

EPEVER 8420AN

EPEVER Tracer 8420AN MPPT Charge Controller User Manual

Model: 8420AN

1. INTRODUCTION

This manual provides essential information for the safe and efficient operation of your EPEVER Tracer 8420AN MPPT Charge Controller. This device is designed to manage power flow from solar panels to batteries, ensuring optimal charging and protecting your battery system. It supports 12V, 24V, 36V, and 48V battery systems automatically and features a maximum power point tracking (MPPT) algorithm for high efficiency.

2. SAFETY INSTRUCTIONS

- Read all instructions carefully before installation and operation.
- Ensure all wiring is correctly polarized and securely connected to prevent damage to the controller or battery.
- Install the controller in a well-ventilated area to prevent overheating.
- Do not disassemble or attempt to repair the controller yourself. Contact qualified personnel for service.
- Always disconnect the solar panel and battery power before performing any maintenance or wiring changes.
- Use appropriate circuit breakers or fuses for all connections to protect against overcurrent.

3. PRODUCT OVERVIEW

3.1. Components and Display

The Tracer 8420AN features an intuitive LCD display and various connection ports for comprehensive system management.



Figure 1: EPEVER MPPT Charge Controller LCD Display Interface. This image illustrates the main LCD display interface of the EPEVER MPPT charge controller, showing various parameters such as PV voltage, current, power, battery type, load type, battery capacity, charging status, and load status.

The LCD provides real-time data on solar input, battery status, and load output. LED indicators provide quick visual feedback on charging and fault conditions.



Figure 2: EPEVER MPPT Charge Controller Rear Panel with Labeled Ports. A detailed view of the EPEVER MPPT charge controller's rear panel, highlighting the various connection terminals and ports. These include battery terminals, PV terminals, fuse, load control relay, RBVS port, utility/generator relay, RS485 port, RTS port, grounding terminal, and LED indicators for charging and faults.

The rear panel includes clearly labeled terminals for PV input, battery connection, and load output, along with ports for optional accessories like remote temperature sensors (RTS) and RS485 communication.



Figure 3: EPEVER MPPT Charge Controller Front and Rear View. This image displays both the front and rear views of the EPEVER MPPT charge controller, showing the LCD display and control buttons on the front, and the terminal connections on the rear.

CONNECTION DIAGRAM

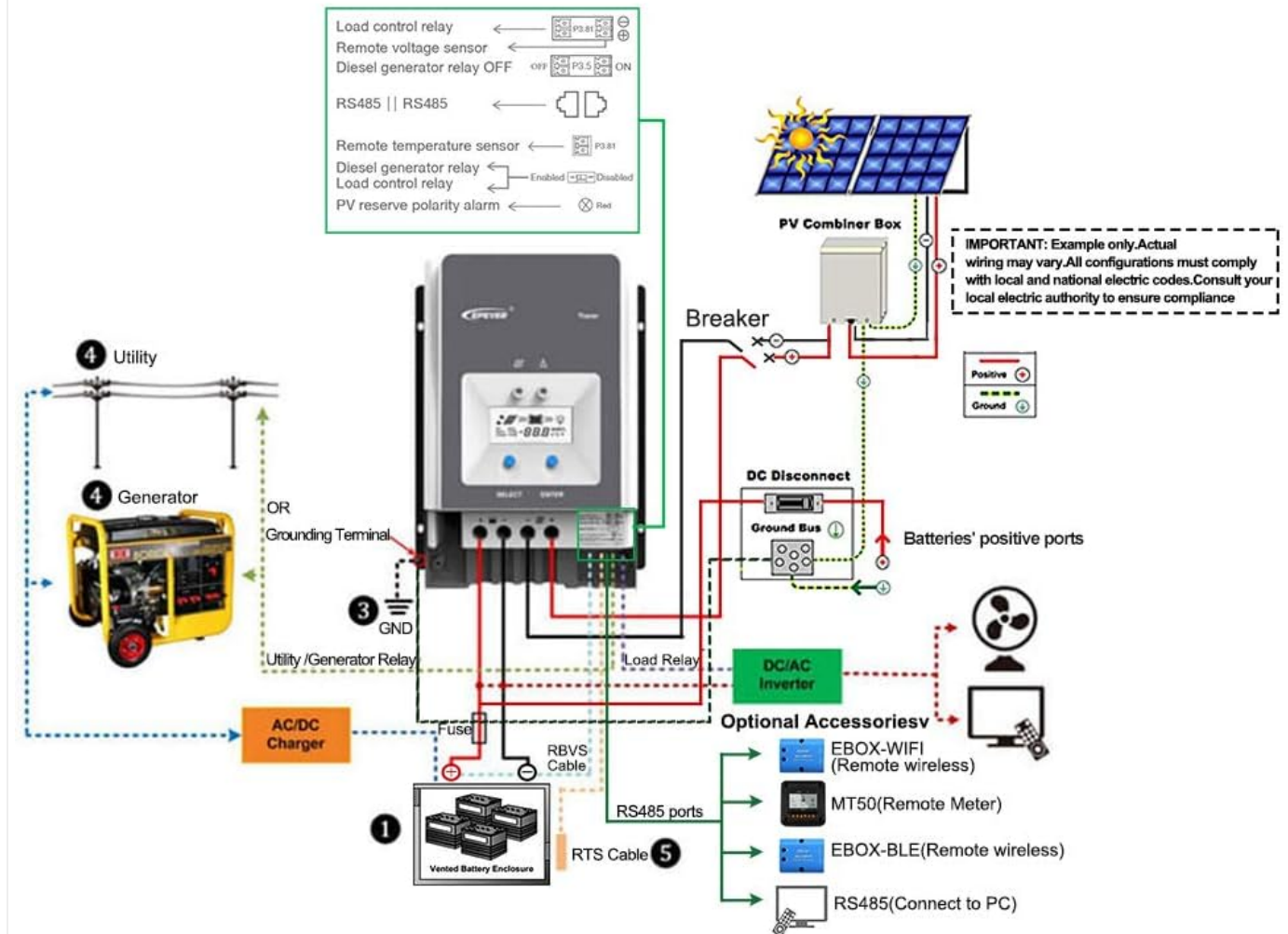


Figure 4: EPEVER MPPT Charge Controller Dimensions. An image showing the physical dimensions (length, width, height) of the EPEVER MPPT charge controller, useful for installation planning.

