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RUZIZAO R-SPS6010

RUZIZAO R-SPS6010 60V 10A Laboratory Power Supply User Manual

Model: R-SPS6010

1. Introduction

This manual provides essential information for the safe and efficient operation of your RUZIZAO R-SPS6010 Laboratory Power Supply. This device is designed to provide a stable and precise DC power output for various electronic applications, including laboratory experiments, electronic repairs, and DIY projects. Please read this manual thoroughly before use and keep it for future reference.

2. Safety Instructions

- Always connect the power supply to a grounded outlet.
- Do not operate the device in wet or damp conditions.
- Ensure proper ventilation to prevent overheating. Do not block the cooling fan or vents.
- Avoid touching live terminals. Always disconnect power before making or changing connections.
- Do not attempt to repair or modify the unit. Refer all servicing to qualified personnel.
- Verify voltage and current settings before connecting to a load to prevent damage to the device or the connected circuit.

3. Product Overview

The RUZIZAO R-SPS6010 is a compact and robust laboratory power supply. It features a clear digital display and intuitive controls for precise adjustments.

3.1 Front Panel

The front panel includes the main display, control knobs, and output terminals.



Figure 1: Front Panel Layout

- **Voltage Display (V):** Shows the output voltage in Volts.
- **Current Display (A):** Shows the output current in Amperes.
- **Power Display (W):** Shows the output power in Watts.
- **Voltage Knob:** Adjusts the output voltage.
- **Current Knob:** Adjusts the output current limit.
- **Output Button:** Enables or disables the power output. A green indicator light shows when output is enabled.
- **Output Terminals (+, GND, -):** Connect your load here. The 'MAX 5A' terminal is for lower current applications, while the main red and black terminals are for higher currents.

3.2 Rear Panel

The rear panel houses the power input and cooling fan.



Figure 2: Rear Panel with Cooling Fan

- **Power Input Socket:** For connecting the AC power cord.
- **Cooling Fan:** Automatically activates when the internal temperature exceeds 50°C to dissipate heat.

4. Setup and Connection

1. **Unpacking:** Carefully remove the power supply and all accessories from the packaging. Ensure all components listed in the packing list are present.
2. **Power Connection:** Connect the provided AC power cord to the power input socket on the rear panel and then to a grounded wall outlet.
3. **Output Connection:** Connect your load to the output terminals on the front panel using appropriate cables. Ensure correct polarity (red for positive, black for negative/ground). For currents above 5A, use the larger terminals at the back if available, or ensure the front terminals are rated for the intended current.



Figure 3: Example Connection for Battery Charging

5. Operation

5.1 Power On/Off

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

5.2 Setting Voltage and Current

The R-SPS6010 features upgraded encoder knobs for precise digital adjustment.

