

Buachois ZK-AS21

Buachois ZK AS21 Audio Amplifier Board User Manual

Model: ZK-AS21

1. INTRODUCTION

This manual provides detailed instructions for the proper installation, operation, and maintenance of your Buachois ZK AS21 Audio Amplifier Board. The ZK AS21 is a 2.1 channel digital sound power amplifier module featuring the TPA3255 chip, designed to deliver high-quality audio output for various applications. Please read this manual thoroughly before using the product to ensure optimal performance and safety.

2. SAFETY INFORMATION

To prevent electric shock, fire, or damage to the unit, please observe the following safety precautions:

- Ensure the power supply voltage is within the specified range of DC 16-38V and provides at least 10A. Incorrect voltage can damage the amplifier.
- Do not expose the amplifier board to moisture, rain, or extreme temperatures.
- Avoid placing the unit in direct sunlight or near heat sources.
- Ensure proper ventilation to prevent overheating.
- Always disconnect the power supply before making any connections or disconnections.
- Do not attempt to modify or repair the unit yourself. Refer all servicing to qualified personnel.
- Keep out of reach of children.

3. PACKAGE CONTENTS

Verify that all items listed below are included in your package:

- 1 x Buachois ZK AS21 Audio Amplifier Board Module
- Necessary assembly hardware (screws, copper columns, knob caps)
- 1 x Screwdriver (for assembly)

4. PRODUCT OVERVIEW

The ZK AS21 is a high-performance 2.1 channel audio amplifier board designed for versatile audio setups.

It integrates Bluetooth 5.1 for wireless connectivity and supports multiple audio input options. The board features a TPA3255 chip for efficient power amplification and includes six low-noise pre-amplifiers for enhanced sound quality.

