DAJUNGUO ZK-3002T

ZK-3002T Bluetooth Digital Amplifier Board User Manual

Model: ZK-3002T | Brand: DAJUNGUO

1. Introduction

This manual provides comprehensive instructions for the setup, operation, and maintenance of the DAJUNGUO ZK-3002T Bluetooth Digital Amplifier Board. This high-fidelity audio amplifier features a TPA3255 chip, delivering 300W+300W peak power output, and includes versatile input options such as Bluetooth, AUX, and USB. It also offers treble and bass adjustment for enhanced sound customization. Please read this manual thoroughly before using the product to ensure proper functionality and safety.

2. Product Features

- **TPA3255 HIFI Chip:** Equipped with the advanced TPA3255 chip, providing a peak output power of 300W+300W. Supports a wide voltage input range of DC 18-50V.
- **Multiple Input Methods:** Offers flexible connectivity with Bluetooth (JL 5.3, up to 10 meters transmission distance), AUX (3.5mm audio port), and USB input (supports FAT32 format USB flash drives). Compatible with various devices such as mobile phones, laptops, and MP3 players.
- **Powerful Heat Dissipation:** Features a thickened heat sink and a large, silent cooling fan to ensure efficient heat dissipation, allowing for prolonged usage without performance degradation or overheating.
- **Treble & Bass Control:** Independent knobs for high-frequency (treble) and low-frequency (bass) adjustments enable users to customize the sound profile for a more layered and impactful audio experience.
- **Protection Mechanisms:** Includes built-in protection against undervoltage, overheating, overcurrent, and short circuits. Note: Input polarity cannot be reversed.

Figure 2.1: Overview of the ZK-3002T Bluetooth Digital Amplifier Board.

