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POWLAND B091345CNJ

Easun Power 30A MPPT Solar Charge Controller User Manual

Model: B091345CNJ
Brand: POWLAND

1. Introduction

This user manual provides comprehensive instructions for the installation, operation, and maintenance of the Easun Power 30A MPPT Solar Charge Controller. This advanced Maximum Power Point Tracking (MPPT) controller is designed to optimize the power output from your solar photovoltaic (PV) array to efficiently charge various battery types, including lead-acid and lithium-ion batteries. It features high conversion efficiency, intelligent control algorithms, and extensive electronic protection to ensure reliable and safe operation of your solar power system.

2. Product Features

- **Advanced MPPT Technology:** Achieves efficiency no less than 99.5% with ultra-fast tracking speed and guaranteed tracking efficiency. Utilizes an advanced MPPT control algorithm to minimize power point loss.
- **High Quality and Performance:** Maximum conversion efficiency of 98%. Built with international famous brands of ST and IR's components for high quality and low failure rate, ensuring product longevity.
- **Multifunction and Intelligence:** Includes real-time energy statistics, overheating power reduction, and multiple load work modes. Features a communication port with professional protection chip, providing 5VDC power supply and protection against over-current and short-circuit. Accurately recognizes and tracks multiple-peaks maximum power point.
- **Convenient and Compatible:** Equipped with a backlight LCD screen for displaying system information and working conditions. Compatible with both lead-acid and lithium-ion batteries. Parameters can be monitored and set via mobile phone APP or PC software using the RS-485 communication bus interface and Modbus communication protocol.
- **Robust Design:** Capable of full-load operation without any drop in capacity within the specified working

environment temperature range.

- **Extensive Electronic Protection:** Comprehensive protection features for safe operation.

3. Product Overview and Components

The Easun Power MPPT Solar Charge Controller features a robust design with an intuitive LCD display and clearly labeled terminals for easy installation and monitoring.



Figure 3.1: Front view of the Easun Power 30A MPPT Solar Charge Controller, showing the LCD display and control buttons.

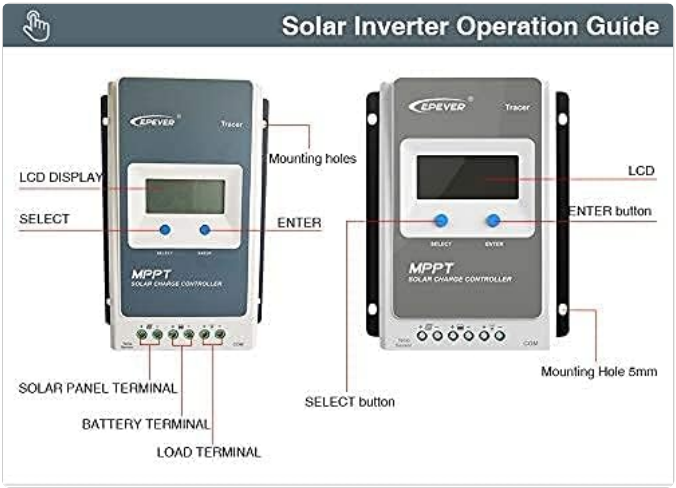


Figure 3.2: Detailed view of the solar charge controller highlighting the LCD display, SELECT and ENTER buttons, and mounting

holes. This image provides a clear understanding of the user interface and physical dimensions.

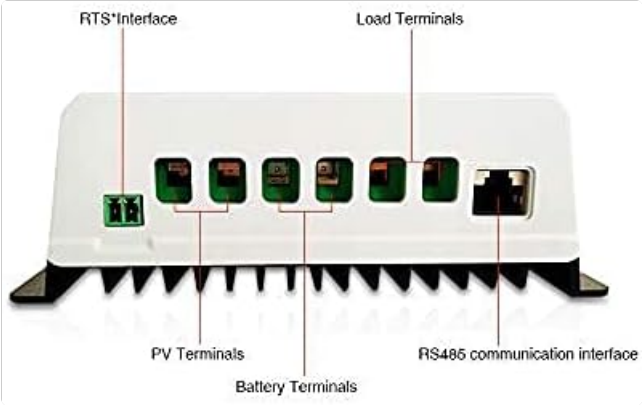


Figure 3.3: Bottom view of the controller showing the various connection terminals: PV Terminals for solar panels, Battery Terminals for battery connection, Load Terminals for DC loads, RTS Interface for remote temperature sensor, and RS485 communication interface for data communication.

