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Zunate ZK-TB21H

Zunate ZKTB21H Bluetooth 5.1 Amplifier Board User Manual

Model: ZK-TB21H

INTRODUCTION

This manual provides detailed instructions for the Zunate ZKTB21H 2.1 Channel Bluetooth 5.1 Amplifier Board. This module is designed to deliver high-quality audio output for both stereo channels and a dedicated subwoofer, featuring multiple input options and robust protection mechanisms. Please read this manual thoroughly before installation and operation to ensure proper use and optimal performance.

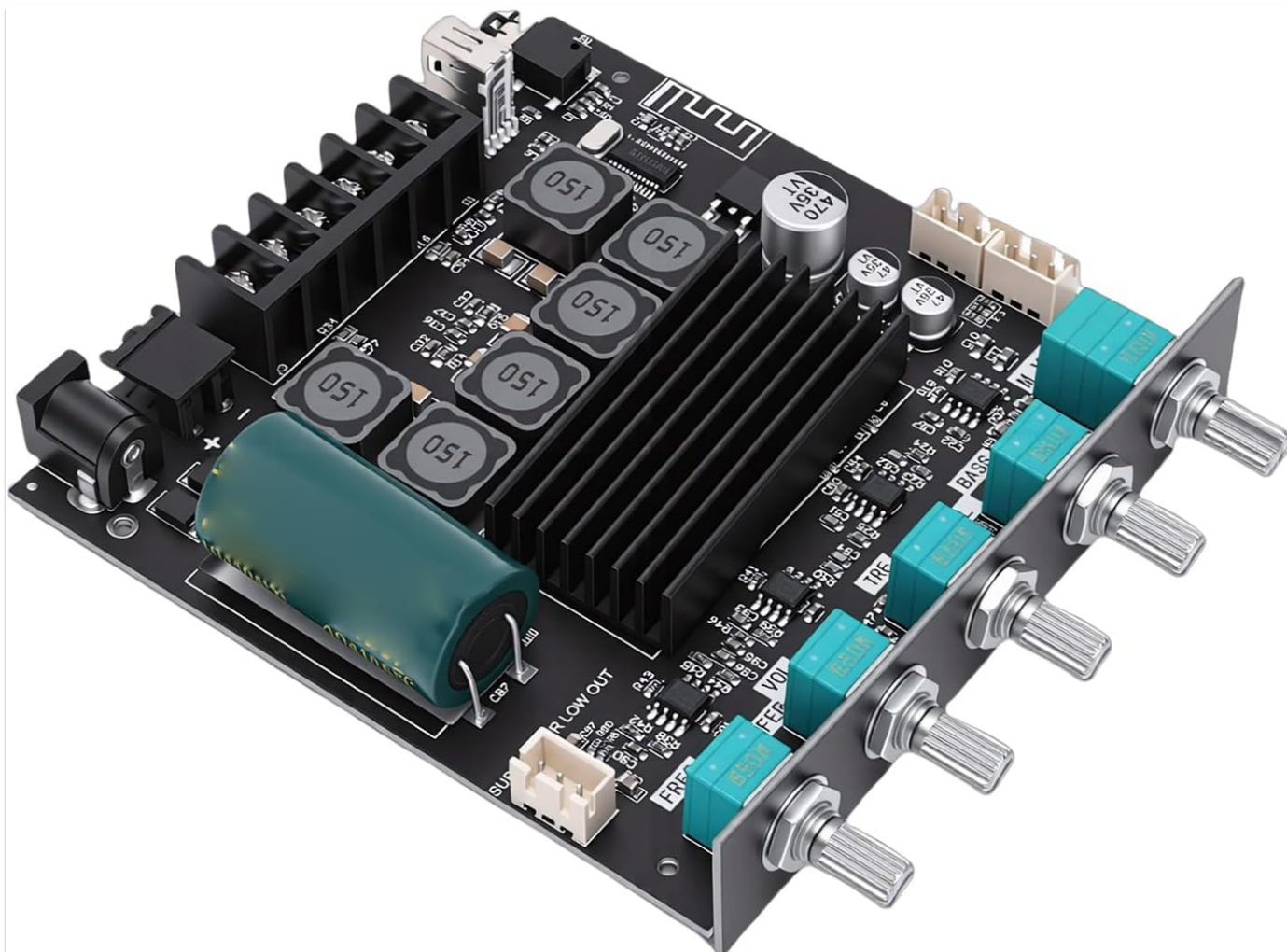


Image: Top view of the Zunate ZKTB21H Bluetooth 5.1 Amplifier Board, showcasing its components and layout.

PACKAGE CONTENTS

Verify that all items listed below are included in your package. If any items are missing or damaged, please contact customer support.

- 1 x PCB Board (Amplifier Module)
- 1 x Upper Cover for PCB Board
- 1 x Lower Cover for PCB Board
- 5 x Knob Caps
- 1 x Supply Adapter (Power Connector)
- 1 x Wire Input Socket
- 1 x Screw Driver
- 1 x Accessories Pack (Screws, standoffs)
- 1 x User Manual



Image: Contents of the Zunate ZKTB21H amplifier board package, including the PCB, covers, knobs, and accessories.

PRODUCT OVERVIEW

The Zunate ZKTB21H amplifier board features a 2.1 channel configuration, providing stereo output for left and right channels and a dedicated output for a subwoofer. It supports multiple audio input methods and includes various controls for sound customization.

