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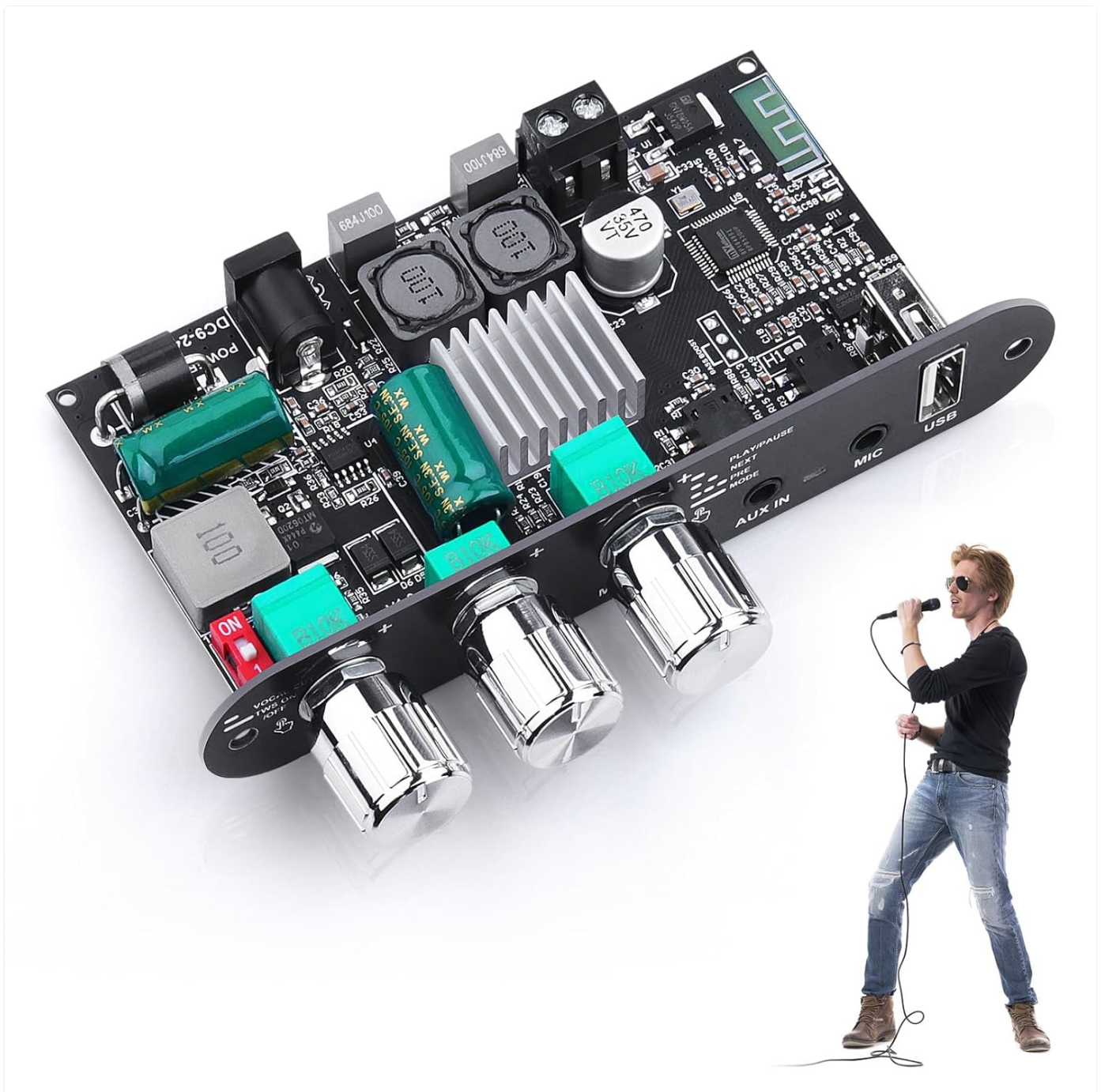
ARRAROWN ZK-1001UM

ARRAROWN ZK-1001UM Bluetooth Amplifier Board User Manual

Model: ZK-1001UM

1. INTRODUCTION

The ARRAROWN ZK-1001UM is a compact and versatile Bluetooth 5.3 mono audio amplifier board designed for DIY speaker projects, home audio, and outdoor sound systems. It delivers 100W of power output and features multiple input options including Bluetooth, AUX, USB flash drive, and USB sound card. This amplifier also includes a microphone input with reverb effects and TWS (True Wireless Stereo) functionality for pairing two units for stereo sound. Its integrated boost circuit ensures optimal voltage output for various power sources.



