**DONGKER XY-SK60**

# DONGKER XY-SK60 Boost Buck Converter User Manual

CVCC Adjustable Automatic Boost Power Supply Module

## 1. Introduction

The DONGKER XY-SK60 is a versatile DC-DC 60W 5A CVCC Adjustable Automatic Buck Boost Power Supply Module. Featuring a new generation larger LCD display, this non-isolated converter efficiently converts DC 6V-36V input to a stable DC 0.5V-36V output. It is designed for various applications, including use as an ordinary buck power supply module, an LED constant current drive, and supports MPPT solar charging.




Image 1.1: Front view of the XY-SK60 Boost Buck Converter module with its LCD display showing voltage, current, and power readings.

## 2. Safety Information and Precautions

- This is a DC power module. Do not connect it to AC power under any circumstances.
- Ensure that the input power supply capacity is greater than the load power requirement to prevent instability or damage.
- If the module becomes hot during operation, reduce the output power to prevent overheating. Consider adding a cooling fan for sustained operation above 30W.
- Always read this user manual and product description thoroughly before use.
- When using the module for battery charging, connect the input power before connecting the battery. Ensure the output voltage is set higher than the battery voltage.
- This product does not have output reverse connection protection for the battery. Reversing the positive and negative terminals of the battery will damage the device.

- Battery charging requires specific electrical knowledge. Non-professionals should not attempt direct battery charging to prevent fire and explosion hazards.

## 3. Product Features

The XY-SK60 module offers a range of advanced features for precise power management:

- **Automatic Buck-Boost Function:** Automatically adjusts output voltage regardless of whether the input voltage is higher or lower than the desired output.
- **CVCC Adjustable:** Constant Voltage (CV) and Constant Current (CC) modes are adjustable, allowing precise control over output.
- **Programmable Multi-Parameter:** Configure various parameters for customized operation.
- **Multiple Protection Mechanisms:** Includes Input Anti-reverse Protection, Output Anti-backflow Protection, Input Under-voltage Protection, Output Over-voltage Protection, Output Over-current Protection, Output Over-power Protection, Over-temperature Protection, Timeout Protection, Over-capacity Protection, and Over-energy Protection.
- **MPPT Solar Charging Support:** Ideal for solar panel applications, with an external temperature probe interface for battery charging.
- **Large LCD Display:** Clear VA color LCD for real-time display of voltage, current, and power.
- **Serial Communication Interface:** Supports standard Modbus protocol for serial communication, allowing connection to XY-K485X module for 485 bus control or WiFi module for APP/web control.
- **Efficient Design:** Features dual inductance design, high-temperature resistant FeSiAl magnetic ring inductors, and large-area ventilation heat sinks.

