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> Wuzhi Audio ZK-1002T Bluetooth Amplifier Board Instruction Manual

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INSTRUCTION MANUAL

1. Introduction

The Wuzhi Audio ZK-1002T is a high-performance Bluetooth amplifier board designed to deliver crisp, high-fidelity audio. Featuring dual TPA3116D2 Class-D amplifier chips, it provides an impressive output of 100W+100W. This board supports both Bluetooth 5.0 for wireless streaming and a 3.5mm AUX port for wired connections, making it versatile for various audio setups. This manual provides essential information for the proper installation, operation, and maintenance of your amplifier board.

2. Product Features

- **High-Performance Dual-Chip Design:** Powered by dual TPA3116D2 Class-D amplifier chips, delivering 100W+100W output with minimal distortion and efficient power utilization.
- **Universal Compatibility & Flexible Power Input:** Supports a wide 12-24V DC input via a standard 5.5×2.1mm DC jack, compatible with most power adapters.
- **Customizable Sound Control:** Equipped with three intuitive knobs for bass boost, treble adjustment, and master volume, allowing fine-tuning of audio output.
- **Dual Connectivity & Smart Priority:** Features Bluetooth 5.0 for seamless wireless streaming and a 3.5mm AUX port for wired connections. Bluetooth mode automatically takes priority when enabled.
- **Robust Protection & Reliable Support:** Built-in safeguards include undervoltage/overvoltage protection, reverse polarity protection, and thermal shutdown to prevent damage.

3. Package Contents

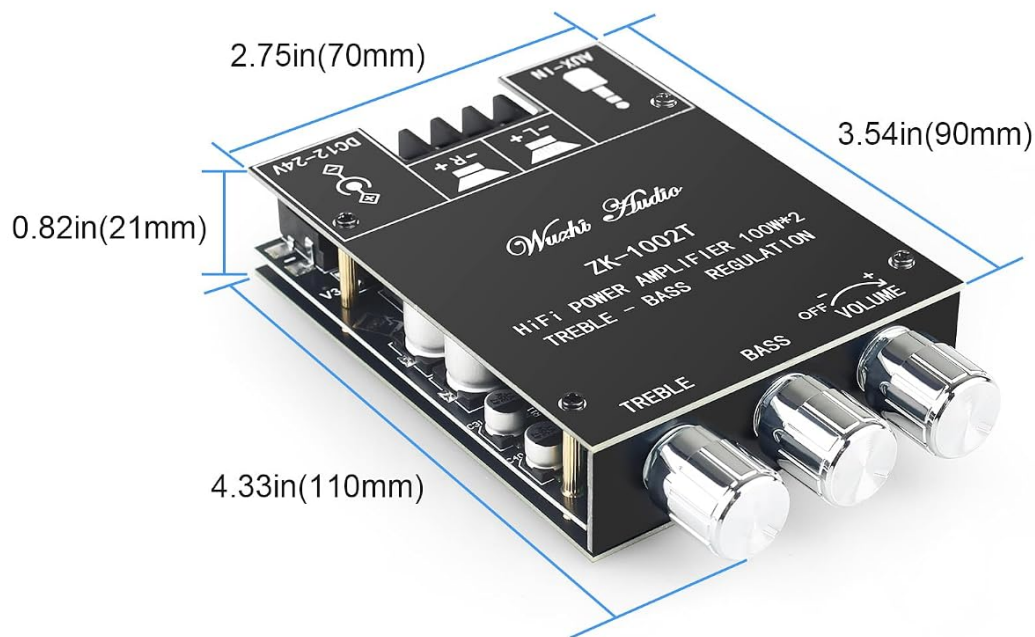
Please verify that all items are present in your package:

- 1 x ZK-1002T Bluetooth Amplifier Board

4. Specifications



Image: Detailed view of the ZK-1002T Bluetooth Amplifier Board, highlighting the 3.5mm AUX input, passive speaker terminals (L/R), DC power socket (12-24V), and control knobs for Volume, Bass, and Treble. A large heat sink is visible in the center.



Bluetooth Version	5.0 (No shielding, effective range 10 meters)
Signal-to-Noise Ratio (SNR)	> 90 dB
Audio Input	AUX + Bluetooth
Channels	2.0 (Stereo)
Chip	TPA3116D2 (with AM interference suppression)
Power Supply Range	DC 12V-24V / $\geq 5A$
Speaker	20W-200W, $4\Omega \sim 8\Omega$
Protection Features	Over-voltage, under-voltage, overheating, DC detection, and short circuit protection
Product Dimensions	110mm $\times$ 70mm $\times$ 21mm

Image: Diagram showing the dimensions of the ZK-1002T amplifier board: 3.54 inches (90mm) length, 2.75 inches (70mm) width, and 0.82 inches (21mm) height.

