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SolarEpic Tracer4210AN

SolarEpic EPEVER 40A MPPT Solar Charge Controller Tracer 4210AN User Manual

Model: Tracer 4210AN

1. Introduction

This manual provides essential information for the safe and efficient operation of your SolarEpic EPEVER 40A MPPT Solar Charge Controller, model Tracer 4210AN. This device is designed to manage power flow from your solar panels to your battery bank, ensuring optimal charging and protecting your batteries from overcharge and over-discharge. It features negative grounding, compatibility with 12V or 24V battery systems, and supports various battery types including Lithium (LiFePO4).



Figure 1: SolarEpic EPEVER 40A MPPT Solar Charge Controller Tracer 4210AN.

2. Safety Information

- Read all instructions carefully before installation and operation.
- Ensure all wiring is correctly sized and connections are secure to prevent overheating and damage.
- Always connect the battery to the charge controller first, then the solar panel, and finally the load. Disconnect in the reverse order.
- Do not disassemble or attempt to repair the controller yourself. Contact qualified personnel for service.
- Install the controller in a well-ventilated area, away from flammable materials and direct sunlight.
- Wear appropriate personal protective equipment (PPE) during installation, including gloves and eye protection.

3. Product Features

- EPEVER Tracer 4210AN Series Negative Ground design.
- Compatible with Lithium (LiFePO4) Battery Charging.
- Supports 12V or 24V battery systems.
- High tracking efficiency up to 99% for maximum power point tracking (MPPT).

- Multiple load control modes: manual control, light ON/OFF, light On+Timer, and test mode.
- Durable die-cast aluminum design with natural cooling.
- Four battery type options: Sealed, Gel, Flooded, and USER define.

4. Specifications

Parameter	Value
Model	Tracer4210AN G3
Nominal System Voltage	12/24VDC Auto Work
Rated Charge Current	40A
Rated Discharge Current	40A
Battery Input Voltage Range	8-32V
Max. PV Open Circuit Voltage	100V (at minimum operating environment temperature), 92V (at 25°C environment temperature)
MPP Voltage Range	V(BAT)+2V 72V
Max. PV Input Power	520W (12V Battery) & 1040W (24V battery)
Power Terminals	#6 AWG (16mm²)
Material	Aluminum
Item Weight	1.9 Kilograms
Display Type	LCD
Operating Temperature	20 Degrees Celsius

5. Setup and Installation

Follow these steps for proper installation of your solar charge controller. Refer to the video for a visual guide.

5.1 Unboxing and Components

Upon opening the package, you should find the MPPT solar charge controller, a user manual, and a remote temperature sensor.



Figure 2: Front view of the controller showing mounting holes.

5.2 Wiring Diagram

The controller features terminals for the remote temperature sensor, solar panel input, battery connection, load output, and an RS485 interface for communication.

