

Suuonee 60A

Suuonee 60A PWM Solar Charge Controller User Manual

Model: 60A | Brand: Suuonee

1. INTRODUCTION

This manual provides detailed instructions for the installation, operation, and maintenance of your Suuonee 60A PWM Solar Charge Controller. This controller is designed for off-grid solar systems, automatically detecting 12V or 24V battery systems. It features an LCD display for monitoring and parameter adjustment, along with a 3-stage PWM charging system to optimize battery life and performance.

2. SAFETY INFORMATION

Please read all instructions carefully before installation and operation. Failure to follow these instructions may result in damage to the unit, personal injury, or property damage.

- Ensure all connections are correct and secure before applying power.
- Connect the battery first, then the solar panel, and finally the load. Disconnect in the reverse order.
- Do not connect the solar panel to an AC power source.
- Install the controller in a well-ventilated area, away from flammable materials and direct sunlight.
- Use appropriate circuit breakers or fuses for all connections.
- This device is for indoor use only. Protect it from water and moisture.

3. PRODUCT FEATURES

- **Industrial-Grade Construction:** Built with an industrial microcontroller for durability and continuous performance in demanding conditions.
- **Clear LCD Display:** Large LCD screen for real-time monitoring and easy adjustment of parameters, allowing customization for optimal charging.
- **Advanced 3-Stage PWM Charging:** Maximizes battery life through voltage control during bulk, absorption, and float stages, ensuring efficient energy transfer for various battery types.

- **Comprehensive Protections:** Includes built-in safeguards against short-circuit, open-circuit, reverse polarity, and overload, protecting both the controller and connected batteries.
- **Efficient Heat Management:** Features MOSFET reverse current protection to minimize heat generation, enhancing stability and extending the unit's lifespan.
- **Dual USB Output:** Provides 5V/2A USB ports for charging mobile devices.

Fully 3-stage PWM charge management

Big LCD display, all adjustable parameter



Image: The solar charge controller highlighting its 3-stage PWM charge management and large LCD display with adjustable parameters.

4. PACKAGE CONTENTS

The package includes:

- 1 x Suuonee 60A PWM Solar Charge Controller
- 1 x User Manual

5. SPECIFICATIONS

Parameter	Value
System Voltage	12V / 24V Auto

Parameter	Value
Solar Panel Voltage (12V System)	18V Solar Panel
Solar Panel Voltage (24V System)	36V Solar Panel
Rated Charge Current	60A
Rated Discharge Current	60A
Charge Float Voltage	13.7V (default, adjustable)
Discharge Stop Voltage	10.7V (default, adjustable)
Discharge Reconnect Voltage	12.6V (default, adjustable)
Self-Consume	<1mA
USB Output	5V / 2A
Item Weight	3.52 ounces (0.1 Kilograms)
Product Dimensions	3.94 x 3.94 x 3.94 inches
Display Type	LCD



Image: Physical dimensions of the solar charge controller, measuring 135mm in width and 70mm in height.

6. INSTALLATION

Follow these steps for proper installation of the solar charge controller:

1. **Prepare for Installation:** Choose a dry, well-ventilated location for the controller, away from direct sunlight and heat sources. Ensure sufficient space around the controller for air circulation.
2. **Connect the Battery:** Connect the battery to the charge controller first. Ensure correct polarity (+ to + and - to -). The controller will automatically detect the battery voltage (12V or 24V).
3. **Connect the Solar Panel:** Connect the solar panel to the charge controller. Ensure correct polarity. Do not connect the solar panel to an AC power source.
4. **Connect the Load:** Connect the DC load to the charge controller. Ensure correct polarity. Do not exceed the maximum rated current of the controller.

Important: Always connect the battery first, then the solar panel, then the load. Disconnect in the reverse order: load, then solar panel, then battery.

