

DONGKER XY-SK60

DONGKER XY-SK60 Boost Buck Converter User Manual

Model: XY-SK60

1. INTRODUCTION

The DONGKER XY-SK60 is a versatile DC-DC 60W 5A CVCC adjustable automatic buck-boost power supply module. It features a large LCD display and supports both buck (step-down) and boost (step-up) voltage conversion. This non-isolated converter is suitable for various applications, including LED constant current drives, battery charging, and general power supply needs.

2. SAFETY INFORMATION

- This is a DC power module; do not connect it to AC power.
- Ensure input power exceeds load power requirements.
- Reduce output power if the module becomes excessively hot.
- Read this manual thoroughly before use.
- When charging batteries, connect the input power before connecting the battery. Ensure the output voltage is higher than the battery voltage.
- This product does not have output reverse connection protection. Reversing the positive and negative terminals of the battery will damage the device.
- Battery charging requires specific knowledge. Non-professionals should not attempt direct charging to prevent fire and explosion hazards.

3. PRODUCT FEATURES AND COMPONENTS

The XY-SK60 module offers a range of features and protection mechanisms:

- **Input Voltage:** DC 6V-36V
- **Output Voltage:** DC 0.5V-36V (Adjustable)
- **Output Current:** 0-5A (Adjustable)
- **Output Power:** 60W

- **Display:** Large VA color LCD for voltage, current, and power.
- **Conversion Efficiency:** Approximately 88%
- **Soft Start:** Yes
- **Protection Features:** Input Anti-reverse, Output Anti-backflow, Input Under-voltage (5.5V-36V adjustable), Output Over-voltage (0V-38V adjustable), Output Over-current (0A-5.2A adjustable), Output Over-power (0W-60W adjustable), Over-temperature (0-110°C adjustable), Timeout (0-100H adjustable), Over-capacity (0-9999AH adjustable), Over-energy (0-4200KWH adjustable).
- **MPPT Solar Charging Support:** Yes
- **Communication:** Supports standard Modbus protocol for serial communication.
- **Firmware Upgrade Support:** Yes
- **External Temperature Probe Interface:** NTC temperature probe interface for over-temperature protection during charging.



Third generation upgrade

simply the all-viewing-angle VA color LCD DC buck-boost power supply · CC/CV/CW

6.0-36.00v
Input voltage

0-36.00v
Output voltage

0-5.000 A
Output current

60 w
Power output

10 group
Storage space



Fully protected: ☒ Anti-reverse ☒ Anti-backflow ☒ Under-voltage

☒ over-voltage ☒ over-current ☒ over-temp ☒ over-power ☒ over temperature

Supports the standard Modbus protocol
for serial communication

Support firmware upgrade
anti-backflow
Support MPPT solar charging

Figure 1: Front view of the XY-SK60 module, highlighting the LCD display, input/output parameters, and various protection

features.

4. SPECIFICATIONS

Parameter	Value
Work Voltage	DC 6V-36V
Output Voltage	DC 0.5V-36V
Output Current	0~5A
Output Power	60W
Voltage Display Precision	+/-0.5%+0.01V
Voltage Display Resolution	0.01V
Current Display Precision	+/-0.5%+0.003A
Current Display Resolution	0.001A
Conversion Efficiency	About 88%
Soft start	Yes
Input Anti-reverse Protection	Yes
Output Anti-backflow Protection	Yes
Input Under-voltage Protection	Yes (5.5V-36V adjustable, default 5.5V)
Output Over-voltage Protection	Yes (0V-38V adjustable, default 38V)
Output Over-current Protection	Yes (0A-5.2A adjustable, default 5.2A)
Output Over-power Protection	Yes (0W-60W adjustable, default 65W)
Over-temperature Protection	Yes (0-110°C adjustable, default 95°C)
Timeout Protection	Yes (0-100H adjustable, default OFF)
Over-capacity Protection	Yes (0-9999AH adjustable, default OFF)
Over-energy Protection	Yes (0-4200KWH adjustable, default OFF)
Work Temperature	-20°C~85°C
Work Humidity	10%~85%RH
Size	79*50*43mm



Figure 2: Physical dimensions of the XY-SK60 module and recommended panel cutout.

5. SETUP AND WIRING

Follow these steps for proper setup and wiring of the XY-SK60 module.

1. **Identify Terminals:** Locate the input (IN+ / IN-) and output (OUT+ / OUT-) terminals on the module.
2. **Input Power Connection:** Connect your DC power source (6V-36V) to the IN+ (positive) and IN- (negative) terminals. Ensure correct polarity.
3. **Output Load Connection:** Connect your load to the OUT+ (positive) and OUT- (negative) terminals.
4. **Optional External Connections:**
 - **NTC Temperature Probe:** For battery charging with over-temperature protection, connect an external NTC temperature probe to the designated interface.
 - **XY-K485X Module:** Connect an XY-K485X module for 485 bus control.
 - **WiFi Module:** Connect a WiFi module for remote control via APP and web-based networking.