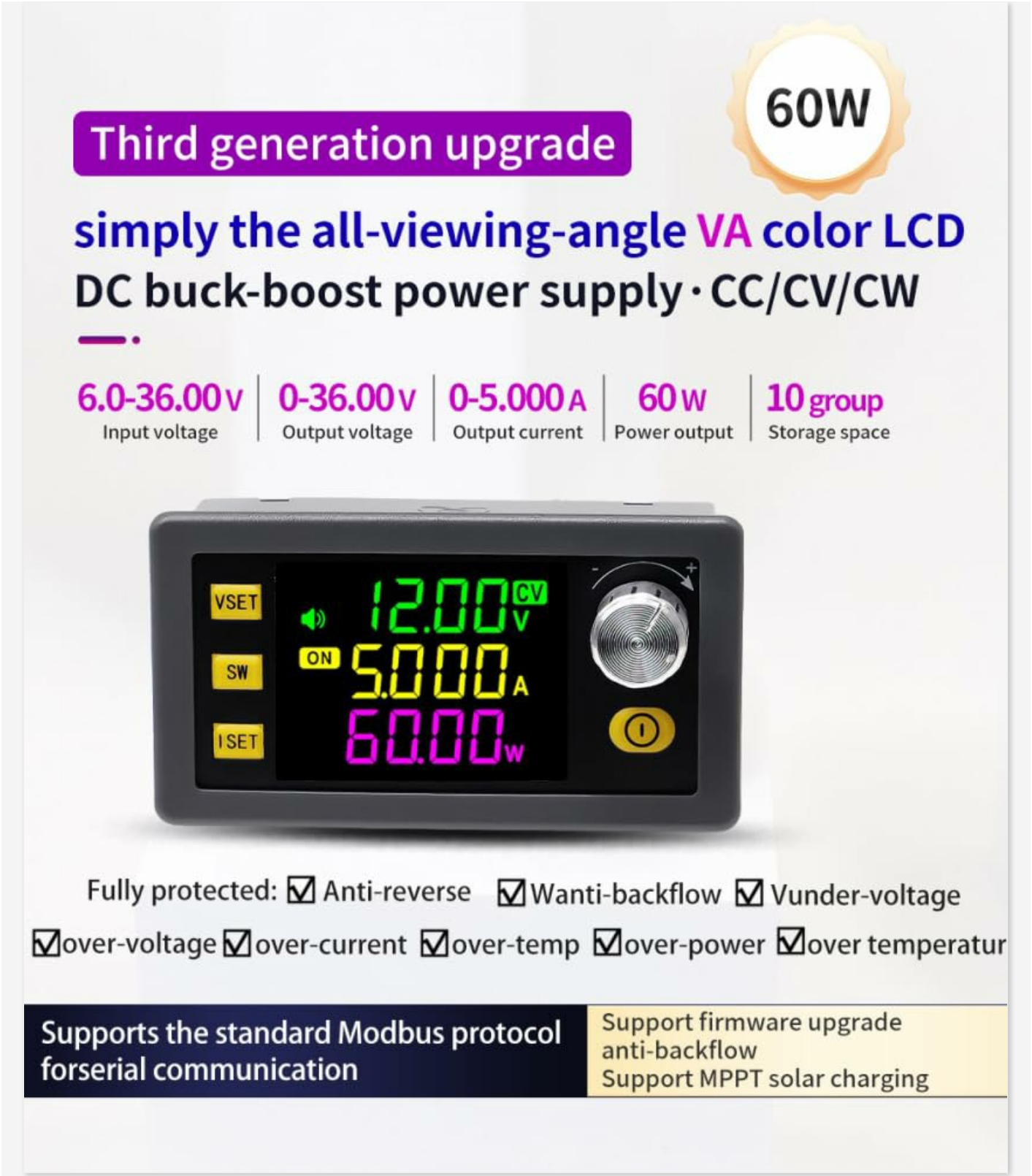



Image 3.1: Overview of the XY-SK60's key features including input/output ranges, power, storage, and comprehensive protection mechanisms.