4. Setup and Installation

Proper installation is crucial for the safe and efficient operation of your solar charge controller. Please follow these guidelines carefully.

4.1 Safety Precautions

- Ensure all power sources are disconnected before installation.
- Wear appropriate personal protective equipment (PPE), including safety glasses and insulated gloves.
- Install the controller in a well-ventilated area, away from direct sunlight, high temperatures, and moisture.
- Ensure sufficient clearance around the controller for heat dissipation.
- The controller is designed for common negative grounding.

4.2 Wiring Sequence

Connect the components in the following order to prevent damage to the controller or other system components:

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 system voltage (12V/24V).
2. **Connect the Solar Panel:** Connect the solar PV array to the controller's PV terminals. Ensure correct polarity. Do not exceed the maximum PV open circuit voltage (100V at minimum operating temperature, 92V at 25°C).
3. **Connect the Load (Optional):** Connect the DC load to the controller's load terminals. Ensure correct polarity.

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

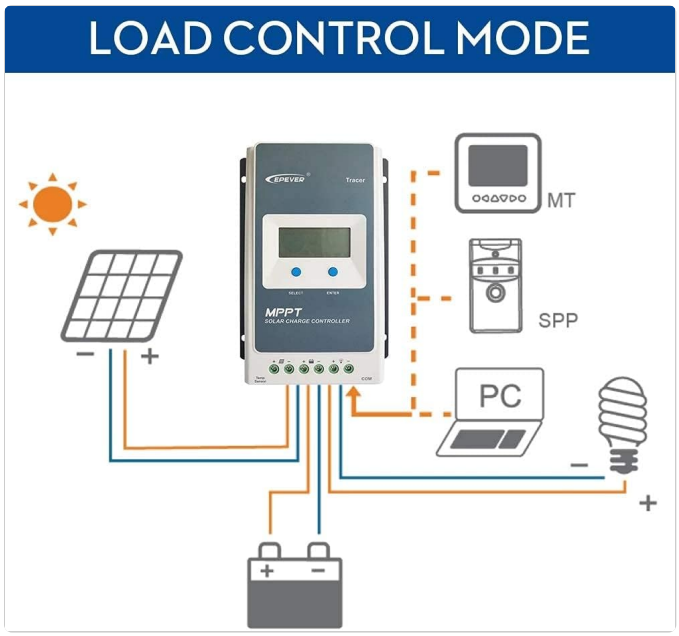


Figure 4.1: Diagram illustrating the correct connection sequence for the solar panel, MPPT charge controller, battery, and DC load. This visual guide helps ensure proper system setup.

4.3 Mounting

Mount the controller vertically on a flat, non-flammable surface. Use the provided mounting holes. Ensure adequate airflow around the unit for cooling.

5. Operation

The Easun Power MPPT Solar Charge Controller features an intuitive LCD display and two buttons for easy monitoring and configuration.

5.1 LCD Display and Buttons

The LCD display provides real-time information about the system's status, including PV input, battery voltage, charging current, load status, and more. The "SELECT" and "ENTER" buttons are used to navigate through the display screens and adjust settings.



Figure 5.1: Examples of various screens displayed on the controller's LCD, including PV input voltage, charging current, power generation, battery voltage, battery current, load work mode, discharge capacity, discharge current, and temperature. Users can cycle through these screens using the SELECT button.

