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› ARRAROWN ZK-1001UM Bluetooth 5.3 Amplifier Board Instruction Manual

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Model: ZK-1001UM

1. PRODUCT OVERVIEW

The ARRAROWN ZK-1001UM is a compact and versatile Bluetooth 5.3 mono audio amplifier board designed for DIY speaker projects. It delivers 100W of power output and features a TPA3116D2 chip for high-fidelity sound with low distortion. This amplifier board supports multiple input methods including Bluetooth 5.3, AUX, USB flash drive, and USB sound card. It also includes a built-in boost circuit for flexible power options, a microphone input with reverb for karaoke, and TWS (True Wireless Stereo) functionality to pair two ZK-1001UM boards for stereo sound.

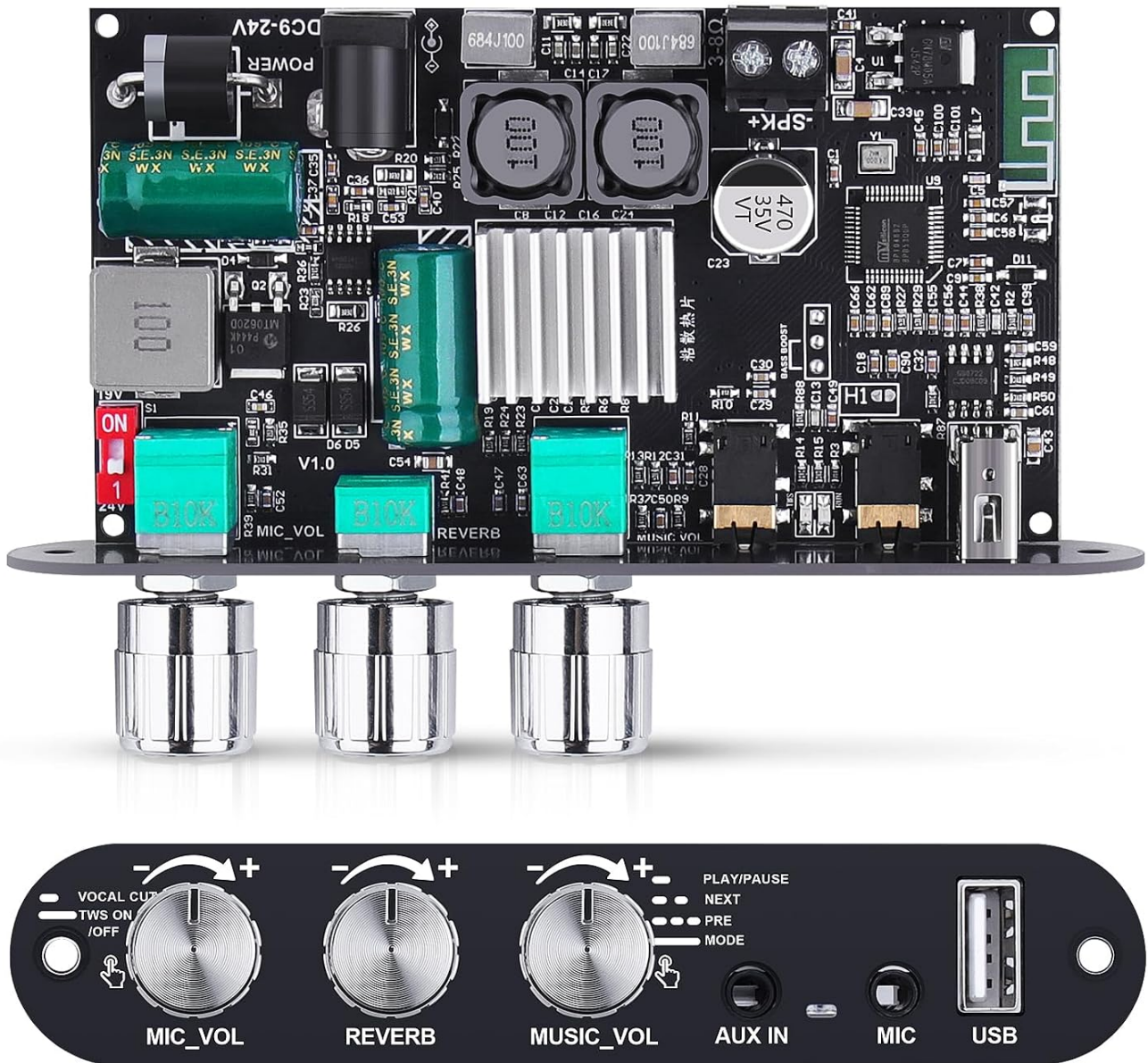


Image: Front and back view of the ZK-1001UM amplifier board, showcasing its compact design and various components.