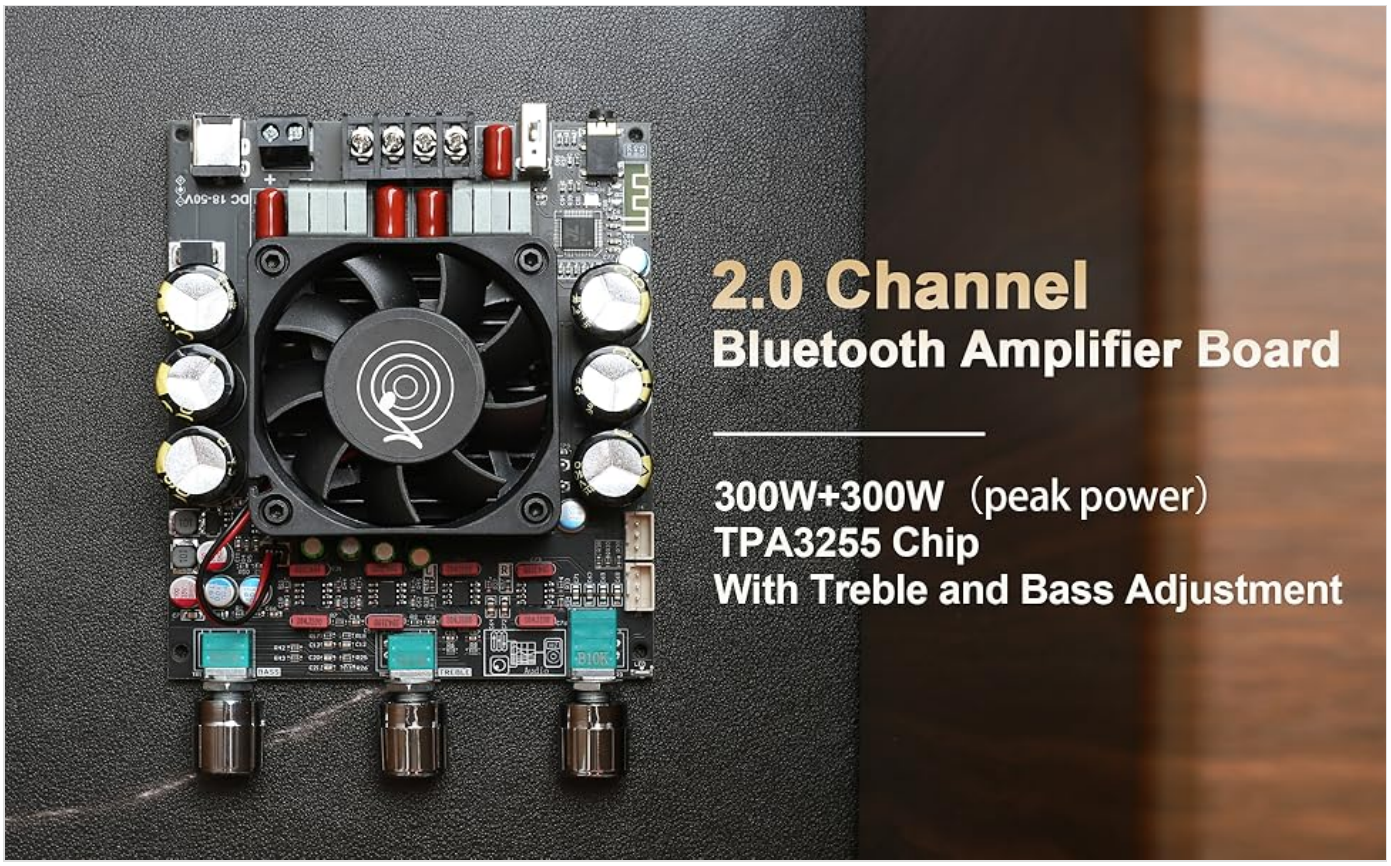

Figure 2.2: The ZK-3002T amplifier board highlighting its 300W+300W peak power and TPA3255 chip.

Figure 2.3: Detail of the thickened heat sink and cooling fan, essential for efficient heat dissipation.

3. Setup and Installation

3.1 Power Supply Connection

The ZK-3002T amplifier board requires a DC power supply with a voltage range of 18-50V. The maximum limit is 53V. For optimal performance, a DC power supply with a voltage of 36-48V and a current of 10A or above is recommended. Connect the power supply to the "Power Input 18-50V DC" terminal, which can be a 5.5-2.5 DC mother base or a 2P wiring terminal.

3.2 Speaker Connections

Connect your left and right speakers to the designated "Left Speaker" and "Right Speaker" output terminals on the board.

3.3 Input Methods

- **Bluetooth Input:** The board supports Bluetooth JL 5.3. Ensure your device's Bluetooth is enabled and search for the amplifier board to pair. The transmission distance is up to 10 meters.
- **AUX Input:** Connect an audio source using a 3.5mm audio cable to the "LINE IN Input (3.5mm audio port)".
- **USB Input:** Insert a USB flash drive (formatted as FAT32) into the "USB Flash Drive" port. The board can also function as a USB sound card when connected to a computer via this port.

3.4 Expansion Ports and Resistor Removal

The board features two expansion ports:

- **Expansion Port 1:** Connects to the audio input of a MIC front stage board reverb or a pure rear stage amplifier input port.
- **Expansion Port 2:** Connects to a MIC front stage board reverb output or a Qualcomm decoding board audio output.

Important Note:
When using Expansion Port 1 and Expansion Port 2, you must remove the three 0 Ohm resistors labeled R38, R32, and R30. These resistors are located near the expansion ports.

3.5 External Antenna Installation (Optional)

For improved Bluetooth signal reception, an external 2.4G antenna can be installed:

1. Move capacitor C6 (2.7PF) from its original position to the C88 position.
2. Weld the IPEX connector antenna base onto the board. Pay attention to the correct orientation of the antenna base.
3. Insert a 2.4G antenna (IPEX 1st generation connector) into the newly installed base.

