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PowMr 60Amp MPPT Solar Charge Controller

PowMr 60Amp MPPT Solar Charge Controller User Manual

MODEL: 60AMP MPPT SOLAR CHARGE CONTROLLER

Brand: PowMr

1. INTRODUCTION

The PowMr 60Amp MPPT Solar Charge Controller is an advanced maximum power point tracking (MPPT) charge controller for off-grid photovoltaic (PV) systems. It is designed to ensure the maximum power point of the solar panels is tracked efficiently, maximizing energy harvest. This controller is compatible with 12V, 24V, 36V, and 48V DC system voltages and supports various battery types including sealed lead-acid, flooded, gel, and lithium batteries.

Key Features:

- **Excellent Heat Dissipation:** Die-cast aluminum design ensures good heat dissipation performance, reduces noise, and saves energy.
- **High Efficiency:** Innovative MPPT technology with tracking efficiency up to 99% and peak conversion efficiency of 98%.
- **Upgraded Design:** 0-layer design for easy installation and setup.
- **Multifunctional Backlight LCD Display:** Displays system operation information, customizable parameters, and error codes.
- **Multiple Battery Adaptation:** Automatically detects 12V, 24V, 36V, or 48V DC system voltages and is compatible with sealed lead-acid, flooded, gel, or lithium batteries (must be deep cycle).
- **4-Stage Safe Charging:** Features Bulk Charge, Boost Charge, Float Charge, and Equalization for rapid, efficient, and safe battery charging.
- **Full System Protection:** Customizable charging voltages, overcharging, over-discharging, PV array short circuit, PV overcurrent, load overload, load short circuit, PV reverse polarity, battery reverse polarity, and over-temperature protection.



Figure 1: Front view of the PowMr 60Amp MPPT Solar Charge Controller.

2. SAFETY INFORMATION

Please read all instructions and warnings in this manual carefully before installation and operation. Failure to follow these instructions may result in electric shock, fire, or severe injury. Keep this manual for future

reference.

- Installation must be performed by qualified personnel.
- Ensure all wiring is correctly sized and properly insulated.
- Disconnect all power sources (solar panels and battery) before installing or servicing the controller.
- Do not disassemble or attempt to repair the controller. Contact customer support for assistance.
- Install the controller in a well-ventilated area, away from flammable materials and direct sunlight.
- Ensure proper grounding of the system.

3. SETUP AND INSTALLATION

Follow these steps for proper installation of your MPPT solar charge controller. Always connect the battery first, then the solar panels, and finally the load.

3.1 Connection Order

1. **Connect the Battery:** Connect the battery to the controller's battery terminals. Ensure correct polarity (+ to + and - to -). The controller will automatically detect the battery voltage.
2. **Connect the Solar Panels:** Connect the solar panels to the controller's PV input terminals. Ensure correct polarity.
3. **Connect the DC Load (Optional):** Connect your DC loads to the controller's load terminals.



Figure 2: Typical system connection diagram for the solar charge controller, showing connections to solar panels, battery bank, inverter, and DC/AC loads.



Figure 3: Detailed view of the controller's terminals for easy and secure connections.

3.2 Mounting

Mount the controller vertically on a solid surface, ensuring adequate air circulation around the unit for optimal heat dissipation. Avoid mounting in direct sunlight or in areas with high humidity.

4. OPERATING INSTRUCTIONS

The PowMr MPPT Solar Charge Controller features a backlight LCD display and four buttons for easy operation and parameter setting.

4.1 LCD Display and Buttons

1. PV Button---View Value

Browse PV parameter(PV voltage, current and power)

2. BAT Button---View Value and Set Parameter

Function 1: Browse battery value

Function 2: Set battery type and charging voltage when display show"C-voltage

3. Work Mode---View Value

3.0 Night mode, no charging

4.0 MPPT tracking mode

7.0 Constrant charge mode

8.0 Floating charge mode

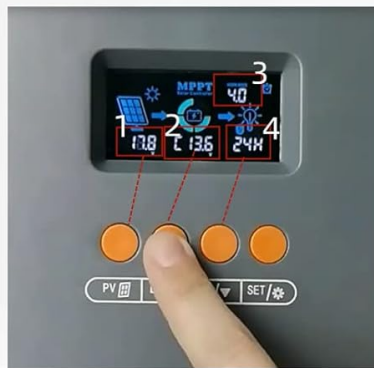
4. Load Mode---View Value and Set Parameter

-00H: Load Turn Off

-24H: Load always Turn On

-01H-23H: Time Control

(Set load On's duration)



▶ 0 Layer Design, Easy Setup

Parameter Setting Stage

1. Press and hold "Batt/up or DC Button" until the value flashes
2. Press "up" "down" button to adjust value
3. Press "SET" to confirm and save

Figure 4: Overview of the LCD display and button functions for viewing values and setting parameters.

