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> [Rakstore DY-AP3001 Power Amplifier Module Instruction Manual](#)

## Rakstore DY-AP3001

# Rakstore DY-AP3001 Power Amplifier Module Instruction Manual

Model: DY-AP3001 | Brand: Rakstore

## INTRODUCTION

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This manual provides detailed instructions for the proper setup, operation, and maintenance of the Rakstore DY-AP3001 Class D Digital Power Amplifier Module. This compact module is designed for mono audio amplification, offering various power outputs depending on the supply voltage and speaker impedance. Please read this manual thoroughly before use to ensure optimal performance and safety.

## PRODUCT OVERVIEW

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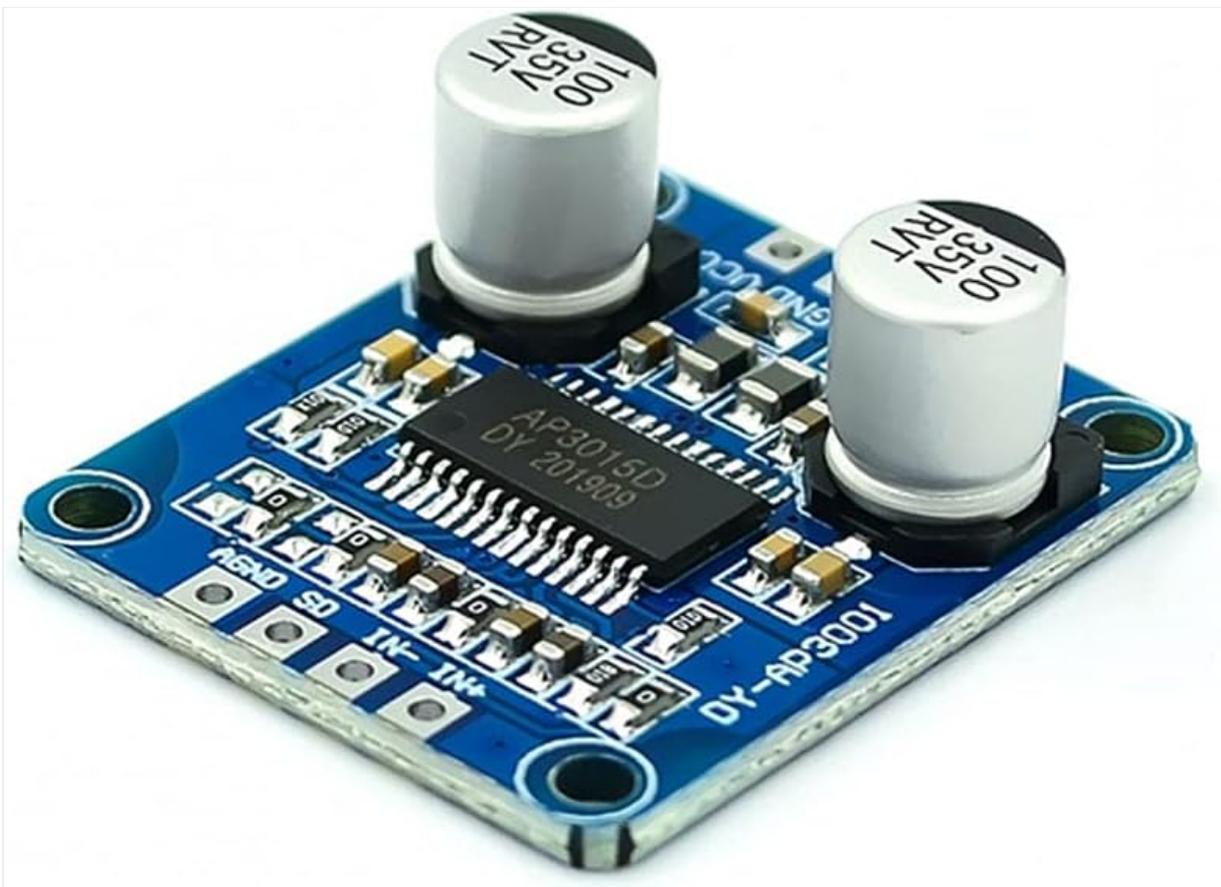


Figure 1: Top view of the Rakstore DY-AP3001 Power Amplifier Module, showing the main chip and capacitors.