The ZK-1001UM Bluetooth amplifier board, showcasing its compact design and microphone input capability, suitable for DIY audio projects.

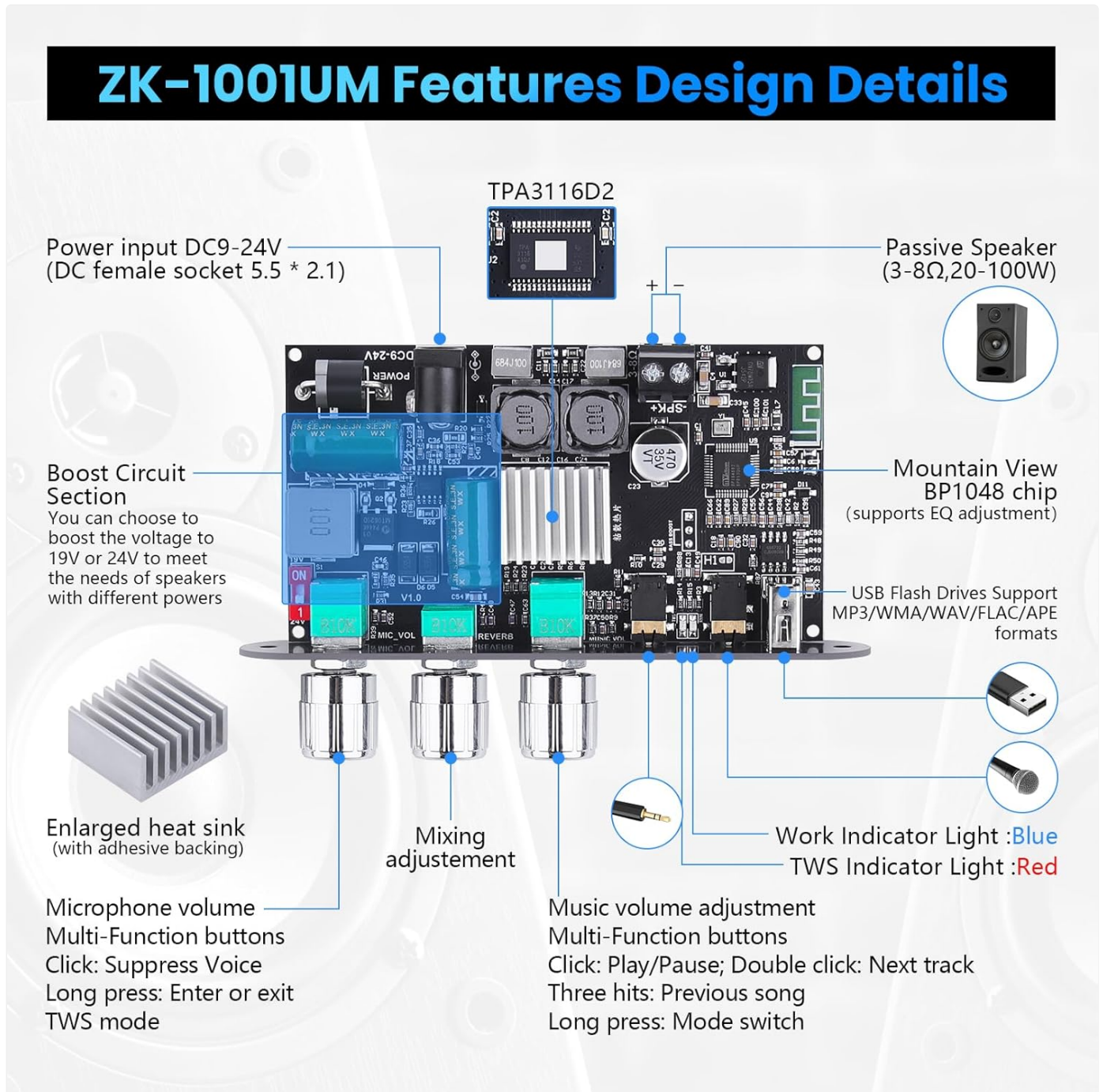
2. KEY FEATURES

- **Mono Channel Amplifier:** 100W rated power output, designed for a single passive speaker (20-100W, 3-8Ω).
- **Advanced Bluetooth 5.3:** Supports AAC decoding, APP control (general Bluetooth control), and TWS for low-latency wireless audio.
- **Integrated Boost Circuit:** Automatically adjusts input voltage (9V/15V) to a stable 19V or 24V (default: 24V; switch to 'ON' for 19V, '1' for 24V), ideal for battery-powered outdoor speakers.
- **TWS Box Function:** Allows two ZK-1001UM mono amplifier boards to be paired wirelessly to achieve left and right channel stereo sound.
- **Multiple Audio Inputs:** Supports AUX, USB flash drive, USB sound card, and Bluetooth wireless connection.
- **Microphone Jack with Reverb:** Enables karaoke functionality with adjustable microphone volume and reverb effects.
- **High-Performance Audio:** Utilizes the TPA3116D2 chip for ultra-low distortion (below 0.3%) and high-definition sound quality across the audio frequency band.

- **Multi-Function Knobs:** Intuitive controls for microphone volume, music volume, and mode switching.

3. PRODUCT COMPONENTS AND CONTROLS

Familiarize yourself with the various parts and controls of your ZK-1001UM amplifier board.



A comprehensive diagram detailing the various components and control points of the ZK-1001UM amplifier board, including power input, speaker output, boost circuit, USB support, heat sink, and multi-function knobs.

