RUZIZAO R-SPS-30V-30A

RUZIZAO R-SPS Series DC Power Supply (0-30V 0-30A) Instruction Manual

Model: R-SPS-30V-30A

1. Introduction

The RUZIZAO R-SPS Series DC Power Supply is a professional, high-precision, and stable regulated power source designed for various applications including laboratories, schools, electronic repair, electrolysis, electroplating, lamp testing, aging tests, DIY projects, scientific research, and teaching. It features a 4-digit LED display for precise voltage and current readings, continuous output adjustment, and multiple protection mechanisms.

2. Safety Information

- Always ensure the power supply is connected to a grounded outlet.
- Do not operate the device in wet or damp conditions.
- Ensure proper ventilation to prevent overheating. The intelligent cooling fan activates when the internal temperature exceeds 50°C (122°F).
- Verify correct polarity when connecting loads to avoid damage to the power supply or the connected device.
- For output currents exceeding 5A, always use the high-current connector located on the rear panel to prevent damage to the front panel terminals.
- The device is equipped with overcurrent, overvoltage, and short-circuit protection.

3. Product Overview

Front Panel Controls and Display

The front panel features a 4-digit LED display for Voltage (V), Current (A), and Power (W). It also includes knobs for adjusting voltage and current, an output enable/disable button, and output terminals.



Image: Front panel of the RUZIZAO DC Power Supply, highlighting the 4-digit LED displays for voltage, current, and power, along with the voltage and current adjustment knobs, output enable button, and output terminals (Output Positive (+), GND, Output Negative (-) MAX 5A).

Rear Panel

The rear panel includes the main power input, a cooling fan, and high-current output terminals for applications requiring more than 5A.

