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SKY TOPPOWER STP3005

User Manual for SKY TOPPOWER STP3005 DC Power Supply

Adjustable 30V 5A Lab Bench Power Supply with 3-Digit Display

1. INTRODUCTION

Thank you for choosing the SKY TOPPOWER STP3005 DC Power Supply. This adjustable lab bench power supply is designed for various applications including circuit testing, electrolysis, DIY electronics projects, battery charging, repairing, and research. It offers high accuracy with 0.1V (100mV) and 0.01A (10mA) regulation, a 3-digit LED display, and multiple protection features to ensure safe and reliable operation.



Figure 1.1: Front view of the SKY TOPPOWER STP3005 DC Power Supply.

Safety Precautions

- Always connect the grounding wire to a proper ground source to prevent electric shock.
- Ensure the power supply is turned off before connecting or disconnecting any leads or loads.
- Do not operate the device in wet or damp conditions.
- Avoid short-circuiting the output terminals for extended periods, although the unit has short-circuit protection.
- Ensure proper ventilation around the unit to prevent overheating.

2. SETUP

2.1 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. Verify that all accessories, including the power cord and alligator clip leads, are present.

2.2 Placement

Place the power supply on a stable, flat surface. Ensure there is adequate space around the unit for proper ventilation. The compact design (approximately 8.89(D)x3.3(W)x5.5(H) inches and 2.75 lbs) allows it to save valuable workbench space.



Figure 2.1: The compact and lightweight design of the power supply.

2.3 Power Connection

Connect the provided power cord to the AC input on the rear of the power supply and then to a grounded electrical outlet. Ensure the power switch on the front panel is in the OFF position before plugging in.

3. OPERATING INSTRUCTIONS

3.1 Front Panel Overview

HOW TO CHARGE BATTERY



- I . Set the charging voltage higher than the present battery voltage
- II . Keep the power supply is on
- III . Connect the unit to the battery
- IV . Start charging

Figure 3.1: Detailed view of the front panel controls and indicators.

- **Voltage Display:** Shows the output voltage in Volts (V).
- **Current Display:** Shows the output current in Amperes (A).
- **C.V. Indicator Light:** Illuminates when the unit is operating in Constant Voltage mode.
- **C.C. Indicator Light:** Illuminates when the unit is operating in Constant Current mode.
- **Output Voltage Coarse/Fine Knobs:** Adjust the output voltage. Use Coarse for large changes, Fine for precise adjustments.
- **Output Current Coarse/Fine Knobs:** Adjust the output current limit. Use Coarse for large changes, Fine for precise adjustments.
- **Power Switch:** Turns the unit ON/OFF.
- **Output Terminals:** Black (-) for negative, Green (GND) for ground, Red (+) for positive.

WIDE APPLICATIONS

Applies for laboratory, school, repair, electroplate, brush plating, lamp test, aging testing, battery charge, home DIY and other requirements.



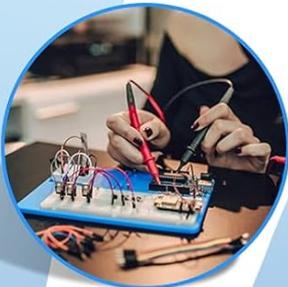
Teaching



Repair



Laboratory



Personal DIY



Figure 3.2: Close-up view of the voltage/current adjustment knobs and output terminals.

3.2 Presetting Voltage and Current

It is recommended to preset the desired voltage and current before connecting your load to prevent damage. The unit features a constant voltage and constant current mode that automatically switches based on the load.

1. Presetting Voltage:

- Ensure no load is connected to the output terminals.
- Turn on the power supply using the power switch.
- Adjust the **Output Voltage Coarse** and **Fine** knobs until the desired voltage is displayed. The C.V. indicator light should be on.

2. Presetting Current (Short-Circuit Method):

- After presetting the voltage, turn off the power supply.
- Connect the positive (+) and negative (-) output terminals together using a shorting wire or the provided

alligator clip leads (ensure the leads are rated for the maximum current).