Power Input: DC 9-24V (DC female socket 5.5 * 2.1)

Passive Speaker Output: Connects to 3-8Ω, 20-100W passive speakers.

Boost Circuit Section: Red switch for voltage adjustment (ON for 19V, 1 for 24V).

USB Flash Drives Support: For MP3/WMA/WAV/FLAC/APE formats.

Enlarged Heat Sink: With adhesive backing for thermal management.

Microphone Volume Knob: Adjusts microphone volume. Functions: Click to suppress voice; Long press to enter/exit TWS mode.

Reverb Knob: Adjusts reverb effect level.

Music Volume Knob: Adjusts music volume. Functions: Click for Play/Pause; Double click for Next track; Three clicks for Previous song; Long press for Mode switch.

AUX IN: 3.5mm audio input jack.

MIC: Microphone input jack.

USB: USB input port.

Work Indicator Light: Blue LED.

TWS Indicator Light: Red LED.

4. SETUP INSTRUCTIONS

4.1 Power Connection

1. Ensure the power supply is DC 7-24V and provides at least 4A. **Do not connect to AC power.** Compatible with 7.4V, 12V, or 21V batteries, but not 24V batteries.
2. Connect the DC power adapter to the power input socket (5.5 * 2.1mm).

4.2 Speaker Connection

1. Connect your passive speaker (20-100W, 3-8Ω) to the speaker output terminals on the board. Ensure correct polarity (+ and -).

4.3 Boost Circuit Adjustment

The boost circuit adjusts the output voltage for optimal performance. The default setting is 24V.

- To set output voltage to **24V**: Ensure the red switch is set to position '1'.
- To set output voltage to **19V**: Move the red switch to position 'ON'.