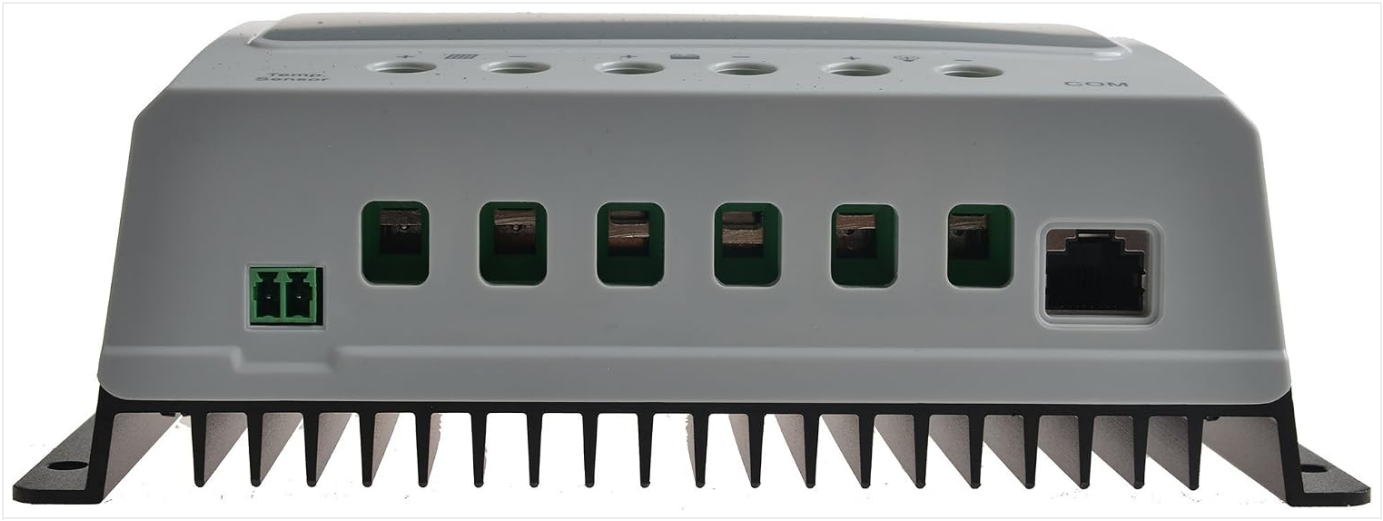


Figure 3: Bottom view of the controller with labeled connection terminals.



Figure 4: Basic wiring diagram showing connections for solar panel, battery, and load.

5.3 Connection Sequence

1. **Connect the Battery:** Always connect the battery to the charge controller first. Ensure correct polarity (positive to positive, negative to negative). Loosen the screws on the battery terminals, insert the wires, and tighten securely.
2. **Connect the Solar Panel:** After the battery is connected, connect the solar panel to the controller. Ensure correct polarity.
3. **Connect the Load:** Finally, connect your DC loads to the load terminals.
4. **Connect Remote Temperature Sensor (Optional):** Attach the remote temperature sensor to the designated port on the controller and secure the sensor to the battery for accurate temperature compensation during charging.
5. **Connect Bluetooth/WiFi Adapter (Optional):** For remote monitoring and control via a smartphone app, connect an optional Bluetooth or WiFi adapter to the RS485 interface.

5.4 Installation Video Guide

Watch this video for a detailed walkthrough of the unboxing and installation process, including wiring connections and initial setup.

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Video 1: Unboxing and Installation Guide for EPEVER MPPT Solar Charge Controller Tracer 4210AN. This video demonstrates how to unpack the controller, connect the battery, solar panel, and optional accessories like the remote temperature sensor and Bluetooth/WiFi adapter.

6. Operating Instructions

The controller features an LCD display and two buttons (SELECT and ENTER) for navigating menus and adjusting settings. The display provides real-time data on PV voltage, current, input power, battery voltage, current, detected temperature, load current, and load power.

