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› SKY TOPPOWER PS305H 30V 5A DC Power Supply User Manual

## SKY TOPPOWER PS305H

# SKY TOPPOWER PS305H 30V 5A DC Power Supply User Manual

Model: PS305H

## 1. INTRODUCTION

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The SKY TOPPOWER PS305H is a professional, adjustable, regulated DC power supply designed for various applications including laboratory testing, electronic maintenance, product development, and battery charging. It features a high-precision 4-digit backlit LED display for accurate voltage and current readings.

This device offers both Constant Voltage (CV) and Constant Current (CC) modes, automatically switching based on load conditions. Its compact and lightweight design makes it suitable for various work environments.

## 2. SAFETY INFORMATION

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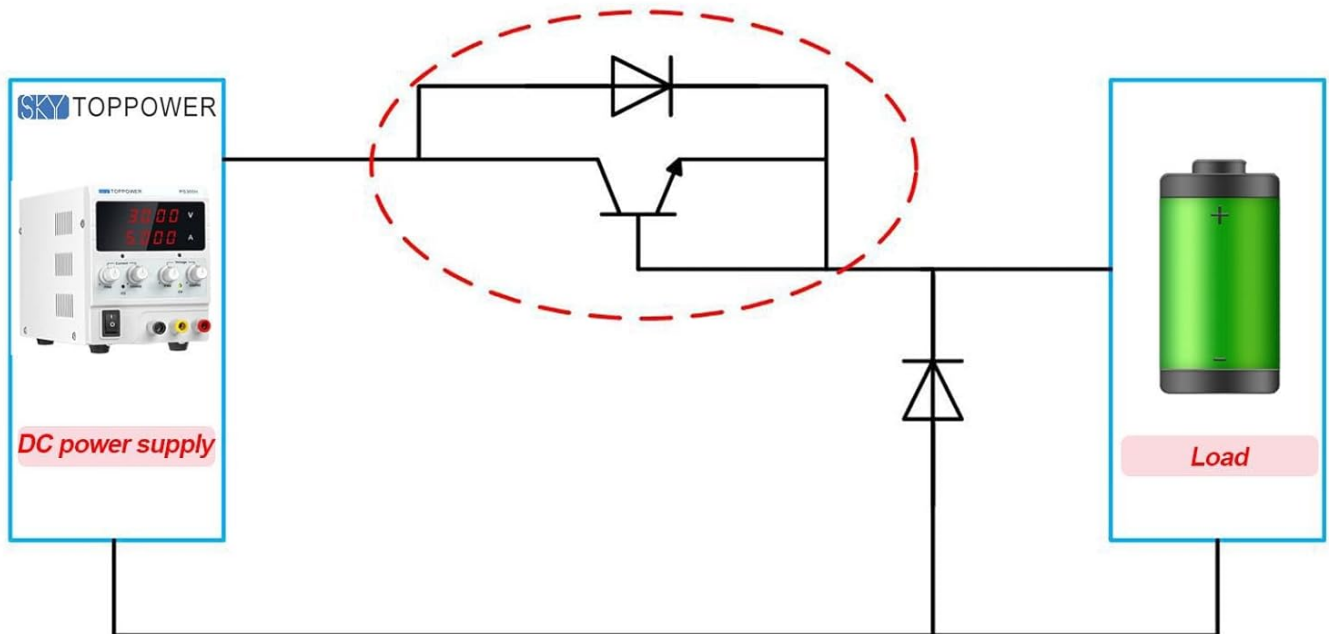
**Please follow these tips below when operating this unit:**

- This device is intended for indoor use only.
- Do not open or repair the device. Unauthorized repairs will void the warranty.
- Keep the device away from heat or water.
- Keep the device and all loose parts out of reach of children, pets, and unauthorized persons.
- Don't damage, bend, cut, stretch, knot, or step on the power cord.
- Disconnect by pulling on the power cord, rather than the plug.

### Anti-Reverse Connection Protection

The PS305H DC power supply incorporates anti-reverse connection protection to safeguard both the device and the connected load from damage due to incorrect polarity. This feature enhances safety and reliability during operation.

# Anti-Reverse Connection Protection



## WHY CHOOSE US?

Item	SKY TOPPOWER Power Supplies	Other Brand Power Supplies
Anti-Reverse Connection Protection	<b>YES</b>	<b>NO</b>

✓ Safer To Use

✓ Protection Of The Load

✓ Protection Of The Power Supply

✓ Increased Safety And Reliability Of Equipment

Image: Diagram showing the anti-reverse connection protection circuit with diodes and a battery load.