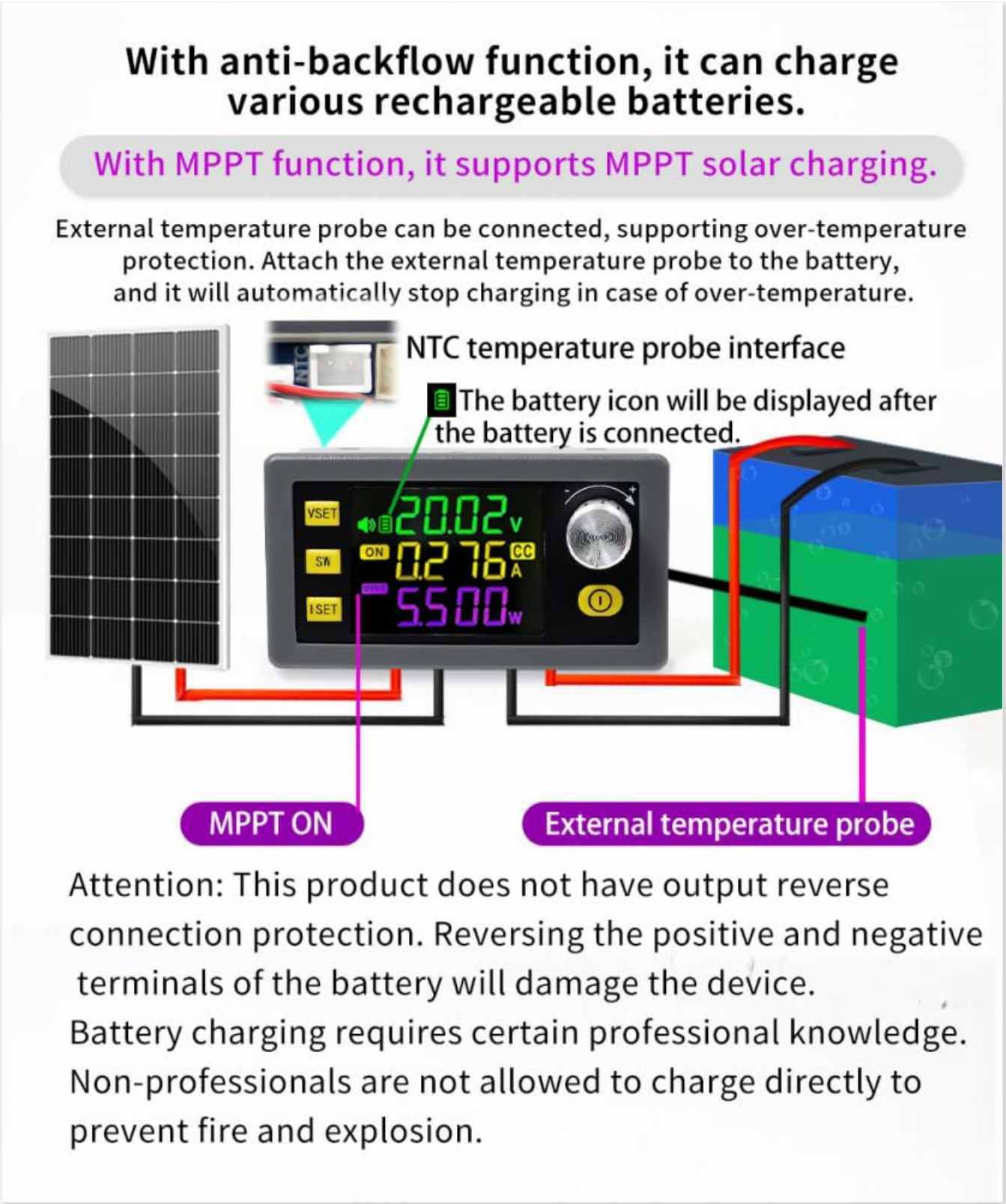



Image 3.2: Illustration of the anti-backflow function for battery charging and MPPT solar charging capability with an external temperature probe connection.

## 4. Package Contents

The package includes the following:

- 1 x XY-SK60 60W 5A CVCC Buck Boost Power Supply Module
- As shown in the packing list (refer to product packaging for any additional components)




Image 4.1: The typical packaging for the XY-SK60 module.

## 5. Technical 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) |

| Parameter | Value |
| --- | --- |
| 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℃ adjustable, default 95℃) |
| 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℃~85℃ |
| Work Humidity | 10%~85%RH |
| Size | 79*50*43mm |
| Item Weight | 100 g |




Image 5.1: Detailed dimensions of the XY-SK60 module and recommended panel opening size for installation.

## 6. Setup and Wiring

Follow these steps to set up your XY-SK60 module:

1. **Connect Input Power:** Connect your DC 6V-36V power source to the VIN+ and VIN- terminals. Ensure correct polarity.
2. **Set Output Parameters:** Before connecting your load, power on the module and use the controls to set the desired output voltage (CV) and constant current (CC) limits.
3. **Configure Protections:** Adjust other protection parameters (e.g., over-voltage, over-current, over-temperature) as required for your application.
4. **Disconnect Power:** Temporarily remove the work power supply after configuration.
5. **Connect Load:** Connect your load device to the OUT+ and OUT- terminals. Ensure correct polarity.
6. **Re-power On:** Reconnect the input power supply to begin operation.

**Important Wiring Note:** The module features plug-and-pull terminals for easy connection. Pay close attention to the input (IN+, IN-) and output (OUT+, OUT-) terminals.

