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Dayton Audio SPA500

Dayton Audio SPA500 500W Subwoofer Plate Amplifier

User Manual

Model: SPA500 | Brand: Dayton Audio

1. Introduction

Thank you for choosing the Dayton Audio SPA500 500W Subwoofer Plate Amplifier. This manual provides essential information for the safe and efficient operation of your amplifier. Please read it thoroughly before installation and use, and retain it for future reference.
The SPA500 is a high-performance Class-AB subwoofer plate amplifier designed to deliver clean, controlled output with advanced features like a patented tracking downconverter power supply for high efficiency, a toroidal power supply transformer, and a low-frequency parametric EQ for custom sound tailoring. Its advanced soft clip circuitry improves headroom and protects woofers.

2. Safety Information

WARNING: To reduce the risk of fire or electric shock, do not expose this equipment to rain or moisture. Do not open the amplifier enclosure; there are no user-serviceable parts inside. Refer all servicing to qualified service personnel.
CAUTION: Risk of electric shock. Do not open.
IMPORTANT: This amplifier is NOT SUITABLE FOR IN-WALL MOUNTING.

- Always ensure proper ventilation around the amplifier.
- Disconnect power before making any connections or performing maintenance.
- Use only the specified fuse type and rating (FUSE: T8AL 250VAC for 115VAC~60Hz, FUSE: T4AL 250VAC for 230VAC~50Hz).
- Keep the amplifier away from water, heat sources, and direct sunlight.

3. Product Overview

The Dayton Audio SPA500 Subwoofer Plate Amplifier features a comprehensive control panel and robust construction. Below is an overview of the amplifier's rear panel and internal components.



Figure 3.1: Rear panel of the Dayton Audio SPA500 Subwoofer Plate Amplifier, showing all inputs, outputs, and controls.

