

[Manuals.plus](#) /

› [DONGKER](#) /

› DONGKER ZK-3002 Digital Amplifier Board User Manual

## DONGKER ZK-3002

# DONGKER ZK-3002 Digital Amplifier Board User Manual

Model: ZK-3002

## INTRODUCTION

The DONGKER ZK-3002 is a high-performance digital amplifier board designed for audio enthusiasts and DIY projects. Featuring the TPA3255 amplifier chip, it delivers powerful and clear audio output, capable of operating in both stereo (300W+300W) and mono (600W) configurations. This manual provides detailed instructions for setup, operation, and maintenance to ensure optimal performance and longevity of your amplifier board.



Figure 1: Top-down view of the DONGKER ZK-3002 Digital Amplifier Board.

## KEY FEATURES

- **High Power Output:** Supports 300W+300W dual-channel stereo or 600W mono bridge connection.
- **Intelligent Cooling System:** Features an intelligent temperature control fan that can also be manually controlled.
- **Adjustable Gain:** Potentiometer adjustable gain range from 26dB to 36dB with 10 adjustable gears.
- **Line-in Audio Input:** Accepts audio signals via an XH2.54-3P audio socket.
- **Protection Features:** Includes over-temperature, over-current, short-circuit, and under-voltage protection.
- **Versatile Application:** Suitable for home theaters, KTVs, outdoor parties, and DIY speaker projects.

## SPECIFICATIONS

Parameter	Value
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Parameter	Value
Work Voltage	DC 18V-50V
Work Current	>10A
Controller IC	TPA3255
Channel	2.0 Channel Stereo Output
Audio Input Type	Line-in (XH2.54-3P Socket)
Audio Output Type	Left/Right
BTL Stereo Output Power	50W-300W (3ohm-8ohm)
PBTL Mono Output Power	100W-600W (2ohm-8ohm)
Max Output Power	300W*2 at 50V 4ohm / 600W*1 at 50V 2ohm
Fan Control Type	Automatic/Manual Control
Gain	26-36dB Adjustable
Module Size (Installed)	125mm * 65mm * 38mm

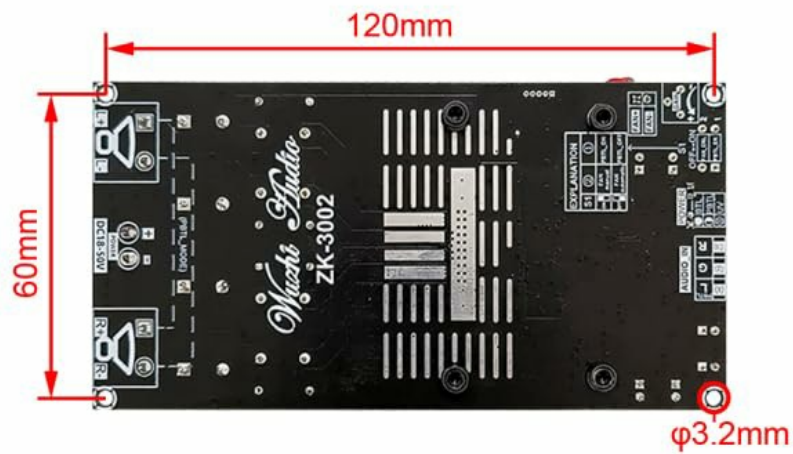


Figure 2: Dimensions of the ZK-3002 Amplifier Board.

## SETUP AND CONNECTIONS

Before connecting the amplifier board, ensure all power sources are disconnected. Proper wiring is crucial for safe and optimal performance.