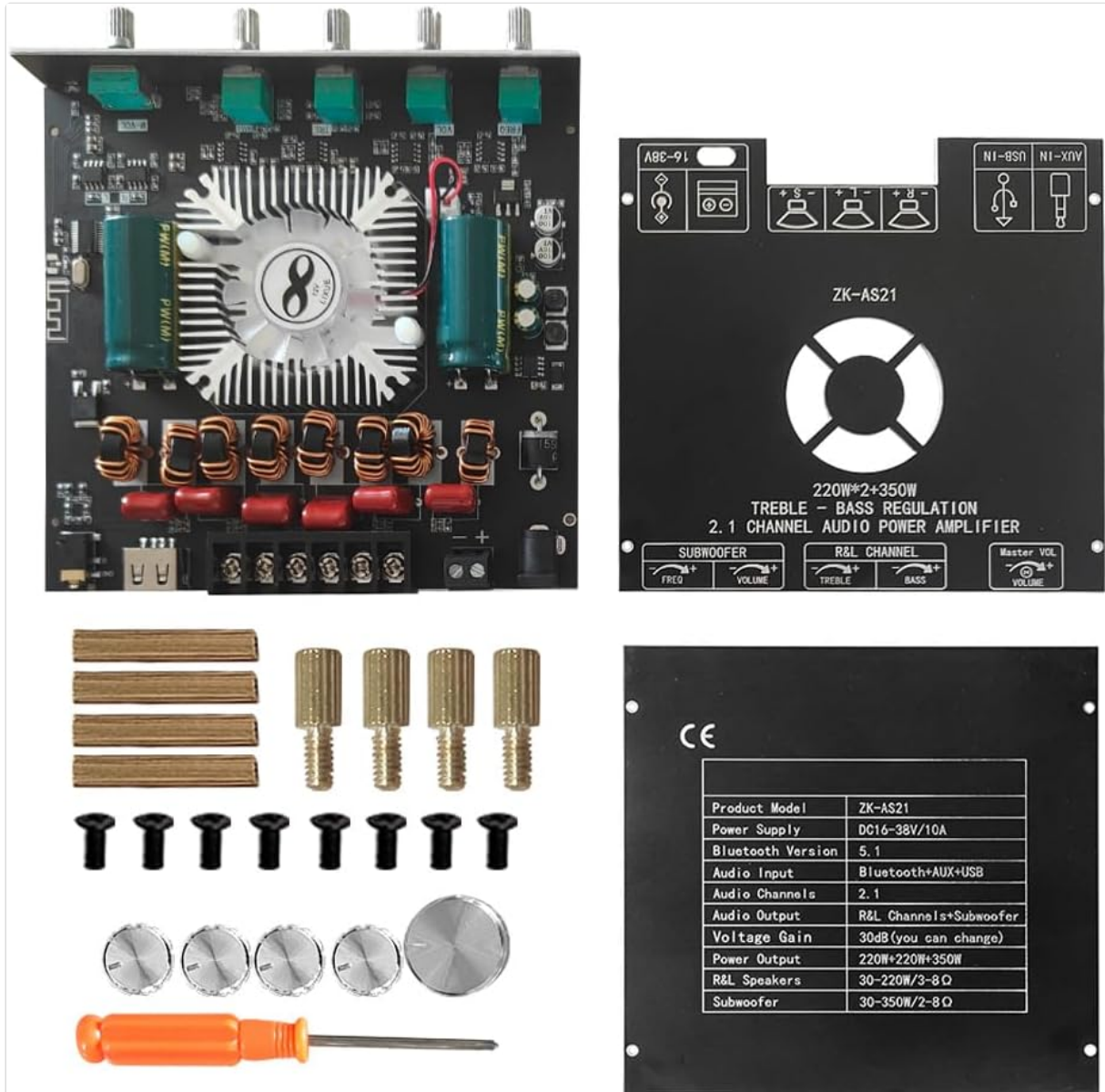


Figure 4.1: Top view of the Buachois ZK AS21 Audio Amplifier Board, showing the heatsink and main components.

Key features include:

- **Bluetooth 5.1 Connectivity:** For quick and stable wireless audio streaming.
- **Multiple Audio Inputs:** Supports Bluetooth, AUX, U Disk, and USB sound card inputs.
- **High-Fidelity Audio:** Six low-noise pre-amplifiers and 30dB gain for clear and powerful sound.
- **Comprehensive Safety:** Built-in protection against reverse connection, low voltage, overheating, and over-current short-circuit.
- **User-Friendly Design:** Clearly separated power and speaker terminals to prevent incorrect connections.