Feature	Description
Model	ZK-1002T
Item Dimensions (L x W x H)	3.54 x 2.75 x 0.82 inches (110mm x 70mm x 21mm)
Manufacturer	Wuzhi Audio
Maximum Supply Voltage	24V DC
Minimum Supply Voltage	12V DC
Mounting Type	Surface Mount
Number of Channels	2 (Stereo)
Output Power (Max)	200 watts (100W+100W)

Feature	Description
Bluetooth Version	5.0 (Effective range 10 meters, no shielding)
Signal-to-Noise Ratio (SNR)	> 90 dB
Audio Input	AUX + Bluetooth
Amplifier Chip	TPA3116D2 (with AM interference suppression)
Power Supply Range	DC 12V-24V / $\geq 5A$
Speaker Impedance	4 Ω ~8 Ω
Speaker Power	20W-200W
Protection Features	Over-voltage, under-voltage, overheating, DC detection, short circuit protection

POWER OUTPUT (@1KHZ)

Model: ZK-1002T		Power Supply: DC12-24V/5A OR Above	
Power Output	DC Voltage	Output Power (Max)	
	12V	10W+10W @ 8Ω	
		20W+20W @ 4Ω	
		25W+25W @ 8Ω	
	21V	50W+50W @ 4Ω	
		100W+100W @ 2Ω	
		30W+30W @ 8Ω	
	24V	70W+70W @4Ω	
When the total impedance of each channel is 4 ohms, the power supply voltage must not exceed 24V. When the total impedance of each channel is 2 ohms, the power supply voltage must not exceed 21V.			

Image: Table detailing the maximum power output of the ZK-1002T amplifier at 1KHz, based on DC voltage and speaker impedance. For example, at 24V with 4 Ω speakers, it can output 70W+70W. Important notes on voltage limits for different impedances are included.

5. Setup Instructions

Follow these steps to set up your ZK-1002T Bluetooth Amplifier Board:

1. **Power Connection:** Connect a DC 12-24V power supply (minimum 5A recommended) to the DC socket (5.5x2.1mm) on the amplifier board. Ensure the power supply polarity is correct.
2. **Speaker Connection:** Connect your passive speakers to the 'Passive Speaker L' (Left) and 'Passive Speaker R' (Right) terminals. Ensure correct polarity (+ to + and - to -) for each speaker. The amplifier supports speakers with 4Ω to 8Ω impedance and 20W to 200W power.
3. **Audio Input Selection:** Decide whether to use Bluetooth or the 3.5mm AUX input.



Image: The ZK-1002T amplifier board positioned between two wooden passive speakers, demonstrating a typical setup with speaker wires connected to the terminals.

6. Operating Instructions

Once set up, operate your amplifier board as follows:

1. **Power On/Off:** Rotate the 'Volume' knob clockwise to turn on the amplifier. Rotate it counter-clockwise until it clicks to turn off.
2. **Bluetooth Pairing:**
 - After powering on, the amplifier will automatically enter Bluetooth pairing mode.
 - On your audio device (smartphone, tablet, etc.), search for Bluetooth devices and select 'ZK-1002T' to pair.
 - Once paired, a confirmation tone will sound, and you can begin playing audio wirelessly.
3. **AUX Input:**
 - Connect your audio source to the 3.5mm AUX input jack using a standard 3.5mm audio cable.
 - Note: Bluetooth input takes priority. If a Bluetooth device is connected, the AUX input will be muted. Disconnect the Bluetooth device to use AUX input.
4. **Volume Control:** Adjust the 'Volume' knob to increase or decrease the overall audio output level.
5. **Tone Control:** Use the 'Bass' knob to adjust low-frequency response and the 'Treble' knob to adjust high-frequency response according to your preference.



Image: A close-up view of the ZK-1002T amplifier board with a 3.5mm AUX cable connected to its input port, illustrating the wired audio connection option.

7. Maintenance

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

- **Cleaning:** Use a soft, dry cloth to clean the surface of the amplifier board. Avoid using liquid cleaners or solvents, as they may damage components.
- **Environment:** Keep the amplifier board in a dry, well-ventilated area. Avoid exposure to direct sunlight, high temperatures, humidity, or dust.
- **Handling:** Handle the board with care to prevent physical damage to components or connections.
- **Power Off:** Always turn off the amplifier and disconnect the power supply before performing any cleaning or maintenance.

8. Troubleshooting

If you encounter issues with your ZK-1002T amplifier board, refer to the following troubleshooting guide:

Problem	Possible Cause	Solution
No power/LED indicator off	Power supply not connected or faulty; power switch off.	Ensure power supply is correctly connected and functional (12-24V DC, ≥5A). Turn the volume knob clockwise to power on.
No sound output	Incorrect speaker connection; input source not selected or muted; volume too low; faulty audio cable.	Check speaker wiring and polarity. Ensure Bluetooth device is paired or AUX cable is connected. Increase volume. Test with a different audio cable.
Bluetooth not connecting or unstable	Amplifier not in pairing mode; device too far; interference; previously paired device connected.	Ensure no other Bluetooth devices are connected. Move audio device closer to the amplifier. Restart both devices.
Distorted sound	Input volume too high; power supply insufficient; speaker impedance mismatch; faulty speakers.	Reduce the input volume from your audio source. Ensure power supply meets specifications (12-24V DC, ≥5A). Verify speaker impedance (4Ω-8Ω). Test with different speakers.
Overheating	Poor ventilation; excessive load.	Ensure adequate airflow around the amplifier board. Reduce volume or load if operating at high power for extended periods.

9. Warranty and Support

The Wuzhi Audio ZK-1002T Bluetooth Amplifier Board comes with a **1-year warranty** from the date of purchase. This warranty covers manufacturing defects and malfunctions under normal use. For technical assistance, troubleshooting, or warranty claims, please contact Wuzhi Audio customer service. Our responsive support team is available to provide assistance and ensure your satisfaction.

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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.

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