## Component Identification

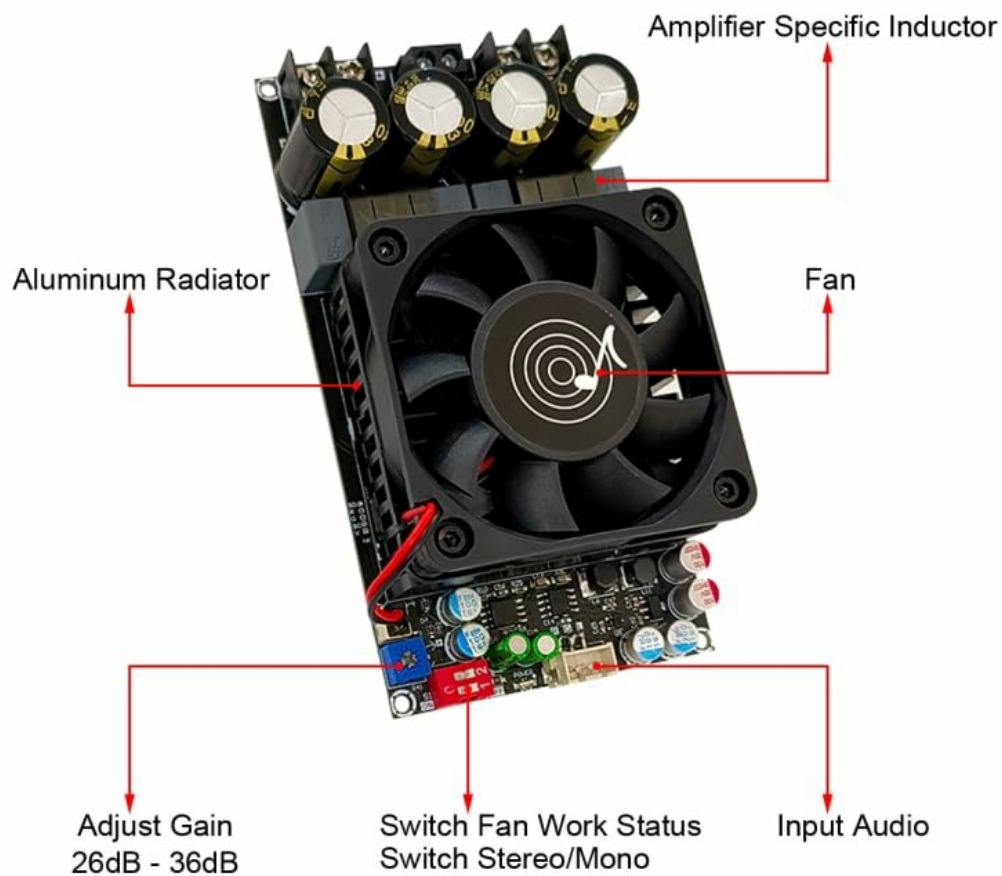


Figure 3: Key components of the ZK-3002 Amplifier Board, including the fan, aluminum radiator, amplifier specific inductor, gain adjustment, fan work status switch, stereo/mono switch, and audio input.

### Power Supply Connection

- Connect a DC power supply (18V-50V, >10A) to the VCC and GND terminals. Ensure correct polarity.

### Audio Input Connection

- Connect your audio source (e.g., decoder) to the XH2.54-3P audio socket (Line-in).

### Speaker Connections

The ZK-3002 supports both Stereo Dual Channel BTL Mode and Mono Single Channel PBTL Mode. Select the desired mode using Switch 1 on the board.

