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CVXDD WPS3010

CVXDD Bench Power Supply WPS3010 User Manual

Model: WPS3010 (30V 10A / 60V 5A)

1. Introduction

This manual provides detailed instructions for the operation and maintenance of the CVXDD Bench Power Supply, model WPS3010. This miniature switching DC power supply offers precise control over output voltage and current, making it suitable for various laboratory, educational, and industrial applications.

The unit features a high-precision digital display for voltage, current, and power, allowing users to monitor operational parameters intuitively. Its design emphasizes stability, current limiting, and ease of use.

Key Features:

- Dual voltage input for versatile use.
- Programmable memory storage function for quick recall of settings.
- Continuously adjustable output voltage from 0 to rated voltage.
- Continuously adjustable output current from 0 to rated current.
- LED display for voltage, current, and power with high precision.
- Features voltage stabilization and current limiting capabilities.

2. Product Overview

Familiarize yourself with the components and controls of your bench power supply.

Figure 2.1: Front Panel Layout and Controls

Voltage Regulation Knob: Adjusts the output voltage.

Current Regulation Knob: Adjusts the output current limit.

Voltage Display: Shows the current output voltage in Volts (V).

Current Display: Shows the current output current in Amperes (A).

Power Display: Shows the current output power in Watts (W).

C.V. Indicator: Illuminates when the power supply is operating in Constant Voltage mode.

C.C. Indicator: Illuminates when the power supply is operating in Constant Current mode.

USB Fast Charge Interface: Provides a dedicated USB port for quick device charging.

M1, M2, M3 Buttons: Memory storage and recall buttons for preset voltage/current settings.

OCP (Overcurrent Protection) Switch: Activates or deactivates the overcurrent protection alarm.

Output Switch: Toggles the power output ON/OFF.

Power Switch: Main power ON/OFF for the unit.

Output Terminals: Red (+) for positive, Black (-) for negative, Green for ground.



Figure 2.2: Large Screen Display and USB Port

The power supply features a large, clear 4-digit LED display for precise readings of voltage, current, and power. A convenient USB port is integrated for fast charging compatible devices.



Figure 2.3: Product Dimensions and Weight

The compact design of the power supply measures approximately 190mm (width) x 90mm (depth) x 145mm (height) and weighs about 1.59 kg (4.41 pounds), making it suitable for various workspaces.

3. Specifications

Parameter	Value
Model	WPS3010
Output Power	300W (for 30V 10A model) / 300W (for 60V 5A model)
Output Voltage	0~30V / 0~60V (continuously adjustable)
Output Current	0~10A / 0~5A (continuously adjustable)
Working Environment Temperature	0-40°C
Working Environment Humidity	<80%RH (storage <70%RH)
Voltage Stability (CV)	0.1% ± 3mV
Load Stability (CV)	0.2% ± 3mV
Ripple Voltage (CV)	0.5%Vp-p
Current Stability (CC)	0.1% ± 3mA
Load Stability (CC)	0.2% ± 3mA
Ripple Current (CC)	0.5%Vp-p
Recovery Time	500μS
Temperature Coefficient	100ppm/°C

Parameter	Value
Display Type	LED Digital Display
Display Accuracy	0.5% ± digits
Display Resolution	Voltage 0.01V, Current 0.001A
Item Weight	4.41 pounds (approx. 1.59 kg)
Package Dimensions	11.81 x 7.87 x 5.91 inches
Country of Origin	China

4. Setup

4.1. Unpacking and Inspection

Carefully remove the power supply from its packaging. Inspect the unit for any signs of damage that may have occurred during transit. If any damage is found, contact your supplier immediately.



Figure 4.1: Package Contents

Ensure all components are present as listed in the package contents section.

4.2. Placement

Place the power supply on a stable, level surface with adequate ventilation. Ensure that the air vents on the sides and rear of the unit are not obstructed to prevent overheating.

4.3. Power Connection

1. Ensure the power switch on the front panel is in the OFF position.
2. Connect the provided power cord to the AC input socket on the rear of the power supply.
3. Plug the other end of the power cord into a grounded electrical outlet.

4.4. Connecting a Load

1. Ensure the power supply output is OFF (Output switch is disengaged).
2. Connect the positive (+) terminal of your load to the red output terminal on the power supply.
3. Connect the negative (-) terminal of your load to the black output terminal on the power supply.
4. For safety, connect the ground terminal (green) of the power supply to the ground of your circuit or device if required.