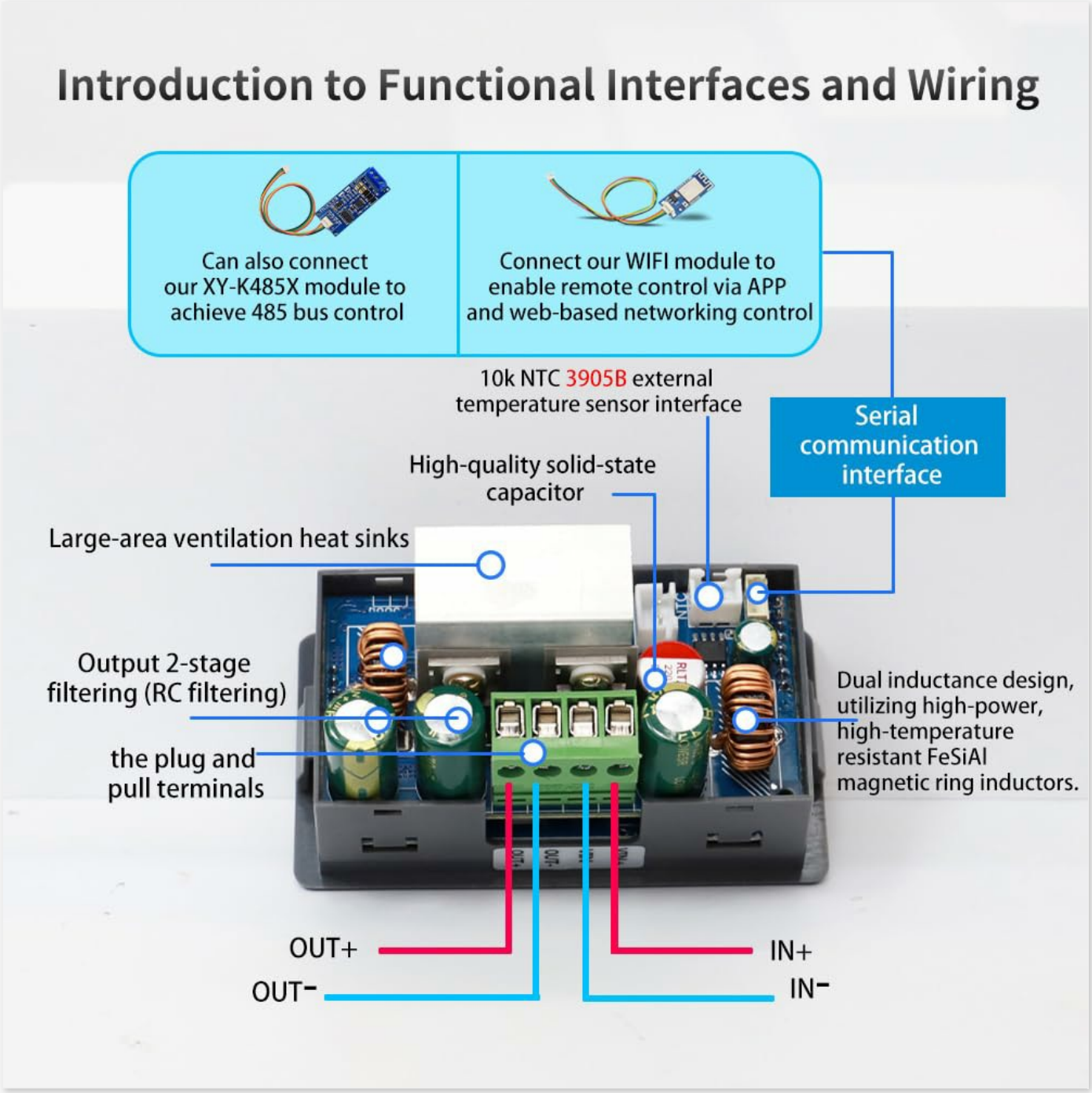



Image 6.1: Diagram showing the functional interfaces, wiring connections (IN+, IN-, OUT+, OUT-), and internal components like heat sinks and capacitors.




Image 6.2: Top view of the XY-SK60 module, highlighting the input/output terminals and internal components.

## 7. Operating Instructions

### 7.1. Basic Operation

The XY-SK60 features a clear LCD display and intuitive controls for setting output parameters.

