

## Voltcraft VC-12840980

# VOLTcraft ESP-3010 Laboratory Power Supply

USER MANUAL - MODEL: VC-12840980

## 1. Introduction

This manual provides essential information for the safe and efficient operation of your VOLTcraft ESP-3010 Laboratory Power Supply. The ESP-3010 is a high-precision, adjustable DC power supply designed for various electronic applications, offering stable output voltage from 0 to 30V and current from 0 to 10A, with a maximum power output of 300W. Please read this manual thoroughly before using the device to ensure proper functionality and to prevent damage or injury.



Figure 1: Front view of the VOLTcraft ESP-3010 Laboratory Power Supply.

## 2. Safety Instructions

Always adhere to the following safety precautions to prevent electric shock, fire, or damage to the device:

- Ensure the power supply is connected to a grounded outlet with the correct voltage (AC 230V).
- Do not operate the device in wet or damp conditions.
- Do not open the casing; there are no user-serviceable parts inside. Refer all servicing to qualified personnel.
- Avoid short-circuiting the output terminals.
- Ensure proper ventilation; do not block the ventilation openings.
- Disconnect the power cord before cleaning or moving the unit.
- Use only the specified fuse type (F5A250VAC).

## 3. Product Overview

### 3.1 Front Panel



Figure 2: Detailed view of the front panel.

- **Digital Display:** Shows real-time output voltage (V) and current (A).
- **Voltage Adjustment Knobs (VOLT):**
  - *Coarse:* For large adjustments of output voltage.
  - *Fine:* For precise adjustments of output voltage.
- **Current Adjustment Knobs (CURR):**
  - *Coarse:* For large adjustments of output current limit.

- *Fine*: For precise adjustments of output current limit.
- **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.
- **Power Switch**: Toggles the unit on/off.
- **Output Terminals**: Standard 4mm banana plug sockets for positive (red), negative (black), and ground (green/yellow) connections.

### 3.2 Rear Panel



Figure 3: Detailed view of the rear panel.

- **Cooling Fan:** Provides necessary airflow to dissipate heat.
- **AC Power Input:** IEC C14 connector for the power cord.
- **Fuse Holder:** Contains the main protective fuse (F5A250VAC).

## 4. Setup

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1. **Unpacking:** Carefully remove the power supply from its packaging. Inspect for any signs of damage during transit. Retain the packaging for future transport or storage.
2. **Placement:** Place the unit on a stable, level surface. Ensure there is adequate space around the unit (at least 10 cm on all sides) for proper ventilation, especially around the rear cooling fan. Avoid placing it near heat sources or in direct sunlight.
3. **Power Connection:** Connect the supplied AC power cord to the AC power input on the rear panel of the power supply and then to a grounded AC 230V wall outlet.
4. **Initial Check:** Before connecting any load, turn on the power supply using the front panel power switch. The digital display should illuminate, showing voltage and current readings.

## 5. Operating Instructions

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### 5.1 Powering On and Off

- To turn on, press the power switch on the front panel to the 'ON' (I) position.
- To turn off, press the power switch to the 'OFF' (O) position.

### 5.2 Adjusting Voltage and Current

1. **Setting Voltage:** Rotate the 'VOLT Coarse' knob to set the approximate desired voltage. Use the 'VOLT Fine' knob for precise adjustments. Observe the voltage reading on the digital display.
2. **Setting Current Limit:** Rotate the 'CURR Coarse' knob to set the approximate maximum current limit. Use the 'CURR Fine' knob for precise adjustments. This setting determines the maximum current the power supply will deliver before switching to Constant Current (C.C.) mode.
3. **Understanding CV/CC Modes:**
  - **Constant Voltage (C.V.):** When the load resistance is high enough that the current drawn is less than the set current limit, the power supply operates in C.V. mode, maintaining the set voltage. The C.V. indicator will be lit.
  - **Constant Current (C.C.):** When the load resistance is low, causing the current drawn to reach the set current limit, the power supply switches to C.C. mode. The output voltage will drop to maintain the set current. The C.C. indicator will be lit.

### 5.3 Connecting a Load

- Ensure the power supply is turned off before connecting any load.
- Connect the positive (+) terminal of your load to the red output terminal of the power supply.
- Connect the negative (-) terminal of your load to the black output terminal of the power supply.
- If your load requires grounding, connect its ground terminal to the green/yellow output terminal of the power supply.
- After connecting the load, turn on the power supply. Adjust voltage and current as required for your application.

## 6. 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 and cooling fan are free from dust and debris. Use compressed air to clear any blockages if necessary.
- **Fuse Replacement:** If the unit fails to power on, the fuse may need replacement. Disconnect the power cord, locate the fuse holder on the rear panel, and replace the fuse with one of the identical type and rating (F5A250VAC).
- **Storage:** When not in use for extended periods, store the power supply in a cool, dry place, away from direct sunlight and extreme temperatures.

## 7. Troubleshooting

Problem	Possible Cause	Solution
Unit does not power on.	No power from outlet; Power cord loose; Blown fuse.	Check wall outlet; Ensure power cord is securely connected; Replace fuse (F5A250VAC).
No output voltage/current.	Output terminals not connected; Voltage/current knobs set to zero; Unit in C.C. mode with low current limit.	Verify load connections; Adjust voltage and current knobs; Increase current limit or check load resistance.
Unit switches to C.C. mode unexpectedly.	Load drawing more current than set limit; Short circuit in load.	Increase current limit; Check load for short circuits or excessive current draw.
Overheating.	Blocked ventilation; Excessive load.	Ensure clear airflow around the unit; Reduce load or operating time.

## 8. Specifications

Feature	Specification
Model Number	VC-12840980
Output Voltage	0 - 30 V/DC (Adjustable)
Output Current	0 - 10 A (Adjustable)
Output Power	300 W
Input Voltage	AC 230V
Fuse Type	F5A250VAC
Product Dimensions (L x W x H)	8.9 x 3.23 x 5.43 inches (22.6 x 8.2 x 13.8 cm)
Item Weight	0.064 ounces (1.8 grams) - <i>Note: This weight appears to be incorrect in source data, typical weight for such device is much higher.</i>
Manufacturer	VOLTCRAFT



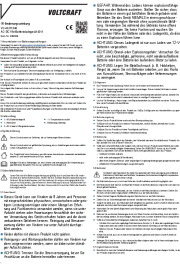


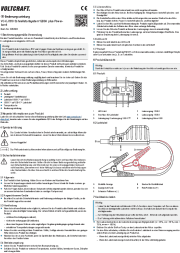
## 9. Warranty and Support

VOLTCRAFT products are designed and manufactured to the highest quality standards. For information regarding warranty coverage, technical support, or service, please refer to the warranty card included with your product or visit the official Voltcraft website. Keep your purchase receipt as proof of purchase.

For further assistance, you may contact Voltcraft customer support through their official channels. Please have your model number (VC-12840980) and serial number (if applicable) ready when contacting support.

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### Related Documents - VC-12840980

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	<p><a href="#">VOLTcraft Digital Multimeters VC-7060BT &amp; VC-7200BT User Manual</a></p> <p>Comprehensive user manual for VOLTcraft VC-7060BT and VC-7200BT digital multimeters, covering safety, operation, functions, measurement tutorials, troubleshooting, and technical specifications.</p>
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