and search for available devices.
3. Select "ZK-1002" from the list of devices. No password is required for pairing.
4. Once connected, the LED indicator may change state (e.g., solid light) to confirm successful pairing.
5. You can now play audio from your device through the amplifier.

7.3 AUX Input Usage

To use the AUX input:

1. Ensure that no Bluetooth device is currently connected to the amplifier. If a Bluetooth device is connected, disconnect it first.
2. Connect your audio source (e.g., MP3 player, computer) to the AUX IN port on the amplifier board using a 3.5mm audio cable.
3. The amplifier will automatically switch to AUX input mode.



Image: This image visually represents the Bluetooth 5.0 and AUX input functionality of the ZK-1002 amplifier board, showing a smartphone wirelessly connected and playing music, highlighting the 15m/49ft range.

7.4 Volume Control

Rotate the volume knob clockwise to increase the volume and counter-clockwise to decrease it.

8. SPECIFICATIONS

Feature	Specification
Model Number	ZK-1002
Channels	2.0 (Stereo)
Output Power	100W x 2
Input Voltage	DC 5-27V (Recommended: 12V-24V / 5A or above)
Adaptive Speakers	20-200W, 4-8 Ohm (Recommended: 50-100W)
Bluetooth Version	5.0
Bluetooth Range	Up to 15 meters (49 feet)
Audio Inputs	Bluetooth, AUX (3.5mm)
THD (Total Harmonic Distortion)	< 0.3%
Protection Mechanisms	Over-voltage, Under-voltage, Over-heat, Short-circuit, DC Detection
Dimensions (L x W x H)	8.5 x 5.3 x 2.2 cm (3.35 x 2.08 x 0.87 inches)
Manufacturer	DideaECO

9. TROUBLESHOOTING

If you encounter issues with your ZK-1002 amplifier board, refer to the following common problems and solutions:

- **No Sound:**
 - Ensure the amplifier is powered on and the LED indicator is lit.
 - Check all speaker connections for proper polarity and secure contact.
 - Verify the audio source is playing and its volume is turned up.
 - If using Bluetooth, ensure it's paired correctly. If using AUX, ensure Bluetooth is disconnected.
 - Check the power supply; ensure it meets the voltage and current requirements.
- **Distorted Sound:**
 - Reduce the volume on both the amplifier and the audio source.
 - Ensure your speakers are within the recommended power and impedance range (20-200W, 4-8 Ohm).
 - Check for loose or faulty speaker connections.
 - Ensure the power supply is stable and provides sufficient current.
- **Bluetooth Disconnects Frequently:**

- Ensure your audio source is within the 15-meter (49 feet) range.
- Minimize obstacles between the amplifier and the audio source.
- Try re-pairing the Bluetooth device.

- **Amplifier Overheats:**

- Ensure adequate ventilation around the amplifier board.
- Reduce the volume, as prolonged high-volume operation can generate more heat.
- Verify the speaker impedance is not too low.

10. MAINTENANCE

To ensure the longevity and optimal performance of your ZK-1002 amplifier board, follow these maintenance guidelines:

- **Cleaning:** Use a soft, dry cloth to gently wipe the surface of the board. Do not use liquid cleaners or solvents.
- **Storage:** When not in use for extended periods, store the amplifier in a cool, dry place away from direct sunlight and moisture.
- **Ventilation:** Always ensure the amplifier has sufficient airflow to prevent heat buildup. Do not cover the heat sink.
- **Connections:** Periodically check all wire connections for tightness and corrosion.

11. WARRANTY AND SUPPORT

Specific warranty information for the ARRAROWN ZK-1002 amplifier board is not provided in this manual. For warranty details, technical support, or further assistance, please refer to the product packaging or contact the seller/manufacturer directly.