- Turn on the power supply. The C.C. indicator light should illuminate, and the voltage display will drop to near zero.
- Adjust the **Output Current Coarse** and **Fine** knobs until the desired current limit is displayed.
- Turn off the power supply and remove the shorting wire. The unit is now ready to connect to your load with the preset voltage and current limit.

Your browser does not support the video tag.

Video 3.1: Demonstration of presetting voltage and current, and connecting a load.

This video illustrates the process of setting the desired voltage and current limits on the power supply. It also shows how to connect a load and observe the unit operating in constant voltage and constant current modes.

3.3 Connecting the Load

With the power supply off and voltage/current preset:

1. Connect the positive (+) lead from the power supply to the positive terminal of your load.
2. Connect the negative (-) lead from the power supply to the negative terminal of your load.
3. If required, connect the ground (GND) terminal to the chassis or ground of your circuit.
4. Turn on the power supply. The display will show the actual voltage and current being supplied to the load.



Figure 3.3: The power supply demonstrating high accuracy in voltage output, compared with a multimeter reading.

COMPACT DESIGN

Save Your Workbench Room



Figure 3.4: The power supply in a laboratory environment, connected to test equipment.

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

The STP3005 automatically switches between Constant Voltage (CV) and Constant Current (CC) modes depending on the load conditions:

- **Constant Voltage (CV) Mode:** When the load current is less than the preset current limit, the unit operates as a constant voltage source. The output voltage remains stable at the preset value, and the C.V. indicator light is on.
- **Constant Current (CC) Mode:** If the load current attempts to exceed the preset current limit, the unit automatically switches to constant current mode. The output current is maintained at the preset limit, the voltage drops to protect the load, and the C.C. indicator light is on.

3.5 Applications

This power supply is suitable for a wide range of applications:

- Laboratory experiments and research

- Electronic equipment maintenance and repair
- Product line testing
- Battery charging (e.g., lead-acid batteries, LiFePO4 batteries)
- Anodizing processes
- DIY electronics projects
- Educational purposes in schools and universities

