

EPEVER Tracer1210AN

EPEVER Tracer1210AN MPPT Solar Charge Controller User Manual

Model: Tracer1210AN

1. INTRODUCTION

The EPEVER Tracer1210AN MPPT Solar Charge Controller is designed to efficiently manage power from your solar panels to charge batteries. It features advanced Maximum Power Point Tracking (MPPT) technology, ensuring high tracking efficiency of over 99.5%. This controller supports 12V and 24V battery systems automatically and can handle a maximum PV input voltage of 100V. It is compatible with various battery types, including sealed lead-acid, gel, flooded, and lithium batteries. The built-in LCD screen displays key charging parameters, and multiple connectivity options allow for personalized settings and monitoring via remote meter, mobile app, or PC software.

2. PRODUCT FEATURES

The Tracer1210AN controller integrates several features for optimal performance and user interaction.

Product Features

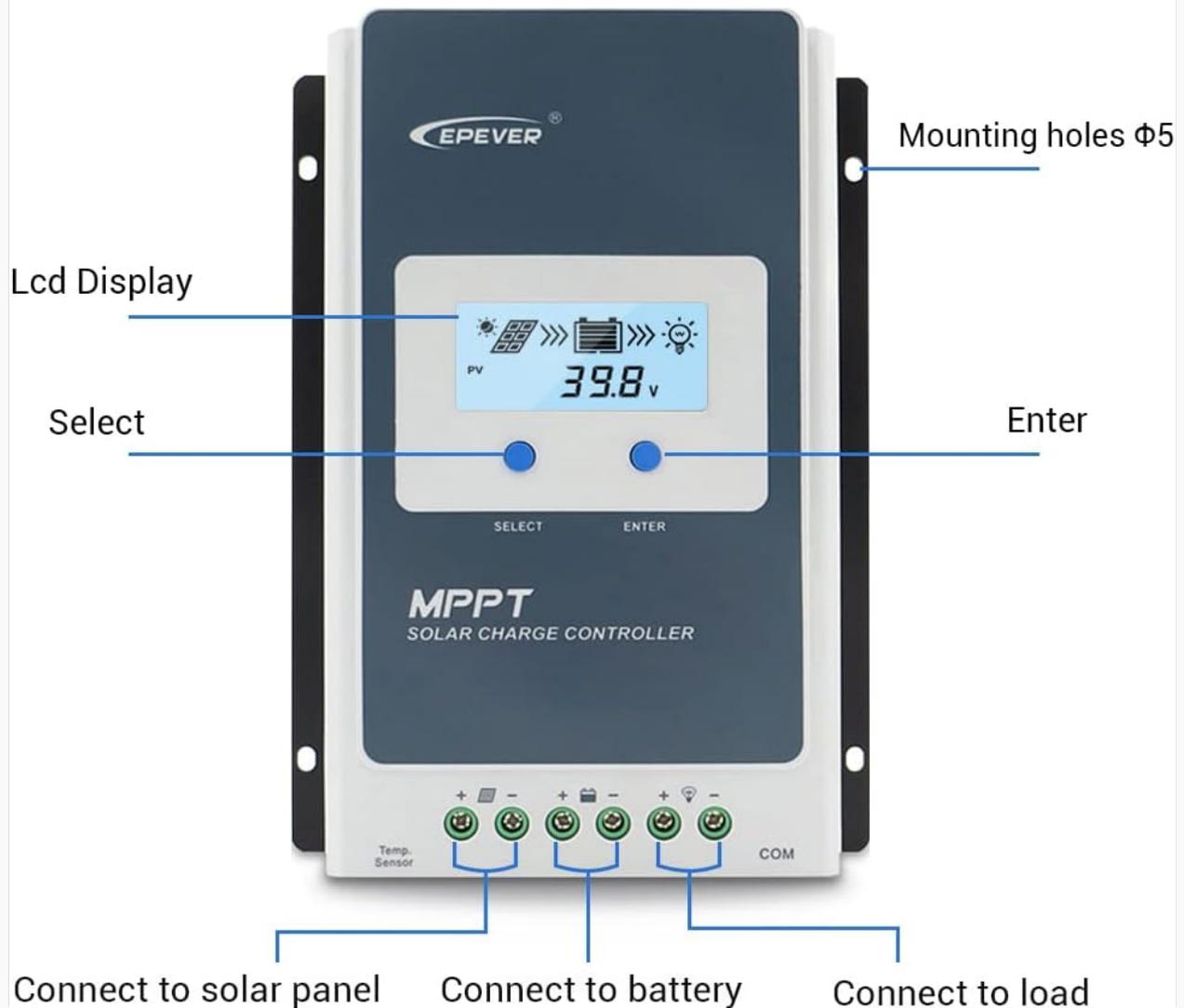


Figure 2.1: Front view of the EPEVER Tracer1210AN MPPT Solar Charge Controller. This image highlights the LCD display, Select and Enter buttons, mounting holes, and connection terminals for the temperature sensor, solar panel, battery, and load.

- **LCD Display:** Shows real-time operating data and fault information.
- **Select Button:** Used to navigate through different display interfaces.
- **Enter Button:** Used to confirm selections or enter settings menus.
- **Mounting Holes:** For secure installation of the controller.