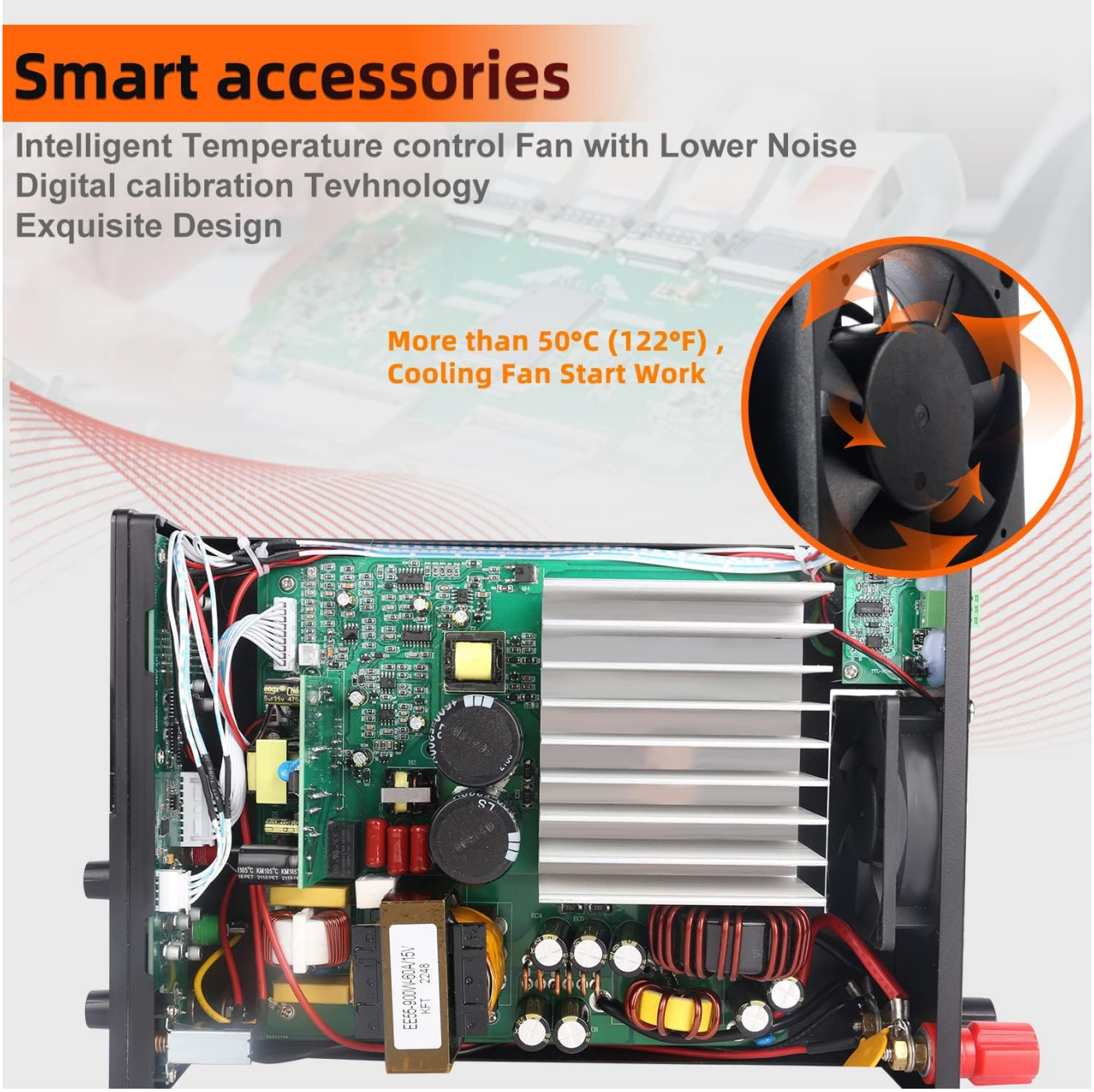


Image: Internal view of the RUZIZAO DC Power Supply, illustrating the intelligent temperature control fan and internal circuitry. The fan activates when the temperature exceeds 50°C (122°F) to ensure efficient heat dissipation.

4. Setup

4.1 Unboxing and Initial Inspection

Upon receiving your RUZIZAO DC Power Supply, carefully unpack all components. Verify that the package contains the power supply unit, power cord, and output cables. Inspect the unit for any visible damage during transit.

Video: This video demonstrates the unboxing process and initial setup of the R-SPS horizontal series DC power supply, showing the included accessories and how to connect the power cord.

4.2 Connecting Power

Connect the provided power cord to the AC input on the rear panel of the power supply and then to a suitable grounded power outlet (230V AC input).

4.3 Connecting Output Cables

Plug the output cables into the corresponding terminals on the front panel (red for positive, black for negative/GND). For currents above 5A, use the high-current terminals on the rear panel.



Image: The power supply connected to a digital multimeter and a circuit board, illustrating its high-resolution output capabilities (0.01V voltage and 0.001A current precision).

5. Operating Instructions

5.1 Power On/Off

Press the 'POWER' button on the front panel to turn the unit on or off. The LED display will illuminate upon power-on.

5.2 Adjusting Voltage and Current

Use the 'VOLTAGE' and 'CURRENT' adjustment knobs to set the desired output values. The 4-digit display provides precise readings. The unit operates in constant voltage (CV) or constant current (CC) mode, switching automatically as needed.