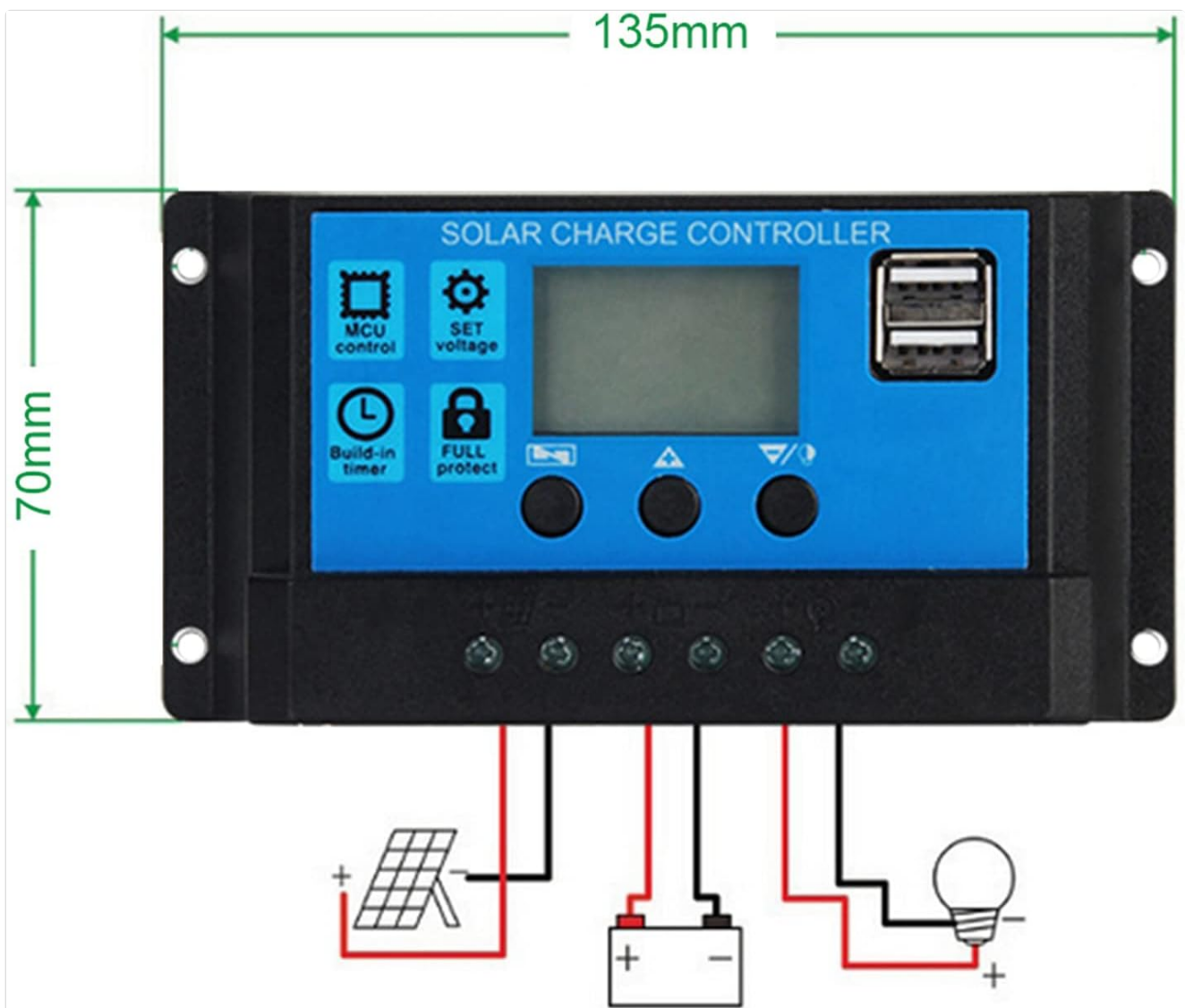


Image: Wiring diagram illustrating the correct connection sequence for the solar panel, battery, and DC load to the charge controller.



Image: Examples of typical applications for the solar charge controller in different off-grid setups.

