PACUM DPS605U

PACUM DPS605U Lab DC Power Supply Instruction Manual

Model: DPS605U

1. Introduction

The PACUM DPS605U is a high-precision switching DC power supply designed for laboratory, educational, and industrial applications. It features a three-window, four-position LED display for simultaneous voltage, current, and power readings. This power supply offers continuous adjustment of output voltage and current, along with essential protection functions such as over-voltage protection (OVP), over-current protection (OCP), over-temperature protection, and short-circuit alarm.

Key features include a USB fast charging function, low ripple, high efficiency, and a temperature-controlled cooling fan for extended operational life. Its compact design and precise adjustment capabilities make it suitable for various tasks, including production line testing, electronic device repair, product aging, battery charging, and scientific research.

Figure 1: Front view of the PACUM DPS605U Lab DC Power Supply, showing the display and control knobs.

2. Safety Instructions

To ensure safe operation and prevent damage to the device or injury, please read and follow these safety instructions carefully:

- Always connect the power supply to a grounded electrical outlet.
- Do not operate the device in wet or damp conditions.
- Ensure proper ventilation around the unit to prevent overheating. Do not block ventilation openings.
- Do not open the casing of the power supply. There are no user-serviceable parts inside. Refer all servicing to qualified personnel.
- Verify the input voltage switch (115V/230V) is set correctly for your local power grid before connecting the power cord. Incorrect setting can cause severe damage.
- Avoid short-circuiting the output terminals for extended periods, even with protection features enabled.
- Disconnect the power cord before cleaning or when the unit is not in use.
- Use only the provided power cord and test leads, or suitable replacements that meet safety standards.
- Keep children away from the device during operation.

3. Product Features

- **High Precision Display:** Three-window, four-position LED display for simultaneous voltage, current, and power readings.
- **Adjustable Output:** Output voltage and current are continuously adjustable from 0 to the nominal value.
- **USB Fast Charging:** Integrated USB fast charging function supporting various fast charging protocols.
- **Protection Functions:** Equipped with Over-Voltage Protection (OVP), Over-Current Protection (OCP), Over-Temperature Protection, and an upgraded short-circuit alarm function.
- **Stable Performance:** Excellent stability and low ripple coefficient.
- **Efficient Cooling:** Temperature-controlled fan for efficient heat dissipation, low noise, and extended lifespan.
- **Dual Voltage Input:** Supports AC 110V and 220V input, selectable via a switch.
- **Compact Design:** Small size, lightweight, and high power density.
- **Constant Voltage/Current:** Automatic switching between constant voltage (CV) and constant current (CC) modes.

Figure 2: The power supply highlighting its USB fast charging capability and display features.

4. Components Overview

4.1 Front Panel

Figure 3: Detailed view of the front panel with labeled components.

1. **Voltage Output Display:** Shows the current output voltage in Volts (V).
2. **Stable Voltage Indicator Light (C.V):** Illuminates when the power supply is operating in Constant Voltage mode.
3. **Constant Current Indicator Light (C.C):** Illuminates when the power supply is operating in Constant Current mode.
4. **Current Output Display:** Shows the current output in Amperes (A).
5. **Power Output Display:** Shows the output power in Watts (W).
6. **USB Fast Charging Interface:** Port for connecting devices for fast charging.
7. **Short-Circuit Alarm Switch (OCP):** Button to enable/disable Over-Current Protection alarm.
8. **Power Switch (ON/OFF):** Main power control for the unit.
9. **Earth Terminal (Green):** Ground connection terminal.
10. **Negative Polarity (Black):** Negative output terminal.
11. **Positive Polarity (Red):** Positive output terminal.
12. **Voltage Coarse Adjustment (V-COARSE):** Knob for large adjustments of output voltage.
13. **Voltage Fine Adjustment (V-FINE):** Knob for precise adjustments of output voltage.
14. **Current Coarse Adjustment (A-COARSE):** Knob for large adjustments of output current.

15. **Current Fine Adjustment (A-FINE):** Knob for precise adjustments of output current.

4.2 Rear Panel

The rear panel typically includes the AC power input socket, a voltage selector switch (115V/230V), and cooling fan vents. Ensure the voltage selector switch is set correctly for your region before connecting the power cord.

