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RUZIZAO SPPS-C3010

RUZIZAO SPPS-C3010 Variable DC Power Supply

User Manual - 30V 10A 300W

1. Safety Instructions

Please read all safety instructions carefully before operating the RUZIZAO SPPS-C3010 DC Power Supply. Failure to follow these instructions may result in electric shock, fire, or damage to the device or connected equipment.

- **Power Source:** Ensure the input voltage matches the specifications (AC 100V±10%, 50-60Hz).
- **Grounding:** Always connect the power supply to a grounded outlet to prevent electric shock.
- **Ventilation:** Do not block the ventilation openings. Ensure adequate airflow around the unit to prevent overheating. The smart cooling fan activates when the internal temperature exceeds 50°C (122°F).
- **Environment:** Operate the device in a dry, well-ventilated area. Avoid exposure to moisture, dust, direct sunlight, and extreme temperatures.
- **Output Connections:** Ensure all output connections are secure before turning on the output. Do not short-circuit the output terminals for extended periods.
- **Overload Protection:** The unit features Over Voltage Protection (OVP), Over Current Protection (OCP), Over Power Protection (OPP), Over Temperature Protection (OTP), and Short Circuit Protection (SCP). However, always operate within the specified voltage and current limits of your load.
- **Maintenance:** Do not attempt to open or repair the unit yourself. Refer all servicing to qualified personnel.
- **Children:** Keep the device out of reach of children.

2. Product Overview

The RUZIZAO SPPS-C3010 is a high-precision, low-ripple variable DC power supply designed for laboratories, electronics repair, DIY projects, and battery charging. It features a 4-digit LED display for voltage, current, and power, along with encoder knobs for precise adjustment.



Figure 2.1: Front Panel Layout

This image displays the front panel of the RUZIZAO SPPS-C3010 DC Power Supply. Key components labeled include the Voltage Display (30.00V), Current Display (10.00A), Power Display (300.0W), C.V./C.C. Indicators, Power Button, USB Charging Port (5V/2A), Output Negative (-), GND, Output Positive (+), Encoder Knob Voltage Knob, Encoder Knob Current Knob, and Output Switch Button.

2.1. Front Panel Components

- **Voltage Display:** Shows the output voltage in Volts (V).
- **Current Display:** Shows the output current in Amperes (A).
- **Power Display:** Shows the output power in Watts (W).
- **C.V. / C.C. Indicators:** LEDs indicating Constant Voltage (C.V.) or Constant Current (C.C.) operating mode. The unit automatically switches between these modes.
- **POWER Button:** Main power switch for the unit.
- **USB Charging Port (5V/2A):** Provides 5V/2A output for charging mobile phones, tablets, and other USB-powered devices.
- **Output Terminals:** Red (+) for positive, Black (-) for negative, and Green (GND) for ground connection.

- **Voltage Encoder Knob:** Used to adjust the output voltage. Press to select the digit to adjust, rotate to change the value.
- **Current Encoder Knob:** Used to adjust the output current limit. Press to select the digit to adjust, rotate to change the value.
- **Output Switch Button:** Toggles the power output ON or OFF. This allows for pre-setting voltage and current before applying power to the load.

2.2. Rear Panel Components

- **AC Power Input:** Connector for the AC power cord.
- **Cooling Fan:** Automatically activates when the internal temperature reaches 50°C (122°F) to dissipate heat and extend device lifespan.

3. Setup

1. **Unpacking:** Carefully remove the power supply and all accessories from the packaging. Verify that all items are present: 1x DC Power Supply, 1x Input Power Cable, 1x Low Output Load Line, 1x User Manual.
2. **Placement:** Place the power supply on a stable, level surface with adequate ventilation. Ensure there is at least 10cm (4 inches) of clear space around all sides, especially the rear cooling fan.
3. **Power Connection:** Connect the provided AC power cable to the AC input on the rear panel of the power supply and then plug it into a grounded AC outlet (100V±10%, 50-60Hz).
4. **Initial Power On:** Press the POWER button on the front panel. The LED display should illuminate.

4. Operating Instructions

4.1. Adjusting Voltage and Current

1. **Power On:** Ensure the power supply is turned on using the front panel POWER button.
2. **Disable Output:** Press the OUTPUT switch button to ensure the output is OFF (the button will not be lit green). This allows you to set voltage and current safely before connecting to a load.
3. **Set Voltage:** Rotate the **Voltage Encoder Knob** to adjust the desired voltage. Press the knob to select which digit you want to adjust (the selected digit will blink). Rotate the knob to change the value of the blinking digit. Repeat for all digits until the desired voltage is set.
4. **Set Current Limit:** Rotate the **Current Encoder Knob** to set the maximum current limit. Press the knob to select the digit, then rotate to change its value. This sets the point at which the power supply will switch to Constant Current (C.C.) mode to protect your load.
5. **Connect Load:** Connect your device or circuit to the output terminals (Red for positive, Black for negative, Green for ground if needed). Ensure connections are secure.
6. **Enable Output:** Press the OUTPUT switch button. The button will illuminate green, and power will be supplied to your load. The display will show the actual voltage and current being drawn.