7. OPERATION

7.1 LCD Display and Buttons

The controller features an LCD display for real-time system status and three buttons for navigation and parameter adjustment:

- **Menu Button:** Press to enter/exit the menu and cycle through display modes.
- **Up Button:** Increase values or move up in menu options.
- **Down Button:** Decrease values or move down in menu options.

7.2 Parameter Settings

To adjust parameters:

1. Press the **Menu** button to enter the setting interface.
2. Use the **Up** and **Down** buttons to navigate through parameters such as battery type, charge float voltage, discharge stop voltage, and discharge reconnect voltage.
3. Long press the **Menu** button until the value flashes to enter edit mode.
4. Use the **Up** and **Down** buttons to adjust the value.

5. Long press the **Menu** button again to save the setting and exit edit mode.

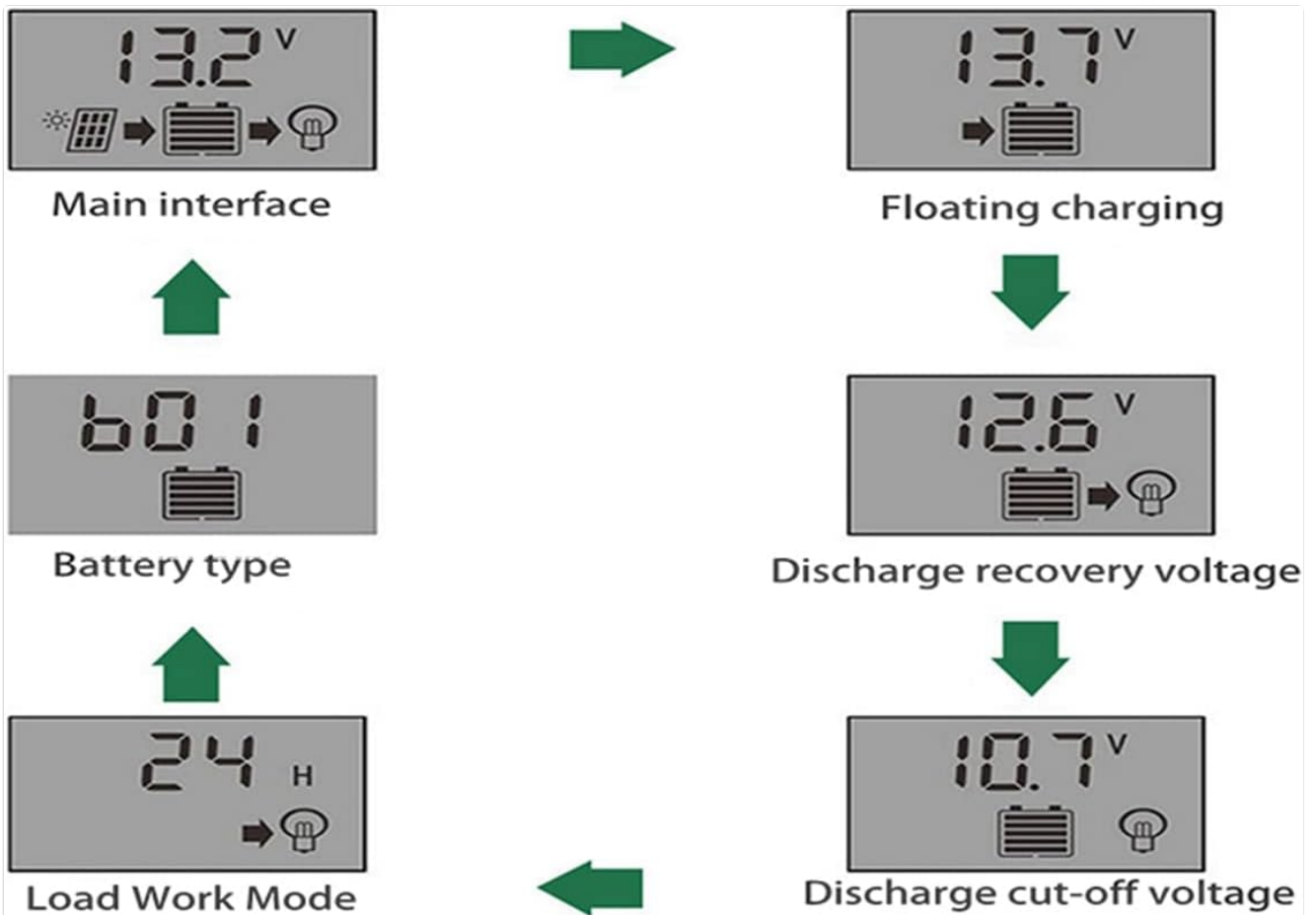


Image: Flowchart demonstrating the sequence of LCD display screens for monitoring and setting parameters.

7.3 USB Output

The controller provides two 5V/2A USB ports for charging compatible electronic devices. These ports are active when the controller is powered by the battery.



Image: Detail of the dual USB output ports on the controller, illustrating their use for charging various electronic devices.

8. 3-STAGE PWM CHARGING

The controller utilizes a 3-stage Pulse Width Modulation (PWM) charging algorithm to efficiently charge batteries and prolong their lifespan:

- **Bulk Charge:** When the battery is below the float voltage, the controller delivers maximum current to quickly bring the battery up to a higher voltage level.
- **Absorption Charge:** Once the battery reaches the absorption voltage, the controller maintains this voltage while the current gradually decreases. This stage ensures the battery is fully charged without overcharging.
- **Float Charge:** After the absorption stage, the controller reduces the voltage to a lower float level. This maintains the battery at full charge and compensates for self-discharge, preventing overcharging.

9. BUILT-IN PROTECTIONS

The Suuonee 60A PWM Solar Charge Controller incorporates multiple protection features to ensure safe and reliable operation:

- **Short-Circuit Protection:** Automatically disconnects in case of a short circuit in the solar panel, battery, or load.