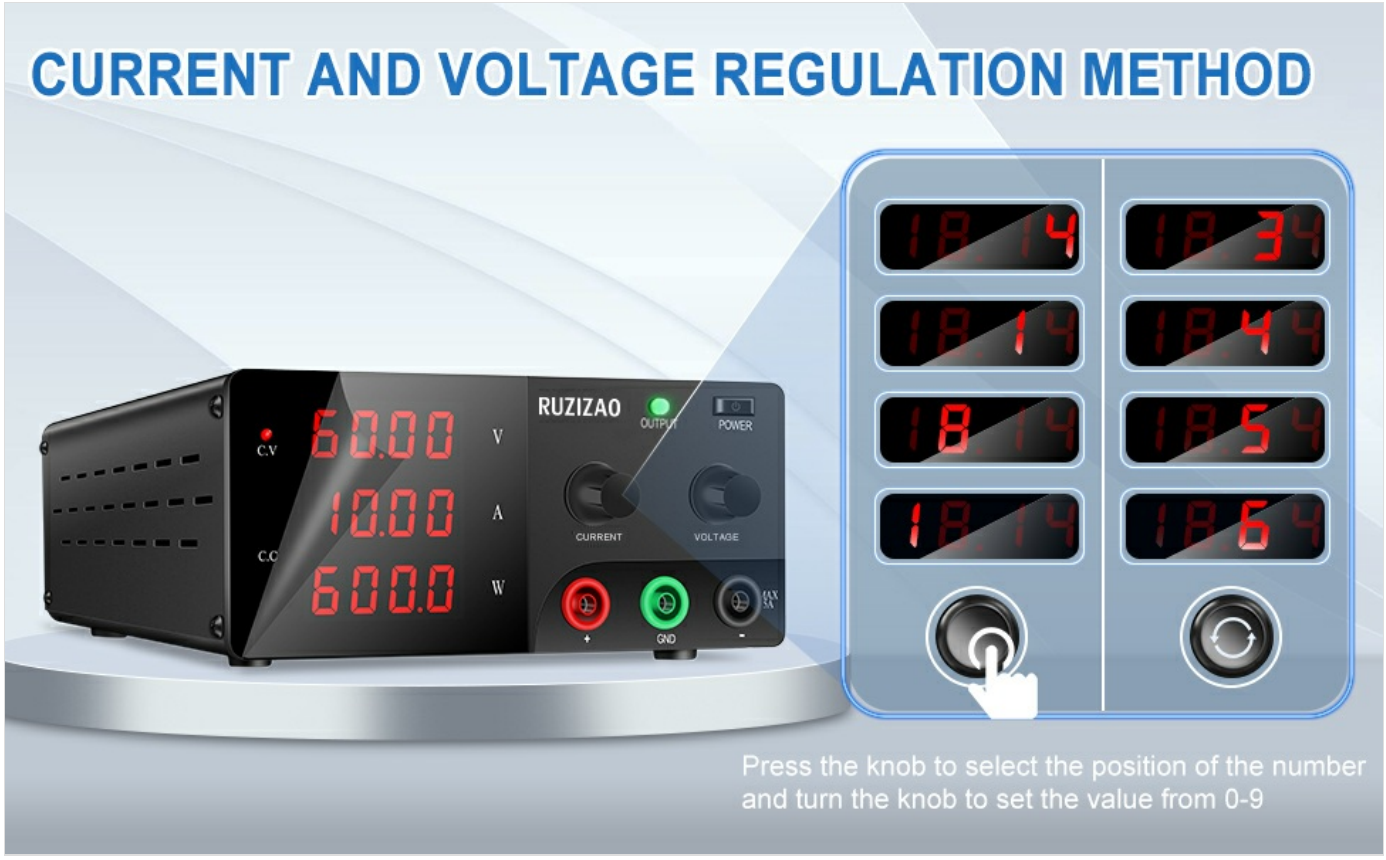


Figure 4: Encoder Knob Adjustment

1. **Adjusting Voltage:** Rotate the **VOLTAGE** knob to set the desired output voltage. Press the knob to select a specific digit (0-9) for fine adjustment.
2. **Adjusting Current Limit:** Rotate the **CURRENT** knob to set the maximum output current. Press the knob to select a specific digit for fine adjustment. This acts as a current limit to protect your load.

5.3 Output Enable/Disable

The **OUTPUT** button controls the power delivery to the terminals. Press it to toggle the output on or off. A green indicator light will show when the output is active.



Figure 5: Output Enable/Disable Switch

5.4 Constant Voltage (CV) and Constant Current (CC) Modes

The power supply automatically switches between Constant Voltage (CV) and Constant Current (CC) modes depending on the load. The corresponding indicator (C.V or C.C) on the display will light up.

- **Constant Voltage (CV):** When the load resistance is high, the output voltage remains constant at the set value, and the output current is determined by the load.
- **Constant Current (CC):** When the load resistance is low, the output current remains constant at the set limit, and the output voltage is determined by the load.

5.5 Application Examples

The R-SPS6010 is suitable for a wide range of applications:



Figure 6: Wide Applications

5.5.1 Battery Charging

This power supply can be used to charge various battery types, including LiFePO4, Lithium Iron, and Ni-MH batteries. Always set the correct charging voltage and current according to the battery specifications.

Your browser does not support the video tag.

Video 1: Demonstration of charging lead-acid batteries with a DC power supply. This video illustrates how to set the charging voltage and current, and how the current gradually decreases as the battery charges.

5.5.2 Voltage Output Demonstration

Observe the power supply's response to varying voltage demands, demonstrating its stable and adjustable output.

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Video 2: A demonstration of how a children's toy reacts to different voltage levels (4.5V, 7V, 11V, 14.5V) from the power supply, and how the toy's movement changes with voltage adjustments. This illustrates the power supply's variable output capabilities.

6. Maintenance

- Keep the unit clean and free from dust. Use a soft, dry cloth for cleaning.
- Ensure the ventilation openings are clear of obstructions.
- Store the power supply in a dry, well-ventilated area when not in use.

7. Troubleshooting

- **No Power:** Check the power cord connection and the wall outlet. Ensure the power switch is in the 'ON' position.
- **No Output Voltage/Current:** Ensure the **OUTPUT** button is pressed and the green indicator is lit. Check your connections to the load.
- **Overload Protection:** If the unit enters constant current (CC) mode unexpectedly, it may indicate an overload or short circuit in your connected load. Reduce the load or increase the current limit if appropriate.
- **Overheating:** If the cooling fan runs continuously or the unit feels excessively hot, ensure proper ventilation and that the fan is not obstructed.

8. Specifications

Feature	Specification
Model	R-SPS6010
Input Voltage	AC 230V ±10%
Output Voltage	0-60V
Output Current	0-10A
Max Power	600 Watts
Display	4-digit LED
Dimensions (L x W x H)	26.5 x 18.5 x 8 cm
Weight	3 Kilograms

Feature	Specification
Material	Metal
Certifications	CE, FCC

9. Warranty and Support

For warranty information and technical support, please refer to the documentation provided with your purchase or contact RUZIZAO customer service. Keep your purchase receipt as proof of purchase.

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