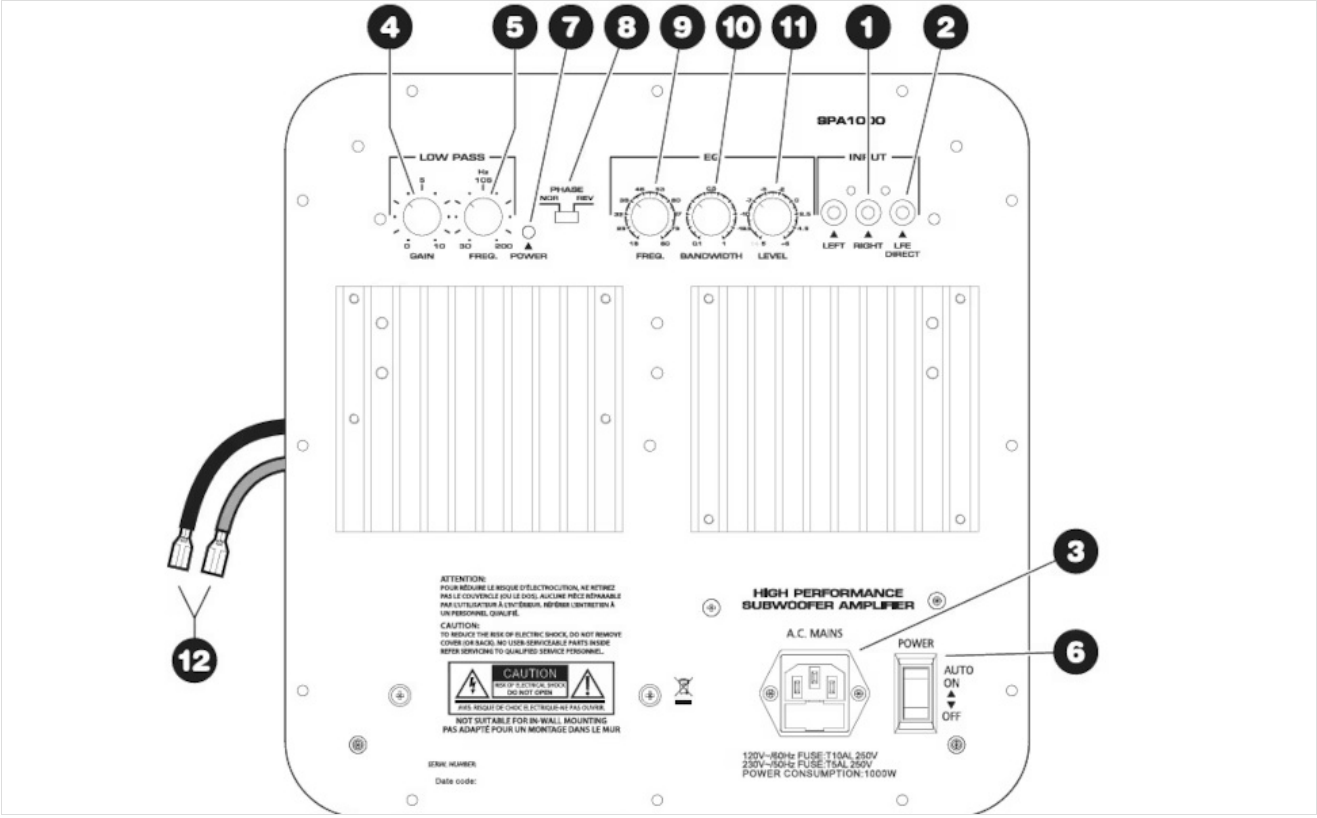


Figure 3.2: Numbered diagram of the SPA500 rear panel for easy identification of controls and connections.

Key components and controls:

1. **Low-Level Inputs (Left/Right):** RCA style jacks for standard line-level inputs from a pre-amplifier source.
2. **LFE Direct Input:** RCA style input jack to bypass internal filtering for a pure signal to the subwoofer.
3. **Power Connector Input:** Accepts an IEC plug for connection to mains power.
4. **Volume (Gain):** Adjusts the amplifier's input sensitivity to match the output of the pre-amp source.
5. **Frequency (Low-pass crossover):** Sets the highest frequency the subwoofer will reproduce, adjustable between 50-200 Hz with an 18dB/Octave slope.
6. **Power Switch:** Selects On, Off, or Auto mode. In 'Auto' mode, the amplifier enters standby until an input signal of approximately 10 millivolts or greater is detected, and returns to standby 10-15 minutes after the signal stops.
7. **Phase Switch (NOR/REV):** Helps achieve the best acoustical match with other speakers in your system.
8. **EQ Freq:** Adjusts the center frequency of the parametric equalizer.
9. **EQ Bandwidth:** Adjusts the Q-factor or width of the parametric equalizer's effect.
10. **EQ Level:** Adjusts the boost or cut level of the parametric equalizer.
11. **SPA500 Model Indicator:** Identifies the amplifier model.
12. **Speaker Output Wires:** Connects to the subwoofer driver.

4. Setup

4.1 Unpacking

Carefully remove the amplifier from its packaging. Inspect it for any signs of damage during transit. Retain the packaging for future transport or storage.

4.2 Mounting

The SPA500 is designed for integration into a subwoofer enclosure. Ensure the mounting surface is flat and secure. Use appropriate screws to fasten the amplifier plate to the enclosure. Remember, this unit is **NOT SUITABLE FOR**

IN-WALL MOUNTING due to ventilation requirements and safety considerations.



Figure 4.1: Side view of the SPA500, illustrating its depth for enclosure integration.

4.3 Connections

Before making any connections, ensure the amplifier's power switch is in the 'Off' position and the power cord is disconnected from the mains outlet.

1. **Subwoofer Driver Connection:** Connect the speaker output wires (12 in Figure 3.2) from the amplifier to your subwoofer driver. Ensure correct polarity (+ to + and - to -).
2. **Audio Input:**
    - **Low-Level Inputs (1):** For standard stereo line-level signals. Connect RCA cables from your pre-amplifier or receiver's line-level outputs (e.g., 'Pre-Out' or 'Subwoofer Out') to the Left and Right RCA inputs on the SPA500. The amplifier will sum the stereo signal to mono.
    - **LFE Direct Input (2):** For dedicated LFE (Low-Frequency Effects) signals from an A/V receiver. This input bypasses the amplifier's internal low-pass crossover, allowing the receiver to manage the crossover frequency. Connect a single RCA cable from your receiver's LFE output to this input.
3. **Power Connection (3):** Once all audio connections are made, connect the supplied IEC power cord to the amplifier's power connector and then to a suitable mains power outlet.

5. Operating the Amplifier

After making all connections, you can power on and configure your amplifier.

5.1 Powering On/Off

Use the Power Switch (6 in Figure 3.2) to select the desired mode:

- **OFF:** The amplifier is completely powered off.
- **ON:** The amplifier is continuously powered on.
- **AUTO:** The amplifier enters standby mode. It will automatically power on when an audio signal is detected and return to standby after 10-15 minutes of no signal.

5.2 Adjusting Controls

Optimize the amplifier's performance to match your system and listening preferences.

