ZPSHYD XY-SK150

ZPSHYD XY-SK150 Buck Boost DC Power Supply User Manual

Model: XY-SK150

1. Introduction

The ZPSHYD XY-SK150 is a high-performance digital adjustable DC power supply module designed for a wide range of applications. It features a buck-boost function, allowing for both step-up and step-down voltage conversion, and incorporates Maximum Power Point Tracking (MPPT) for efficient solar charging. With its full-color LCD display and multiple protection features, it provides a safe, precise, and user-friendly experience for various electrical tasks.

Figure 1.1: ZPSHYD XY-SK150 Buck Boost DC Power Supply front view.

2. Specifications

The following table outlines the key technical specifications of the XY-SK150 power supply:

Parameter	Value
Input Voltage	DC 6-36V
Output Voltage	DC 0-36V
Output Current	0-7A
Output Power	0-150W
Voltage Accuracy	±0.5%+1 digit
Current Accuracy	±0.5%+3 digits
Voltage Resolution	0.01V
Current Resolution	0.001A
Display	Full-view VA Color LCD
Cooling	Intelligent Temperature-Controlled Fan, Thickened Heat Sink
Protections	Anti-reverse, Anti-backflow, Under/Overvoltage, Overcurrent, Overtemperature, Overpower, Timeout
Special Features	MPPT Solar Charging Function, External Temperature Probe Support

Figure 2.1: Display showing key specifications and capabilities.

Figure 2.2: Product dimensions (79mm x 39mm x 23mm).

3. Setup and Connections

Before operating the device, ensure all connections are secure and correct. The module requires a DC input power source within the specified range.

3.1 Power Input Connection

Connect your DC input power source (6-36V) to the input terminals of the XY-SK150 module. Observe polarity: positive to positive, negative to negative. The module has anti-reverse connection protection, but correct polarity is always recommended.

3.2 Output Load Connection

Connect your load to the output terminals. Ensure the load's voltage and current requirements are within the module's 0-36V and 0-7A output range. The module features anti-backflow protection to prevent current from

flowing back into the power supply.

3.3 External Temperature Probe (Optional)

For precise overheating management, an external temperature probe can be connected to the designated NTC temperature probe interface. This allows the device to automatically stop charging or operation if the temperature exceeds a safe limit.