2. KEY FEATURES

- **100W Mono Output:** Designed for single passive speakers (20-100W, 3-8Ω).
- **Bluetooth 5.3 Connectivity:** Supports AAC decoding, APP control, and TWS with low latency for wireless audio streaming up to 15m (49ft).
- **Multiple Audio Inputs:** AUX, USB flash drive, USB sound card, and Bluetooth.
- **Built-in Boost Circuit:** Automatically adjusts input voltage (9V/15V) to a stable 19V or 24V (default 24V, switchable to 19V), ideal for battery-powered outdoor use.
- **TWS Box Function:** Allows two ZK-1001UM boards to be paired for left and right channel stereo sound.
- **Microphone Input with Reverb:** Enables karaoke functionality with adjustable microphone volume and reverb effects.
- **High-Performance Chip:** Utilizes the TPA3116D2 chip for ultra-low distortion and high-definition sound quality.

- **Multi-Function Knobs:** Intuitive controls for music volume (play/pause, next/previous track, mode switch) and microphone volume (suppress voice, TWS mode entry/exit).

Bluetooth 5.3 100W Mono AMP

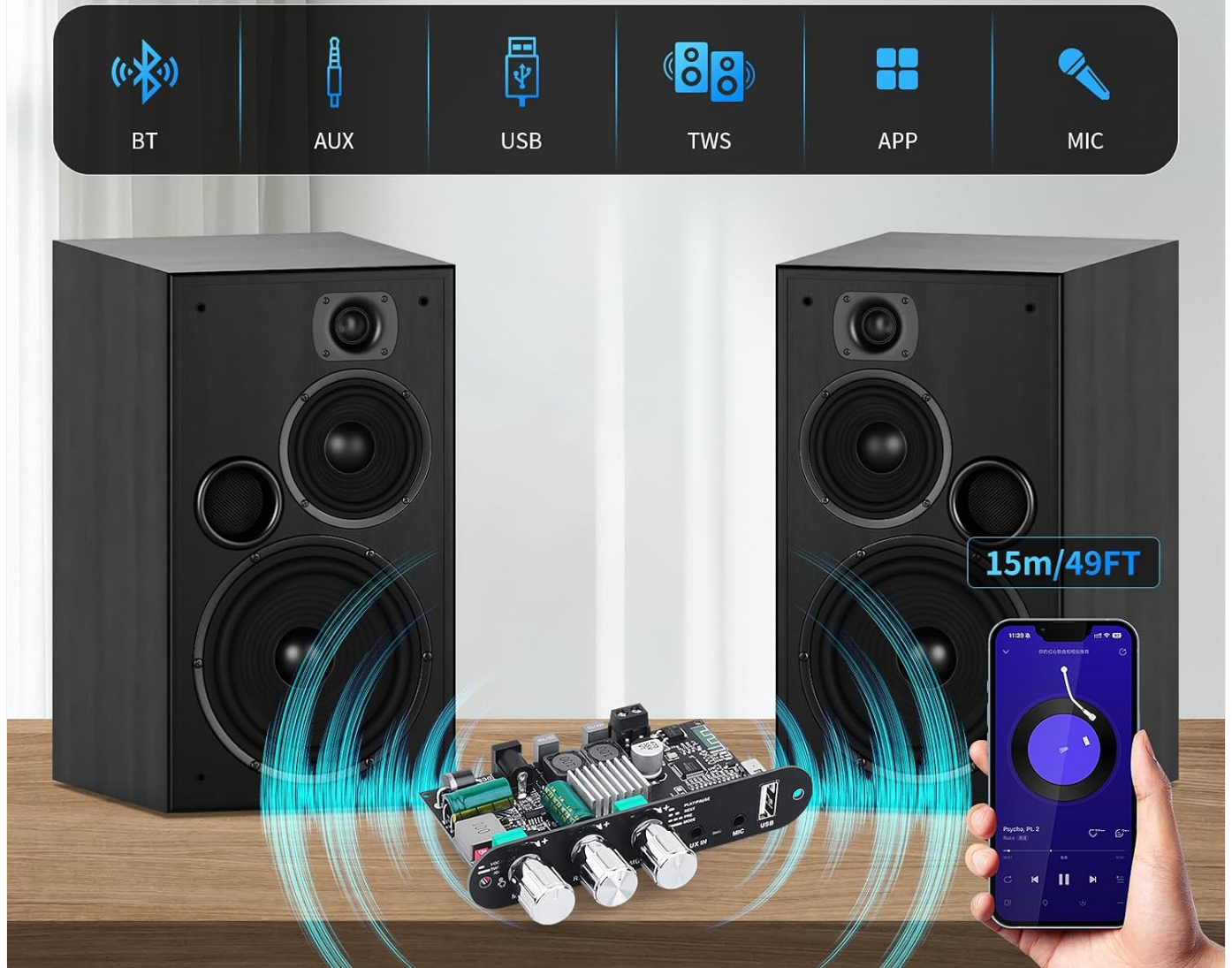


Image: The ZK-1001UM amplifier board connected to two speakers, illustrating its Bluetooth 5.3 capability and various input options (BT, AUX, USB, TWS, APP, MIC).

Outdoor Speaker Amplifier with Boost

- With Microphone jack and Reverb
- Support TWS, form a wireless pair of boxes
- Bluetooth 5.3, faster transmission
- Support MP3, WMA, and WAV, FLAC, APE lossless format



Image: An outdoor scene with musicians, highlighting the amplifier's boost circuit for portable, battery-powered speaker applications and its microphone/reverb features.