- **Open-Circuit Protection:** Protects the system if the solar panel or battery circuit is open.
- **Reverse Polarity Protection:** Prevents damage if the battery or solar panel is connected with incorrect polarity.
- **Overload Protection:** Disconnects the load if the current exceeds the rated capacity.
- **Over-Discharge Protection:** Prevents the battery from being discharged below a safe voltage level.
- **Over-Charge Protection:** Stops charging once the battery reaches its full capacity to prevent damage.

10. TROUBLESHOOTING

If you encounter issues with your solar charge controller, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
Controller not powering on	Battery not connected or reverse polarity.	Check battery connections and ensure correct polarity.
Battery not charging	Solar panel not connected, insufficient sunlight, or reverse polarity.	Check solar panel connections, ensure adequate sunlight, verify polarity.
Load not working	Load disconnected, overload, or battery voltage too low.	Check load connections, reduce load, or charge battery.
LCD display abnormal	Loose connection or internal fault.	Check all connections. If problem persists, contact support.

11. MAINTENANCE

To ensure optimal performance and longevity of your solar charge controller, follow these maintenance guidelines:

- **Regular Inspection:** Periodically check all wiring connections for tightness and corrosion.
- **Cleaning:** Keep the controller clean and free from dust and debris. Use a dry cloth to wipe the surface.
- **Ventilation:** Ensure the installation area remains well-ventilated to prevent overheating.
- **Environmental Conditions:** Avoid exposing the controller to extreme temperatures, humidity, or corrosive environments.

12. PRODUCT OVERVIEW VIDEO

Watch this video for a visual overview of the Suuonee Solar Charge Controller and its features.

Your browser does not support the video tag.

Video: A brief demonstration of the Suuonee Solar Charge Controller, showcasing its design and basic functionalities.

13. WARRANTY AND SUPPORT

For warranty information or technical support, please refer to the documentation provided with your purchase or contact Suuonee customer service directly. Keep your purchase receipt as proof of purchase.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question