5. Operating Instructions

5.1. Basic Operation

1. Turn on the main power switch on the front panel. The display will illuminate.
2. **Setting Voltage:** Rotate the **Voltage Regulation** knob to set the desired output voltage. Observe the voltage display.
3. **Setting Current Limit:** Rotate the **Current Regulation** knob to set the desired maximum output current. This acts as a current limit to protect your circuit.
4. Once voltage and current limits are set, press the **Output Switch** to enable the power output. The output indicator will illuminate.
5. The display will show the actual voltage, current, and power being delivered to the load. The C.V. (Constant Voltage) or C.C. (Constant Current) indicator will light up depending on the operating mode.
6. To disable output, press the **Output Switch** again.

5.2. Constant Voltage (CV) and Constant Current (CC) Modes

The power supply automatically switches between Constant Voltage (CV) and Constant Current (CC) modes:

- **Constant Voltage (CV) Mode:** When the load resistance is high, the power supply maintains the set output voltage, and the output current is determined by the load. The C.V. indicator will be lit.
- **Constant Current (CC) Mode:** When the load resistance is low or the load demands more current than the set current limit, the power supply limits the output current to the set value, and the output voltage drops accordingly. The C.C. indicator will be lit. This protects both the power supply and the connected load.

5.3. Memory Storage Function (M1, M2, M3)

The power supply allows you to store and recall three sets of voltage and current settings.

1. **To Store Settings:**
    - Set the desired voltage and current using the respective knobs.
    - Press and hold the desired memory button (M1, M2, or M3) for approximately 3 seconds until the display flashes, indicating the settings have been saved.
2. **To Recall Settings:**
    - Simply press the desired memory button (M1, M2, or M3) briefly. The stored voltage and current settings will be loaded and displayed.

5.4. Overcurrent Protection (OCP)

The OCP function provides an additional layer of protection by alarming when the output current exceeds a preset limit. To activate or deactivate OCP, press the **OCP Switch** button.

5.5. USB Fast Charge Port

The integrated USB fast charge port can be used to charge compatible devices. This port operates independently of the main DC output and provides a standard USB charging voltage and current.

6. Maintenance

6.1. Cleaning

To clean the exterior of the power supply, use a soft, damp cloth. Do not use abrasive cleaners or solvents, as they may damage the casing or display. Ensure the unit is powered off and unplugged before cleaning.

6.2. Ventilation

Regularly check that the ventilation openings are clear of dust and debris to ensure proper airflow and prevent overheating. Do not block the vents during operation.

6.3. Storage

When not in use for extended periods, store the power supply in a cool, dry place, away from direct sunlight and excessive humidity. The recommended storage humidity is <70%RH.

7. Troubleshooting

Problem	Possible Cause	Solution
No power/display off	Power cord not connected; Main power switch off; Power outlet issue.	Check power cord connection; Ensure main power switch is ON; Test power outlet with another device.
No output voltage/current	Output switch is OFF; Current limit set too low; Load short circuit or open circuit.	Press the Output switch to ON; Increase current limit; Check load connections and integrity.
Unit enters CC mode unexpectedly	Load resistance is too low or current demand exceeds set limit.	Increase the current limit setting; Check load for short circuits; Ensure load is compatible with set current.
OCP alarm activates	Output current exceeds the OCP threshold.	Reduce load current; Increase current limit; Deactivate OCP if not needed (use with caution).
Inaccurate readings	Poor connection; Unit needs calibration (rare).	Ensure all connections are secure; If problem persists, contact customer support.

8. Package Contents

The standard package for the CVXDD Bench Power Supply WPS3010 includes:

- 1x CVXDD Bench Power Supply (WPS3010)
- 1x Power Cord
- 1x Test Line (leads)
- 1x Instruction Manual



Figure 8.1: Power Supply and Test Leads

The main unit and the essential test leads are included for immediate use.



Figure 8.2: Applicable Fields

This power supply is versatile and suitable for a wide range of applications, from educational settings to professional

repair and manufacturing environments.

9. Warranty and Support

For warranty information and technical support, please refer to the contact details provided with your purchase documentation or visit the official CVXDD website. Keep your purchase receipt as proof of purchase for warranty claims.

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Item Model Number: 175497230

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