3. SETUP INSTRUCTIONS

3.1. Component Identification

ZK-1001UM Features Design Details

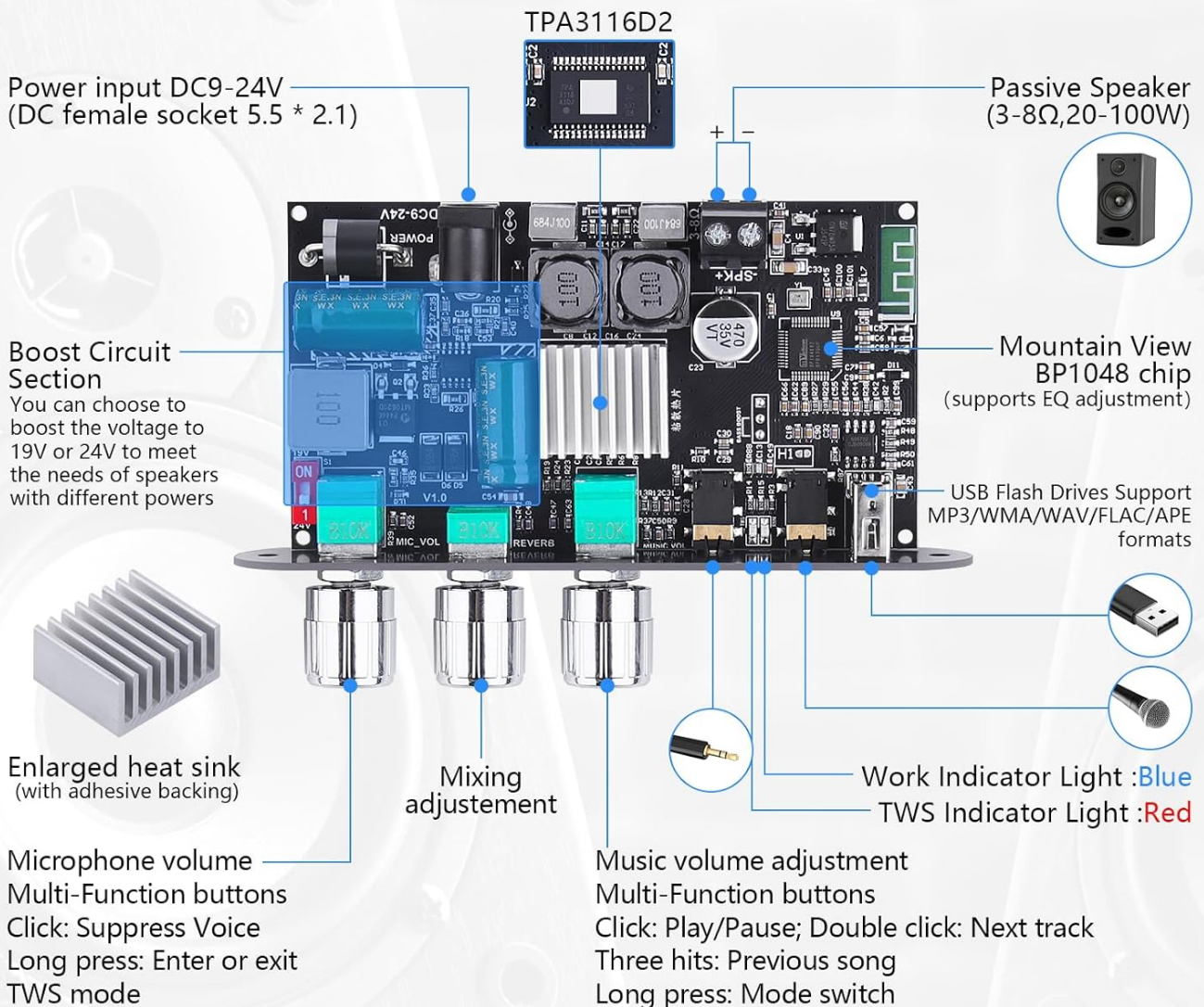


Image: Detailed diagram of the ZK-1001UM amplifier board, showing power input, speaker output, boost circuit section, USB flash drive support, TPA3116D2 chip, and control knob functions.

Before connecting, familiarize yourself with the components as shown in the diagram above:

- **Power Input:** DC 9-24V (DC female socket 5.5 * 2.1). Ensure the power supply is rated for at least 4A **Do not connect to AC power.**
- **Passive Speaker Output:** Connect a single passive speaker (20-100W, 3-8Ω) to the SPK+ and SPK- terminals.
- **Boost Circuit Switch:** A red switch allows selection between 19V and 24V output for the boost circuit. Default is 24V (switch to '1'), 'ON' position is 19V.
- **Input Ports:** AUX IN, MIC, USB.
- **Control Knobs:** MIC VOL, REVERB, MUSIC VOL.

3.2. Basic Connection Steps

1. **Connect Speaker:** Connect your passive speaker to the SPK+ and SPK- terminals on the amplifier board. Ensure correct polarity.

2. **Power Supply:** Connect a DC 9-24V power adapter (minimum 4A) to the DC power input jack.

3. **Input Source:**

- **Bluetooth:** Power on the board. The blue work indicator light will flash. Search for "ZK-1001UM" on your device's Bluetooth settings and pair.
- **AUX:** Connect an audio source via a 3.5mm AUX cable to the AUX IN port.
- **USB:** Insert a USB flash drive with MP3/WMA/WAV/FLAC/APE audio files into the USB port. The amplifier will automatically switch to USB playback.
- **USB Sound Card:** Connect the amplifier to a computer via the USB port to use it as an external sound card.