The DY-AP3001 is a Class D digital amplifier board featuring a mono channel output. It supports a wide operating voltage range and is suitable for various audio projects requiring efficient power amplification. The module is equipped with clearly labeled connection points for power, audio input, and speaker output.

## SPECIFICATIONS

Feature	Description
Operating Voltage	DC 8V to 24V
Operating Mode	Class D (PWM modulation)
Number of Channels	Mono
Signal Input	Default single-ended input (can be configured for differential)
Input Resistance	1k $\Omega$
Output Load	4-8 $\Omega$
Output Power (@1KHz)	30W@16V 4 $\Omega$ , 20W@12V 4 $\Omega$ , 10W@12V 8 $\Omega$ , 15W@16V 8 $\Omega$ , 25W@24V 8 $\Omega$
Speaker Adaptation	4 ohms (8-16V power), 8 ohms (8-24V power)
Dimensions (PCB)	26mm x 22mm (approx.)
Mounting Type	Surface Mount

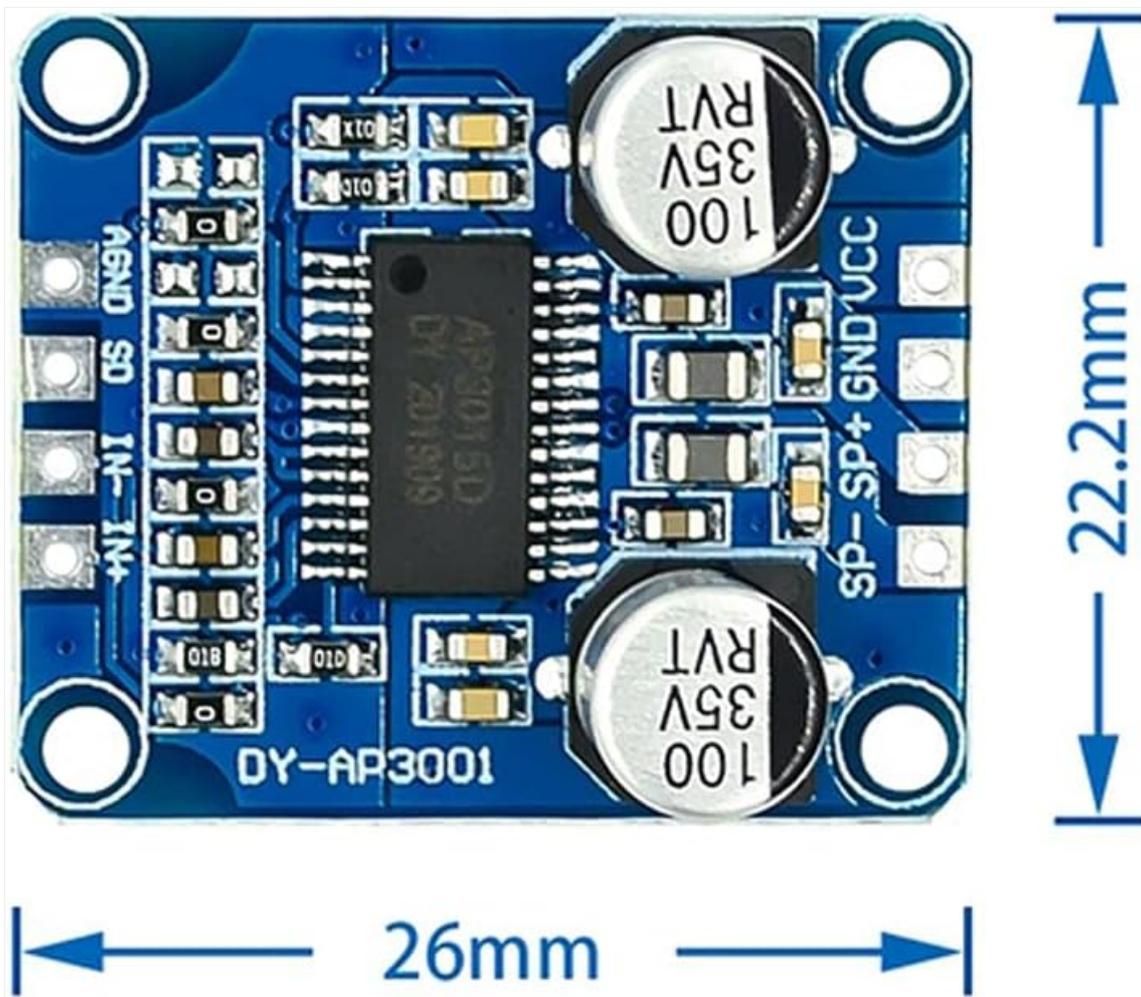
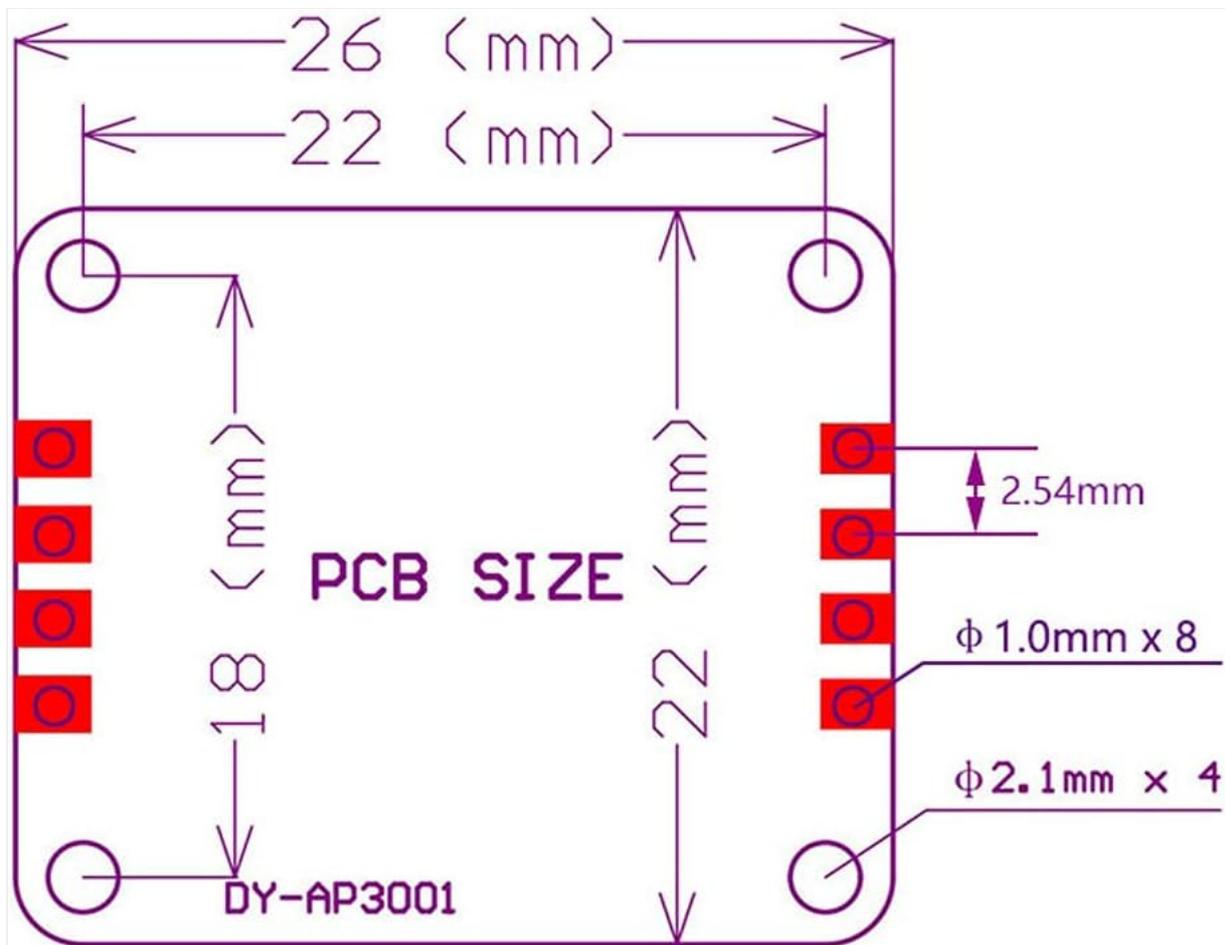


Figure 2: Top view of the amplifier module showing approximate dimensions of 26mm by 22.2mm.