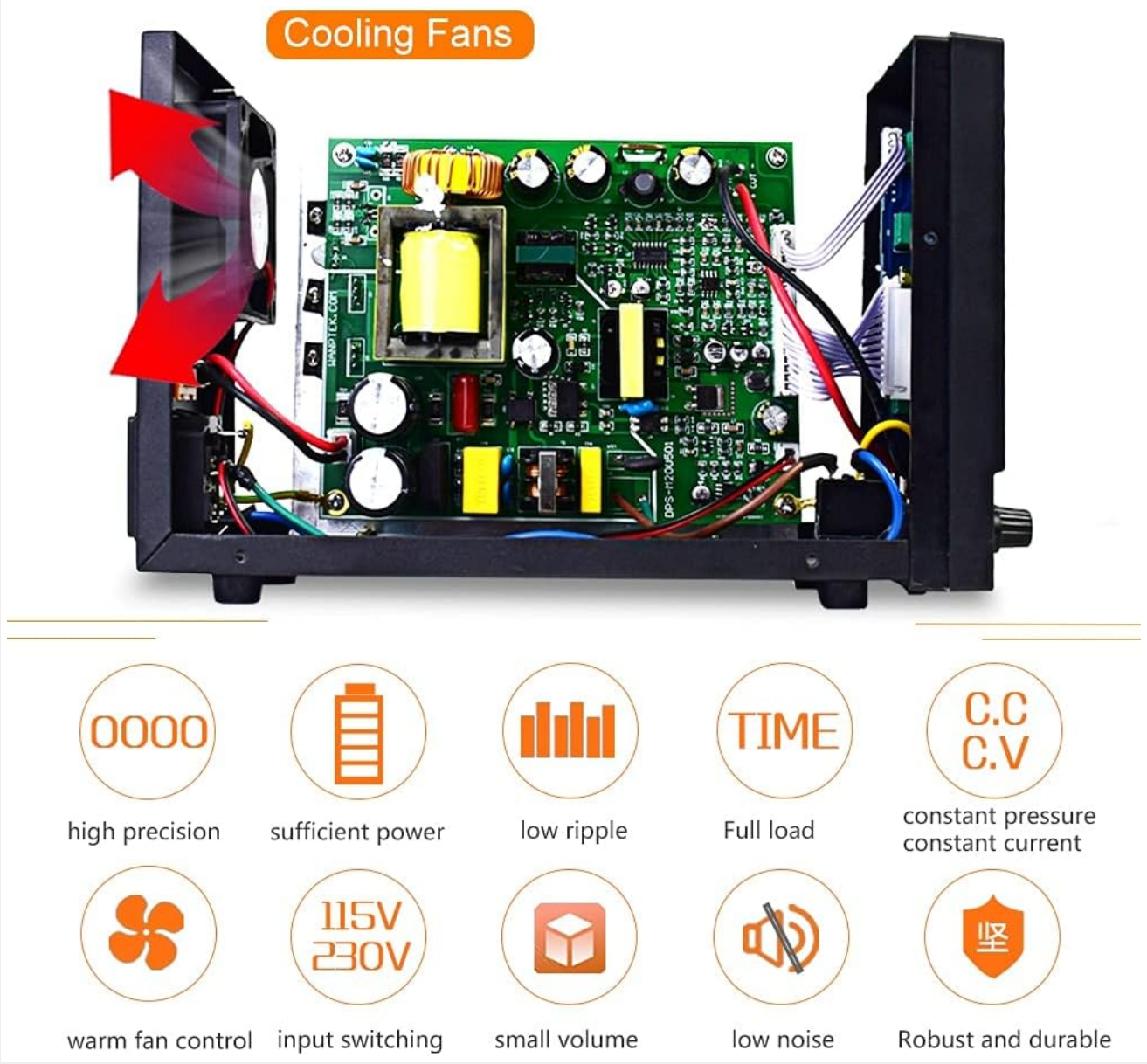

Figure 4: Internal view highlighting the cooling fans, which are located at the rear of the unit.

5. Setup Instructions

1. **Unpacking:** Carefully remove the power supply and all accessories from the packaging. Verify that all components listed in the package contents are present.
2. **Placement:** Place the power supply on a stable, level surface with adequate ventilation. Ensure there is sufficient space around the unit for airflow, especially around the rear cooling fan.
3. **Input Voltage Selection:** Locate the voltage selector switch on the rear panel. Set it to either 115V or 230V according to your local mains voltage. **Incorrect setting can cause severe damage to the unit.**
4. **Power Connection:** Ensure the power switch on the front panel is in the "OFF" position. Connect the provided AC power cord to the power input socket on the rear panel, then plug the other end into a grounded electrical outlet.
5. **Output Connection:** Connect the test leads to the output terminals on the front panel. The red lead connects

to the positive (+) terminal, and the black lead connects to the negative (-) terminal. If grounding is required for your application, connect the green lead to the earth terminal.

