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POWLAND iCharer MPPT 8048

POWLAND 80A MPPT Solar Charge Controller User Manual

Model: iCharer MPPT 8048

1. Product Overview

The POWLAND 80A MPPT Solar Charge Controller is an advanced device designed to efficiently manage power flow from solar panels to batteries. It utilizes Maximum Power Point Tracking (MPPT) technology to optimize energy harvest, ensuring fast, efficient, and safe charging for various battery types. This controller is compatible with 12V, 24V, 36V, and 48V photovoltaic systems and features comprehensive protection mechanisms.



Image: The POWLAND 80A MPPT Solar Charge Controller, highlighting its 80A capacity, 12V/24V/36V/48V auto compatibility, multiple protection features, 3-stage charging mode, and LCD display.

2. Key Features

- **80A MPPT Charging:** Features a 4-level battery charging algorithm (batch charging, boost charging, float charging, and equalizing) for optimized battery health and performance.
- **High Efficiency:** Employs optimized MPPT technology for rapid tracking of the maximum power point, achieving ≥99% photovoltaic utilization and a maximum efficiency of ≥98.1%.
- **Multiple Protections:** Includes short circuit protection, open circuit protection, reverse protection, and overload protection to ensure system safety and longevity.
- **Battery Compatibility:** Automatically identifies 12V, 24V, 36V, and 48V systems. Supports various battery types including flooded, AGM, GEL, and lithium-ion batteries.
- **LCD Display:** A multi-function LCD provides clear operating data and status. Features 4 buttons for easy navigation and parameter adjustment.
- **Modbus Protocol Communication:** Supports Modbus protocol for remote monitoring and configuration.
- **Smart Fan Design:** Dual fan design for efficient heat dissipation, with fans activating only when temperature

exceeds 45°C to save energy.



Image: A visual representation of the comprehensive protection features, including overcharging, over-release, overload, short-circuiting, temperature compensation, reverse current, and reverse polarity protection.

3. Setup and Installation

Proper installation is crucial for the safe and efficient operation of your MPPT solar charge controller. Always ensure all connections are secure and follow local electrical codes.

3.1. Included Components

- MPPT Solar Charge Controller
- User Manual (this document)
- Connection Cable

3.2. Connection Diagram

Connect the solar panels, battery, and inverter to the controller as shown in the diagram below. Ensure correct polarity for all connections.

1. Connect the battery to the controller first.
2. Connect the solar panels to the controller.
3. Connect the load (inverter) to the controller (if applicable).

