Aramox 100A

Aramox MPPT 100A Solar Charge Controller User Manual

Model: 100A

1. Product Overview

The Aramox MPPT 100A Solar Charge Controller is designed to efficiently manage power flow from your solar panels to your battery bank and connected loads. Featuring industrial-grade master chip technology, 16 AD sampling accuracy, and automatic focusing MPPT tracking, this controller ensures high charging efficiency and accurate real-time display of temperature, charging current, and discharge current. It supports 12V and 24V solar panel systems and includes comprehensive protection features to safeguard your system.



Image 1.1: Front view of the Aramox MPPT 100A Solar Charge Controller, showing the LCD screen, control buttons, and dual USB

output ports.

2. Safety Instructions

- Ensure all connections are correct and secure before powering on the controller.
- Connect the battery first, then the solar panel, and finally the load. Disconnect in the reverse order.
- Avoid short-circuiting the solar panel, battery, or load terminals.
- Install the controller in a well-ventilated area, away from direct sunlight and moisture.
- Do not attempt to disassemble or repair the controller yourself. Contact qualified personnel for service.

3. Setup and Installation

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

1. **Prepare Wiring:** Ensure you have appropriate gauge wires for your solar panel, battery, and load connections. The controller's terminals are designed for specific wire sizes.
2. **Connect Battery:** Connect the positive and negative terminals of your battery to the corresponding battery terminals on the solar charge controller. Observe polarity carefully. The controller will automatically detect 12V or 24V system voltage.
3. **Connect Solar Panel:** Connect the positive and negative terminals of your solar panel(s) to the corresponding solar panel terminals on the controller. Ensure correct polarity.
4. **Connect Load:** Connect your DC loads (e.g., lights, fans) to the load terminals on the controller. Again, observe polarity.