5. OPERATING INSTRUCTIONS

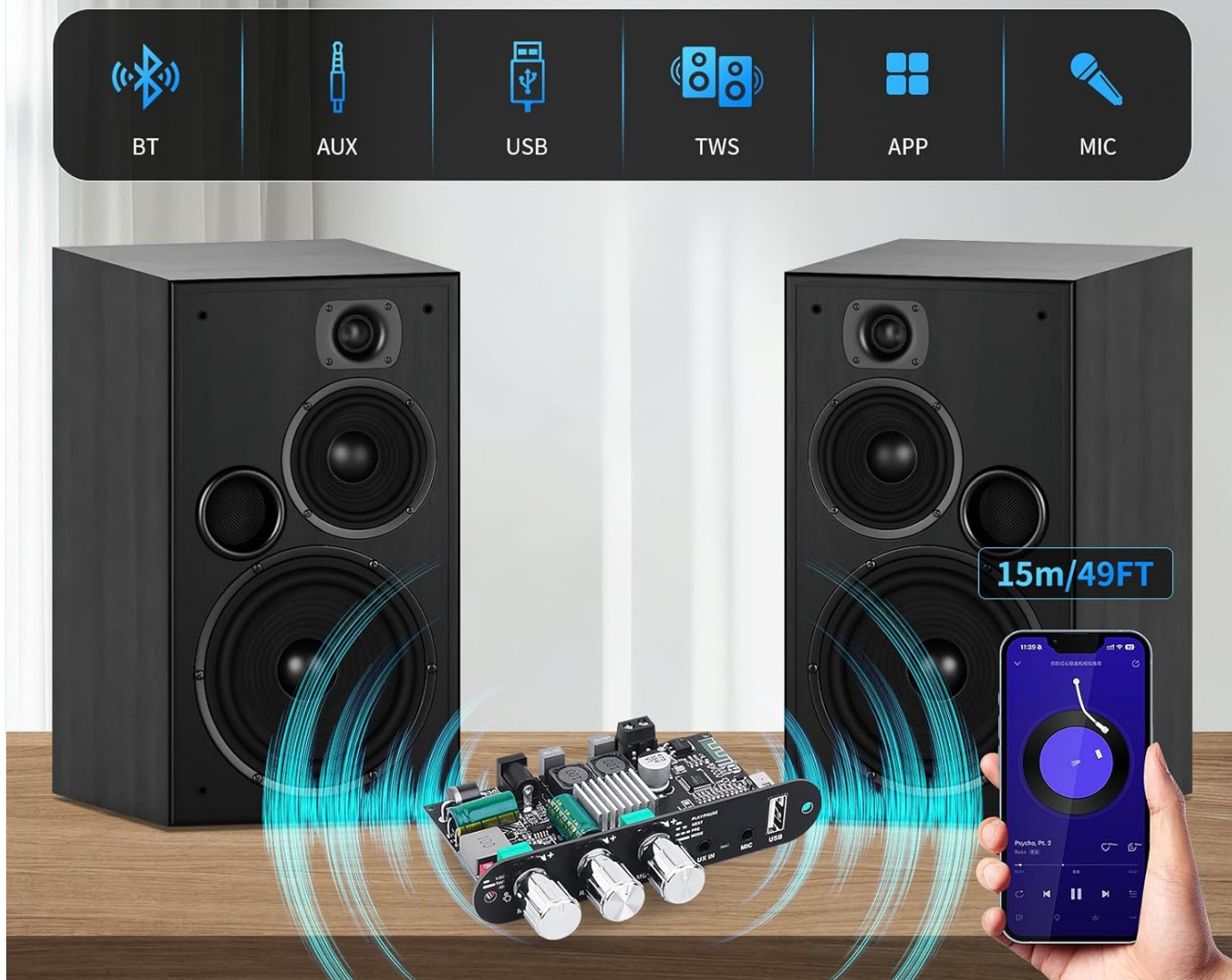
5.1 Input Modes

The ZK-1001UM supports four input modes: Bluetooth, AUX, USB flash drive, and USB sound card. Use the Music Volume knob's long press function to cycle through modes.

5.2 Bluetooth Pairing

1. Power on the amplifier board. The blue work indicator light will illuminate.
2. Ensure the amplifier is in Bluetooth mode (long press Music Volume knob to cycle modes if necessary).
3. On your audio device (smartphone, tablet, laptop), search for Bluetooth devices and select 'ZK-1001UM'.
4. Once paired, the blue indicator light may change or remain steady, depending on the device. The effective range is approximately 15 meters (49 feet).