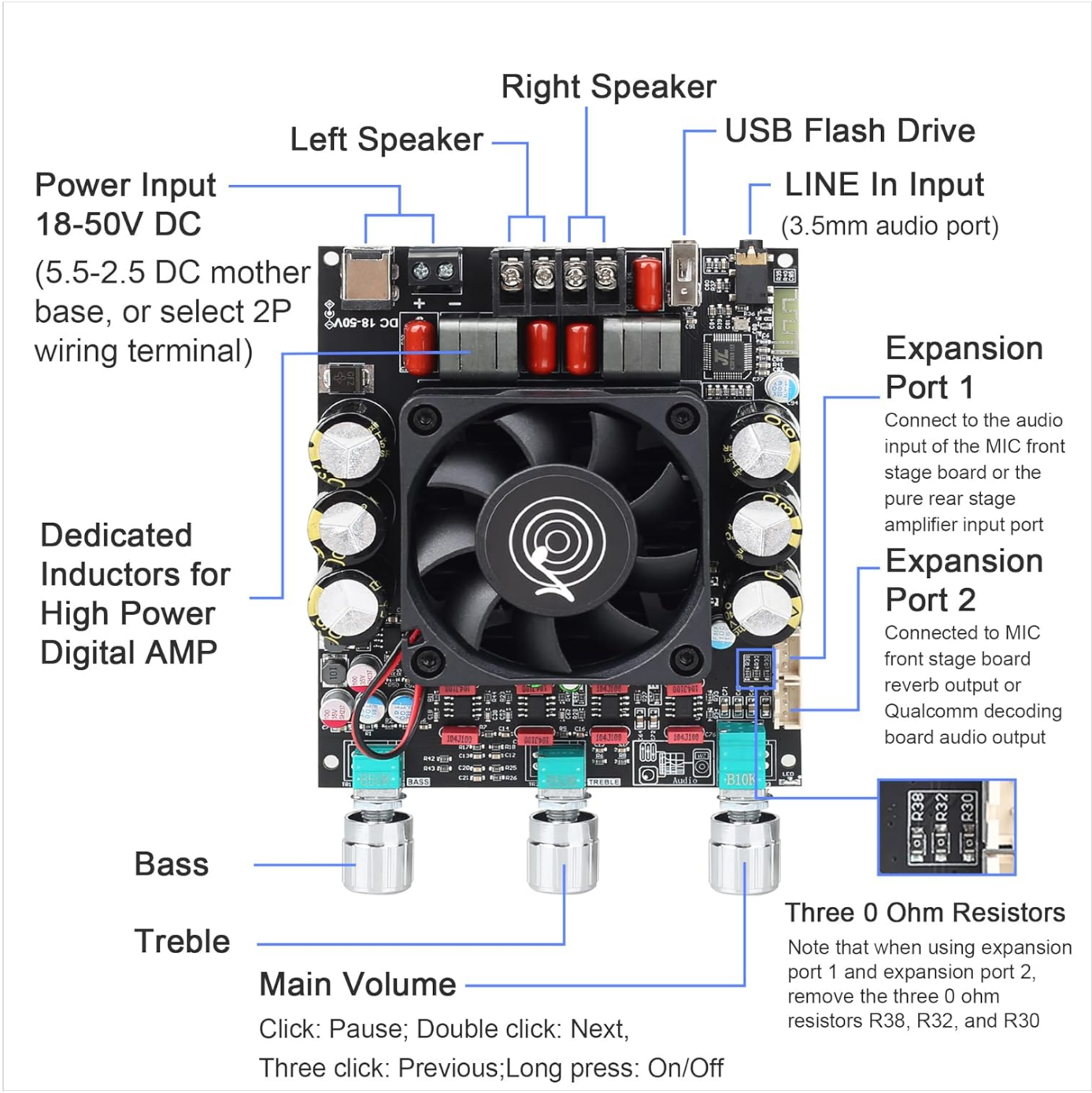

Figure 3.1: Labeled diagram of the ZK-3002T amplifier board showing power input, speaker outputs, input methods, and expansion ports.