- **Temperature Sensor Port:** Connects the Remote Temperature Sensor (RTS) for accurate battery temperature compensation.
- **Solar Panel Terminals:** Connects to the solar panel array.
- **Battery Terminals:** Connects to the battery bank.
- **Load Terminals:** Connects to DC loads.
- **COM Port (RS485):** For communication with accessories like the MT50 remote meter, PC software, or mobile app.

Characteristic



Aluminum Alloy Material
Good Heat Dissipation

Figure 2.2: Side view of the EPEVER Tracer1210AN MPPT Solar Charge Controller, illustrating the aluminum alloy heat sink. This design ensures efficient heat dissipation, allowing the controller to operate at full load without capacity drop within its working environment temperature range.

3. SETUP AND INSTALLATION

Proper installation is crucial for the safe and efficient operation of your solar charge controller. Follow these steps carefully.

3.1 Unboxing and Components

Before installation, ensure all components are present and undamaged. The package typically includes the Tracer1210AN controller, an MT50 remote meter, a Remote Temperature Sensor (RTS), and an RS485 PC communication cable.



Figure 3.1: Contents of the EPEVER Tracer1210AN package, including the solar charge controller, MT50 remote meter, remote temperature sensor, and USB to RS485 communication cable.

3.2 Wiring Diagram

Connect the components in the specified order to prevent damage. The connection order is **Battery** → **Solar Panel** → **Load**. The disassembly order is the reverse: **Load** → **Solar Panel** → **Battery**.