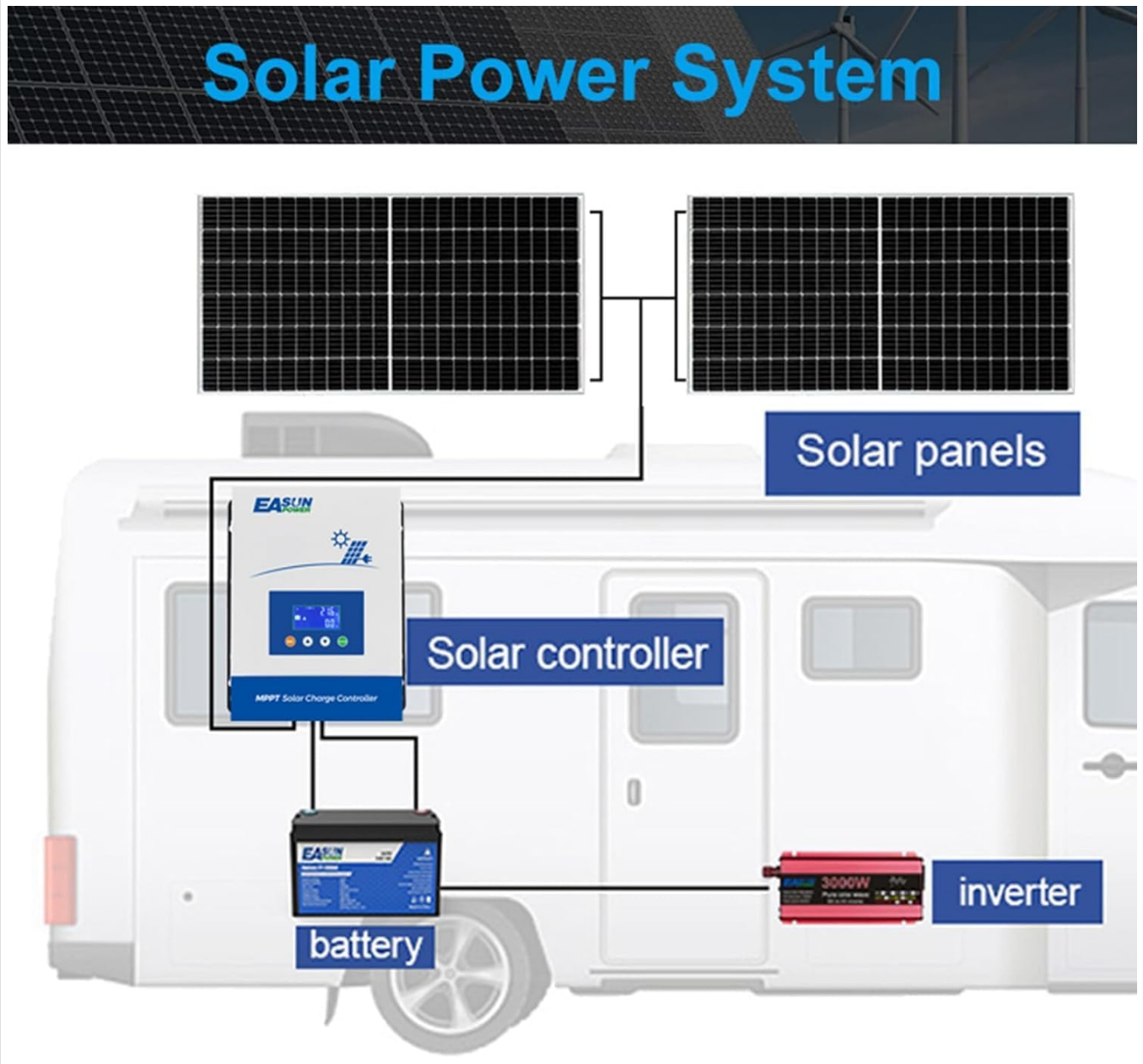

Image: A schematic diagram illustrating the typical setup of a solar power system, showing solar panels connected to the solar controller, which then connects to a battery and an inverter.

3.3. Mounting

The controller is designed for easy mounting. Choose a well-ventilated area, away from direct sunlight and moisture. Ensure sufficient clearance around the unit for proper airflow and heat dissipation.

4. Operating Instructions

The controller features an LCD display and four buttons for operation and monitoring. The system automatically identifies the battery voltage (12V/24V/36V/48V).

4.1. LCD Display and Buttons

The LCD displays real-time operating data such as battery voltage, charging current, and system status. The buttons allow for navigation and parameter adjustments.

Function Key Operations

Function Key	System Mode	Operation	Operation Indication
ENTER	Setting Mode	Long Press	Exit from setting & saving the present settings data
ENTER	Setting Mode	Short Press	Enter the next setting page
UP Arrow	Setting Mode	Short Press	Adjust the parameter by increase the value
DOWN Arrow	Setting Mode	Short Press	Adjust the parameter by decrease the value
ESC	Setting Mode	Short Press	Exit SET Mode without saving data



Image: A visual guide to the LCD display and the functions of the four control buttons (ESC, Up, Down, Enter) for navigating and adjusting settings on the controller.

4.2. Charging Algorithm

The controller employs a 4-level charging algorithm to maximize battery life and performance:

- **Batch Charging:** Initial stage where the battery is charged at maximum current until a set voltage is reached.
- **Boost Charging:** The voltage is held constant while the current gradually decreases.
- **Float Charging:** Once the battery is fully charged, the voltage is reduced to a lower level to maintain a full charge without overcharging.
- **Equalizing:** Periodically applies a higher voltage to balance cell voltages in flooded lead-acid batteries.

5. Maintenance

Regular maintenance ensures the longevity and optimal performance of your POWLAND MPPT Solar Charge Controller.

- **Cleanliness:** Keep the controller clean and free from dust and debris. Use a dry cloth for cleaning.
- **Connections:** Periodically check all wiring connections to ensure they are tight and free from corrosion.

- **Ventilation:** Ensure the ventilation openings are not blocked to allow for proper heat dissipation. The smart fan system will activate as needed.
- **Environmental Conditions:** Ensure the controller operates within its specified environmental temperature range (-20°C to +55°C).



Image: An illustration of the dual fan design, explaining that the fans do not turn below 40°C (saving energy loss) and start turning above 45°C to ensure normal operation and heat dissipation.

6. Troubleshooting

This section provides solutions to common issues you might encounter with your solar charge controller.