### Comparison of Anti-Reverse Connection Protection

Item	SKY TOPPOWER Power Supplies	Other Brand Power Supplies
Anti-Reverse Connection Protection	<b>YES</b>	<b>NO</b>

- ✓ Safer To Use
- ✓ Protection Of The Load
- ✓ Protection Of The Power Supply
- ✓ Increased Safety And Reliability Of Equipment

### 3. PRODUCT OVERVIEW AND COMPONENTS

The SKY TOPPOWER PS305H DC Power Supply is designed for precision and ease of use. Below is a detailed description of its front and rear panel components.

# FUNCTION DESCRIPTION



Image: Front panel of the PS305H showing Voltage Output Display, Current Output Display, Current Output Fine/Coarse knobs, Voltage Output Fine/Coarse knobs, Constant Current (CC) Indicator, Constant Voltage (CV) Indicator, Power Switch, Output Negative (-), Ground Terminal (GND), and Output Positive (+).

## Front Panel Controls and Indicators:

- **Voltage Output Display:** Shows the current output voltage in Volts (V).
- **Current Output Display:** Shows the current output in Amperes (A).
- **Current Output Fine/Coarse Knobs (CC):** Adjusts the output current. Use 'Coarse' for large adjustments and 'Fine' for precise adjustments.
- **Voltage Output Fine/Coarse Knobs (CV):** Adjusts the output voltage. Use 'Coarse' for large adjustments and 'Fine' for precise adjustments.
- **Constant Current (CC) Indicator:** LED illuminates when the unit is operating in Constant Current mode.
- **Constant Voltage (CV) Indicator:** LED illuminates when the unit is operating in Constant Voltage mode.
- **Power Switch:** Turns the unit ON or OFF.
- **Output Terminals:** Red (+) for positive, Black (-) for negative, and Yellow (GND) for ground.

## Rear Panel Features:



Image: Rear panel of the PS305H showing the Smart Cooling Fan, AC Power input, and Fuse Box.

- **Smart Cooling Fan:** Activates automatically when the internal temperature rises to a certain level, ensuring stable and reliable operation and prolonging product life.
- **AC Power Input:** Connects the power cord to the AC mains supply (110V  $\pm 10\%$ , 60Hz).
- **Fuse Box:** Contains the protective fuse for the unit.

## 4. SETUP

Follow these steps to set up your SKY TOPPOWER PS305H DC Power Supply:

1. **Unpack the Device:** Carefully remove the power supply and all accessories from its packaging. Inspect for any damage.
2. **Connect Power Cord:** Ensure the power switch is in the OFF position. Connect the provided power cord to the AC Power Input on the rear panel of the power supply and then to a suitable AC outlet.

3. **Prepare Output Cables:** Attach the provided alligator clip wires to the output terminals. Connect the red wire to the positive (+) terminal, the black wire to the negative (-) terminal, and if required, the yellow wire to the ground (GND) terminal.
4. **Initial Knob Settings:** Before turning on the unit, ensure both the Current and Voltage coarse and fine adjustment knobs are turned fully counter-clockwise to their minimum settings.

## 5. OPERATING INSTRUCTIONS

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### 5.1. Presetting Constant Current Value (CC)

1. Turn on the power supply.
2. Turn the voltage coarse and fine knobs to their maximum (fully clockwise).
3. Short the positive (+) and negative (-) terminals using the leads.
4. Adjust the current to the desired amperage by turning the coarse or fine current knobs. The CC indicator will illuminate.
5. Turn off the device and remove the shorting leads.

*Note: Do not adjust the current knobs once the current limit has been set as above. Current limiting has now been set for the whole range of output voltages.*

### 5.2. Presetting Constant Voltage Value (CV)

1. Turn on the power supply.
2. Adjust the output voltage by turning the coarse or fine voltage knobs to the desired voltage. The CV indicator will illuminate.
3. Turn off the device.

*Note: Do not adjust the voltage knobs once the voltage has been set as above.*

### 5.3. Connecting Your Load

After presetting the desired current and voltage, connect your load (device to be powered) to the output terminals. Ensure positive to positive and negative to negative connections. Then turn on the power supply.