Wiring

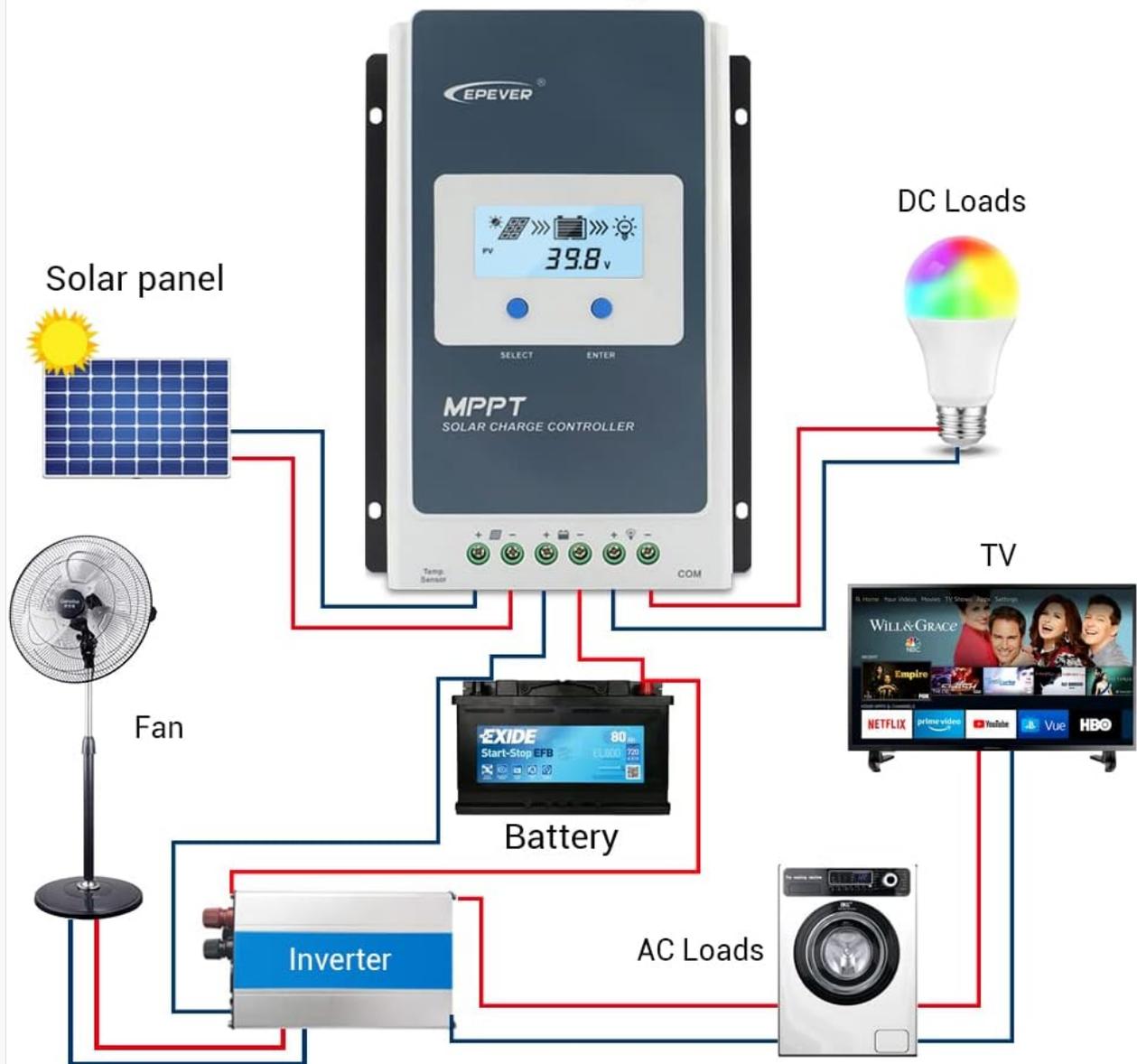


Figure 3.2: A typical wiring diagram showing the connection of the solar panel, battery, and various DC and AC loads (via an inverter) to the EPEVER Tracer1210AN MPPT Solar Charge Controller.

3.3 Communication Ports and Accessories

The controller features various ports for enhanced monitoring and control.