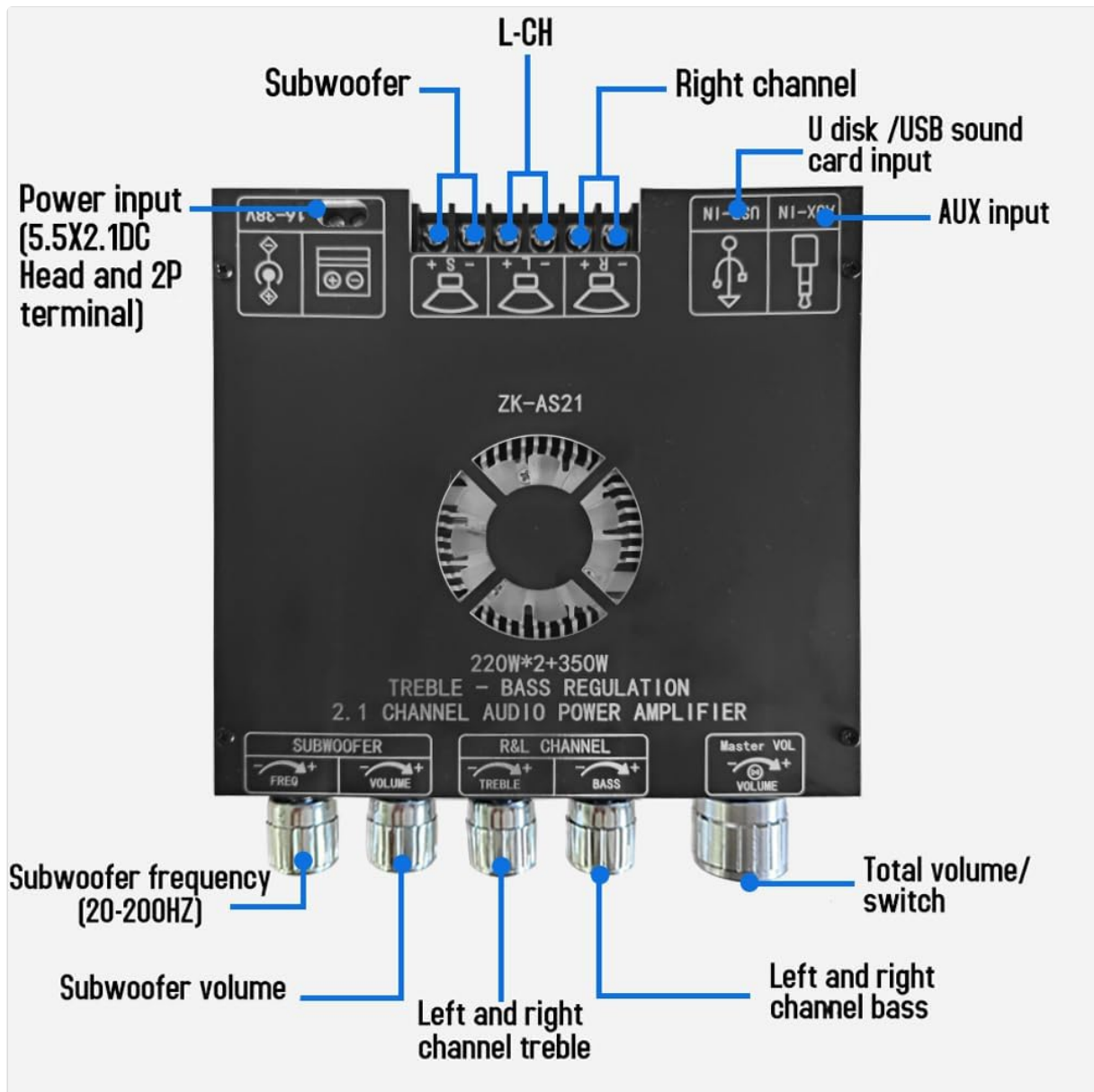


Figure 4.2: Diagram illustrating the various input ports, output terminals, and control knobs on the ZK AS21 amplifier board. This includes Subwoofer, Left Channel, Right Channel, U Disk/USB sound card input, AUX input, Power input, Subwoofer frequency, Subwoofer volume, Left and right channel treble, Left and right channel bass, and Master volume/switch.

5. SPECIFICATIONS

Feature	Specification
Model	ZK-AS21
Bluetooth Version	5.1
Amplifier Chip	TPA3255
Power Supply	DC 16-38V, 10A (minimum)
Output Channels	2.1 (Left, Right, Subwoofer)
Output Power (L/R)	220W + 220W
Output Power (Subwoofer)	350W

Feature	Specification
Compatible Speakers (L/R)	30-220W, 3-8Ω
Compatible Speakers (Subwoofer)	30-350W, 2-8Ω
Audio Input Modes	Bluetooth, AUX, U Disk, USB Sound Card
Gain Value	30dB
Dimensions (L x W x H)	141 x 131 x 27 mm (5.6 x 5.2 x 1.1 inches)
Weight	346g (12.2 ounces)

6. SETUP AND INSTALLATION

Follow these steps to assemble and connect your ZK AS21 amplifier board:

1. **Assemble the Casing:** If your board came with an acrylic or metal casing, use the provided screws and copper columns to secure the upper and lower cover plates to the PCB board. Refer to Figure 6.1 for the assembly diagram.
2. **Attach Knob Caps:** Place the knob caps onto the potentiometer shafts for volume, treble, bass, and frequency controls.
3. **Connect Speakers:**
 - Connect your left and right channel speakers to the "R&L Channel" output terminals. Ensure correct polarity (+ to + and - to -).
 - Connect your subwoofer to the "Subwoofer" output terminals. Ensure correct polarity.
 - Verify that your speakers meet the specified power and impedance requirements (L/R: 30-220W, 3-8Ω; Subwoofer: 30-350W, 2-8Ω).
4. **Connect Power Supply:** Connect a DC 16-38V, 10A (or higher current) power adapter to the "Power Input" terminal (5.5x2.1DC Head or 2P terminal). *Ensure the power supply is OFF before connecting.*
5. **Select Audio Input:** Choose your desired audio input method:
 - **Bluetooth:** Power on the device. The Bluetooth indicator will flash. Search for "ZK-AS21" on your device (phone, computer) and pair.
 - **AUX:** Connect an audio source (e.g., phone, MP3 player) to the "AUX Input" jack using a 3.5mm audio cable.
 - **U Disk:** Insert a USB flash drive containing audio files into the "U Disk / USB Sound Card Input" port.
 - **USB Sound Card:** Connect the board to a computer via the "U Disk / USB Sound Card Input" port using a USB cable. The computer should recognize it as an audio output device.

Installation schematic diagram and product accessories

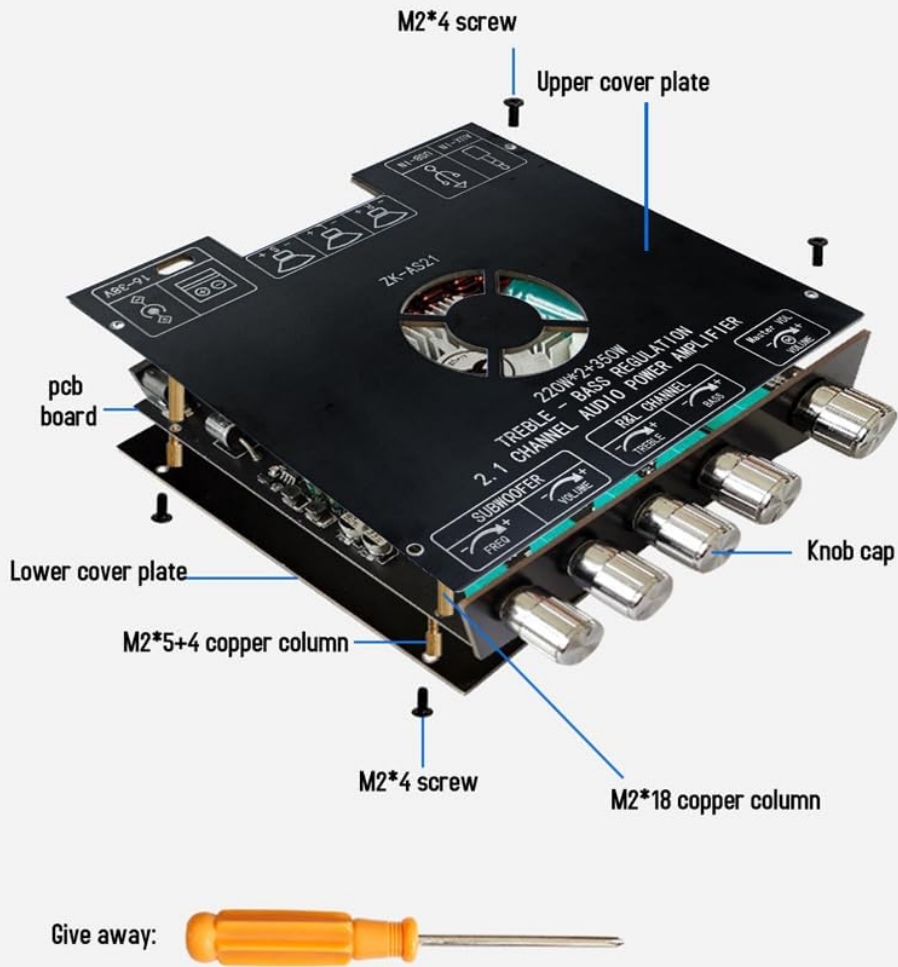


Figure 6.1: Schematic diagram showing the assembly of the ZK AS21 amplifier board with its upper and lower cover plates, screws (M2*4, M2*18), copper columns (M2*5+4), and knob caps. A screwdriver is also depicted as a provided accessory.