- **PV Button:** View PV voltage, current, and power.
- **BAT Button:** View battery value and set parameters (e.g., battery type).
- **DC/DOWN Button:** View value and load mode setting.
- **SET Button:** Save and reset parameters.

4.2 Parameter Setting

To adjust parameters, follow these steps:

1. Press and hold the 'Batt/up' or 'DC' button until the value flashes.
2. Press the 'UP' or 'DOWN' button to adjust the value.
3. Press 'SET' to confirm and save the new setting.



Figure 5: Visual guide for setting parameters on the LCD display.

4.3 Work Modes and Load Modes

The controller supports various work modes and load modes to suit different application needs.



Figure 6: Explanation of different work modes (Night mode, MPPT tracking, Constant charge, Floating charge) and load modes (Load Turn Off, Load always Turn On, Time Control).

4.4 Battery Charging Stages

The controller employs a 4-stage charging algorithm to optimize battery life and performance.

4-Stage Battery Charging

Rapid, efficient, and safe Charging Algorithm
Compatible With 12V 24V 36V 48V Battery System

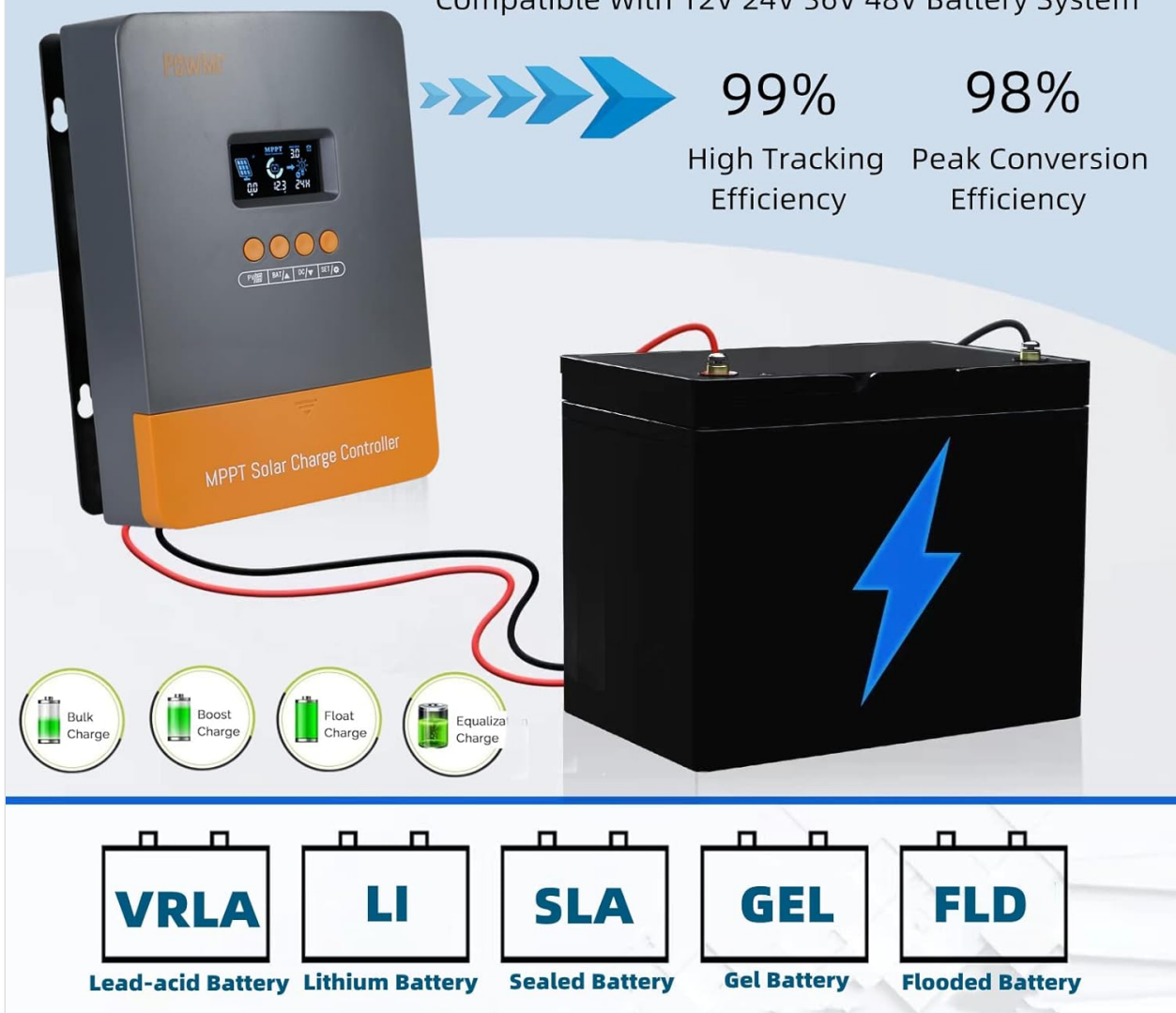


Figure 7: Illustration of the 4-stage battery charging process: Bulk Charge, Boost Charge, Float Charge, and Equalization.

4.5 Product Overview Video

Video 1: An overview of the Upgraded PowMr 60A Solar Charge Controller, demonstrating its features and basic operation.

5. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your solar charge controller.

- **Cleaning:** Periodically clean the exterior of the controller with a dry cloth. Do not use liquid cleaners or solvents.
- **Connections:** Check all wire connections regularly to ensure they are tight and free from corrosion. Loose connections can cause overheating and damage.
- **Ventilation:** Ensure the ventilation openings are clear of dust and debris to maintain proper heat dissipation.
- **System Monitoring:** Regularly monitor the LCD display for any error codes or unusual readings.

6. TROUBLESHOOTING

This section provides solutions to common issues you might encounter. For more complex problems, please contact customer support.

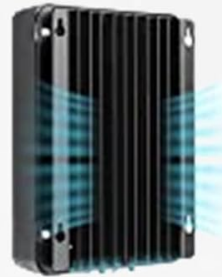
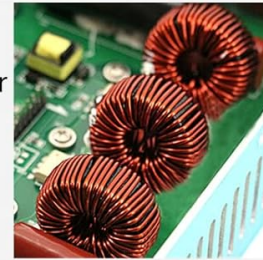
Problem	Possible Cause	Solution