4.2. Output Switch Function



Figure 4.1: Output Switch Button

This image highlights the green OUTPUT switch button on the front panel. This button allows users to enable or disable the power output, preventing unexpected damage to connected loads due to sudden voltage or current changes during setup.

The OUTPUT switch button provides a safe way to manage power delivery. You can pre-set your desired voltage and current limits while the output is OFF. Once your load is connected and verified, press the OUTPUT button to apply power. This helps prevent accidental overvoltage or overcurrent to sensitive components during connection.

4.3. USB Charging Port



Figure 4.2: USB Quick Charging Port

This image shows the RUZIZAO DC Power Supply with a smartphone and a tablet connected to its front 5V/2A USB-A port for charging. This port provides convenient 10W quick charging for various mobile devices.

The 5V/2A USB-A port on the front panel can be used to charge compatible USB devices such as smartphones, tablets, and other small electronics. Simply connect your device's USB charging cable to this port. This port operates independently of the main DC output.

5. Maintenance

5.1. Cleaning

- Always disconnect the power supply from the AC outlet before cleaning.
- Use a soft, dry cloth to wipe the exterior of the unit.
- Do not use abrasive cleaners, solvents, or harsh chemicals, as these may damage the casing or display.
- Ensure no liquids enter the device.

5.2. Cooling Fan



Figure 5.1: Smart Cooling Fan

This image illustrates the smart cooling fan located on the rear of the RUZIZAO DC Power Supply. The fan automatically activates when the operating temperature exceeds 50°C (122°F), ensuring efficient heat dissipation and prolonging the lifespan of the device.

The power supply is equipped with an intelligent cooling fan that automatically turns on when the internal operating temperature exceeds 50°C (122°F). This ensures optimal performance and extends the lifespan of the unit.

- Ensure the rear fan vent is not obstructed during operation.
- Periodically check the fan area for dust accumulation. If necessary, gently clean with compressed air (while the unit is unplugged) to maintain efficient cooling.

6. Troubleshooting

Problem	Possible Cause	Solution

Problem	Possible Cause	Solution
No power when turned on	Power cable not connected; Power outlet faulty; Internal fuse blown	Check power cable connection; Test power outlet; Contact support for fuse replacement.
No output voltage/current	Output switch is OFF; Output terminals not connected properly; Overload protection activated	Press OUTPUT switch button (should light green); Check connections; Reduce load or adjust current limit.
Unit overheats, fan runs constantly	Poor ventilation; Prolonged high load operation; Dust in fan/vents	Ensure adequate space around unit; Reduce load if possible; Clean fan and vents.
Voltage/Current display is unstable	Loose connections; External interference; Faulty load	Check all connections; Operate away from strong electromagnetic fields; Test with a different load.
USB port not charging	USB cable faulty; Device not compatible; Power supply not on	Try a different USB cable; Ensure device is compatible with 5V/2A; Turn on power supply.

7. Specifications

Parameter	Value
Model	SPPS-C3010
Input Voltage	AC 100V±10%, 50-60Hz
Output Voltage	0-30V DC
Output Current	0-10A DC
Output Power	300W
Voltage Display Accuracy	0.01V
Current Display Accuracy	0.001A
Load Regulation (CV)	≤0.1% + 5mV
Load Regulation (CC)	≤0.1% + 5mA
Ripple and Noise (CV)	≤20mVrms
Ripple and Noise (CC)	≤5mArms
USB Output	5V/2A
Protections	OVP, OCP, OPP, OTP, SCP
Dimensions	21.5 x 8.5 x 15 cm (approx.)
Weight	1.8 kg (approx.)
Certifications	CE, FCC

8. Warranty and Support

The RUZIZAO SPPS-C3010 DC Power Supply comes with a**12-month warranty** from the date of purchase. This warranty covers manufacturing defects and malfunctions under normal use.
For technical support, troubleshooting assistance, or warranty claims, please contact RUZIZAO customer service. We offer **24-hour technical support** to ensure your satisfaction.
Please have your purchase details and model number (SPPS-C3010) ready when contacting support.

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