Key Features:

- **High Power Output:** 2x50W for left/right channels and 100W for subwoofer.
- **Bluetooth 5.1 Connectivity:** Stable wireless audio transmission up to 15 meters.
- **Multiple Input Methods:** Supports Bluetooth (BT), AUX (3.5mm), and USB audio input.
- **Antennae Base:** Enhances signal reception and reduces interference.
- **Protection Mechanisms:** Includes over-voltage, under-voltage, overheat, DC detection, and short-circuit protection.

Controls and Ports:

The amplifier board features several knobs for audio adjustment and various ports for power and audio connections.



Image: Close-up view of the control knobs on the Zunate ZKTB21H amplifier board.

- **Main Volume Knob:** Adjusts the overall output volume.
- **Treble Knob:** Adjusts the high-frequency response of the main channels.
- **Bass Knob:** Adjusts the low-frequency response of the main channels.
- **Subwoofer Volume Knob:** Adjusts the output volume of the subwoofer.
- **Subwoofer Freq (Frequency) Knob:** Adjusts the crossover frequency for the subwoofer.
- **DC Power Input:** For connecting a 12-24V DC power supply.
- **Speaker Output Terminals:** For connecting left, right, and subwoofer speakers.
- **AUX Input:** 3.5mm jack for wired audio input.
- **USB Input:** For USB audio playback.