## SETUP INSTRUCTIONS

Before connecting the module, ensure all power sources are disconnected. Observe proper polarity for all connections.

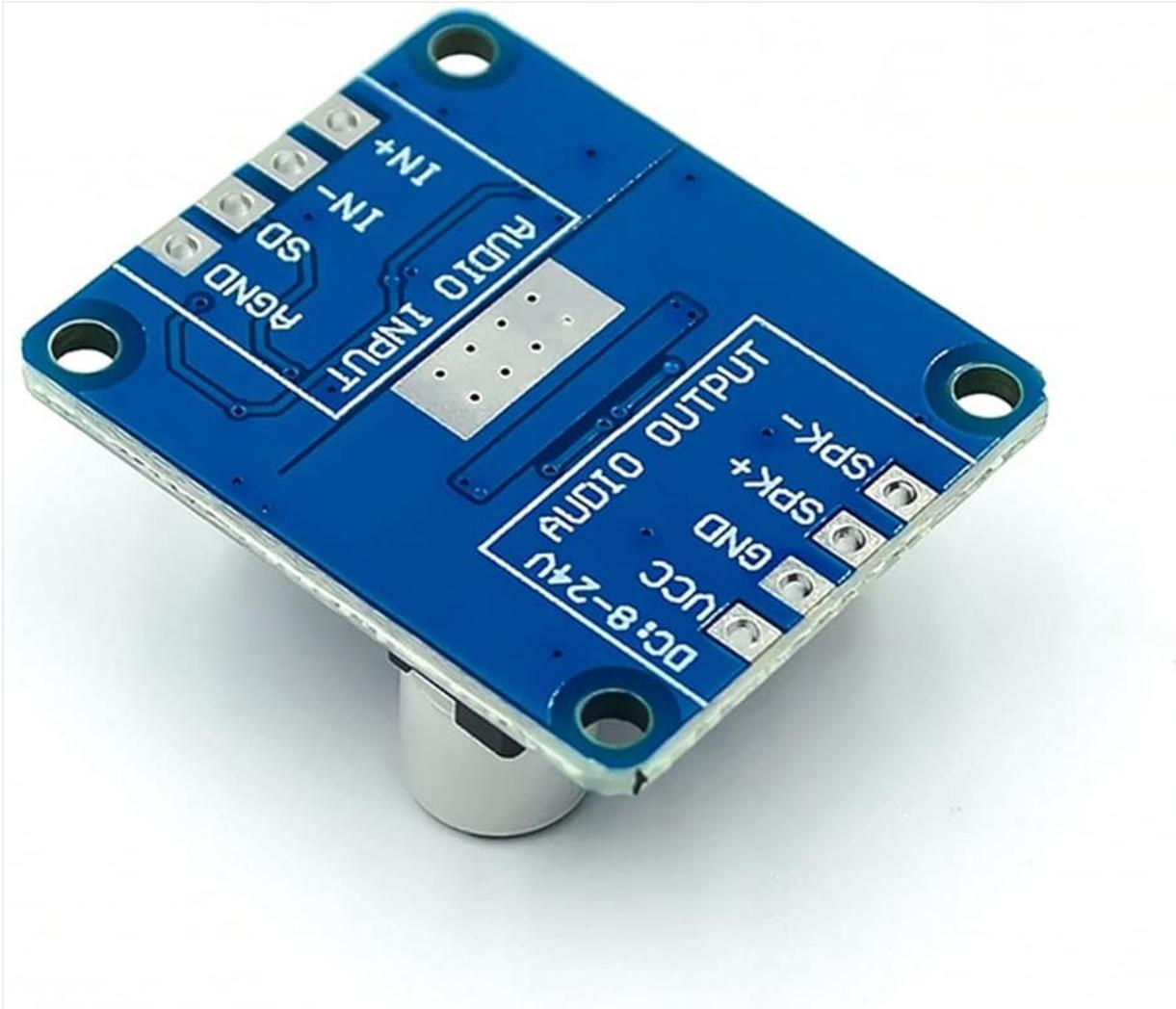


Figure 4: Bottom view of the amplifier module showing labeled connection points for power, audio input, and speaker output.