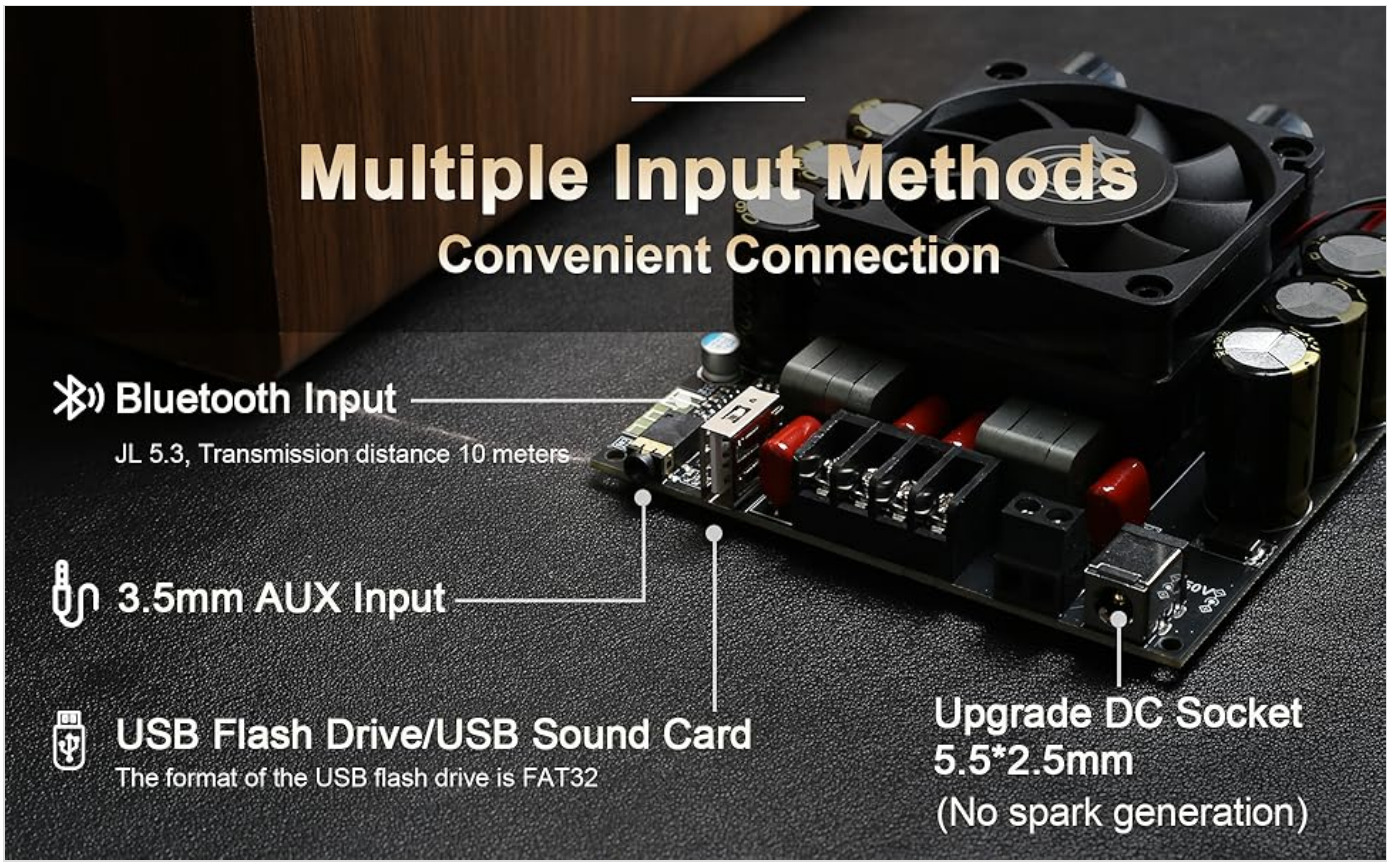

Figure 3.2: Visual representation of the Bluetooth, AUX, and USB input options.

