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> PACUM Universal Switching DC Power Supply NPS306W (30V 6A) User Manual

PACUM NPS306W

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1. INTRODUCTION

Thank you for choosing the PACUM Universal Switching DC Power Supply, model NPS306W. This compact and efficient power supply is designed for laboratory and bench use, providing stable and adjustable DC voltage and current. It features a high-precision three-window LED display for voltage, current, and power, along with coarse and fine adjustment controls for precise output settings. This manual provides essential information for the safe and effective operation, setup, and maintenance of your device.

2. SAFETY INSTRUCTIONS

To ensure safe operation and prolong the life of your power supply, please read and adhere to the following safety guidelines:

- Always connect the power supply to a grounded electrical outlet.
- Do not operate the device in wet or damp conditions.
- Ensure adequate ventilation around the unit to prevent overheating. The built-in temperature-controlled fan requires clear airflow.
- Do not open the casing of the power supply. There are no user-serviceable parts inside, and doing so may expose you to dangerous voltages.
- Avoid short-circuiting the output terminals for extended periods, although the unit is equipped with short-circuit protection.
- Disconnect the power supply from the mains before cleaning or performing any maintenance.
- This unit is equipped with over-temperature, overload, and short-circuit protection functions to enhance safety during operation.

3. PRODUCT OVERVIEW

The PACUM NPS306W features an intuitive front panel for easy control and monitoring of output parameters.



Figure 3.1: Front Panel of PACUM NPS306W DC Power Supply (30V 6A model).

3.1 Front Panel Components

Product Analysis

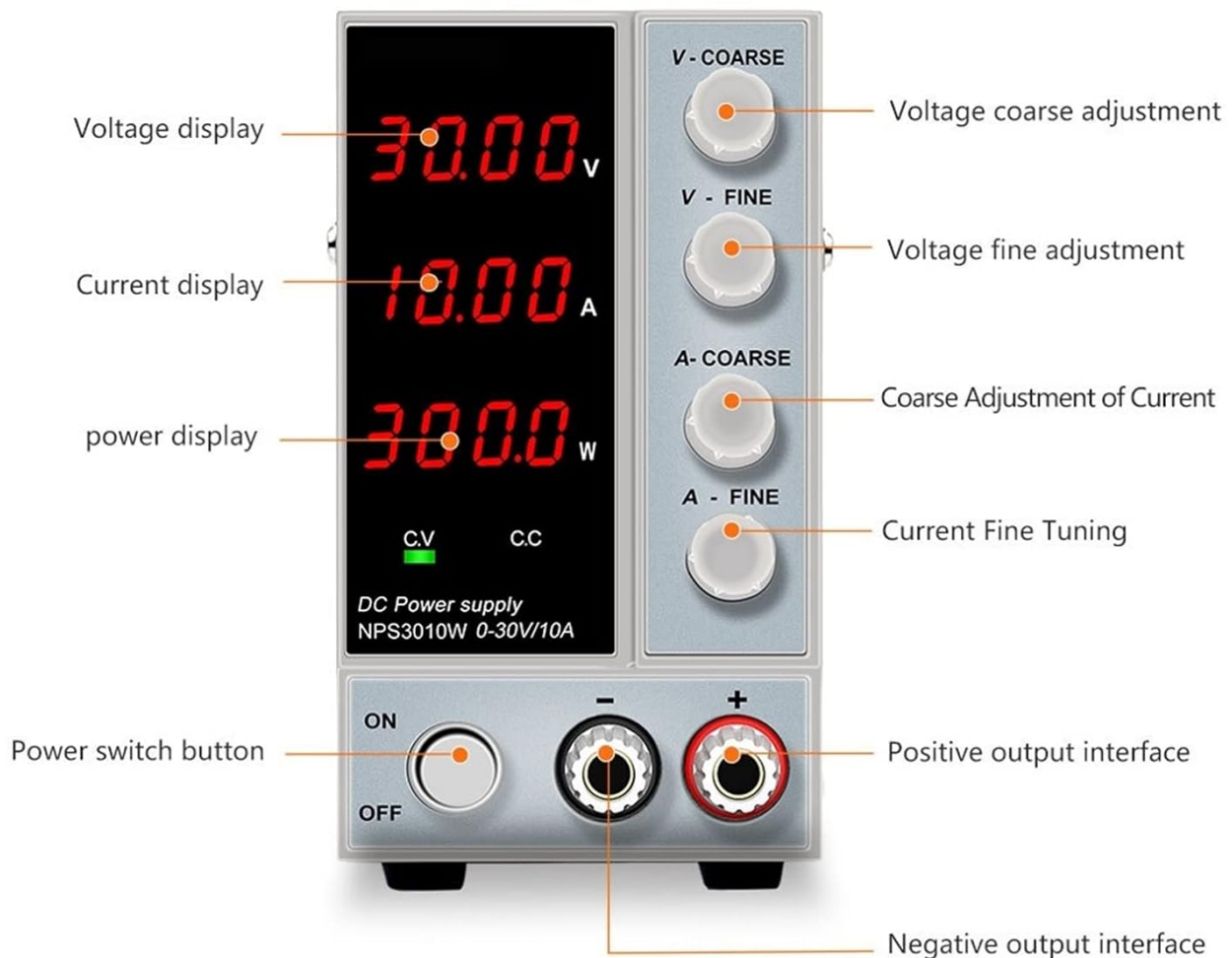


Figure 3.2: Labeled Front Panel Controls and Displays.