- **VSET Button:** Used to adjust the output voltage.
- **ISET Button:** Used to adjust the output current limit (constant current mode).
- **SW Button:** Likely used to switch between display modes or enable/disable output.
- **Rotary Encoder/Knob:** For fine-tuning values after selecting a parameter with VSET or ISET. Pressing the knob might confirm selection or switch digits.
- **Power Button (Yellow):** To turn the output ON/OFF.

### 7.2. Setting Protection Parameters

The module allows adjustment of various protection thresholds. Refer to the display and button functions to navigate the menu and set these values.

- **Input Under-voltage Protection (UVP):** Adjustable from 5.5V-36V (default 5.5V).
- **Output Over-voltage Protection (OVP):** Adjustable from 0V-38V (default 38V).
- **Output Over-current Protection (OCP):** Adjustable from 0A-5.2A (default 5.2A).
- **Output Over-power Protection (OPP):** Adjustable from 0W-60W (default 65W).
- **Over-temperature Protection (OTP):** Adjustable from 0-110℃ (default 95℃).
- **Timeout Protection (OHP):** Adjustable from 0-100H (default OFF).
- **Over-capacity Protection (OAP):** Adjustable from 0-9999AH (default OFF).
- **Over-energy Protection (OEP):** Adjustable from 0-4200KWH (default OFF).

It is recommended to set these protection limits according to your specific application and load requirements to ensure safe operation.

## 8. Applications

The XY-SK60 module is suitable for a wide range of applications, including but not limited to:

- High-power LED constant current drive
- Lithium battery charging
- Ni-Cd or Ni-MH battery charging
- Solar panel power regulation
- Wind Turbines power regulation
- General purpose power supply
- Instrument voltage display
- Test meter power source
- Circuit testing
- Power conversion projects

## 9. Maintenance

To ensure the longevity and optimal performance of your XY-SK60 module, consider the following maintenance tips:

- **Temperature Management:** The module is rated for 60W, but for continuous operation above 30W, especially in enclosed spaces, consider adding an external cooling fan to prevent the module from reaching high temperatures (e.g., above 70°C).
- **Cleanliness:** Keep the module free from dust and debris. Use a soft, dry cloth for cleaning. Do not use liquids or abrasive cleaners.
- **Ventilation:** Ensure adequate airflow around the module, especially around the heat sinks, to facilitate heat dissipation.
- **Connection Integrity:** Periodically check all wiring connections to ensure they are secure and free from corrosion.
- **Storage:** When not in use, store the module in a dry, cool environment away from direct sunlight and extreme temperatures.

## 10. Troubleshooting

| Problem | Possible Cause | Solution |
|---|---|---|
| Module not powering on / No display | Incorrect input voltage; Reversed input polarity; Loose connections; Faulty power supply. | Verify input voltage is within 6V-36V range. Check input polarity (VIN+, VIN-). Secure all wiring connections. Test input power supply. |
| Output voltage/current unstable or incorrect | Load exceeding module capacity; Incorrect settings; Over-protection triggered. | Ensure load power is within 60W and current within 5A. Recheck CV/CC settings. Verify if OVP, OCP, OPP, or OTP are triggered and adjust limits if necessary. |
| Module gets excessively hot | High output power; Insufficient ventilation; Ambient temperature too high. | Reduce output power, especially if operating above 30W. Ensure module has adequate airflow. Consider adding a cooling fan. Check ambient temperature. |
| Display shows error or freezes | Software glitch; Overload condition; Internal fault. | Disconnect power, wait a few seconds, then reconnect. Reduce load. If problem persists, contact support. |
| Battery charging issues (e.g., not charging, damage) | Reversed battery polarity; Output voltage not higher than battery; Incorrect charging parameters. | **Immediately disconnect if polarity is reversed.** Ensure output voltage is set correctly for the battery type. Verify charging current limit. Seek professional assistance if unsure about battery charging. |

## 11. Warranty and Support

For any questions, technical assistance, or support regarding your DONGKER XY-SK60 Boost Buck Converter, please contact the seller or manufacturer directly. They are committed to providing high-quality service and will assist you until you are satisfied.
Please retain your proof of purchase for any warranty claims.

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