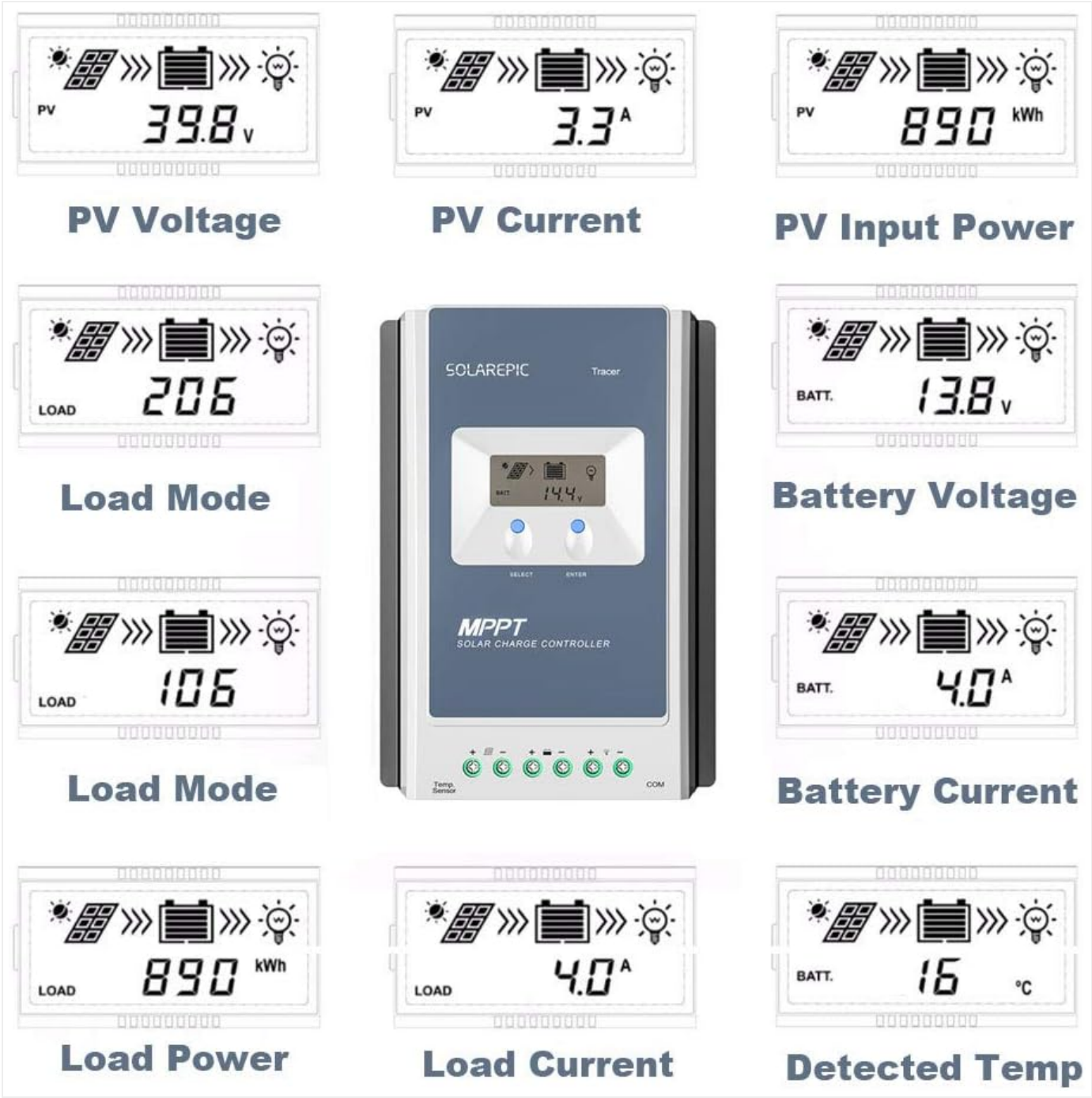


Figure 5: LCD display showing various operational parameters like PV voltage, battery voltage, and load status.

6.1 LCD Display Navigation

- Press the **SELECT** button to cycle through different display screens (PV Voltage, PV Current, PV Input Power, Battery Voltage, Battery Current, Detected Temperature, Load Current, Load Power, Load Mode).
- Press the **ENTER** button to access settings or confirm selections.

6.2 Load Control Modes

The controller supports various load control modes:

- **Manual Control:** Turn the load ON/OFF manually.
- **Light ON/OFF:** The load turns on at dusk and off at dawn.
- **Light On+Timer:** The load turns on at dusk and stays on for a set duration.
- **Test Mode:** For testing purposes, the load can be controlled directly.

6.3 Battery Type Selection

The controller allows selection of four battery types: Sealed, Gel, Flooded, and User-defined. Ensure the correct battery type is selected for optimal charging and battery longevity.

7. Maintenance

- Regularly inspect all wiring and connections for tightness and corrosion.
- Keep the controller clean and free from dust and debris. Ensure the heat sink fins are not obstructed to allow for proper cooling.
- Check battery terminals for corrosion and clean if necessary.
- Monitor the LCD display for any error codes or unusual readings.

8. Troubleshooting

If you encounter issues with your charge controller, refer to the following common problems and solutions:

- **No Display/Power:** Check battery connections and ensure the battery has sufficient voltage. Verify all fuses are intact.
- **No Charging:** Ensure solar panels are connected correctly and receiving adequate sunlight. Check solar panel voltage and current. Verify battery type settings.
- **Load Not Working:** Check load connections and ensure the load is within the controller's rated capacity. Verify load control mode settings.
- **Overcharging/Undercharging:** Confirm the correct battery type is selected in the settings. Ensure the remote temperature sensor is properly connected and positioned.

For persistent issues, consult the full user manual or contact SolarEpic customer support.

9. Warranty and Support

This SolarEpic EPEVER 40A MPPT Solar Charge Controller comes with a **2-year warranty** from SolarEpic, effective from the date of purchase. For technical support, warranty claims, or further assistance, please refer to the contact information provided in your product packaging or visit the official SolarEpic website.

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