- **Voltage Display:** Shows the output voltage in Volts (V).
- **Current Display:** Shows the output current in Amperes (A).
- **Power Display:** Shows the output power in Watts (W).
- **C.V. (Constant Voltage) Indicator:** Illuminates when the unit is operating in Constant Voltage mode.
- **C.C. (Constant Current) Indicator:** Illuminates when the unit is operating in Constant Current mode.
- **V-COARSE / V-FINE:** Knobs for coarse and fine adjustment of the output voltage.
- **A-COARSE / A-FINE:** Knobs for coarse and fine adjustment of the output current limit.
- **Power Switch:** Toggles the main power ON/OFF.
- **Positive Output Interface (+):** Red terminal for positive output connection.
- **Negative Output Interface (-):** Black terminal for negative output connection.

3.2 Display Resolution

The NPS306W model features a 3-digit LED display for precise readings.

High Precision LED 3 / 4 Digit Display

Three-digit Display Resolution

00.1V/0.01A

Four-digit Display Resolution

00.01V/0.001A



Figure 3.3: Display Resolution for 3-Digit Models.

- **Voltage Resolution:** 0.1V
- **Current Resolution:** 0.01A

4. SETUP

Follow these steps to set up your PACUM DC Power Supply:

1. **Unpacking:** Carefully remove the power supply from its packaging. Inspect the unit for any signs of damage during transit.
2. **Placement:** Place the power supply on a stable, level surface. Ensure there is sufficient space around the unit for proper ventilation, especially at the rear where the cooling fan is located.
3. **Power Connection:** Connect the provided power cord to the AC input socket on the rear of the power supply, then plug the other end into a grounded mains outlet.

4. **Load Connection:** Connect your load to the output terminals on the front panel. Ensure correct polarity: positive (+) to the red terminal and negative (-) to the black terminal. Use appropriate gauge wires for your application.

5. OPERATING INSTRUCTIONS

5.1 Powering On/Off

- To power on the unit, press the power switch to the 'ON' position. The LED displays will illuminate.
- To power off the unit, press the power switch to the 'OFF' position.

5.2 Adjusting Voltage and Current

The power supply operates in two primary modes: Constant Voltage (CV) and Constant Current (CC). It automatically switches between these modes depending on the load and your set parameters.

1. Setting Voltage:

- Before connecting a sensitive load, it is recommended to set the voltage and current limits with no load connected.
- Turn the **V-COARSE** knob to adjust the voltage to the approximate desired value.
- Use the **V-FINE** knob for precise voltage adjustment.
- The voltage display will show the set output voltage.

2. Setting Current Limit:

- Turn the **A-COARSE** knob to adjust the current limit to the approximate desired value.
- Use the **A-FINE** knob for precise current limit adjustment.
- The current display will show the set current limit. When the unit is operating in CV mode, the current displayed will be the actual current drawn by the load, up to the set limit. When in CC mode, the current displayed will be the set current limit.

3. **Constant Voltage (CV) Mode:** When the load resistance is high, the output current is less than the set current limit. The power supply will maintain the set output voltage, and the CV indicator will illuminate.
4. **Constant Current (CC) Mode:** When the load resistance is low, causing the current to reach the set current limit, the power supply will automatically switch to CC mode. The output voltage will decrease to maintain the set current, and the CC indicator will illuminate.

6. MAINTENANCE

Proper maintenance ensures the longevity and reliable performance of your power supply.

- **Cleaning:** Disconnect the power supply from the mains before cleaning. Use a soft, dry cloth to wipe the exterior. Do not use abrasive cleaners or solvents.
- **Ventilation:** Regularly check that the ventilation openings and the cooling fan are free from dust and obstructions. A clogged fan can lead to overheating and reduced performance.
- **Storage:** When not in use for extended periods, store the power supply in a cool, dry place, away from direct sunlight and excessive humidity.
- **No User Serviceable Parts:** Do not attempt to repair the unit yourself. Refer all servicing to qualified personnel.

7. TROUBLESHOOTING

If you encounter issues with your power supply, refer to the following common troubleshooting steps:

- **No Power:** Ensure the power cord is securely connected to both the unit and the mains outlet. Check the power switch position. Verify the mains outlet is functional.
- **No Output Voltage/Current:** Check if the output terminals are correctly connected to the load. Ensure the voltage and current limit knobs are adjusted to non-zero values.
- **Unit Overheating:** Check for obstructions around the ventilation fan. Ensure the ambient temperature is within the operating range. The unit's over-temperature protection may activate, shutting down output.
- **Unexpected Voltage Drop:** If the CC indicator is lit, the unit is in Constant Current mode, and the voltage has dropped to maintain the set current limit due to the load.
- **Protection Circuit Activated:** If the unit suddenly stops outputting, one of the protection functions (over-temperature, overload, short-circuit) may have activated. Disconnect the load, power cycle the unit, and re-evaluate your setup.

If the problem persists after attempting these steps, please contact PACUM customer support for assistance.

8. SPECIFICATIONS

Key technical specifications for the PACUM NPS306W DC Power Supply (30V 6A model):

Feature	Specification
Model	NPS306W
Output Voltage	0-30V DC
Output Current	0-6A
Display Type	3-Digit LED (Voltage, Current, Power)
Voltage Display Resolution	0.1V
Current Display Resolution	0.01A
Operating Modes	Constant Voltage (CV), Constant Current (CC)
Protection Functions	Over Temperature Protection (OTP), Overload Protection (OLP), Short Circuit Protection (SCP)
Cooling	Temperature-controlled fan
Item Weight	3.97 pounds (approx. 1.8 kg)
Package Dimensions	31.5 x 0.79 x 0.39 inches (approximate)
Manufacturer Model Number	16576546879436521

Product size



Figure 8.1: Product Dimensions.

9. WARRANTY AND SUPPORT

PACUM products are manufactured to high-quality standards. For information regarding warranty coverage, technical support, or service, please refer to the documentation provided with your purchase or contact your retailer. Keep your purchase receipt as proof of purchase.

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