6. Operating Instructions

6.1 Basic Operation

1. **Power On:** After completing the setup, press the power switch to the "ON" position. The LED displays will illuminate.
2. **Pre-setting Voltage and Current (No Load):**
    - Ensure no load is connected to the output terminals.
    - Adjust the **V-COARSE** and **V-FINE** knobs to set the desired output voltage. Observe the Voltage Output Display.
    - Adjust the **A-COARSE** and **A-FINE** knobs to set the desired current limit. This sets the maximum current the power supply will deliver.
    - *Note:* When setting the current limit without a load, you may need to temporarily short the output terminals (briefly and carefully, or use a low-value resistor) to see the current display change and set the limit accurately. The C.C indicator will light up when the current limit is reached.
3. **Connecting the Load:** Connect your device or circuit to the output terminals. Ensure correct polarity.
4. **Operation with Load:**
    - If the load draws less current than the set limit, the power supply will operate in Constant Voltage (CV) mode, and the C.V indicator will be lit. The output voltage will be maintained at the set value.
    - If the load attempts to draw more current than the set limit, the power supply will automatically switch to Constant Current (CC) mode, and the C.C indicator will be lit. The output current will be maintained at the set limit, and the output voltage will drop.
5. **Power Off:** Disconnect the load, then press the power switch to the "OFF" position.

6.2 USB Fast Charging Function

The integrated USB fast charging port allows you to charge compatible devices directly from the power supply. Simply connect your device's USB cable to the USB fast charging interface on the front panel. The power supply will automatically detect and provide the appropriate charging protocol.

6.3 Over-Current Protection (OCP) Alarm

The OCP alarm function provides an audible alert when the output current exceeds the set limit. To activate or deactivate this feature, press the OCP button on the front panel. When active, an alarm will sound if the current limit is reached, indicating a potential issue with the load or an incorrect current setting.

7. Maintenance

- **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 on the rear and sides are clear of dust and debris. A small brush or compressed air can be used to gently clean the vents.
- **Storage:** When not in use for extended periods, store the power supply in a cool, dry place, away from direct sunlight and extreme temperatures.
- **No User Serviceable Parts:** Do not attempt to open the unit. Internal components carry high voltage and

pose a risk of electric shock. Any internal servicing must be performed by qualified service personnel.

8. Troubleshooting

Problem	Possible Cause	Solution
No power, display off	◦ Power cord not connected or loose. ◦ Power switch is OFF. ◦ Input voltage selector switch incorrect. ◦ Blown fuse (internal).	◦ Check power cord connection to unit and outlet. ◦ Turn power switch ON. ◦ Verify input voltage selector (115V/230V) on rear panel is correct. ◦ Contact customer support for fuse replacement. Do not attempt to replace yourself.
No output voltage/current	◦ Output terminals not connected correctly. ◦ Voltage/current knobs set to zero. ◦ Over-current protection (OCP) or short-circuit activated. ◦ Internal fault.	◦ Check test lead connections and polarity. ◦ Adjust V-COARSE/V-FINE and A-COARSE/A-FINE knobs to desired values. ◦ Check load for short circuits. Reduce current limit if necessary. ◦ Disconnect load, power cycle unit. If problem persists, contact support.
C.C indicator always on, voltage low	◦ Load drawing more current than set limit. ◦ Current limit set too low.	◦ Increase the current limit using A-COARSE/A-FINE knobs. ◦ Verify the current requirements of your load.
Unit overheats, fan noisy	◦ Blocked ventilation. ◦ Operating at full load for extended periods in high ambient temperature.	◦ Ensure clear space around vents. Clean any dust. ◦ Reduce load or operate in a cooler environment.

9. Specifications

Parameter	Value
Model	DPS605U
Brand	PACUM
Input Voltage	AC 115V/230V ±10% (Switchable)
Output Voltage Range	0-60V (Continuously adjustable)
Output Current Range	0-5A (Continuously adjustable)
Display	3-window, 4-digit LED (Voltage, Current, Power)
Protection	OVP, OCP, OTP, Short-circuit alarm
USB Fast Charging	Yes, supports various protocols

Parameter	Value
Cooling	Temperature-controlled fan
Item Weight	2000 Grams

Figure 5: Example dimensions of a similar model (DPS3010U), providing an approximate size reference for the DPS605U.

10. Package Contents

Upon opening the package, you should find the following items:

- 1x PACUM DPS605U DC Power Supply
- 1x AC Power Cord
- 1x Test Line (leads)
- 1x Instruction Manual (this document)

11. Warranty and Support

For warranty information, technical support, or service inquiries, please refer to the contact information provided by your retailer or visit the official PACUM website. Keep your purchase receipt as proof of purchase for warranty claims.