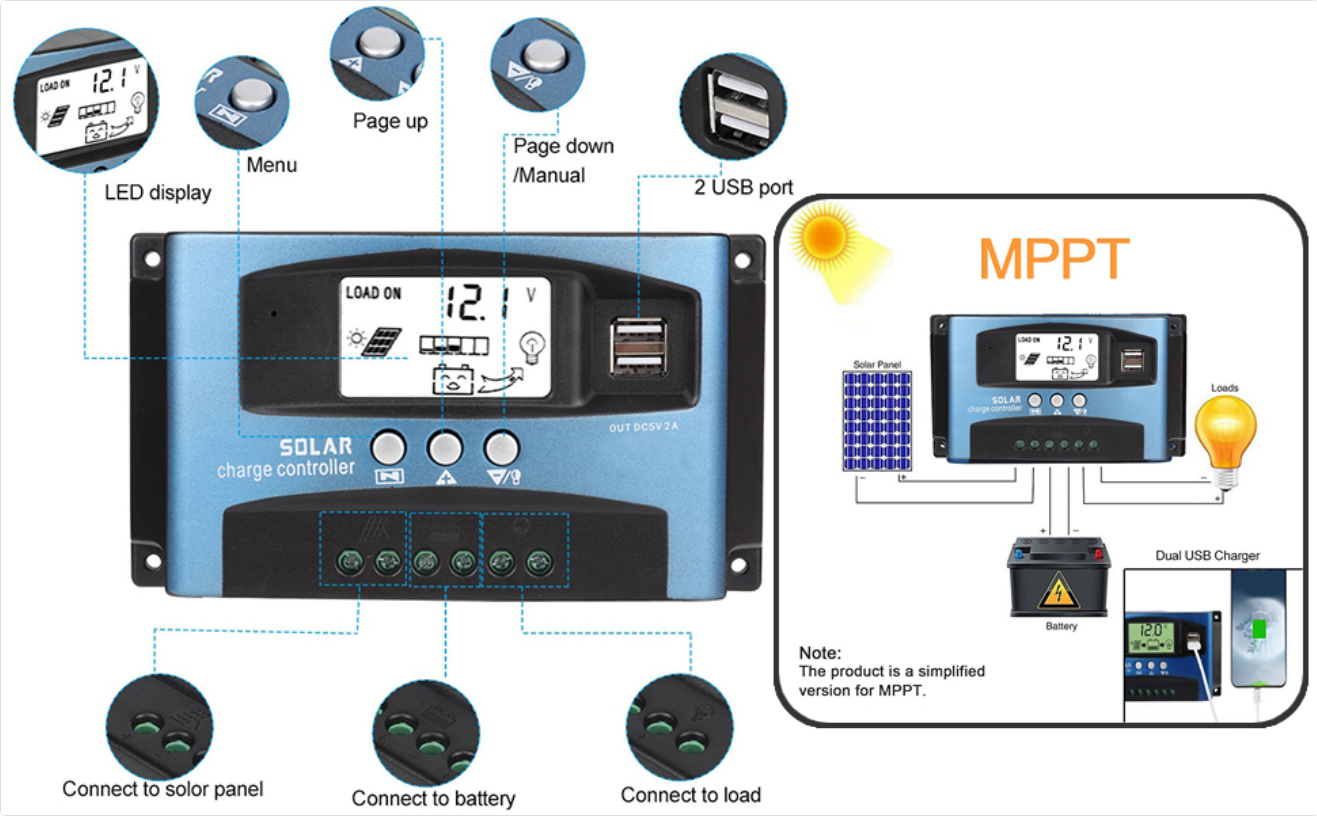


Image 3.1: Connection diagram illustrating how to connect the solar panel, battery, and DC load to the solar charge controller terminals.



Image 3.2: Close-up view of the controller's interface, highlighting the Menu, Page Up, and Page Down buttons, along with the solar panel, battery, and load connection terminals.

Important Note on MPPT:
This product features a simplified version of MPPT (Maximum Power Point Tracking) technology. While it offers high charging efficiency and bidirectional focusing tracking, it may not be a full-fledged MPPT controller in the traditional sense. It continuously detects during charging to optimize power delivery.

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4. Operating Instructions

4.1 LCD Display and Buttons

The controller features a large LCD display that shows various system parameters. Three buttons below the display allow for navigation and parameter adjustment:

- **Menu Button:** Press to cycle through different display screens and enter parameter setting mode.
- **Page Up Button:** Used to increase values or navigate upwards in menus.
- **Page Down / Manual Button:** Used to decrease values, navigate downwards, or manually control the load output (if configured).



Image 4.1: Overview of the LCD display, control buttons, and their respective functions, including the dual USB output ports.

4.2 Charging Management

The controller employs a three-stage charge management system to effectively protect and optimize battery life:

1. **Bulk Charge:** Delivers maximum current to rapidly charge the battery.
2. **Absorption Charge:** Maintains a constant voltage to fully charge the battery, reducing current as the battery approaches full capacity.
3. **Float Charge:** Reduces voltage to a lower level to maintain the battery at full charge, compensating for self-discharge.

The controller also features dual USB output ports (5V/2A Max) for charging external devices.

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5. Maintenance

To ensure optimal performance and longevity of your Aramox Solar Charge Controller, follow these maintenance guidelines:

- **Regular Inspection:** Periodically check all wiring connections for tightness and corrosion. Ensure no wires are frayed or damaged.
- **Cleanliness:** Keep the controller clean and free from dust and debris. Use a dry cloth to wipe the exterior. Do not use liquid cleaners.
- **Ventilation:** Ensure the installation area provides adequate ventilation to prevent overheating. Do not block the ventilation holes on the controller.
- **Environmental Conditions:** Protect the controller from extreme temperatures, direct water exposure, and high humidity.

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6. Troubleshooting

This section addresses common issues you might encounter with your solar charge controller.

6.1 Common Issues and Solutions

- **No Display/No Power:**
  - Check battery connections. Ensure positive and negative terminals are correctly connected and secure.
  - Verify battery voltage is within the operating range (12V/24V).
- **Battery Not Charging:**
  - Check solar panel connections and polarity.
  - Ensure solar panels are receiving adequate sunlight and are not shaded.
  - Verify solar panel voltage is sufficient for charging (e.g., 18V for 12V battery, 36V for 24V battery).
- **Load Not Working:**
  - Check load connections and polarity.
  - Ensure the battery has sufficient charge. The controller has a discharge stop voltage (default 10.7V).
  - Check if the load output is enabled via the controller settings or manual button.
- **Over-load Protection Triggered:**
  - Reduce the total power consumption of connected loads.
  - Disconnect and reconnect the load to reset the protection.

6.2 Built-in Protections

The controller is equipped with several protection mechanisms:

- **Short-circuit Protection:** Prevents damage from short circuits in the system.
- **Open-circuit Protection:** Safeguards against open circuits in the solar panel or battery connections.
- **Reverse Protection:** Protects against incorrect polarity connections for battery and solar panels.
- **Over-load Protection:** Shuts off load output if current exceeds the rated limit.