Bluetooth 5.3 100W Mono AMP



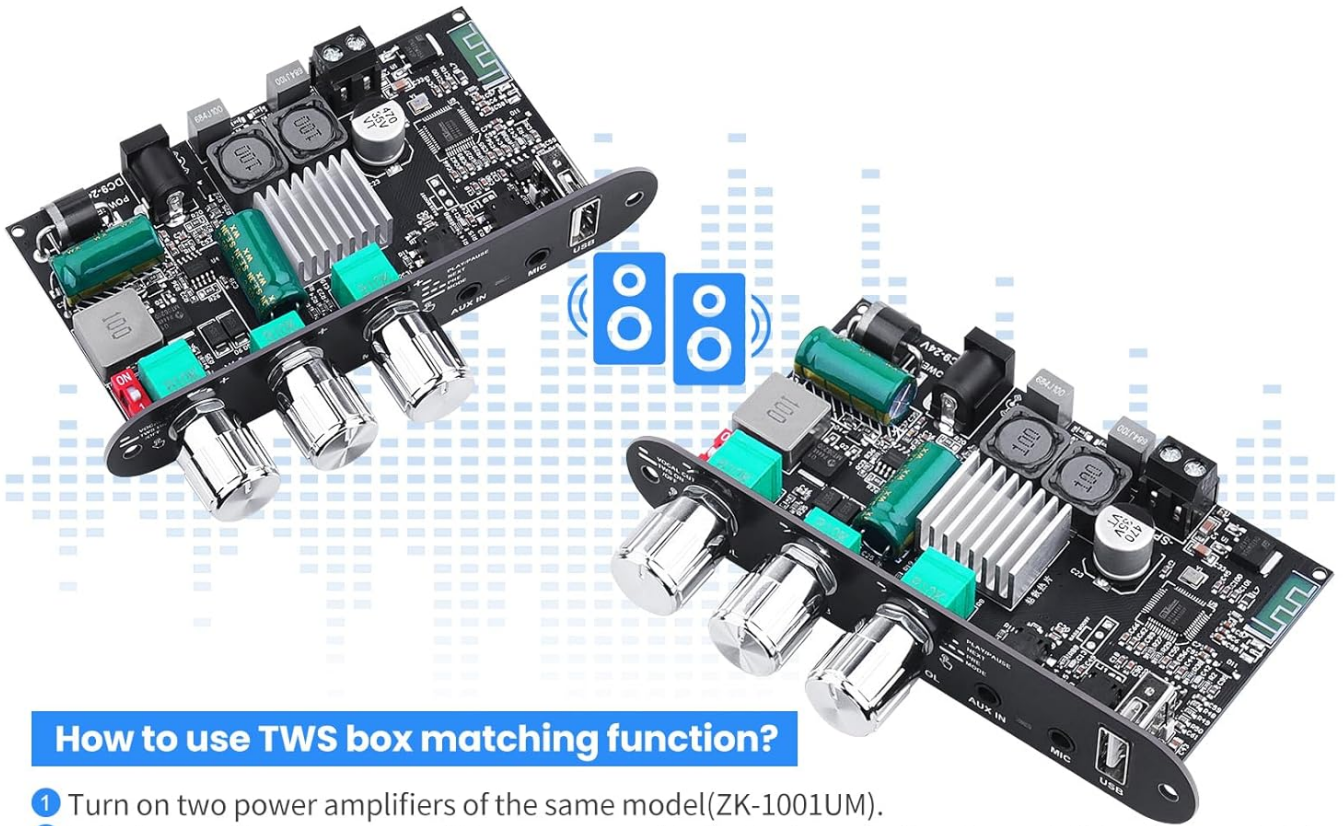
The ZK-1001UM amplifier board connected to a pair of speakers, demonstrating its Bluetooth 5.3 connectivity and 100W mono output for home or outdoor use.

5.3 TWS Box Function (True Wireless Stereo)

To achieve stereo sound, two ZK-1001UM mono amplifier boards can be paired using the TWS function.

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.

An illustration of two ZK-1001UM amplifier boards paired using the TWS (True Wireless Stereo) function, enabling left and right channel stereo audio from two mono units.

1. Ensure both ZK-1001UM amplifier boards are powered on and are of the same model.
2. On one amplifier, long press the MIC volume button inward. The red TWS indicator light will flash. This amplifier will automatically attempt to pair with the second unit.
3. If pairing is unsuccessful, wait 15 seconds and try again.
4. Upon successful TWS pairing, one amplifier will be designated as the left channel (red indicator always on), and the other as the right channel (red indicator flashes slowly).
5. For subsequent use, the boards will automatically match TWS function when powered on.
6. To cancel or exit TWS mode, long press the MIC volume button on either amplifier. The red TWS indicator will turn off.