### 1. Power Supply Connection

- Identify the **VCC** and **GND** terminals on the module (refer to Figure 4).
- Connect the positive (+) terminal of your DC power supply (8V to 24V) to the **VCC** terminal.
- Connect the negative (-) terminal of your DC power supply to the **GND** terminal.
- *Caution: Ensure the power supply voltage is within the specified range (DC 8-24V) and observe correct polarity to prevent damage to the module.*

### 2. Audio Input Connection

- Locate the **IN+** and **IN-** terminals for audio input (refer to Figure 4).
- For single-ended input, connect the audio signal source's positive output to **IN+** and the ground/negative output to **IN-**.
- The module supports differential input; consult advanced documentation if this configuration is required.

### 3. Speaker Output Connection

- Identify the **SPK+** and **SPK-** terminals for speaker output (refer to Figure 4).
- Connect the positive (+) terminal of your speaker to **SPK+**.
- Connect the negative (-) terminal of your speaker to **SPK-**.
- Ensure the speaker impedance is between 4Ω and 8Ω. Using speakers outside this range may result in reduced performance or damage.

## OPERATING INSTRUCTIONS

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Once all connections are securely made, you can begin operating the amplifier module.

1. **Power On:** Apply power to the DC 8-24V input. The module should power on.
2. **Audio Playback:** Start playing audio from your connected source.
3. **Volume Control:** Volume is controlled by the audio source device. The amplifier module provides fixed gain amplification.
4. **Power Off:** Disconnect the power supply when the module is not in use.

## MAINTENANCE

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To ensure the longevity and reliable operation of your DY-AP3001 amplifier module, follow these maintenance guidelines:

- **Keep Clean:** Regularly clean the module with a soft, dry cloth. Avoid using liquids or solvents.
- **Avoid Dust:** Operate the module in a clean, dust-free environment to prevent accumulation on components.
- **Proper Ventilation:** Ensure adequate airflow around the module, especially during extended operation, to prevent overheating.
- **Handle with Care:** Avoid dropping or subjecting the module to physical shock.
- **Storage:** When not in use for extended periods, store the module in a dry, cool place, away from direct sunlight and extreme temperatures.

## TROUBLESHOOTING

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If you encounter issues with your DY-AP3001 amplifier module, refer to the following table for common problems and solutions.

Problem	Possible Cause	Solution
No sound output	<ul style="list-style-type: none"> <li>• Incorrect power connection</li> <li>• No audio input signal</li> <li>• Speaker not connected or faulty</li> <li>• Incorrect speaker impedance</li> </ul>	<ul style="list-style-type: none"> <li>• Verify power supply voltage and polarity (DC 8-24V).</li> <li>• Check audio source and input cable.</li> <li>• Ensure speaker is correctly wired to SPK+ and SPK-. Test speaker with another device.</li> <li>• Confirm speaker impedance is 4-8Ω.</li> </ul>

Problem	Possible Cause	Solution
Distorted sound	<ul style="list-style-type: none"> <li>• Input signal too strong (clipping)</li> <li>• Power supply voltage too low or unstable</li> <li>• Speaker impedance mismatch</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce the volume from the audio source.</li> <li>• Ensure stable power supply within the specified range.</li> <li>• Verify speaker impedance is 4-8Ω.</li> </ul>
Module gets hot	<ul style="list-style-type: none"> <li>• Lack of ventilation</li> <li>• Overload condition</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure adequate airflow around the module.</li> <li>• Reduce output power or check for short circuits in speaker wiring.</li> </ul>
Intermittent sound	<ul style="list-style-type: none"> <li>• Loose connections</li> <li>• Faulty cables</li> </ul>	<ul style="list-style-type: none"> <li>• Check all power, input, and output connections for secure contact.</li> <li>• Replace audio or speaker cables if suspected faulty.</li> </ul>

## SUPPORT

For further assistance or inquiries regarding the Rakstore DY-AP3001 Power Amplifier Module, please contact your retailer or the manufacturer directly. Refer to your purchase documentation for specific contact information.