Controller not turning on	Battery not connected or low voltage; reversed polarity	Ensure battery is connected correctly and has sufficient charge. Check polarity.
No charging current from PV	PV panels not connected; insufficient sunlight; PV reversed polarity	Check PV connections and polarity. Ensure panels are receiving adequate sunlight.
Load not working	Load disconnected; overload; short circuit; low battery voltage	Check load connections. Reduce load. Check for short circuits. Charge battery.
Error code displayed	Specific system fault (e.g., over-voltage, over-current)	Refer to the controller's LCD display for the specific error code and consult the manual's error code section (if available) or contact support.

MPPT Solar Charge Controller 60A

MPPT Technology Maximum Power Point Tracking



Copper Coil Transformer
Innovative MPPT
Technology



Aluminum Heat Dissipation
Low noise
Excellent heat dissipation

Multiple Protection

Overcharging Protection	Load Overload Protection
PV Overcurrent Protection	Over-discharge Protection
PV Reverse Polarity Protection	Load Short Circuit Protection
Battery Reverse Polarity Protection	Over-Temperature Protection

Figure 8: The controller includes multiple protection features such as overcharging, PV overcurrent, load overload, and reverse polarity protection.

7. SPECIFICATIONS

Feature	Specification
Display Type	LCD
Manufacturer	PowMr
Product Dimensions	8.27 x 7.68 x 4.52 inches (21.01 x 19.51 x 11.48 cm)
Item Weight	3.67 pounds (1.66 kg)
ASIN	B09YRQRYRM
Batteries required	No (for controller operation, but connects to external batteries)
Color	M60

Feature	Specification
Brand	PowMr
Voltage	48 Volts (DC) - Auto-detects 12V/24V/36V/48V
Material	Die-cast Aluminum

8. WARRANTY AND SUPPORT

PowMr products are designed and manufactured to the highest quality standards. For information regarding warranty coverage, returns, or technical support, please refer to the warranty card included with your product or visit the official PowMr website. Keep your purchase receipt as proof of purchase.

9. CONTACT INFORMATION

For further assistance or inquiries, please contact PowMr customer service:

- **Website:** [PowMr Official Store on Amazon](#)
- Refer to your product packaging or included documentation for direct contact details such as email or phone number.