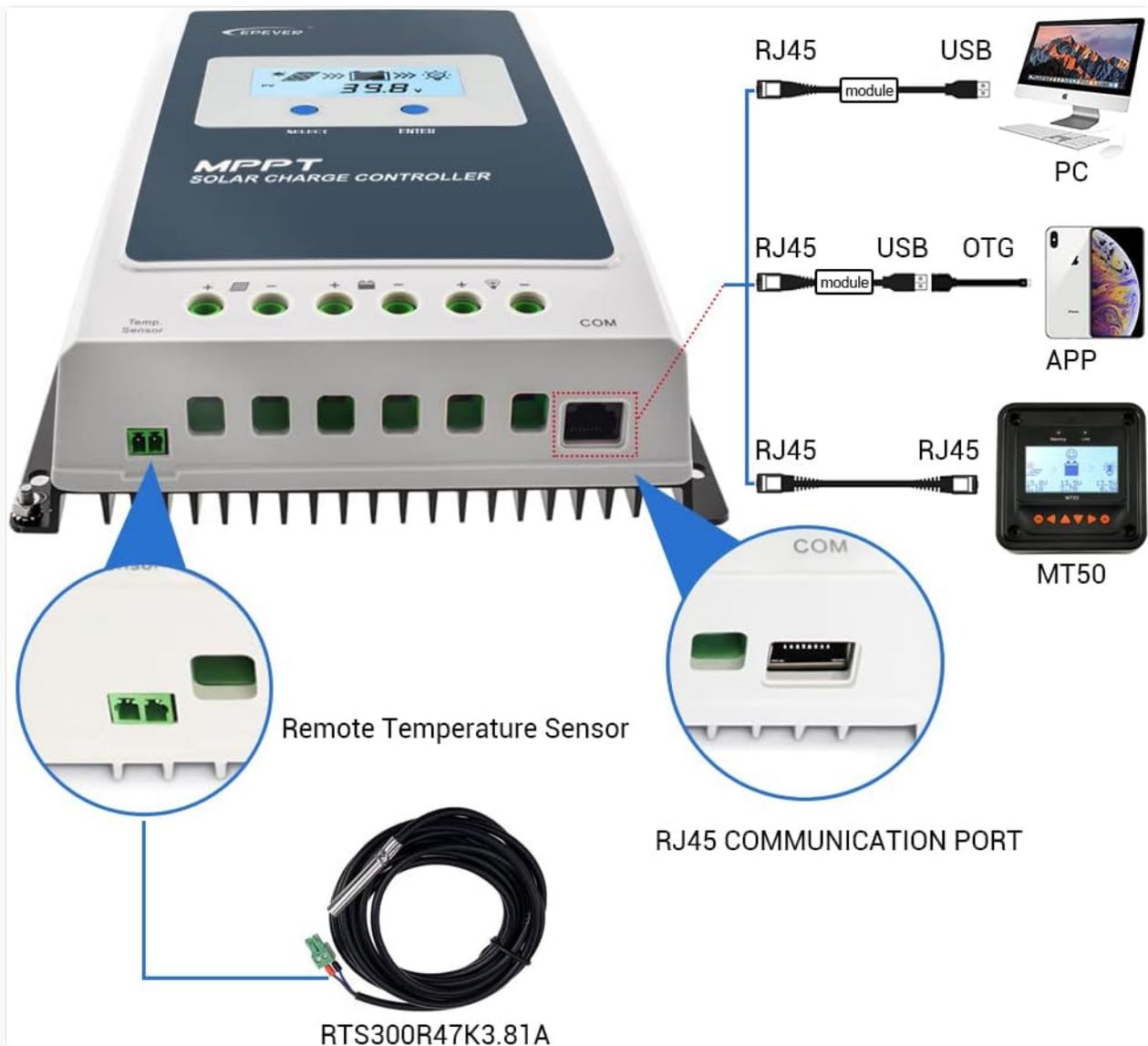


Figure 3.3: Close-up view of the EPEVER Tracer1210AN MPPT Solar Charge Controller, highlighting the Remote Temperature Sensor (RTS) connection and the RJ45 communication port. This port allows connection to accessories like the MT50 remote meter, PC via USB-RS485 cable, or mobile app via OTG cable.

- **Remote Temperature Sensor (RTS):** Connect the RTS300R47K3.81A to the designated port for accurate battery temperature compensation. The standard cable length is 3m.
- **RS485 Communication Port:** This RJ45 port allows connection to various accessories for monitoring and parameter setting.

3.4 Installation Steps

1. Mount the controller securely using the provided mounting holes.
2. Connect the battery to the controller's battery terminals. Ensure correct polarity.
3. Connect the solar panel to the controller's solar panel terminals. Ensure correct polarity.
4. Connect the DC loads to the controller's load terminals. Ensure correct polarity.
5. Connect the temperature sensor probe to the controller.