7. OPERATING INSTRUCTIONS

Once connected, you can operate the amplifier using the following controls:

- **Master Volume/Switch:** This knob controls the overall volume. Rotate clockwise to increase volume, counter-clockwise to decrease. Press to power on/off the amplifier.
- **Subwoofer Volume:** Adjusts the output level of the subwoofer channel.
- **Subwoofer Frequency (20-200Hz):** Controls the crossover frequency for the subwoofer, allowing you to fine-tune the bass response.
- **Left and Right Channel Treble:** Adjusts the high-frequency response for the main stereo channels.
- **Left and Right Channel Bass:** Adjusts the low-frequency response for the main stereo channels.

Ensure your audio source is playing, then adjust the Master Volume to your desired listening level. Use the individual tone controls (Treble, Bass, Subwoofer Frequency, Subwoofer Volume) to customize the sound to your preference.



Figure 7.1: An example setup showing the ZK AS21 amplifier board connected to a pair of stereo speakers and a subwoofer, with a smartphone wirelessly streaming audio via Bluetooth.

8. TROUBLESHOOTING

Problem	Possible Cause	Solution
No sound output	<ul style="list-style-type: none"> ◦ Power not connected or off ◦ Incorrect speaker wiring ◦ Input source not selected or playing ◦ Volume too low ◦ Protection circuit activated 	<ul style="list-style-type: none"> ◦ Check power supply and ensure amplifier is on. ◦ Verify speaker connections and polarity. ◦ Ensure audio source is active and correct input mode is selected. ◦ Increase Master Volume. ◦ Disconnect power, wait a few minutes, then reconnect. Check for short circuits or overheating.

Problem	Possible Cause	Solution
Distorted sound	<ul style="list-style-type: none"> ◦ Input signal too strong ◦ Speakers mismatched (impedance/power) ◦ Loose connections 	<ul style="list-style-type: none"> ◦ Reduce volume from the audio source. ◦ Ensure speakers meet specifications. ◦ Check all audio and speaker cable connections.
Bluetooth connection issues	<ul style="list-style-type: none"> ◦ Device too far ◦ Interference ◦ Not in pairing mode 	<ul style="list-style-type: none"> ◦ Move device closer to the amplifier (within 10m). ◦ Avoid obstacles or other wireless devices. ◦ Ensure amplifier is powered on and Bluetooth indicator is flashing.
Amplifier shuts off unexpectedly	<ul style="list-style-type: none"> ◦ Overheating ◦ Over-current/short-circuit ◦ Low voltage input 	<ul style="list-style-type: none"> ◦ Ensure proper ventilation. Reduce volume. ◦ Check speaker wiring for shorts. Reduce load. ◦ Verify power supply voltage is stable and within range.

9. MAINTENANCE

To ensure the longevity and optimal performance of your ZK AS21 amplifier board, follow these maintenance guidelines:

- **Cleaning:** Use a soft, dry cloth to clean the surface of the amplifier. Do not use liquid cleaners or solvents.
- **Ventilation:** Ensure that the heatsink and ventilation openings are not obstructed. Dust accumulation can lead to overheating.
- **Storage:** When not in use for extended periods, store the amplifier in a cool, dry place away from direct sunlight and moisture.
- **Connections:** Periodically check all connections (power, speakers, audio inputs) to ensure they are secure and free from corrosion.

10. WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the documentation provided at the time of purchase or contact your retailer. Keep your purchase receipt as proof of purchase.