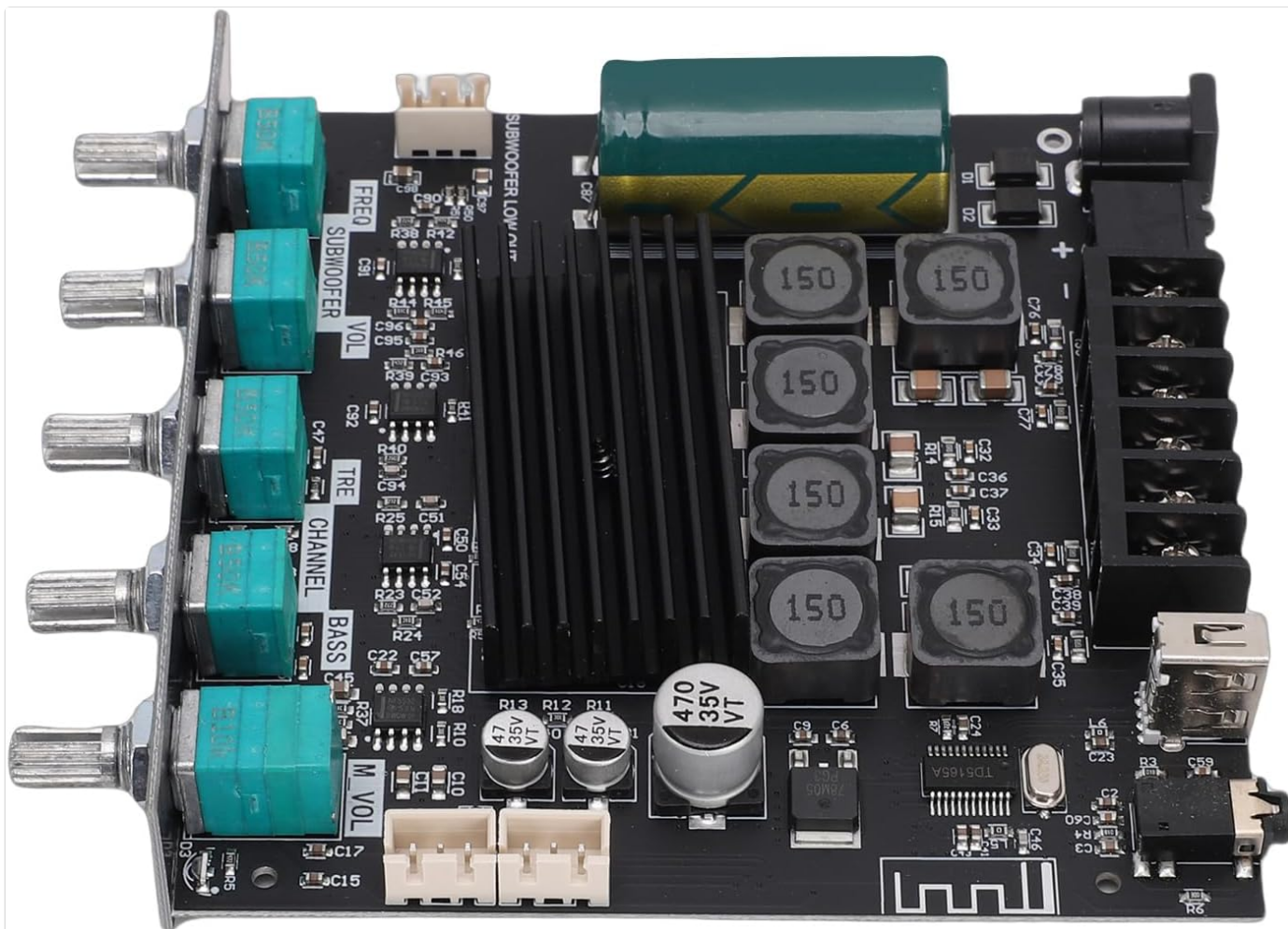


Image: Angled view of the Zunate ZKTB21H amplifier board, highlighting the various input and output connections.

SETUP

Follow these steps to assemble and connect your Zunate ZKTB21H amplifier board.

1. Assembly:

1. Carefully attach the upper and lower covers to the PCB board using the provided screws and standoffs.
2. Install the five knob caps onto their respective shafts on the amplifier board.

2. Power Connection:

- Ensure the amplifier is turned off and disconnected from any power source before making connections.
- Connect a DC power supply (12-24V) to the DC power input terminal. The amplifier board uses copper DC connectors and fence terminals for secure connection.

3. Speaker Connection:

- Connect your left and right passive speakers (20-100W, 4-8Ω) to the corresponding L/R speaker output terminals. Observe polarity (+ and -).
- Connect your passive subwoofer (≤100W, 4-8Ω) to the subwoofer output terminals. Observe polarity (+ and -).