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

3.5 Video: Unboxing and Installation

Watch this video for a visual guide on unboxing and installing the EPEVER Tracer-AN controller and its accessories.

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Video 3.1: An instructional video demonstrating the unboxing and installation process for the EPEVER Tracer-AN MPPT Solar Charge Controller, including connections for the solar panel, battery, and load, and the temperature sensor.

4. OPERATING INSTRUCTIONS

This section covers basic operation and how to configure essential settings on your controller.

4.1 Manual Control Mode

The controller supports manual control of the load. Press the 'ENTER' button to toggle the load on or off.

4.2 Setting the Battery Type

It is essential to set the correct battery type for optimal charging and battery longevity. The controller supports various battery types including Sealed (default), Gel, Flooded, and different Lithium battery configurations.

Product Parameters

Item	Tracer 1210AN	Tracer 2210AN	Tracer 3210AN	Tracer 4210AN
System nominal voltage	12/24VDC① Auto			
Rated charge current	10A	20A	30A	40A
Rated discharge current	10A	20A	30A	40A
Battery voltage range	8~32V			
Max. PV open circuit voltage	100V② 92V③			
MPP voltage range	(Battery voltage +2V)~ 72V			
Max. PV input power	130W/12V 260W/24V	260W/12V 520W/24V	390W/12V 780W/24V	520W/12V 1040W/24V
Self-consumption	≤12mA			
Discharge circuit voltage drop	≤0.23V			
Temperature compensate	-3mV/°C/2V (Default)			
Grounding	Common negative			
RS485 interface	RS485 interface 5VDC/100mA			
LCD backlight time	60S (Default)			
①When a lead-acid battery is used, the controller hasn't the low temperature protection.				
②At minimum operating environment temperature				
③At 25°C environment temperature				
④When a lithium-ion battery is used, the system voltage can't be identified automatically.				

Figure 4.1: Table showing various battery types supported by the controller, including Sealed (default), Gel, Flooded, LiFePO4 (3.2V) in 4PCS or 8PCS series, and Li(NiCoMn)O2 (3.7V) in 3PCS, 6PCS, or 7PCS series, along with a user-defined option.

To set the battery type:

1. Press and hold the 'ENTER' button for 5 seconds when the battery voltage interface is displayed.
2. Press the 'SELECT' button when the battery type interface is flashing to cycle through available battery types.
3. Press the 'ENTER' button to confirm your selection.

4.3 Setting the Load Mode

The load working mode determines how the connected DC loads operate. Options include Light ON/OFF, various timer settings, test mode, and manual mode.

To set the load mode:

1. Press and hold the 'ENTER' button for 5 seconds when the load mode interface is displayed.
2. Press the 'SELECT' button when the load mode interface is flashing to cycle through available modes.
3. Press the 'ENTER' button to confirm your selection.

5. SPECIFICATIONS

Below are the technical specifications for the Tracer1210AN MPPT Solar Charge Controller.

Item	Tracer 1210AN	Tracer 2210AN	Tracer 3210AN	Tracer 4210AN
System nominal voltage	12/24VDC ^① Auto			
Rated charge current	10A	20A	30A	40A
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Battery voltage range	8~32V			
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MPP voltage range	(Battery voltage +2V)~ 72V			
Max. PV input power	130W/12V 260W/24V	260W/12V 520W/24V	390W/12V 780W/24V	520W/12V 1040W/24V
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Grounding	Common negative			
RS485 interface	RS485 interface 5VDC/100mA			
LCD backlight time	60S (Default)			
①When a lead-acid battery is used, the controller hasn't the low temperature protection.				
②At minimum operating environment temperature				
③At 25°C environment temperature				
④When a lithium-ion battery is used, the system voltage can't be identified automatically.				

Figure 5.1: Detailed product parameters for Tracer 1210AN, 2210AN, 3210AN, and 4210AN models. For the Tracer1210AN, key specifications include 10A rated charge/discharge current, 8-32V battery voltage range, 100V max PV open circuit voltage, 130W/12V or 260W/24V max PV input power, and common negative grounding.