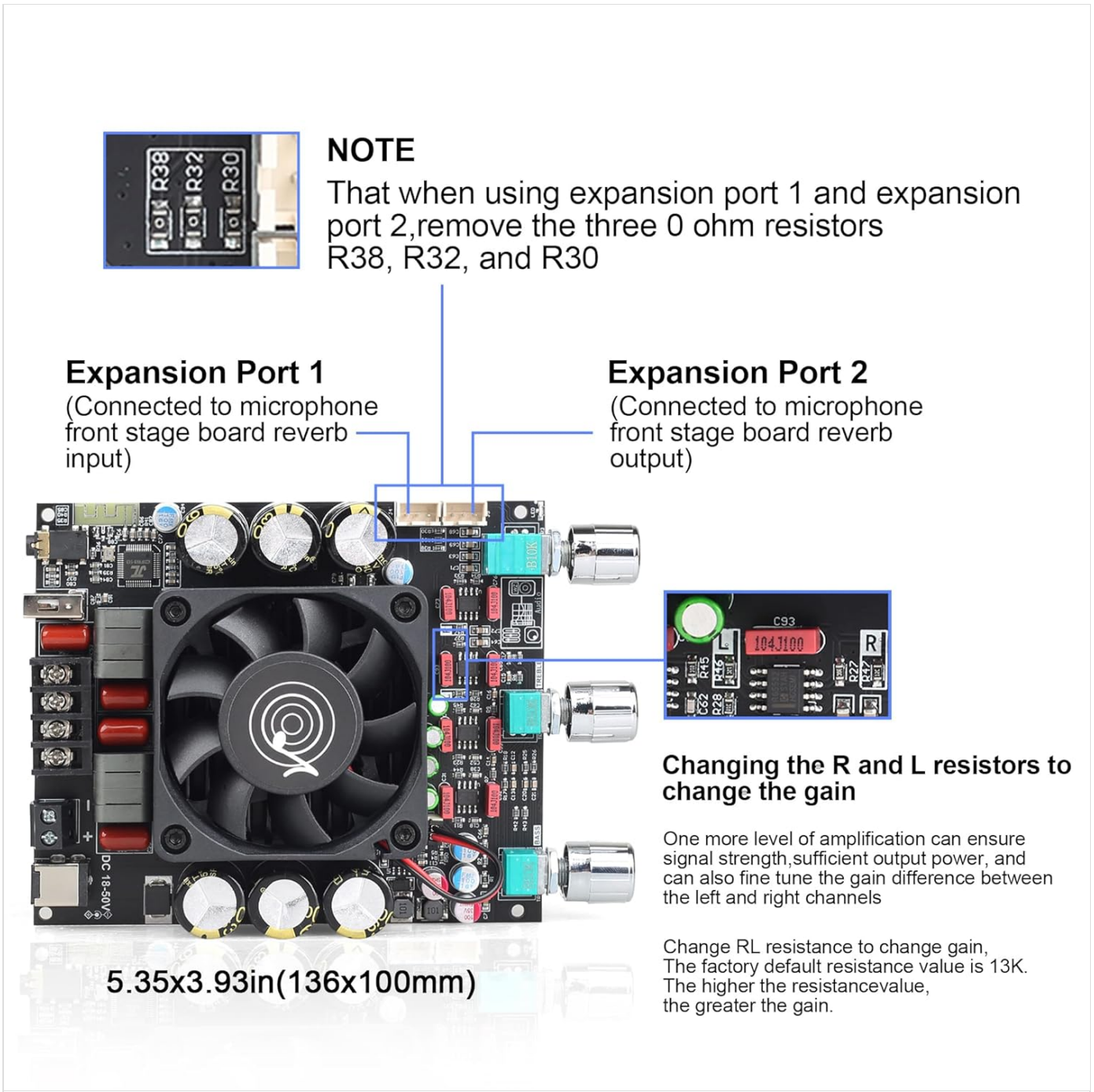

Figure 3.3: Detailed view of Expansion Port 1 and 2, and the location of R38, R32, R30 resistors to be removed.