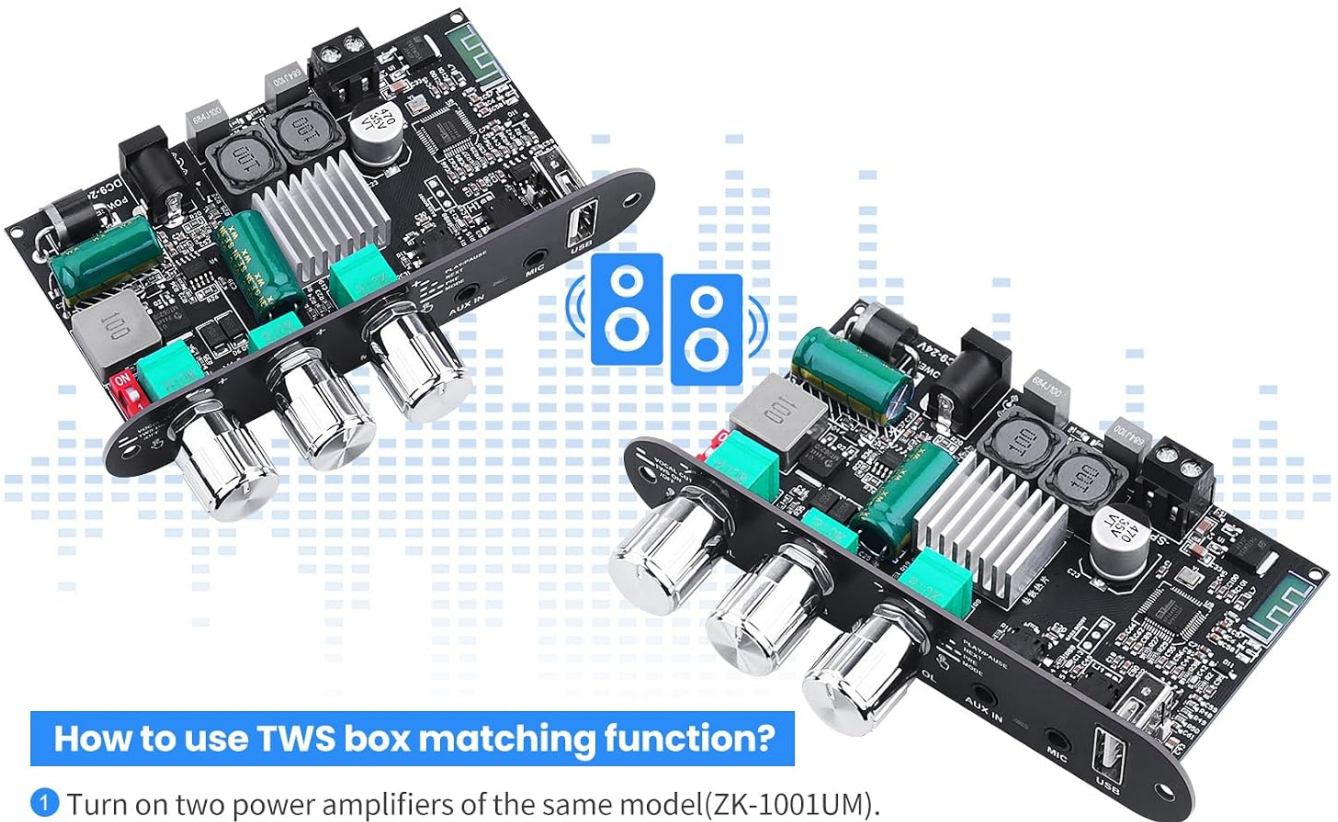
4. **Microphone (Optional):** If using for karaoke, connect a microphone to the MIC input.

3.3. TWS Box Matching Function (for Stereo Pairing)

To achieve stereo sound, you can pair two ZK-1001UM mono amplifier boards using the TWS function. Both boards must be of the same model.

TWS Box Matching Function

You can use two independent Bluetooth amplifier modules connected by TWS function, left and right channel stereo can be realized.



How to use TWS box matching function?

- 1 Turn on two power amplifiers of the same model(ZK-1001UM).
- 2 Select one of the power amplifier, long press the MIC volume button inward. When the red TWS indicator flashes, another power amplifier is automatically paired with it as a stereo combination. If unsuccessful, you can try again after 15 seconds.
- 3 If the TWS box is successful, the selected one as the left channel, the red indicator always be on, another one as the right channel, the red indicator also flash slowly.
- 4 Next time, they will automatically match TWS Function.
- 5 Cancel/Exit TWS box matching: select one of the power amplifier, long press the MIC VOL button, the red TWS indicator turned off.

Image: Diagram illustrating the TWS pairing process between two ZK-1001UM amplifier boards to achieve left and right channel stereo sound.

1. **Power On Both Amplifiers:** Ensure both ZK-1001UM boards are powered on.
2. **Initiate Pairing:** On one of the power amplifiers, **long press the MIC volume button inward**. The red TWS indicator light will flash. This amplifier will attempt to automatically pair with the second amplifier as a stereo combination.
3. **Pairing Confirmation:** If successful, the amplifier that initiated the pairing will become the left channel, and its red indicator will remain steadily on. The other amplifier will become the right channel, and its red indicator will flash slowly. If pairing fails after 15 seconds, try again.
4. **Subsequent Use:** Once paired, the two amplifiers will automatically match the TWS function next time they are powered on.
5. **Cancel/Exit TWS Mode:** To exit TWS mode, select one of the paired amplifiers and **long press the MIC VOL button**. The red TWS indicator will turn off.