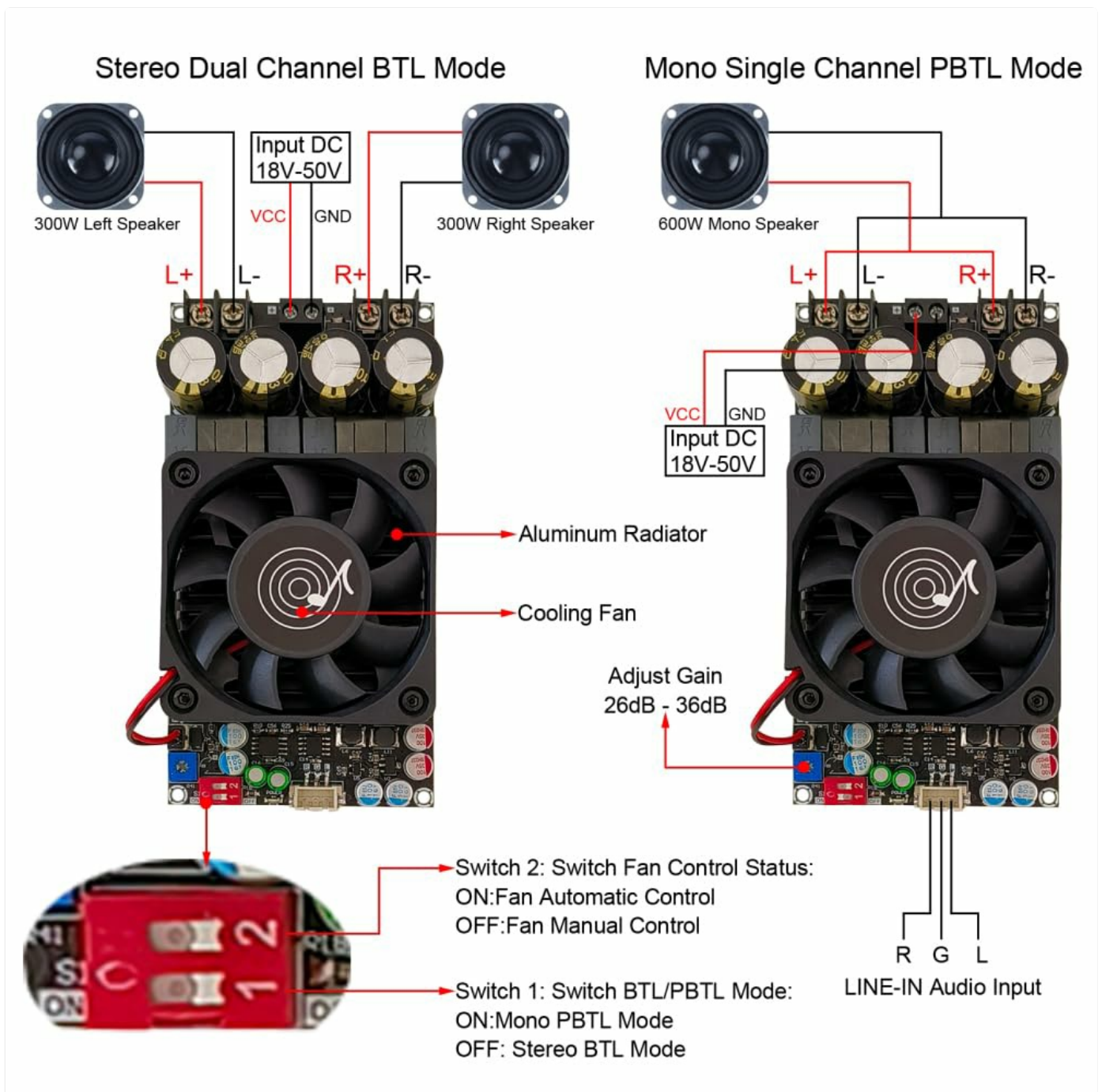


Figure 4: Detailed wiring diagrams for Stereo (BTL) and Mono (PBTL) configurations, showing speaker and power connections.

#### Stereo Dual Channel BTL Mode:

- Set Switch 1 to OFF (Stereo BTL Mode).
- Connect the left speaker to the L+ and L- terminals.
- Connect the right speaker to the R+ and R- terminals.
- Ensure speaker impedance is between 3ohm and 8ohm.

#### Mono Single Channel PBTL Mode:

- Set Switch 1 to ON (Mono PBTL Mode).
- Connect the mono speaker to the R+ and L- terminals (bridged output).
- Ensure speaker impedance is between 2ohm and 8ohm.

## OPERATING INSTRUCTIONS

### Powering On/Off

- After all connections are secure, connect the power supply to an AC outlet. The board will power on automatically.
- To power off, disconnect the power supply from the AC outlet.

## Volume Control

- Adjust the volume using the potentiometer labeled "Adjust Gain" on the board. Rotate clockwise to increase volume, counter-clockwise to decrease.

## Fan Control

- The ZK-3002 features an intelligent temperature-controlled fan.
- Use Switch 2 to control the fan's operation:
  - **ON:** Fan Automatic Control (fan activates based on temperature).
  - **OFF:** Fan Manual Control (fan runs continuously).

## Mode Switching (Stereo/Mono)

- Use Switch 1 to select the desired output mode:
  - **ON:** Mono PBT Mode (for single, high-power speaker).
  - **OFF:** Stereo BTL Mode (for two-channel stereo sound).
- *Note: Always power off the board before changing the mode switch to prevent potential damage.*

## MAINTENANCE

- **Cleaning:** Regularly clean the board with a soft, dry cloth. Ensure no dust accumulates on the fan or heatsink to maintain efficient cooling. Do not use liquid cleaners.
- **Ventilation:** Ensure the amplifier board is placed in a well-ventilated area to prevent overheating. Do not obstruct the fan or heatsink.
- **Storage:** When not in use for extended periods, store the board in a dry, dust-free environment.

## TROUBLESHOOTING

Problem	Possible Cause	Solution
No sound output	Incorrect power supply voltage/current; Loose speaker connections; Incorrect audio input connection; Amplifier in protection mode.	Verify power supply meets 18V-50V and >10A requirements. Check all speaker and audio input wiring for secure connections and correct polarity. Power cycle the board to reset protection mode.
Distorted sound	Input signal too strong; Speaker impedance mismatch; Faulty speaker.	Reduce the input audio signal level. Ensure speaker impedance matches the recommended range (3-8ohm for stereo, 2-8ohm for mono). Test with a different speaker.
Amplifier overheating	Poor ventilation; Fan not operating; Excessive load.	Ensure adequate airflow around the board. Check if the fan is spinning (set Switch 2 to OFF for manual control to test). Reduce output volume or speaker load.

Problem	Possible Cause	Solution
Fan not spinning	Fan control switch set to automatic (ON) and temperature is low; Fan malfunction.	Set Switch 2 to OFF (Manual Control) to force the fan on. If it still doesn't spin, the fan may be faulty.

## WARRANTY AND SUPPORT

For any questions or issues not covered in this manual, please contact DONGKER customer support. Refer to your purchase documentation for specific warranty terms and contact information.

You can visit the official DONGKER store on Amazon for more information and support: [DONGKER Store](#)