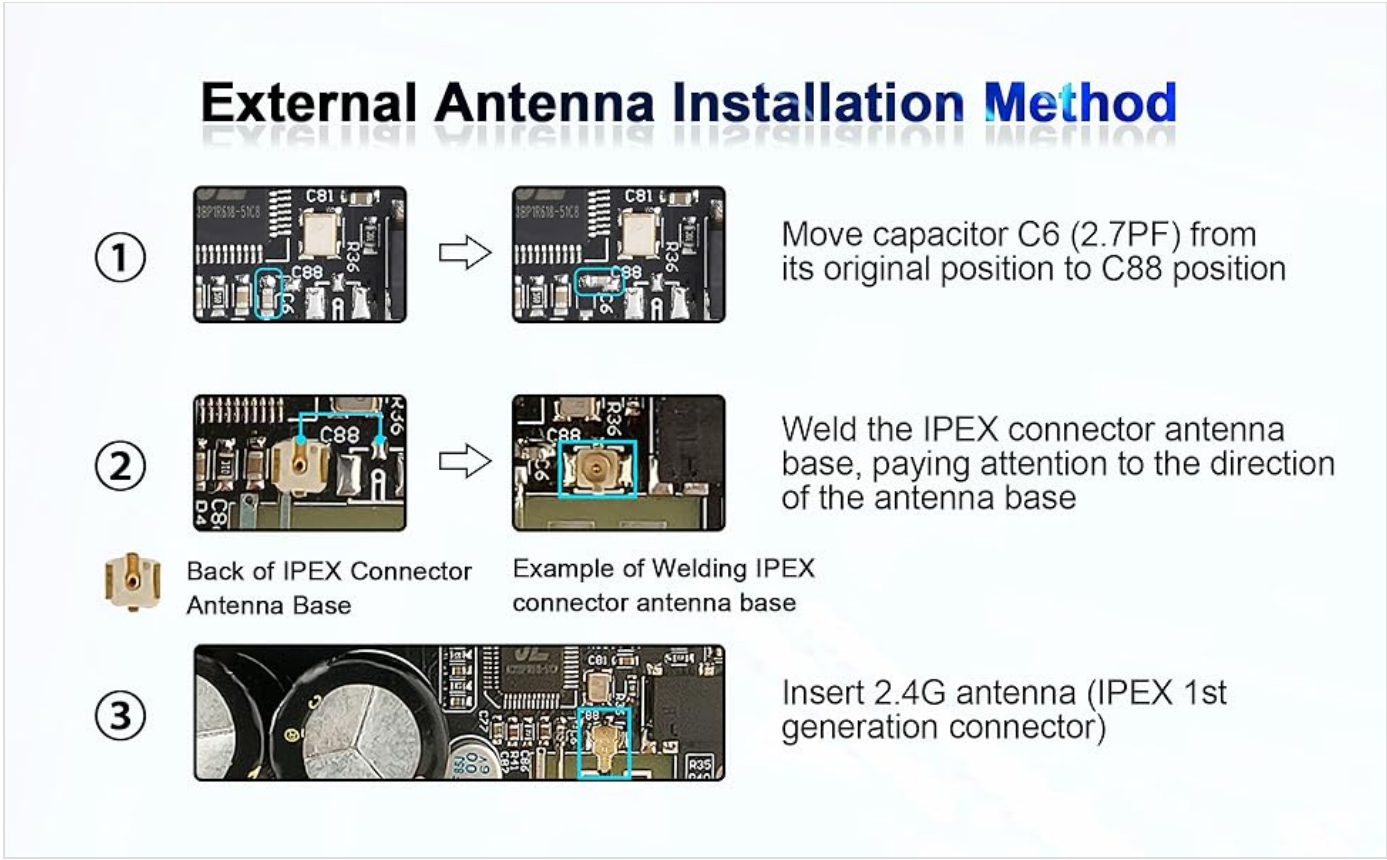

Figure 3.4: Step-by-step guide for installing an external 2.4G antenna.