5.4 Microphone and Reverb

Connect a microphone to the MIC input jack. Adjust the microphone volume using the dedicated knob. The Reverb knob controls the amount of echo effect applied to the microphone audio.

HiFi Amplifier with Microphone Jack and Reverb

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



Close-up view of the ZK-1001UM amplifier board, emphasizing the microphone input jack and reverb control, powered by the TPA3116D2 chip for high-fidelity audio.

5.5 Multi-Function Knob Operations

• Microphone Volume Knob:

- Turn clockwise/counter-clockwise: Adjust microphone volume.
- Click: Suppress voice.
- Long press: Enter or exit TWS mode.

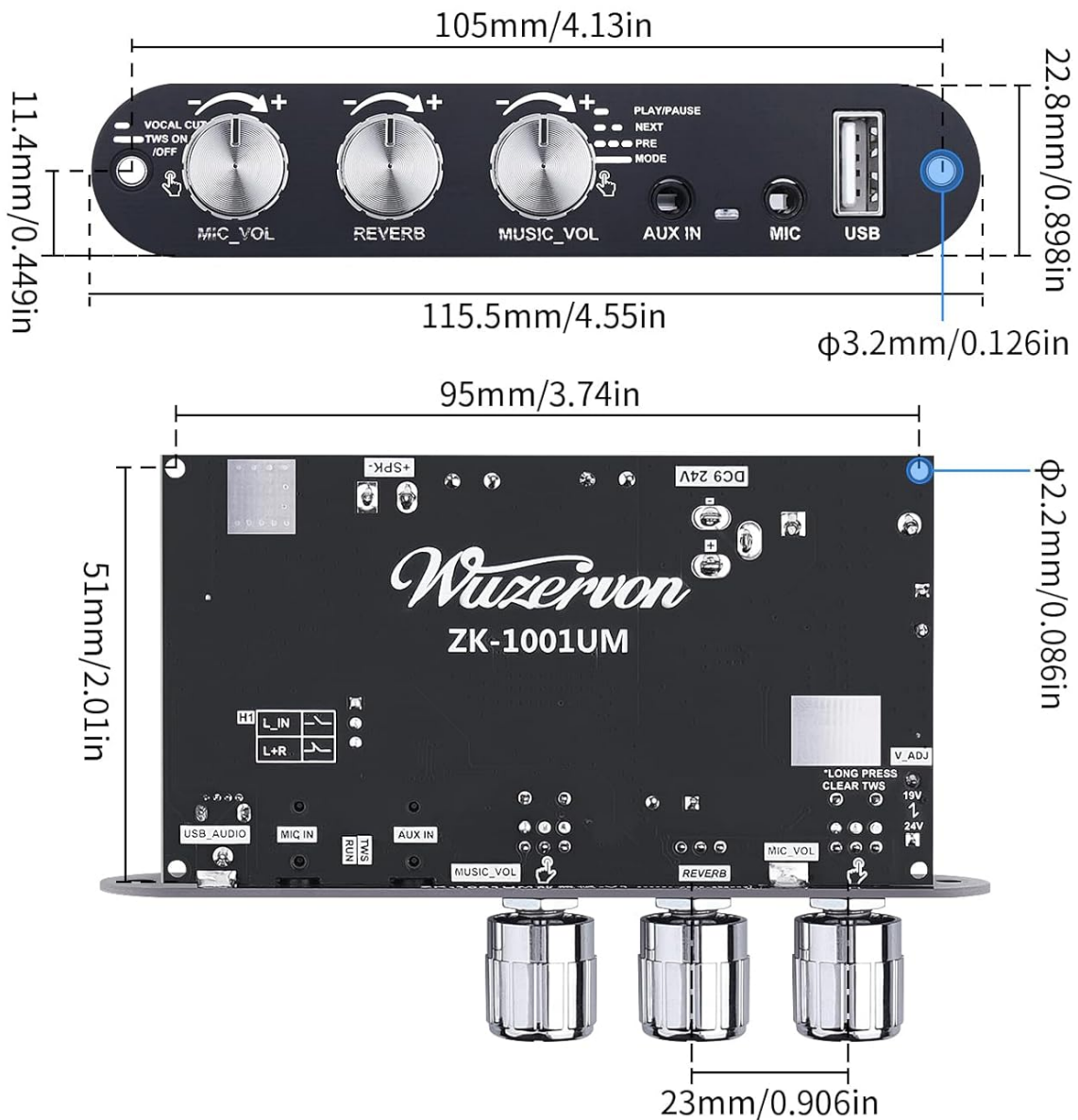
• Music Volume Knob:

- Turn clockwise/counter-clockwise: Adjust music volume.
- Click: Play/Pause.
- Double click: Next track.
- Three clicks: Previous song.
- Long press: Mode switch (cycles through Bluetooth, AUX, USB, USB sound card).

6. SPECIFICATIONS

Feature	Specification
Model Number	ZK-1001UM
Power Output	100W (Mono Channel)
Speaker Impedance	3-8Ω
Speaker Power	20-100W
Input Voltage	DC 7-24V (4A or above)
Bluetooth Version	5.3
Bluetooth Range	Up to 15m (49ft)
Audio Inputs	Bluetooth, AUX, USB Flash Drive, USB Sound Card
Audio Chip	TPA3116D2 (Class D)
Distortion Rate	Below 0.3%
Boost Circuit Output	19V or 24V (selectable)
Dimensions	105mm x 51mm x 22.8mm (approx. 4.13 x 2.01 x 0.90 inches)
Weight	Approximately 3.53 ounces

Product Size



Technical drawing displaying the precise dimensions of the ZK-1001UM amplifier board in both millimeters and inches, useful for integration into custom enclosures.

7. TROUBLESHOOTING

- **No Power:** Ensure the DC power supply is correctly connected and provides the specified voltage (DC 7-24V, 4A or above). Check for loose connections.
- **No Sound:**
 - Verify speaker connections and polarity.
 - Check the selected input mode (Bluetooth, AUX, USB).
 - Adjust music volume knob.
 - Ensure the audio source is playing and its volume is up.
- **Bluetooth Pairing Issues:**
 - Ensure the amplifier is in Bluetooth mode.

- Disable and re-enable Bluetooth on your device.
 - Move your device closer to the amplifier.
 - Clear previous Bluetooth connections on your device.
- **TWS Pairing Failure:**
 - Ensure both boards are the same model and powered on.
 - Repeat the TWS pairing process, ensuring the red TWS indicator flashes.
 - Wait 15 seconds before re-attempting if initial pairing fails.
 - **Microphone Not Working:**
 - Ensure the microphone is properly plugged into the MIC jack.
 - Adjust the microphone volume knob.
 - Test with a different microphone if available.
 - **Distorted Sound:**
 - Reduce the music volume.
 - Ensure the speaker impedance and power rating are within the specified range (3-8Ω, 20-100W).
 - Check power supply stability.

8. SAFETY INFORMATION

- **Power Supply:** Use only a DC power supply within the specified voltage range (7-24V) and current (4A or above). Connecting to AC power or an incorrect DC voltage can damage the device and pose a safety risk.
- **Ventilation:** Ensure adequate ventilation around the amplifier board to prevent overheating, especially during prolonged use at high volumes.
- **Moisture:** Keep the device away from water, moisture, and high humidity to prevent electrical shock or damage.
- **Handling:** Handle the circuit board with care to avoid damaging components. Avoid touching exposed circuits while the device is powered on.
- **Children:** Keep the device out of reach of children to prevent accidental injury or damage.
- **Disassembly:** Do not attempt to disassemble or modify the amplifier board beyond the intended user adjustments. Unauthorized modifications may void any potential warranty and create safety hazards.

9. WARRANTY AND SUPPORT

For warranty information or technical support regarding your ARRAROWN ZK-1001UM Bluetooth Amplifier Board, please refer to the purchase documentation or contact the retailer/manufacturer directly. Ensure you have your model number (ZK-1001UM) available when seeking support.