Common Troubleshooting Steps

Problem	Possible Cause	Solution
Controller not turning on / No display	Battery not connected or low voltage; reversed polarity.	Ensure battery is connected first with correct polarity and sufficient voltage. Check battery terminals.

Problem	Possible Cause	Solution
Battery not charging	Solar panels not connected; insufficient sunlight; panel voltage too low/high; faulty wiring.	Check solar panel connections and voltage. Ensure adequate sunlight. Inspect all wiring for damage.
Overcharging / Undercharging	Incorrect battery type setting; faulty battery.	Verify battery type setting on the controller. Test battery health.
Error codes on display	Internal fault; specific protection activated.	Refer to the detailed error code list in the full manual (if available) or contact customer support. Try power cycling the unit (disconnect battery then solar, wait, reconnect solar then battery).

If the problem persists after attempting these solutions, please contact customer support.

7. Specifications

Detailed technical specifications for the POWLAND 80A MPPT Solar Charge Controller.

Parameter	Value
Model	iCharer MPPT 8048
Charging Mode	3-stage: Constant Current (MPPT), Constant Voltage, Floating
System Voltage	12V/24V/36V/48V Auto Recognition
Max PV Input Power	1200W (12V) / 2400W (24V) / 3600W (36V) / 4800W (48V)
Max PV Input Voltage	150 VDC
Battery Voltage Auto Recognition	12V System (DC8.7V-DC15.5V), 24V System (DC16V-DC31V), 36V System (DC33V-DC41V), 48V System (DC42V-DC64V)
Overcharging Protection Voltage	12V System (16V), 24V System (32V), 36V System (48V), 48V System (64V)
Limited Current Protection	80 A
Max Efficiency	≥98.1%
PV Utilization	≥99%
Auto Temperature Compensation	-3mV/2V/°C
Temperature Protection	80°C
Fan-on Temperature	>45°C
Fan-off Temperature	<40°C
Size (mm)	247.3*201*80.3
Net Weight (Kg)	2.05

Parameter	Value
Electromagnetic Compatibility	Accord to EN61000, EN55022, EN55024
Enclosure	IP21
Environmental Temperature	-20°C ~ +55°C
Storage Temperature	-40°C ~ +75°C
Display Type	LCD
Brand	POWLAND
Manufacturer	EASUNPOWER
UPC	716963961813



- **80A MPPT** Solar charge controller
- MPPT technology
- **3-stage** charging optimizes battery performance
- Automatic battery voltage detection **12V/24V/36V/48V**
- Battery OVP,Battery LDV,Solar OVP,Overcharge, over-temperature,Reverse Polarity protection.
- Supports RS485 communication with Modbus protocol
- Suitable for battery typers such as Lead-acid AGM/GEL/Flooded & Lithium battery.Easy to be mounted

Application

Models	ICharer MPPT 8048
Charging Mode	3-stage: Constant Current(MPPT),Constant Voltage, Floating
System Voltage	12/24/36/48/Auto
Max PV I nput Power	1200W/12V;2400W/24V;3600W/36V;4800W/48V
Max PV Input Voltage	150 Voc
Battery Voltage Autom atic Recognition	12V System(DC8.7V-DC15.SV) 24V System(DC16V-DC31V) 36V System(DC33V -DC41V} 48V System(DC42V -DC64V)
Overcharging Protection Voltage	12V System(16V) 24V System(32V) 36V System(48V) 48V System(64V)
Lim ited Current Protection	80 A
Max Efficiency	⩾98.1%
PV Utilization	⩾99%
Auto Temperature Compensation	-3mV/2V/℃
Temperature Protection	80℃
Fan-on Temperature	>45℃
Fan-off Temperature	<40℃
Size(mm)	247.3*201*80.3
NeWt eight(Kg)	2.05
Electromagnetic Compatibility	Accord to EN61000, EN550 22, EN550 24
Enclosure	IP21
Environm ental Temperature	-20°C~+55°C
Storage Temperature	-40°C~+75°C

Image: A comprehensive table listing various technical specifications and application details for the iCharer MPPT 8048 solar charge controller.

8. Warranty and Support

The POWLAND 80A MPPT Solar Charge Controller comes with a**1-Year Warranty** from the date of purchase.

This warranty covers defects in materials and workmanship under normal use. It does not cover damage caused by improper installation, misuse, accidents, unauthorized repairs, or natural disasters.

For technical support, warranty claims, or further assistance, please contact POWLAND customer service through the retailer where the product was purchased or visit the official POWLAND website.

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