4. Operating Instructions

4.1 Main Volume Control

The main volume knob controls the overall audio output level. It also has integrated control functions:

- **Click:** Pause/Play audio.
- **Double Click:** Skip to the next track.
- **Three Clicks:** Go to the previous track.
- **Long Press:** Power On/Off the amplifier board.

4.2 Treble and Bass Adjustment

Use the dedicated treble and bass knobs to fine-tune the audio output. Rotate the treble knob to increase or decrease high frequencies, and the bass knob to adjust low frequencies, allowing for personalized sound profiles.

4.3 Input Selection

The amplifier automatically detects and prioritizes active audio inputs. For Bluetooth, ensure your device is paired. For AUX or USB, simply connect the respective cables/drives.

5. Maintenance

To ensure the longevity and optimal performance of your ZK-3002T amplifier board, follow these maintenance guidelines:

- **Cleaning:** Regularly clean the board with a soft, dry cloth to remove dust. Avoid using liquid cleaners or solvents.
- **Ventilation:** Ensure the cooling fan and heat sink are free from obstructions to maintain efficient heat dissipation.

Do not block the airflow around the board.

- **Storage:** When not in use for extended periods, store the amplifier board in a cool, dry place, away from direct sunlight and excessive humidity.
- **Handling:** Handle the board with care to avoid damaging components. Avoid static discharge by grounding yourself before handling.

6. Troubleshooting

Problem	Possible Cause	Solution
No sound output	Power supply not connected or insufficient. Speakers not connected correctly. Input source not selected or connected. Volume too low.	Verify power supply voltage (18-50V DC) and current (10A+ recommended). Check speaker wiring for correct polarity and secure connections. Ensure Bluetooth is paired, AUX cable is fully inserted, or USB drive is recognized. Increase the main volume knob.
Distorted or buzzing sound	Input signal too strong. Speaker impedance mismatch. Poor quality audio source or cables. Power supply noise.	Reduce the volume of the input source. Ensure speakers are compatible with the amplifier's output (e.g., 4-8 ohms). Try a different audio source or higher quality cables. Use a regulated and stable power supply.
Bluetooth connectivity issues	Device too far from amplifier. Interference from other devices. Amplifier not in pairing mode.	Move the Bluetooth device closer to the amplifier (within 10 meters). Move away from Wi-Fi routers or other wireless devices. Ensure the amplifier is powered on and ready for pairing.
Overheating	Insufficient ventilation. Excessive volume for prolonged periods.	Ensure the cooling fan and heat sink are clear of obstructions. Reduce volume and allow the unit to cool down.

7. Specifications

Feature	Detail
Model Number	ZK-3002T
Amplifier Chip	TPA3255
Output Power (Peak)	300W + 300W
Channels	2.0 (Left Channel + Right Channel)
Minimum Supply Voltage	18 Volts (DC)
Maximum Supply Voltage	50 Volts (DC)

Feature	Detail
Recommended Power Supply	36-48V DC, 10A or above
Input Methods	Bluetooth (JL 5.3), AUX (3.5mm), USB
Bluetooth Transmission Distance	Up to 10 meters
Product Dimensions (L x W x H)	5.35 x 3.93 x 1.49 inches (136 x 100 x 38 mm)
Item Weight	12.63 ounces
Protection Mechanisms	Undervoltage, Overheating, Overcurrent, Short Circuit