*Note: If the display shows CC, either your preset current limiting value is too low or your load requires more voltage or current. You need to adjust your current and voltage settings using the above steps.*

### 5.4. Constant Voltage (CV) and Constant Current (CC) Automatic Conversion

The power supply functions as a constant voltage source (CV) as long as the load current is less than the preset current limiting value. If the load current becomes equal to or greater than the preset current limit, the power supply will automatically switch over to the constant current mode (CC), and the voltage will drop. The LED panel will display the CC indicator. If the load current drops below the preset current limit, the power supply returns to constant voltage (CV) mode.

### 5.5. Practical Applications



Teaching

Engineering Development and Design

Laboratory

Electronic Maintenance Testing

Battery Charging

Image: A collage demonstrating the versatile applications of the power supply in teaching, laboratory work, engineering development, electronic maintenance, and battery charging.

### Battery Charging

The PS305H can be used to charge various types of batteries. Ensure you set the charging voltage higher than the present battery voltage before connecting the battery. Keep the power supply on during charging.

# HOW TO CHARGE BATTERY

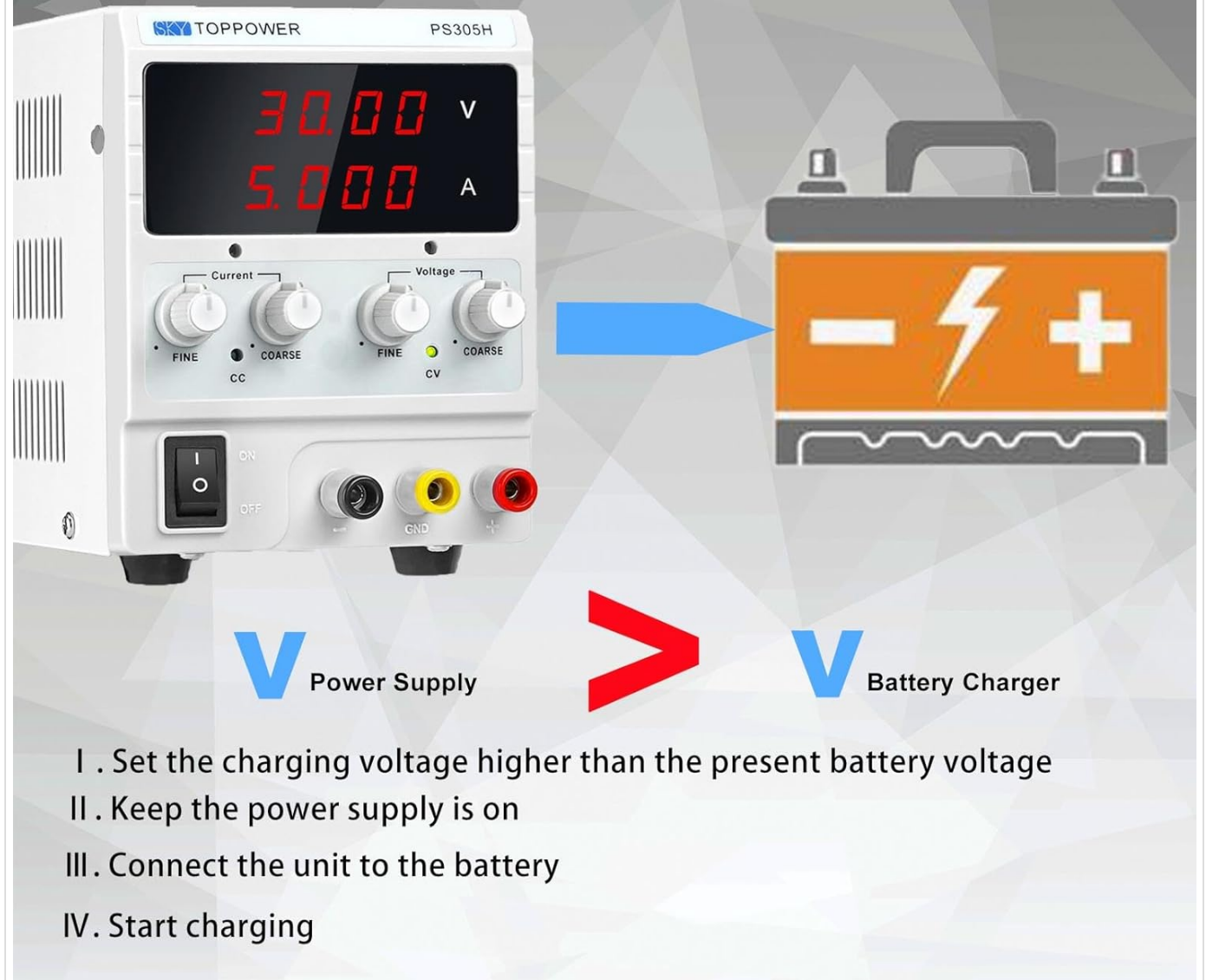


Image: Visual guide on how to charge a battery using the power supply, emphasizing setting voltage higher than battery voltage and connecting correctly.