Introduction to Functional Interfaces and Wiring

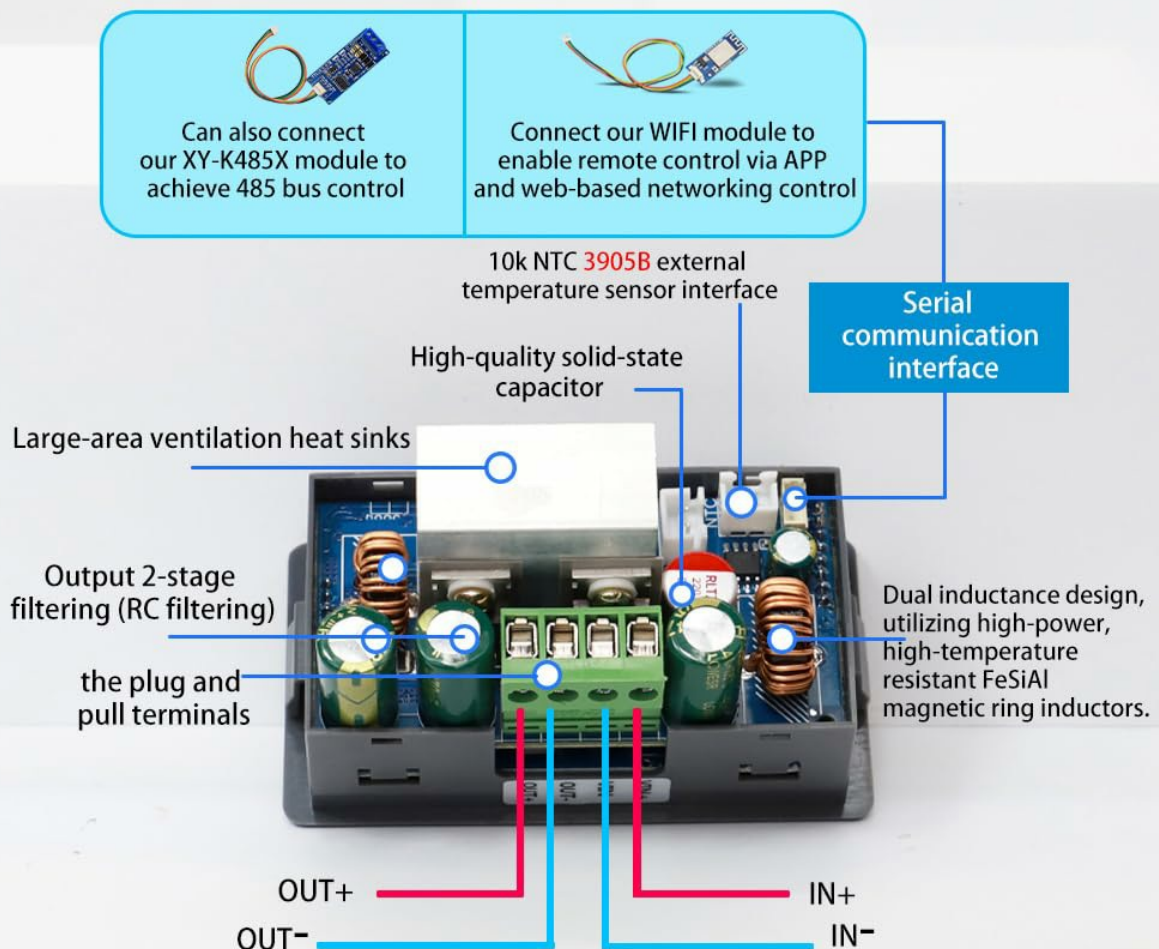


Figure 3: Functional interfaces and wiring diagram for the XY-SK60 module.



Figure 4: Top view of the XY-SK60 module, illustrating component layout.