4. OPERATING INSTRUCTIONS

4.1. Control Knobs

HiFi Amplifier with Microphone Jack and Reverb

ZK-1001UM driven by TPA3116D2 chip, a high-performance class D power amplifier chip



Image: Close-up view of the ZK-1001UM amplifier board, highlighting the MIC, Reverb, and Music Vol knobs and their respective functions.

- **MIC VOL Knob:**

- Turn clockwise/counter-clockwise: Adjusts microphone volume.
- Click (short press): Suppress voice (mutes microphone temporarily).
- Long press: Enter or exit TWS mode.

- **REVERB Knob:**

- Turn clockwise/counter-clockwise: Adjusts the reverb effect level for the microphone.

- **MUSIC VOL Knob:**

- Turn clockwise/counter-clockwise: Adjusts music playback volume.
- Click (short press): Play/Pause music.
- Double click: Skip to the next track.
- Three clicks: Go to the previous track.

- Long press: Switch input mode (Bluetooth, AUX, USB).

4.2. Boost Circuit Adjustment

The ZK-1001UM features a boost circuit to optimize voltage output, especially useful for battery-powered applications. The red switch on the board allows you to select the output voltage:

- Switch to '1' (default): Output voltage is 24V.
- Switch to 'ON': Output voltage is 19V.

Choose the appropriate voltage based on your speaker requirements and power source to ensure optimal performance and prevent damage.

5. MAINTENANCE

- **Cleaning:** Use a soft, dry cloth to clean the amplifier board. Avoid using liquids or abrasive cleaners.
- **Environment:** Keep the device in a dry, well-ventilated area. Avoid exposure to extreme temperatures, humidity, or direct sunlight.
- **Heat Dissipation:** Ensure the heat sink has adequate airflow, especially during prolonged use at high volumes.
- **Power Supply:** Always use a compatible DC 9-24V power supply with sufficient current (4A or above). Incorrect power supply can damage the device.

6. TROUBLESHOOTING

Problem	Possible Cause	Solution
No power/No indicator light	Incorrect power supply voltage or current; loose power connection.	Ensure DC 9-24V/4A+ power supply is used. Check power cable connection.
No sound output	Speaker not connected correctly; incorrect input mode selected; volume too low; faulty audio source.	Check speaker wiring (SPK+ / SPK-). Long press MUSIC VOL knob to cycle input modes. Increase MUSIC VOL. Test with a different audio source.
Bluetooth pairing failure	Device too far; Bluetooth not enabled on source; amplifier already paired.	Ensure device is within 15m. Enable Bluetooth on your phone/tablet. Disconnect from other Bluetooth devices. Long press MUSIC VOL knob to ensure Bluetooth mode is active.
TWS pairing issues	Incorrect pairing procedure; boards not identical models.	Follow TWS pairing steps precisely (Section 3.3). Ensure both boards are ZK-1001UM.
Distorted sound	Volume too high; speaker impedance mismatch; low power supply current.	Reduce volume. Ensure speaker is 3-8Ω. Use a power supply with sufficient current (4A+).

7. SPECIFICATIONS

Feature	Detail
Model	ZK-1001UM
Amplifier Chip	TPA3116D2
Output Power	100W (Mono)
Speaker Impedance	3-8Ω
Speaker Power	20-100W
Input Voltage	DC 9-24V (4A or above recommended)
Boost Circuit Output	19V or 24V (selectable)
Bluetooth Version	5.3 (supports AAC decoding)
Bluetooth Range	Up to 15m (49ft)
Audio Inputs	Bluetooth, AUX, USB Flash Drive, USB Sound Card
Supported USB Audio Formats	MP3, WMA, WAV, FLAC, APE
Special Features	TWS Box Function, Microphone Input, Reverb Effect
Dimensions (Board)	95mm x 51mm (3.74in x 2.01in)
Dimensions (Front Panel)	105mm x 22.8mm (4.13in x 0.898in)
Item Weight	6.4 ounces