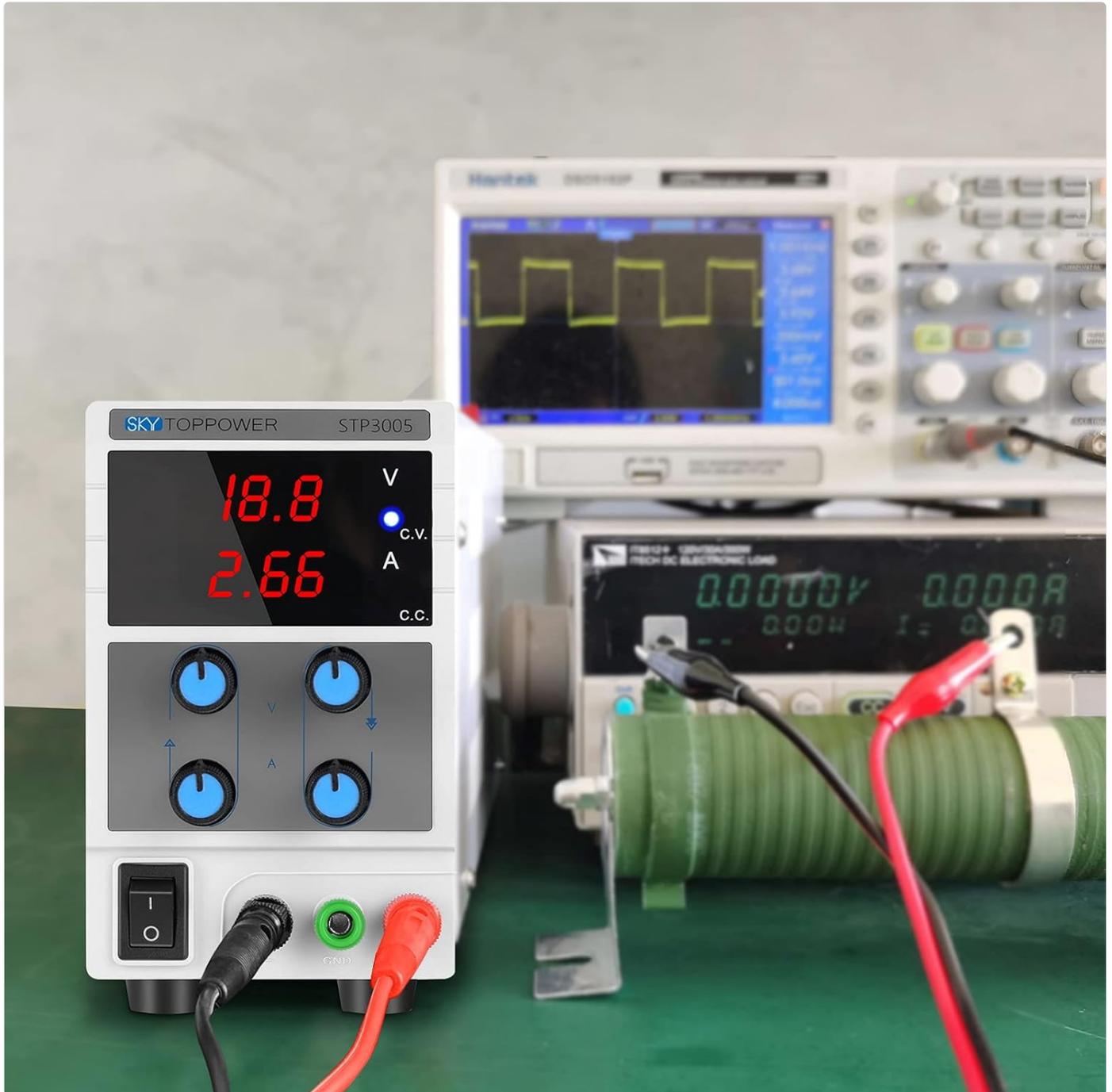


Figure 3.5: Instructions for battery charging using the power supply.



Figure 3.6: Wide range of applications for the DC power supply.

4. MAINTENANCE

4.1 Cleaning

To clean the exterior of the unit, use a soft, damp cloth. Do not use abrasive cleaners or solvents. Ensure the unit is unplugged and turned off before cleaning.

4.2 Ventilation

The power supply has a built-in fan to reduce operational noise and prolong product life. Ensure that the ventilation openings on the sides and rear of the unit are not obstructed. Regular inspection for dust buildup in these areas is recommended.

4.3 Storage

When not in use for extended periods, store the power supply in a cool, dry place, away from direct sunlight and

excessive dust.

5. TROUBLESHOOTING

This section provides solutions to common issues you might encounter. For problems not listed here, please contact customer support.