5.2 Monitoring Parameters

Press the **SELECT** button to cycle through different display screens, showing various system parameters such as:

- PV Input Voltage and Current
- Battery Voltage and Charging Current
- Load Current and Load Work Mode
- Total Power Generation (kWh)
- Battery Temperature (if external sensor is connected)

5.3 Setting Parameters

To enter the setting mode, press and hold the**ENTER** button. Use the **SELECT** button to navigate through options and the **ENTER** button to confirm changes. Refer to the detailed instructions in the full manual for specific parameter adjustments, including battery type, load control modes, and charging parameters.

5.4 Communication and Remote Monitoring

The controller supports RS-485 communication, allowing for remote monitoring and parameter setting via a mobile phone APP or PC software. This feature provides enhanced control and data logging capabilities for your solar system.

6. Technical Specifications

Parameter	Value
Nominal System Voltage	12/24VDC Auto Work
Rated Charge Current	30A

Parameter	Value
Rated Discharge Current	30A
Battery Voltage Range	8-32V
Max. PV Open Circuit Voltage	100V (at minimum operating environment temperature); 92V (at 25℃ environment temperature)
MPP Voltage Range	V(BAT)+2V 72V
Max. PV Input Power (12V Battery)	390W
Max. PV Input Power (24V Battery)	780W
Grounding	Common Negative
Display Type	LCD
Charging Port Type	MC4



Charging Current	10A		20A		30A		40A	
System nominal voltage	12VDC	24VDC	12VDC	24VDC	12VDC	24VDC	12VDC	24VDC
Max PV Panel	130W	260W	260W	520W	390W	780W	520W	1040W
Panel	1 pcs × 130W	2 pcs ×130W	2 pcs ×130W	4 pcs ×130W	3 pcs ×130W	6 pcs × 130W	4 pcs ×130W	8 pcs × 130W
Serial / Parallel	1S / 1P	1S / 2P	1S / 2P	2S / 2P	1S / 3P	3S / 2P	2S / 2P	4S / 2P
Maximum Power (Pmax)	**130W**							
Max. Power Voltage Vmpp(V)	18W							
Max. Power Current Impp(A)	7.22A							
Open Circuit Voltage Voc(V)	21.5V							
Short Circuit Current Isc(A)	7.79A							

Figure 6.1: Illustrative diagram showing a solar panel setup connected to the controller inside a building, accompanied by a table detailing recommended PV panel configurations (e.g., 1S/3P for 30A, 24V system) and maximum power specifications for different charging currents and system voltages.

7. Maintenance

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

- **Cleanliness:** Keep the controller clean and free from dust and debris. Use a dry cloth to wipe the surface.
- **Connections:** Periodically check all wiring connections for tightness and corrosion. Loose connections can

cause overheating and poor performance.

- **Ventilation:** Ensure that the ventilation openings are not blocked to allow for proper heat dissipation.
- **Environmental Conditions:** Verify that the operating environment remains within the specified temperature and humidity ranges.

8. Troubleshooting

If you encounter issues with your solar charge controller, consider the following basic troubleshooting steps:

- **No Display/Power:** Check battery connections and ensure the battery voltage is within the operational range. Verify that the battery is charged.
- **No Charging:** Check solar panel connections and ensure there is sufficient sunlight. Verify PV open circuit voltage and current. Ensure no shading on the solar panels.
- **Load Not Working:** Check load connections and ensure the load is not exceeding the rated current. Verify the load work mode settings on the controller.
- **Unusual Readings:** Double-check all wiring for correct polarity and secure connections.

For more complex issues or persistent problems, please refer to the "Warranty and Support" section for assistance.

9. Warranty and Support

The Easun Power 30A MPPT Solar Charge Controller comes with a **24-month hassle-free warranty** from the date of purchase. We also provide **lifetime technical support** for our products.
If you have any questions, require technical assistance, or need to claim warranty service, please contact your seller or the manufacturer directly. Please have your product model number (B091345CNJ) and purchase details ready when contacting support.



Figure 9.1: Image showing the product packaging, the included user manual, and a certificate, indicating the completeness of the product package.

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