6. OPERATING INSTRUCTIONS

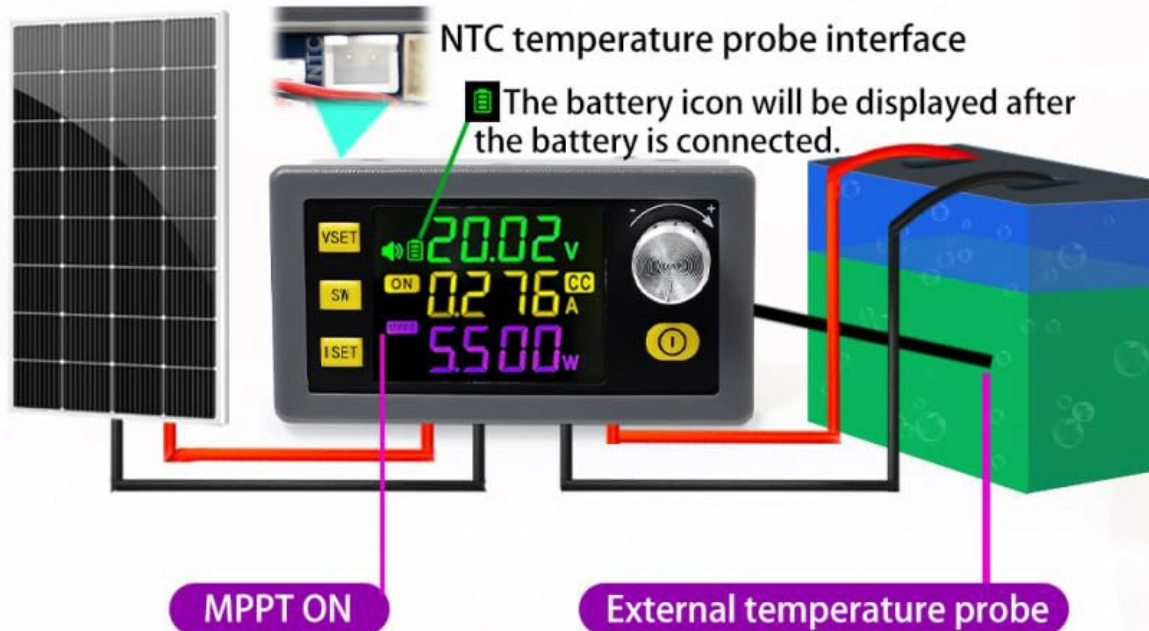
The XY-SK60 module features an intuitive LCD display and control buttons for setting parameters.

1. **Power On:** Connect the input power supply to the VIN+ and VIN- terminals. The LCD will illuminate.
2. **Set Output Voltage (VSET):** Use the VSET button and rotary encoder to adjust the desired output voltage.
3. **Set Output Constant Current (ISET):** Use the ISET button and rotary encoder to set the maximum output current limit.
4. **Enable/Disable Output (SW):** Press the SW button to turn the output ON or OFF.
5. **Parameter Adjustment:** The module allows adjustment of various protection parameters (e.g., under-voltage, over-voltage, over-current, over-power, over-temperature, timeout, over-capacity, over-energy). Refer to the detailed specifications for default values and adjustment ranges.
6. **MPPT Solar Charging:** If using for solar charging, ensure the MPPT function is enabled. Connect a solar panel to the input and a battery to the output. The module will optimize power transfer.

With anti-backflow function, it can charge various rechargeable batteries.

With MPPT function, it supports MPPT solar charging.

External temperature probe can be connected, supporting over-temperature protection. Attach the external temperature probe to the battery, and it will automatically stop charging in case of over-temperature.



Attention: This product does not have output reverse connection protection. Reversing the positive and negative terminals of the battery will damage the device. Battery charging requires certain professional knowledge. Non-professionals are not allowed to charge directly to prevent fire and explosion.

Figure 5: MPPT solar charging setup with external temperature probe.

7. APPLICATIONS

The DONGKER XY-SK60 module is suitable for a wide range of applications, including:

- High-power LED constant current drive
- Lithium battery charging
- Ni-Cd or Ni-MH battery charging
- Solar panel power conversion
- Wind turbine power conversion
- General purpose adjustable power supply
- Instrument voltage display
- Test meter power source

- Circuit testing

8. MAINTENANCE

- Keep the module clean and free from dust and moisture.
- Ensure adequate ventilation, especially during high-power operation, to prevent overheating.
- Regularly check connections for tightness and corrosion.
- Avoid exposing the module to extreme temperatures or mechanical shock.

9. TROUBLESHOOTING

- **No Display/No Output:**

- Check input voltage: Ensure it is within the 6V-36V range.
- Check input polarity: Verify IN+ and IN- connections are correct.
- Check output enable: Ensure the output is turned ON via the SW button.

- **Output Voltage/Current Not Stable:**

- Ensure input power is sufficient for the load.
- Check for loose connections.
- Verify that protection features (e.g., over-current, over-power) are not being triggered.

- **Module Overheating:**

- Reduce output power or current.
- Ensure proper ventilation and airflow around the module.
- Check ambient temperature.

- **Battery Charging Issues:**

- Confirm output voltage is set higher than the battery voltage.
- Check external temperature probe connection if used.
- Ensure MPPT is enabled for solar charging.

10. SUPPORT

For further assistance or inquiries, please contact DONGKER customer support.