**PACUM KPS-305D/KPS-305DF (Model 4000173914370)**

# PACUM KPS-305D/KPS-305DF Adjustable DC Power Supply User Manual

## 1. Introduction

The PACUM KPS series DC power supply is a high-precision, single-output switching power supply designed for laboratory and general electronic applications. It offers stable voltage and current output with low ripple and noise. This unit incorporates comprehensive operating protection functions, ensuring safety for both the device and the connected load. Its compact size and lightweight design make it suitable for various workspaces.

Key features include:

- Complete operating protection functions.
- High efficiency, low ripple, small volume, and light weight.
- Dual display for voltage and current with high precision.
- Voltage stabilization and current limiting capabilities for simple operation.
- Dual voltage input (110V/220V) for convenient selection.
- Temperature-controlled fan for efficient heat dissipation and low noise operation.
- Dual potentiometers for precise adjustment of voltage and current.

## 2. Product Overview

The KPS-305D/KPS-305DF power supply provides adjustable DC output up to 30V and 5A. The 'D' model offers 0.1V/0.01A resolution, while the 'DF' model provides enhanced 0.01V/0.001A resolution for current display.


Figure 1: Front view of the PACUM KPS-305DF power supply, showing the digital display, control knobs, power switch, and output terminals. Various test leads and probes are also visible.


Figure 2: Detailed view of the front panel, highlighting the digital voltage (V) and current (A) displays, coarse and fine adjustment knobs for both voltage and current, the power switch, and the positive (red) and negative (black) output terminals.

## 3. Setup

1. **Unpacking:** Carefully remove the power supply and all accessories from the packaging. Verify that all components listed in the packing list are present: 1 x DC Power Supply (305D or 305DF), 1 x User Manual, 1 x Test line, 2 x Test line clamp, 2 x Probe, 1 x Power line (EU/AU/US).
2. **Placement:** Place the power supply on a stable, level surface with adequate ventilation. Ensure that the air intake and exhaust vents are not obstructed.

3. **Input Voltage Selection:** Before connecting the power cord, verify the input voltage selector switch on the rear panel matches your local mains voltage (110V or 220V). Adjust if necessary using a small screwdriver.


Figure 3: Rear panel of the power supply, indicating the 220V/110V input voltage selector switch and the AC power inlet.

4. **Power Connection:** Connect the provided power cord to the AC inlet on the rear panel and then to a suitable mains power outlet.
5. **Output Connections:** Connect the test leads to the output terminals on the front panel. The red terminal is positive (+), and the black terminal is negative (-). Ensure secure connections.

## 4. Operating Instructions

1. **Power On:** Ensure no load is connected to the output terminals. Turn the power switch on the front panel to the 'ON' position. The digital displays will illuminate.
2. **Voltage Adjustment:**
    - Use the **COARSE V** knob to set the approximate desired voltage.
    - Use the **FINE V** knob for precise voltage adjustment.
3. **Current Limiting Adjustment:**

    - To set the current limit, short-circuit the output terminals (connect positive and negative terminals together using a test lead). The current display will show the current limit, and the 'C.C' (Constant Current) indicator will light up.
    - Use the **COARSE A** knob to set the approximate desired current limit.
    - Use the **FINE A** knob for precise current limit adjustment.
    - Remove the short circuit from the output terminals. The 'C.V' (Constant Voltage) indicator should light up, and the voltage display will return to the set voltage.
4. **Connecting Load:** Connect your device or circuit to the output terminals. Ensure the polarity is correct.
5. **Operation:** The power supply will operate in Constant Voltage (C.V) mode until the load current reaches the preset current limit. If the current limit is reached, the power supply will switch to Constant Current (C.C) mode, and the output voltage will drop to maintain the set current.
6. **Power Off:** Disconnect the load, then turn the power switch to the 'OFF' position.

## 5. Maintenance

- **Cleaning:** Regularly clean the exterior of the power supply with a soft, dry cloth. Do not use abrasive cleaners or solvents. Ensure the unit is powered off and unplugged before cleaning.
- **Ventilation:** Keep the ventilation openings clear of dust and debris to ensure proper airflow and prevent overheating. The internal fan operates based on temperature; it may not run continuously at lower temperatures.
- **Storage:** When not in use for extended periods, store the power supply in a cool, dry environment, away from direct sunlight and excessive humidity.
- **Inspection:** Periodically inspect the power cord and test leads for any signs of damage. Replace damaged components immediately.

## 6. Troubleshooting

- **No Power:**
    - Check if the power cord is securely connected to both the power supply and the mains outlet.
    - Ensure the power switch is in the 'ON' position.
    - Verify the input voltage selector switch on the rear panel is set correctly for your region.
    - Check the mains outlet for power by plugging in another device.
- **No Output Voltage/Current:**
    - Ensure the output terminals are properly connected to the load.
    - Check if the voltage and current knobs are adjusted to non-zero values.
    - If the 'C.C' indicator is lit and voltage is low, the current limit may be set too low for the load. Increase the current limit.
    - If the 'C.V' indicator is lit and current is zero, the load may be open-circuited or drawing very little current.
- **Unstable Output:**
    - Ensure all connections are secure and free from corrosion.
    - Verify the load is not drawing excessive current or causing oscillations.
    - Check for proper ventilation to prevent overheating.
- **Fan Not Running:**

- The fan is temperature-controlled and will only activate when the internal temperature reaches a certain threshold. This is normal operation.

## 7. Specifications


Figure 4: Side view of the power supply, illustrating its dimensions: 81mm (width), 165mm (height), and 220mm (length).

| Parameter | Specification |
|---|---|
| Input Voltage | AC 110V/220V ±15% (50/60Hz) |
| Output Voltage | 0 - 30V |
| Output Current | 0 - 5A |
| Voltage Resolution | 0.1V (KPS-305D), 0.01V (KPS-305DF) |
| Current Resolution | 0.01A (KPS-305D), 0.001A (KPS-305DF) |
| Power Effect (CV) | ≤1% + 10mV |

| Parameter | Specification |
|---|---|
| Effect of Load (CV) | ≤1% + 10mV |
| Ripple and Noise (Vp-p) | ≤1% |
| Voltage Display Precision | ±1% + 1 digit |
| Current Display Precision | ±1% + 2 digits |
| Net/Gross Weight | 2.0 KG (approx. 4.41 lbs) |
| Volume (Dimensions) | 81mm (W) x 165mm (H) x 220mm (L) |
| Working Humidity | <90% |
| Working Time | Long time operation |
| Model Number | 4000173914370 |

## 8. Warranty and Support

Specific warranty information is not provided in this manual. For warranty claims, technical support, or service inquiries, please contact your retailer or the manufacturer directly. Retain your purchase receipt as proof of purchase.