4. Audio Input Connection:

- **Bluetooth:** Power on the amplifier. The Bluetooth indicator will flash, indicating it's in pairing mode. Search for "ZK-TB21H" on your device's Bluetooth settings and connect.

- **AUX:** Connect an audio source (e.g., smartphone, MP3 player) to the 3.5mm AUX input jack using an audio cable.
- **USB:** Connect a USB device containing audio files to the USB input port.

OPERATING INSTRUCTIONS

Power On/Off:

- Ensure all connections are secure before powering on.
- Connect the DC power supply to an electrical outlet to power on the amplifier.
- Disconnect the DC power supply to power off the amplifier.

Input Selection:

The amplifier automatically detects the active input. If multiple inputs are connected, you may need to disconnect unused sources or use the APP (if available) to switch modes.

Volume and Tone Adjustment:

- **Main Volume:** Rotate the Main Volume knob clockwise to increase volume, counter-clockwise to decrease.
- **Subwoofer Volume:** Rotate the Subwoofer Volume knob to adjust the bass level.
- **Treble/Bass:** Use the Treble and Bass knobs to fine-tune the high and low frequencies of the main channels to your preference.
- **Subwoofer Freq:** Adjust this knob to set the crossover point for the subwoofer, controlling which frequencies are sent to the subwoofer.

MAINTENANCE

- Keep the amplifier board clean and free from dust. Use a soft, dry cloth for cleaning.
- Avoid exposing the device to moisture, extreme temperatures, or direct sunlight.
- Ensure adequate ventilation around the amplifier to prevent overheating.
- Do not attempt to disassemble or repair the unit yourself. Refer to qualified service personnel for any repairs.

TROUBLESHOOTING

Problem	Possible Cause	Solution
No sound output	• Incorrect power connection • Speakers not connected properly • Input source not selected or active • Volume too low	• Check power supply and connections. • Verify speaker wiring and polarity. • Ensure the correct input (BT, AUX, USB) is active and the source is playing. • Increase Main Volume and Subwoofer Volume.

Problem	Possible Cause	Solution
Bluetooth connection issues	• Device too far from amplifier • Interference • Amplifier not in pairing mode	• Move the Bluetooth device closer to the amplifier. • Remove obstacles or other interfering devices. • Restart the amplifier and try pairing again.
Distorted sound	• Volume too high • Improper speaker impedance • Poor audio source quality	• Reduce the volume. • Ensure speakers are within the recommended 4-8Ω impedance range. • Test with a different audio source.
Amplifier overheats	• Insufficient ventilation • Overloading speakers	• Ensure the amplifier has proper airflow. • Reduce volume or check speaker impedance.

SPECIFICATIONS

Feature	Specification
Model	ZK-TB21H
Bluetooth Version	5.1 (unobstructed, approx. 10m / 32.8ft)
Input Sensitivity	500mV
Input Methods	AUX, Bluetooth, USB
Channels	2.1 Channel
Amplifier Chip	Support for TPA3116D2
Speaker Compatibility	20~100W, 4~8Ω (for L/R channels)
Output Power (L/R)	50W x 2
Output Power (Subwoofer)	≤100W
Protecting Mechanism	Over voltage, under voltage, overheat, DC detection, short circuit protecting
Dimensions	Approx. 101 x 100 x 22mm / 3.98 x 3.94 x 0.87in
Power Input	DC 12-24V

WARRANTY AND SUPPORT

Warranty Information:

This Zunate product is covered by a manufacturer's warranty for 90 days from the date of purchase. This warranty covers defects in materials and workmanship under normal use. It does not cover damage caused by misuse, accident,

unauthorized modification, or improper installation.

Customer Support:

For technical assistance, troubleshooting, or warranty claims, please contact Zunate customer support through the retailer where the product was purchased or visit the official Zunate website for contact information. Please have your model number (ZK-TB21H) and proof of purchase ready when contacting support.

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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