Your browser does not support the video tag.

Video: Demonstrates battery charging, electrolysis, powering an LED strip, and a DIY electric motor using the power supply.

## Powering LEDs and Circuit Boards

The power supply can be used to power LED strips or various circuit boards. Adjust the voltage and current settings according to the requirements of the LED or circuit board. The video above demonstrates powering an LED strip and adjusting its brightness by controlling the current.

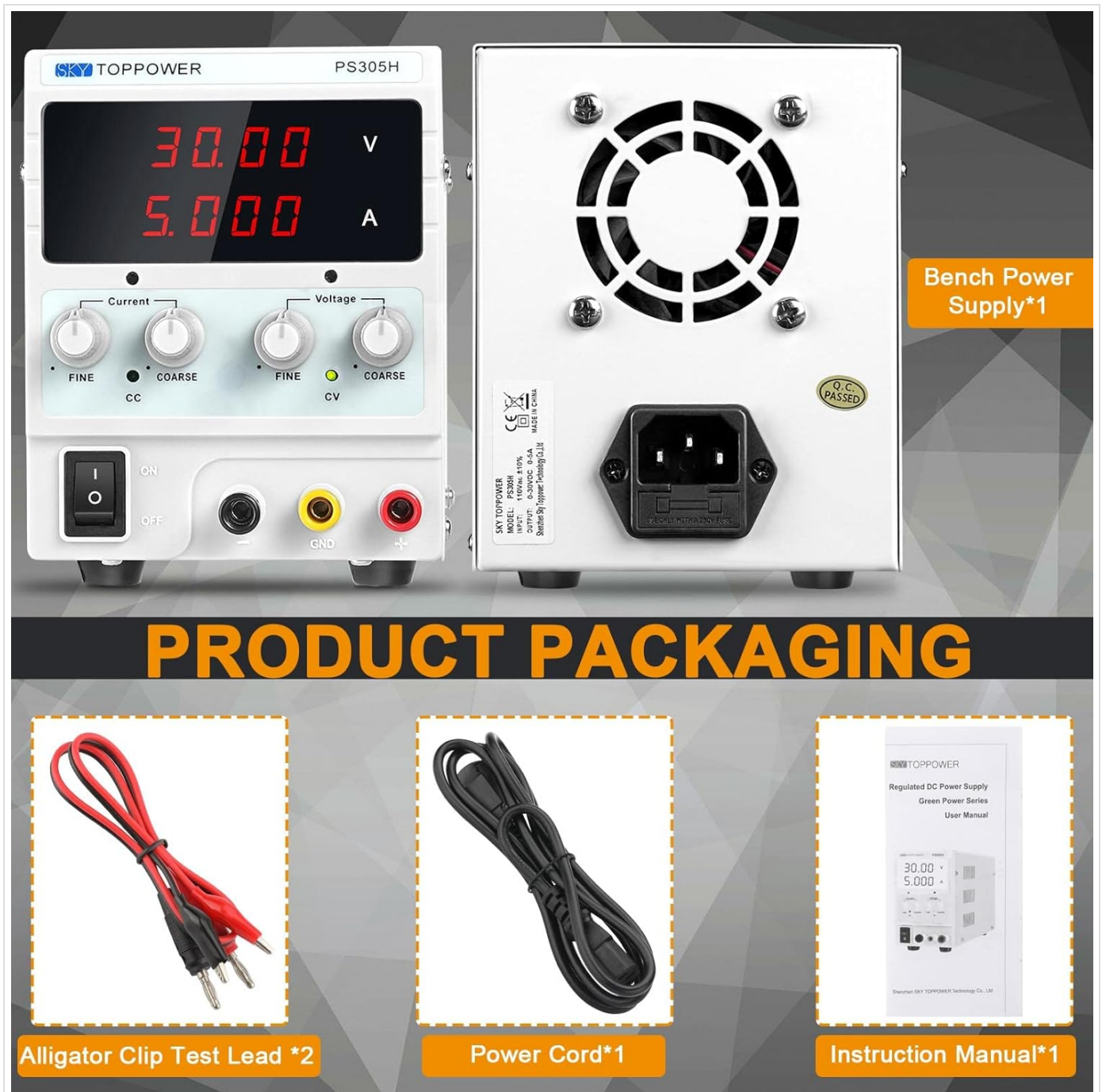


Image: The PS305H power supply integrated into a workbench setup with an oscilloscope and other electronic testing equipment.