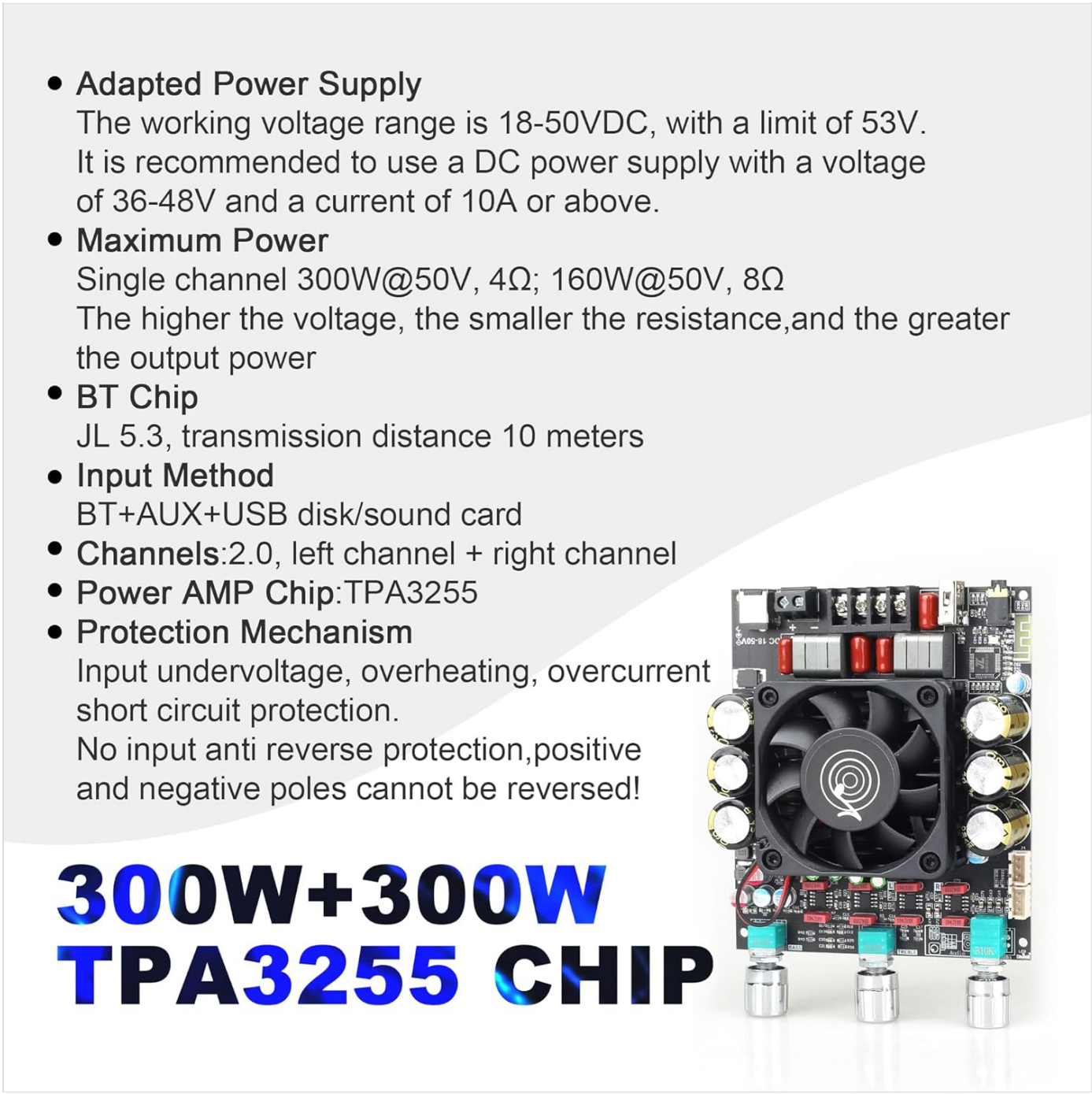

Figure 7.1: Key specifications and features of the ZK-3002T amplifier board.

Figure 7.2: Dimensions of the ZK-3002T amplifier board, including heat sink and fan measurements.

8. Warranty and Support

DAJUNGUO is committed to customer satisfaction. We offer 7*24 hours after-sales service for the ZK-3002T amplifier board.

If you have any questions about the product, encounter quality problems, or require assistance, please contact DAJUNGUO customer support at any time. We aim to provide a 100% satisfactory answer and resolution to your inquiries. For contact information, please refer to the seller's details on the platform where the product was purchased or visit the official DAJUNGUO store page.