Product Size

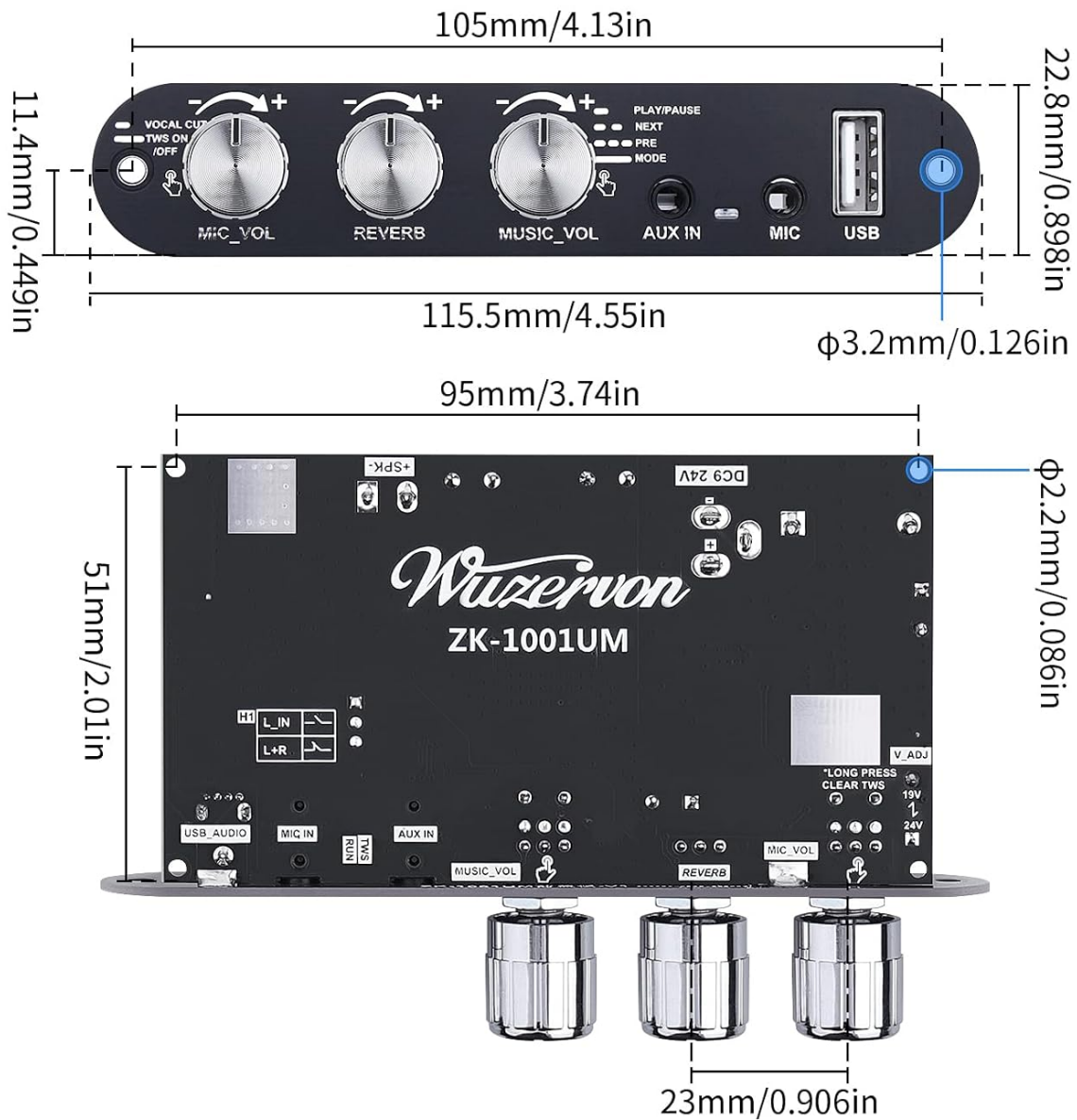


Image: Dimensional drawing of the ZK-1001UM amplifier board, showing measurements in millimeters and inches for both the main board and the front control panel.

8. WARRANTY AND SUPPORT

8.1. Warranty Information

Specific warranty details for the ARRAROWN ZK-1001UM amplifier board may vary by region and retailer. Please refer to the documentation provided at the time of purchase or contact your seller for precise warranty terms and conditions.

8.2. Customer Support

For technical assistance, troubleshooting, or any inquiries regarding your ARRAROWN ZK-1001UM amplifier board, please contact ARRAROWN customer support through their official channels or the retailer from whom you purchased the product. When contacting support, please have your product model number (ZK-1001UM) and purchase details readily available.

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