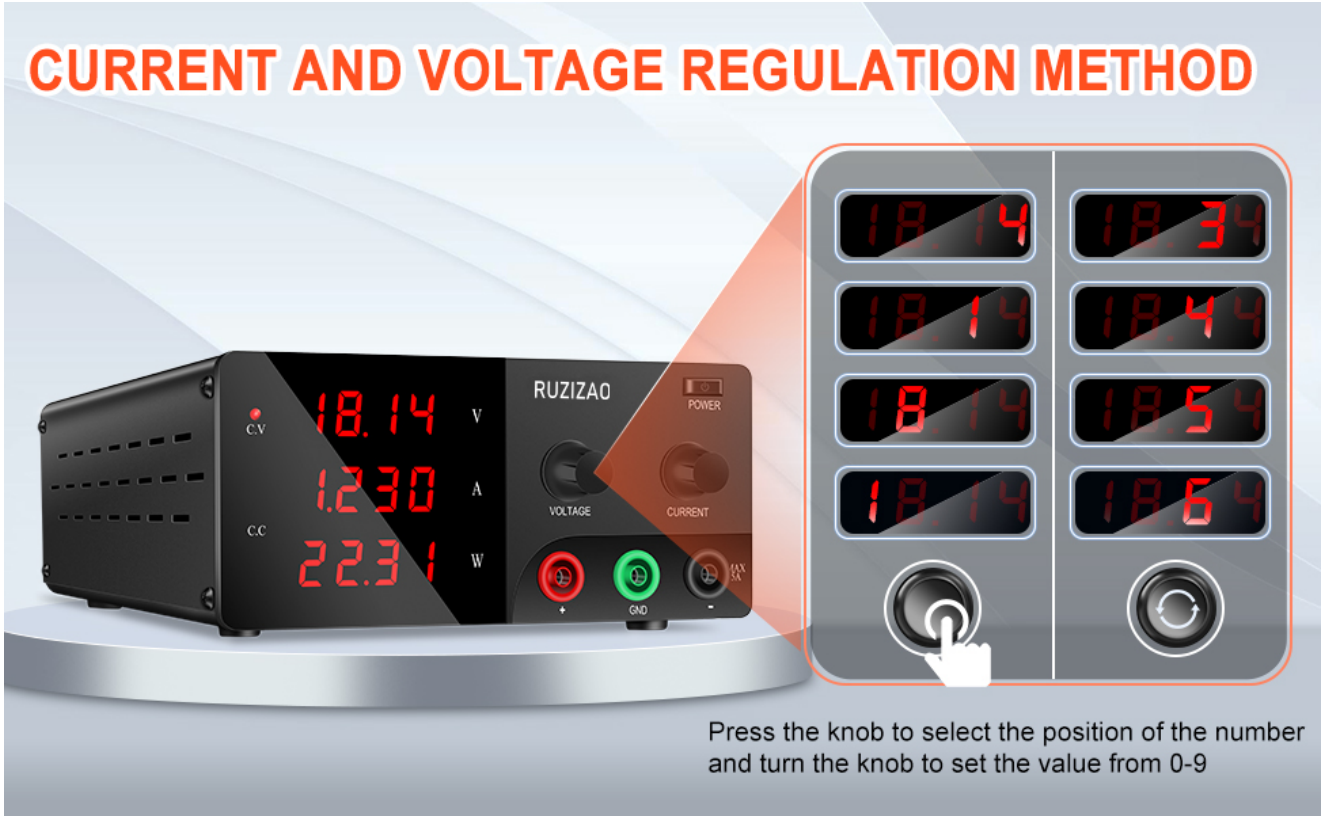


Image: This image illustrates the current and voltage regulation method. Press the knob to select the digit position, then turn the knob to set the value from 0-9 for precise adjustments.

5.3 Output Enable/Disable Button

The 'OUTPUT' button acts as a 2-in-1 function to preset current and voltage values. It also protects your loads and the power supply from damage due to accidentally setting high voltage or high current before connecting the load.



Image: Close-up of the green 'OUTPUT' enable/disable button, which provides a useful 2-in-1 function for presetting values and protecting connected loads.

5.4 Battery Charging Function

This power supply can be used to charge various battery types, including Lithium, LiFePO4, Lead-Acid, and Ni-MH batteries. Always set the current and voltage correctly before charging.

- **Charging Voltage Formula:** Charging Voltage = 1.2 * Battery Rated Voltage.
- **Charging Current Formula:** Charging Current = 1/3 of Battery Rated Current.
- When the charging current is ≤ 50mA, disconnect the battery promptly to prevent overcharging.



Image: The power supply connected to a LiFePO4 12V 12Ah battery, demonstrating its battery charging function. The display shows voltage, current, and power during the charging process.

Video: This video demonstrates how to charge lead-acid batteries using the DC power supply. It shows how to set the charging voltage (around 14V for a 12V battery) and current (e.g., 2A for a 12.2Ah battery). It also highlights the importance of disconnecting the battery when the current approaches zero to prevent overcharging.

5.5 High Current Output (Above 5A)

The front panel terminals are suitable for output currents up to 5A. For output currents exceeding 5A, connect your load to the dedicated high-current terminals located on the rear panel of the device. This ensures optimal performance and prevents damage to the front panel connections.

Video: This video demonstrates the power supply's variable voltage output by connecting it to a toy monkey. It shows how the toy's movement changes with increasing voltage (4.5V, 7V, 11V, 14.5V) and how the voltage can be adjusted up and down, illustrating the precise control of the power supply.

6. Maintenance

- Keep the power supply clean and free from dust. Use a soft, dry cloth for cleaning.

- Ensure the cooling fan vents are unobstructed to maintain proper airflow and prevent overheating.
- Store the device in a cool, dry environment when not in use.
- Avoid dropping or subjecting the unit to strong impacts.

7. Troubleshooting

Problem	Possible Cause	Solution
No power/display off	Power cord not connected, power switch off, power outlet fault.	Check power cord connection, ensure power switch is on, test power outlet.
No output voltage/current	Output button disabled, short circuit, overcurrent/overvoltage protection activated.	Press the 'OUTPUT' button to enable, check for short circuits in the load, reduce load or adjust settings.
Unstable output readings	Loose connections, faulty load, internal issue.	Check all cable connections, test with a different load, contact support if problem persists.
Overheating	Blocked ventilation, excessive load.	Ensure vents are clear, reduce load, operate in a well-ventilated area.

8. Specifications

Feature	Specification
Brand	RUZIZAO
Model Number	R-SPS-30V-30A
Input Voltage	230 Volts (AC)
Output Voltage Range	0-30V
Output Current Range	0-30A
Max Power	900 Watt
Display	4-Digit LED (Voltage, Current, Power)
Voltage Resolution	0.01 V
Current Resolution	0.001 A
Protection	Overcurrent, Overvoltage, Short-circuit
Cooling	Intelligent Temperature Control Fan
Certifications	CE, FCC
Dimensions	39 x 24 x 13 cm (approx.)
Weight	3 kg (approx.)

9. Warranty and Support

The RUZIZAO R-SPS Series DC Power Supply comes with a 12-month warranty. For any questions or technical assistance regarding your power supply, please contact customer support. We aim to respond to all inquiries within 24 hours.