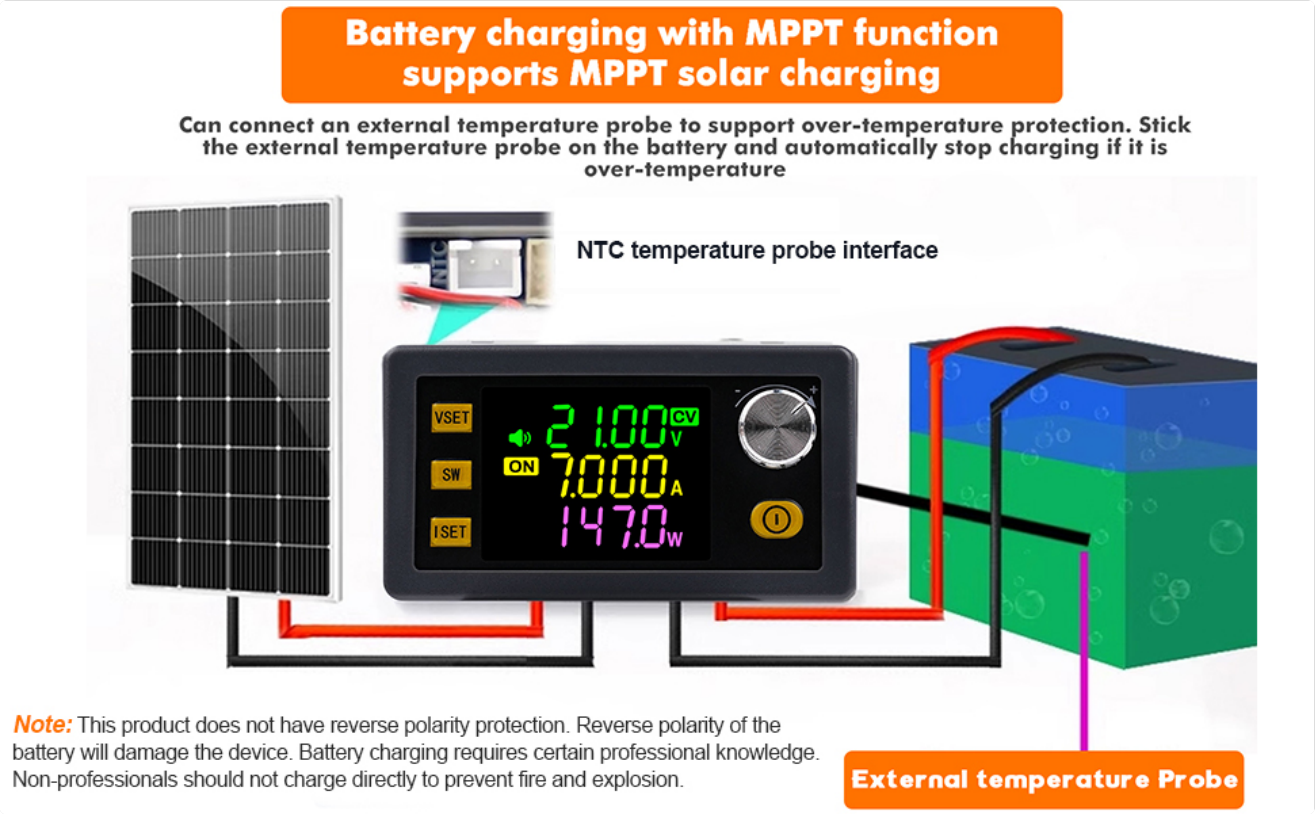

Figure 3.1: Example connection diagram for MPPT solar charging with external temperature probe.

4. Operating Instructions

The XY-SK150 features an intuitive interface with a full-color LCD and several control buttons and an encoder knob.

4.1 Main Interface and Display

The LCD simultaneously displays real-time voltage, current, and power. It provides clear and bright readings for easy monitoring.

Figure 4.1: Full-view color LCD screen displaying voltage, current, and power.

4.2 Button Functions

- **VSET Button:**
  Short press: Set output voltage.
  Long press: Enter or exit the data group interface.
- **SW Button:**
  Short press: Switch input and output voltage or shift display.
  Long press: Enter or exit the system settings interface.
- **ISET Button:**
  Short press: Set output current.
  Long press: Enter or exit the data group interface.
- **Encoder Key (Rotary Knob):**
  Short press: Switch output power (W), capacity (Ah/energy Wh), time (h), or temperature (C) display.
  Long press: Turn on/off the lock function.
- **Power Key (Yellow Button):**
  Short press: Turn on/off the power output.

Long press: Long press on the capacity (Ah/energy Wh) or time (h) interface to clear the value.

Figure 4.2: Introduction to key functions and controls.

5. Key Features

5.1 Versatile Power Range and High Precision

The XY-SK150 offers a wide adjustable DC input range of 6-36V and an output range of 0-36V, capable of handling up to 7A current and 150W power. Its precise voltage and current accuracy (±0.5%+1 digit for voltage, ±0.5%+3 digits for current) with resolutions of 0.01V and 0.001A make it suitable for detailed and delicate electrical tasks, ensuring reliable performance for sensitive applications.

5.2 Full-View Color LCD Display

Equipped with a state-of-the-art VA color LCD display, the power supply simultaneously shows voltage, current, and power. This display provides clear and bright readings, reducing the need to switch between different display modes

and enhancing overall user convenience and efficiency.

5.3 Robust Safety Features

The adjustable DC power supply incorporates comprehensive protection mechanisms to ensure safe and secure operations. These include:

- Anti-reverse connection protection
- Anti-backflow protection
- Undervoltage protection
- Overvoltage protection
- Overcurrent protection
- Overtemperature protection
- Overpower protection
- Timeout protection

Figure 5.1: Overview of multiple protection functions.

5.4 Efficient Cooling and Upgrade Features

The Buck Boost power supply features an intelligent temperature-controlled fan and a thickened heat sink, secured with screws, for excellent heat dissipation. This design ensures stable performance even under demanding conditions. Additionally, it includes integrated buzzer alerts, button prompts, and alarm signals for enhanced safety and usability. The module also supports external temperature probe connections for precise overheating management.