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7. Specifications

Feature	Specification
Model	100A
System Voltage	12V/24V Auto-detect
Display Type	LCD
USB Output	Dual USB, 5V/2A Max
Discharge Stop Voltage	10.7V (default, adjustable)

Feature	Specification
Discharge Reconnect Voltage	12.6V (default, adjustable)
Self-Consume	<10mA
Operating Temperature	25 Degrees Celsius (typical)
Product Dimensions	Approximately 3.94 x 3.94 x 3.94 inches (100 x 100 x 100 mm)
Item Weight	Approximately 10.1 ounces

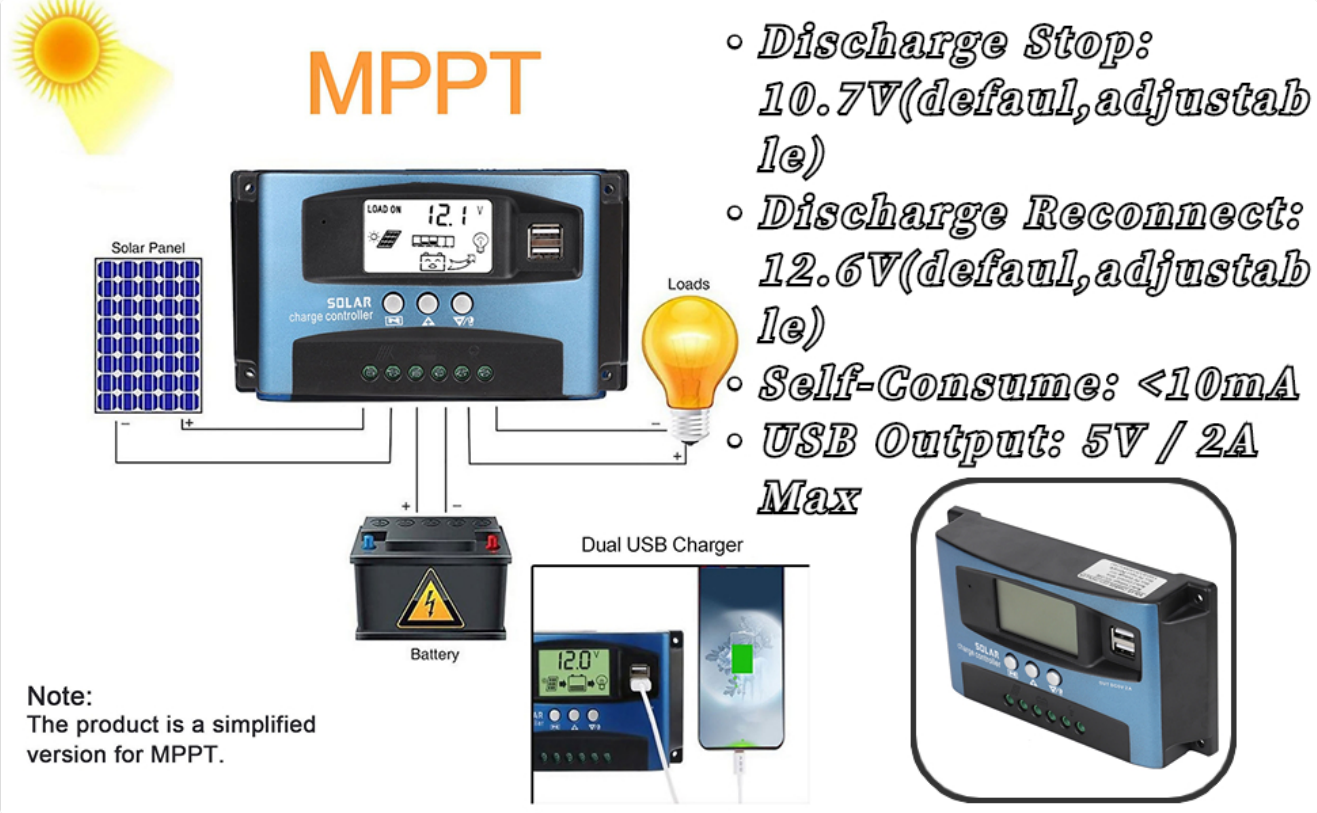


Image 7.1: Visual representation of the controller's dimensions and an illustration of its three-stage charging process.

8. Warranty and Support

Aramox values the shopping experiences and satisfaction of each customer. This product has been thoroughly quality tested before shipping to ensure optimal performance.

If you encounter any installation or quality issues with the product, please contact Aramox customer support in a timely manner. We are committed to providing technical support and will address your concerns as soon as possible, including return, replacement, or refund requests if applicable.

For support, please refer to the contact information provided with your purchase or visit the official Aramox store page.

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