EPEVER Tracer1210AN Specifications

Parameter	Value (Tracer1210AN)
System Nominal Voltage	12/24VDC Auto
Rated Charge Current	10A
Rated Discharge Current	10A

Parameter	Value (Tracer1210AN)
Battery Voltage Range	8~32V
Max. PV Open Circuit Voltage	100V (at 25°C environment temperature)
MPP Voltage Range	Battery Voltage +2V ~ 72V
Max. PV Input Power	130W/12V, 260W/24V
Self-consumption	≤12mA
Discharge Circuit Voltage Drop	≤0.23V
Temperature Compensate	-3mV/°C/2V (Default)
Grounding	Common Negative
RS485 Interface	5VDC/100mA
LCD Backlight Time	60S (Default)

6. ACCESSORIES

The EPEVER Tracer1210AN controller is often bundled with or compatible with several accessories to enhance its functionality.

- **MT50 Remote Meter:** This remote meter can display various operating data and fault information. It features easy-to-operate buttons and a clear numeric display. It is used for monitoring and setting controller parameters.



Figure 6.1: The MT50 Remote Meter, used for monitoring and configuring the solar charge controller.

- **Remote Temperature Sensor (RTS300R47K3.81A):** Acquires battery temperature for accurate temperature compensation of control parameters. The standard length of the cable is 3m.
- **USB to RS485 Cable (CC-USB-RS485-150U):** Used to connect the controller to a PC for monitoring and setting parameters via Solar Station PC software. The cable length is 1.5m.



Figure 6.2: The Remote Temperature Sensor (RTS) and the USB to RS485 communication cable.

- **OTG Cable (OTG-12CM):** Used to connect a mobile communication cable to achieve real-time monitoring and parameter modification via a mobile APP.
- **WiFi Serial Adapter (eBox-WiFi-01):** Allows monitoring and setting parameters via mobile APP software through WiFi signals.
- **RS485 to Bluetooth Adapter (eBox-BLE-01):** Enables monitoring and setting parameters via mobile APP software through Bluetooth signals.
- **Logger (eLOG01):** Records the operating status of the controller for later review.

7. TROUBLESHOOTING

If you encounter issues with your EPEVER Tracer1210AN controller, refer to the following common troubleshooting tips:

- **No Display on LCD:** Check battery connections and ensure the battery voltage is within the operating range.
- **No Charging:** Verify solar panel connections and ensure sufficient sunlight. Check for any shading on the solar panels. Confirm the battery type setting is correct.
- **Load Not Working:** Check load connections and ensure the load mode is set correctly (e.g., Manual ON, Light ON/OFF). Verify that the battery voltage is above the low voltage disconnect threshold.
- **Inaccurate Temperature Reading:** Ensure the Remote Temperature Sensor (RTS) is properly connected and positioned near the battery.
- **Communication Issues:** Check the RS485 cable connections to the remote meter, PC, or adapter. Ensure drivers are installed for PC communication.

For more detailed troubleshooting, consult the full product manual or contact EPEVER customer support.

8. MAINTENANCE

Regular maintenance helps ensure 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 for cleaning.
- **Connections:** Periodically check all wiring connections for tightness and corrosion. Loose connections can cause overheating and damage.
- **Ventilation:** Ensure adequate airflow around the controller to facilitate heat dissipation. Do not block the heat sink fins.

- **Battery Health:** Monitor battery voltage and health regularly. Ensure the battery type setting on the controller matches your battery.
- **Firmware Updates:** Check the manufacturer's website for any available firmware updates to improve performance or add new features.

9. WARRANTY AND SUPPORT

EPEVER products are designed for reliability and performance. For warranty information and technical support, please refer to the official EPEVER website or contact your local distributor.

You can also visit the official iSunergy store on Amazon for product information and support: [iSunergy Amazon Store](#).