Figure 5.2: Illustration of the intelligent cooling system.

5.5 MPPT Solar Charging Capability

A key feature of the XY-SK150 is its integrated MPPT (Maximum Power Point Tracking) function. This allows the power supply to efficiently utilize solar energy, making it an ideal solution for outdoor applications such as camping, as well as for powering devices in laboratories, electric scooters, or golf carts.

6. Applications

The ZPSHYD XY-SK150 is highly versatile and can be used in a variety of settings:

- **Laboratory Power Supply:** Provides precise and stable power for electronic experiments and circuit testing.
- **Outdoor Camping:** Ideal for charging batteries and powering devices using solar panels, thanks to its MPPT function.
- **Electric Scooters and Golf Carts:** Can be used for charging or powering these vehicles.
- **DIY Electronics Projects:** Suitable for hobbyists and makers requiring adjustable DC power.
- **Industrial Applications:** For various industrial electrical needs within its power range.

Figure 6.1: Diverse applications of the XY-SK150 power supply.

7. Maintenance

To ensure the longevity and optimal performance of your ZPSHYD XY-SK150 power supply, follow these maintenance guidelines:

- **Cleaning:** Regularly clean the exterior of the device with a soft, dry cloth. Do not use abrasive cleaners or solvents. Ensure ventilation openings are free from dust and debris.
- **Storage:** When not in use, store the device in a cool, dry place away from direct sunlight and extreme temperatures.
- **Connections:** Periodically check all input and output connections to ensure they are secure and free from corrosion.
- **Ventilation:** Ensure adequate airflow around the device during operation to prevent overheating. Do not block the fan or ventilation holes.

8. Troubleshooting

If you encounter issues with your ZPSHYD XY-SK150, consider the following common troubleshooting steps:

- **No Power/Display:**
  Check input power: Ensure the input voltage is within the 6-36V range and the power source is functioning correctly.
  Check connections: Verify that the input wires are securely connected and polarity is correct.
- **No Output:**
  Check output enable: Ensure the power output is enabled using the yellow Power Key.
  Check load: Verify that your load is connected correctly and is not short-circuited or drawing excessive current.
  Check protection triggers: The device may have activated one of its protection features (e.g., overcurrent, overvoltage, overpower). Check the display for error messages or indicators. Disconnect the load, resolve the issue, and then re-enable output.
- **Incorrect Readings:**
  Recalibrate (if applicable): Refer to advanced settings in the system menu if calibration options are available (consult manufacturer for detailed steps if needed).
  Check connections: Loose connections can lead to inaccurate readings.
- **Overheating:**
  Ensure ventilation: Make sure the fan and heat sink are not obstructed and there is sufficient airflow around the unit.
  Reduce load: If operating continuously at maximum power, consider reducing the load or providing additional cooling.

If the problem persists after attempting these steps, please contact customer support for further assistance.

9. Safety Information

Please read and understand all safety warnings before operating the ZPSHYD XY-SK150 power supply. Failure to do so may result in injury or damage to the device.

- **Electrical Safety:** This device operates with DC voltage. Always observe correct polarity when making connections. Incorrect polarity, especially when charging batteries, can damage the device and connected equipment.
- **Battery Charging:** Battery charging requires certain professional knowledge. Non-professionals should not charge directly to prevent fire and explosion. Always use appropriate battery management systems and

monitor charging processes.

- **Ventilation:** Ensure the device is operated in a well-ventilated area. Do not cover the ventilation holes or fan.
- **Environment:** Do not expose the device to water, moisture, high temperatures, or corrosive environments.
- **Overload:** Do not exceed the maximum specified input voltage, output current, or output power. The built-in protections will activate, but continuous overloading can reduce the lifespan of the device.
- **Children:** Keep the device out of reach of children.

10. Warranty and Support

For warranty information and technical support, please refer to the documentation provided with your purchase or contact ZPSHYD customer service through the retailer where the product was acquired. Please have your model number (XY-SK150) and purchase details ready when contacting support.