- **Volume (Gain) (4):** Start with the Volume control at its minimum setting. Gradually increase it until the subwoofer's output blends seamlessly with your main speakers. Avoid setting it too high, which can lead to distortion.
- **Frequency (Low-pass crossover) (5):** This control determines the upper frequency limit of the subwoofer. Adjust it to where your main speakers begin to roll off their bass response. A common starting point is 80 Hz. If using the LFE Direct input, this control is bypassed.



Figure 5.1: Detail of the Low Pass Frequency and Gain controls.

- **Phase Switch (NOR/REV) (7):** This switch helps integrate the subwoofer's output with your main speakers. Listen to a familiar piece of music and toggle the switch between 'NOR' (Normal) and 'REV' (Reverse). Choose the setting that provides the most impactful and coherent bass response.



Figure 5.2: Detail of the Phase switch.

- **Parametric EQ (8, 9, 10):** The single-band parametric EQ allows for fine-tuning of the subwoofer's response to compensate for room acoustics or personal preference.

- **EQ Freq (8):** Selects the center frequency (e.g., 20-80 Hz) you wish to boost or cut.
- **EQ Bandwidth (9):** Adjusts the 'Q' or width of the frequency band affected by the EQ. A higher Q (narrower bandwidth) affects a smaller range of frequencies, while a lower Q (wider bandwidth) affects a broader range.
- **EQ Level (10):** Determines the amount of boost or cut (e.g., -14.5 dB to +4.5 dB) at the selected frequency.



Figure 5.3: Detail of the Parametric EQ controls (Freq, Bandwidth, Level).

6. Maintenance

6.1 Cleaning

To clean the amplifier, disconnect it from the power outlet. Use a soft, dry cloth to wipe the exterior surfaces. Do not use liquid cleaners, aerosols, or harsh chemicals, as these may damage the finish or internal components.

6.2 Environmental Considerations

Ensure the amplifier is operated in a well-ventilated area. Avoid placing it in direct sunlight or near heat sources. Do not expose the unit to extreme temperatures or humidity.

7. Troubleshooting

If you experience issues with your SPA500 amplifier, consult the following table for common problems and solutions.

Problem	Possible Cause	Solution
No power	Power cord disconnected; Power switch off; Blown fuse; Internal protection engaged.	Check power cord connection; Ensure power switch is ON or AUTO; Check and replace fuse if necessary (refer to specifications for correct type); Disconnect power, wait 5 minutes, then reconnect. If problem persists, contact support.
No sound	Input cables disconnected or faulty; Volume (Gain) set too low; Crossover frequency set too low; Subwoofer driver disconnected or faulty.	Check all input cable connections; Increase Volume (Gain) control; Adjust Low-pass crossover frequency; Check subwoofer driver connections and functionality.

Problem	Possible Cause	Solution
Distorted sound	Volume (Gain) set too high; Input signal too strong; Faulty input cable or speaker wire; Subwoofer enclosure issues.	Reduce Volume (Gain) control; Check source output level; Inspect and replace cables if necessary; Ensure subwoofer enclosure is sealed and free of rattles.
Amplifier gets hot	Lack of ventilation; Excessive use at high volumes; Internal protection engaged.	Ensure adequate airflow around the amplifier; Reduce listening volume; The amplifier has internal thermal protection and will shut down if it overheats. Allow it to cool before resuming operation.

If the problem persists after attempting these solutions, please contact customer support.

8. Specifications

The following table details the technical specifications of the Dayton Audio SPA500 Subwoofer Plate Amplifier.

Specification	Value
Model Number	SPA500
Brand	Dayton Audio
Item Dimensions (L x W x H)	5.24 x 11.94 x 11.94 inches
Product Dimensions	5.24 x 11.94 x 11.94 inches
Item Weight	18.96 pounds
Voltage	5 Volts (Internal operating voltage, not mains input)
Output Power	273 Watts (RMS, typical)
Number of Channels	1
Supply Current	4.7 Amps
Power Consumption	500W (Maximum)
Fuse (115VAC~60Hz)	T8AL 250VAC
Fuse (230VAC~50Hz)	T4AL 250VAC
Material	Hercules (Enclosure material)
Specification Met	FCC
Date First Available	October 22, 2010
UPC	844632015922

9. Warranty Information

Dayton Audio products are designed for reliability and performance. For specific warranty terms and conditions, please refer to the documentation provided with your purchase or visit the official Dayton Audio website. Warranty coverage typically includes defects in materials and workmanship for a specified period from the date of purchase.

10. Customer Support

If you have any questions, require technical assistance, or need to report a problem that cannot be resolved using the troubleshooting guide, please contact Dayton Audio customer support or your authorized retailer. Please have your product model (SPA500) and purchase information ready when contacting support.
For more information, visit the Dayton Audio Store on Amazon.

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