## 6. TECHNICAL SPECIFICATIONS

<b>Feature</b>	<b>Specification (PS305H)</b>
<b>Input Voltage</b>	110 VAC $\pm$ 10%, 60Hz
<b>Output Voltage</b>	0-30V
<b>Output Current</b>	0-5A
<b>Working Temperature</b>	0-40°C
<b>Relative Humidity</b>	<80% RH
<b>Voltage Regulation (Load)</b>	$\leq$ 0.05% + 5mV
<b>Voltage Regulation (Line)</b>	$\leq$ 0.05% + 5mV
<b>Ripple &amp; Noise (Voltage)</b>	$\leq$ 50mV (peak-to-peak)
<b>Current Regulation (Load)</b>	$\leq$ 0.1% + 1mA
<b>Current Regulation (Line)</b>	$\leq$ 0.1% + 1mA
<b>Ripple &amp; Noise (Current)</b>	$\leq$ 30mA (peak-to-peak)
<b>Display</b>	4-Digit LED
<b>Display Accuracy</b>	$\pm$ 0.5% + 1 digit
<b>Protection</b>	Short Circuit, Overload, Over Temperature, Overvoltage, Anti-reverse connection
<b>Dimensions (L×W×H)</b>	221x138x104 mm (8.70x5.43x4.09 inches)
<b>Weight</b>	1.33 kg (2.93 lbs)

# LARGE DISPLAY SCREEN EASY TO READ



Image: The compact dimensions of the PS305H power supply, highlighting its small footprint and light weight.

## 7. MAINTENANCE

- Keep the unit clean and free from dust. Use a soft, dry cloth for cleaning.
- Ensure proper ventilation by keeping the cooling fan clear of obstructions.
- Store the device in a dry environment, away from direct sunlight and extreme temperatures.
- Regularly check the power cord and output leads for any signs of wear or damage.

## 8. TROUBLESHOOTING (FREQUENTLY ASKED QUESTIONS)

**Q: When power is on, the current display shows 0.000 A. Is it normal?**

A: Yes, it's normal if no load is connected. The power supply measures current only when a load is drawing current. If you connect a load and the current still shows 0.000 A, check your connections and the load itself.

**Q: Is it possible to set the current value without load connecting?**

A: Yes, you can preset the current limit. Turn the voltage knobs fully clockwise, short the output terminals, then adjust the current knobs to your desired limit. The CC indicator will light up. Then remove the shorting leads.

**Q: Can I remember the last settings when turned off and back on again?**

A: The PS305H does not have a memory function for settings. Each time it is powered on, the output will start from 0V and 0A, requiring manual adjustment.

**Q: How to switch between Constant Voltage (CV) and Constant Current (CC)?**

A: The power supply will automatically switch between CV and CC modes based on the load. If the load current is less than the preset current limit, it operates in CV mode. If the load current reaches or exceeds the preset limit, it switches to CC mode, and the voltage will drop to maintain the current limit.

## 9. WHAT'S IN THE BOX

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Your SKY TOPPOWER PS305H DC Power Supply package includes:

- 1 x SKY TOPPOWER PS305H DC Bench Power Supply
- 1 x US Power Cord
- 1 set x Alligator Clip Test Leads
- 1 x User Manual (this document)

# SMALL SIZE, EXCELLENT MATERIAL



Image: The complete contents of the PS305H product packaging, including the power supply unit, power cord, alligator clip leads, and the instruction manual.

Your browser does not support the video tag.

Video: A brief overview of the SKY TOPPOWER DC Variable Power Supply, showcasing its features and components.

## 10. WARRANTY AND TECHNICAL SUPPORT

SKY TOPPOWER is committed to providing high-quality products and excellent customer service. With over 20 years of experience in design, manufacturing, and selling DC power supplies, our technical team is available to provide professional support.

If you have any questions about your power supply, require technical assistance, or need warranty support, please feel free to contact us:

- **Email:** [skytop@skytop-power.com](mailto:skytop@skytop-power.com)
- **Phone:** +86-755-2304-7771

- **Address:** 3rd Floor, Building B, Rixing Industrial Park, No. 10, Yabian Road, Heping Community, Fuhai Street, Baoan District, Shenzhen, China.

For more information and product videos, please visit our official website or YouTube channel.