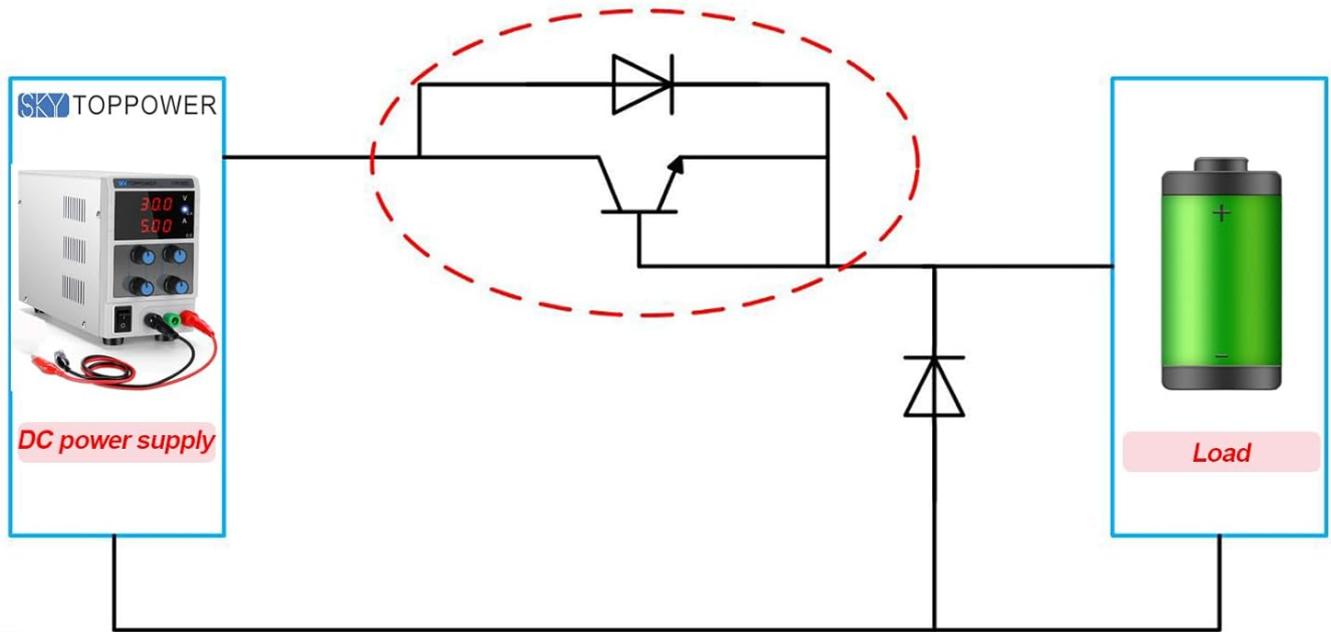
Problem	Possible Cause	Solution
No power/Display off	Power cord not connected; Power switch off; Blown fuse.	Check power cord connection; Turn on power switch; Check and replace fuse if necessary (refer to specifications for fuse type).
No output voltage/current	Output terminals not connected; Voltage/current knobs set to zero; Unit in protection mode.	Ensure leads are properly connected; Adjust voltage/current knobs; Check for short circuits or overloads on the load.
Voltage drops significantly under load	Unit is in Constant Current (CC) mode; Load resistance too low for preset current.	Increase the preset current limit; Verify the load's current requirements.
Unit overheats	Poor ventilation; Excessive load for extended periods.	Ensure ventilation openings are clear; Reduce load or operating time; Allow unit to cool down.

Protection Features

The SKY TOPPOWER STP3005 includes multiple protection mechanisms:

- **Thermal Protection:** Automatically shuts down if internal temperature exceeds safe limits.
- **Limit Current Protection:** Prevents current from exceeding the preset limit, protecting both the power supply and the load.
- **Voltage Overload Protection:** Safeguards against excessive voltage conditions.
- **Short-Circuit Protection:** Protects the unit from damage in case of a short circuit at the output.
- **Anti-Reverse Connection Protection:** Unique function to protect the equipment and power supply from reverse polarity connections.

Anti-Reverse Connection Protection



WHY CHOOSE US?

Item	SKY TOPPOWER Power Supplies	Other Brand Power Supplies
Anti-Reverse Connection Protection	YES	NO

✓ Safer To Use

✓ Protection Of The Load

✓ Protection Of The Power Supply

✓ Increased Safety And Reliability Of Equipment

Figure 5.1: Illustration of the anti-reverse connection protection feature.

6. SPECIFICATIONS

Feature	Detail
Model Number	STP3005
Brand	SKY TOPPOWER
Output Voltage	0-30V (Adjustable)
Output Current	0-5A (Adjustable)
Display Type	3-Digit LED Digital Display
Voltage Accuracy	0.1V (100mV)

Feature	Detail
Current Accuracy	0.01A (10mA)
Dimensions (D x W x H)	8.89 x 3.3 x 5.5 inches (approx.)
Item Weight	2.75 lbs (1.3 Kilograms)
Connector Type	Barrel Connector
Country of Origin	China
First Available Date	August 10, 2018

7. WARRANTY AND SUPPORT

SKY TOPPOWER is committed to providing high-quality products and excellent customer service. While specific warranty terms may vary by region or retailer, we offer professional technical support services.

For any questions regarding the use, maintenance, or troubleshooting of your STP3005 DC Power Supply, please do not hesitate to contact the SKY TOPPOWER Team. Our customer service is available 24/7 to assist you.

Please refer to your purchase documentation or the official SKY TOPPOWER website for the most up-to-date contact information and warranty details.