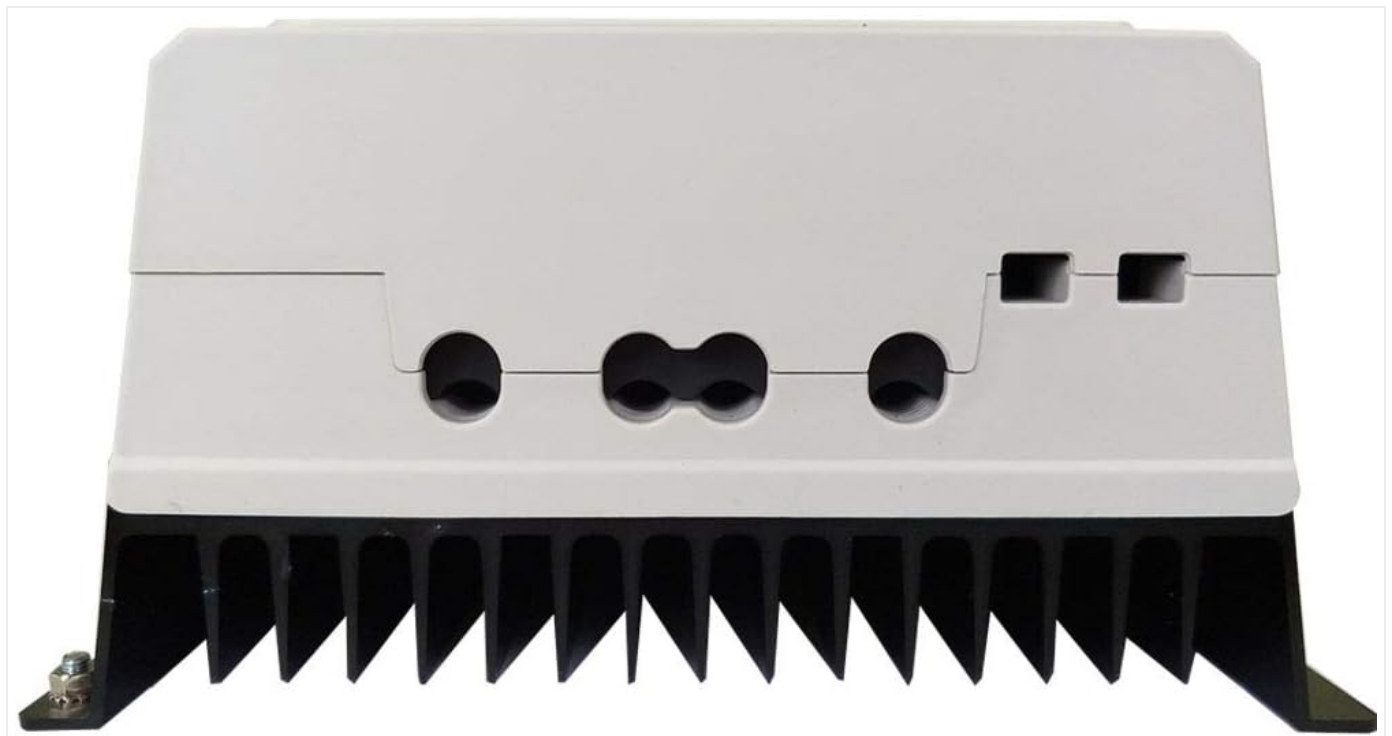


Figure 5: EPEVER MPPT Charge Controller Bottom View with Heatsink. A view of the bottom of the EPEVER MPPT charge controller, highlighting the heatsink fins designed for efficient heat dissipation.

4. SETUP AND INSTALLATION

4.1. Mounting the Controller

Mount the controller vertically on a wall or stable surface, ensuring adequate airflow around the heatsink for proper cooling. Avoid direct sunlight, high temperatures, and humid environments.

4.2. Wiring Connections

Follow the wiring diagram carefully. Incorrect wiring can damage the controller and other components. Always connect the battery first, then the solar panels, and finally the load.

1. **Connect the Battery:** Connect the battery to the controller's battery terminals. Ensure correct polarity (positive to positive, negative to negative). The controller will automatically detect the system voltage (12V/24V/36V/48V).
2. **Connect the Solar Panels:** Connect the solar panel array to the controller's PV terminals. Observe correct polarity. Ensure the open-circuit voltage of the solar array does not exceed the controller's maximum input voltage (200V).
3. **Connect the Load:** Connect the DC load to the controller's load terminals.
4. **Grounding:** Connect the grounding terminal to an earth ground. This controller features common negative grounding.
5. **Optional Connections:** Connect the Remote Temperature Sensor (RTS) to the RTS port for accurate battery temperature compensation. Connect RS485 communication cables for PC software monitoring or remote meter (MT50) connection.

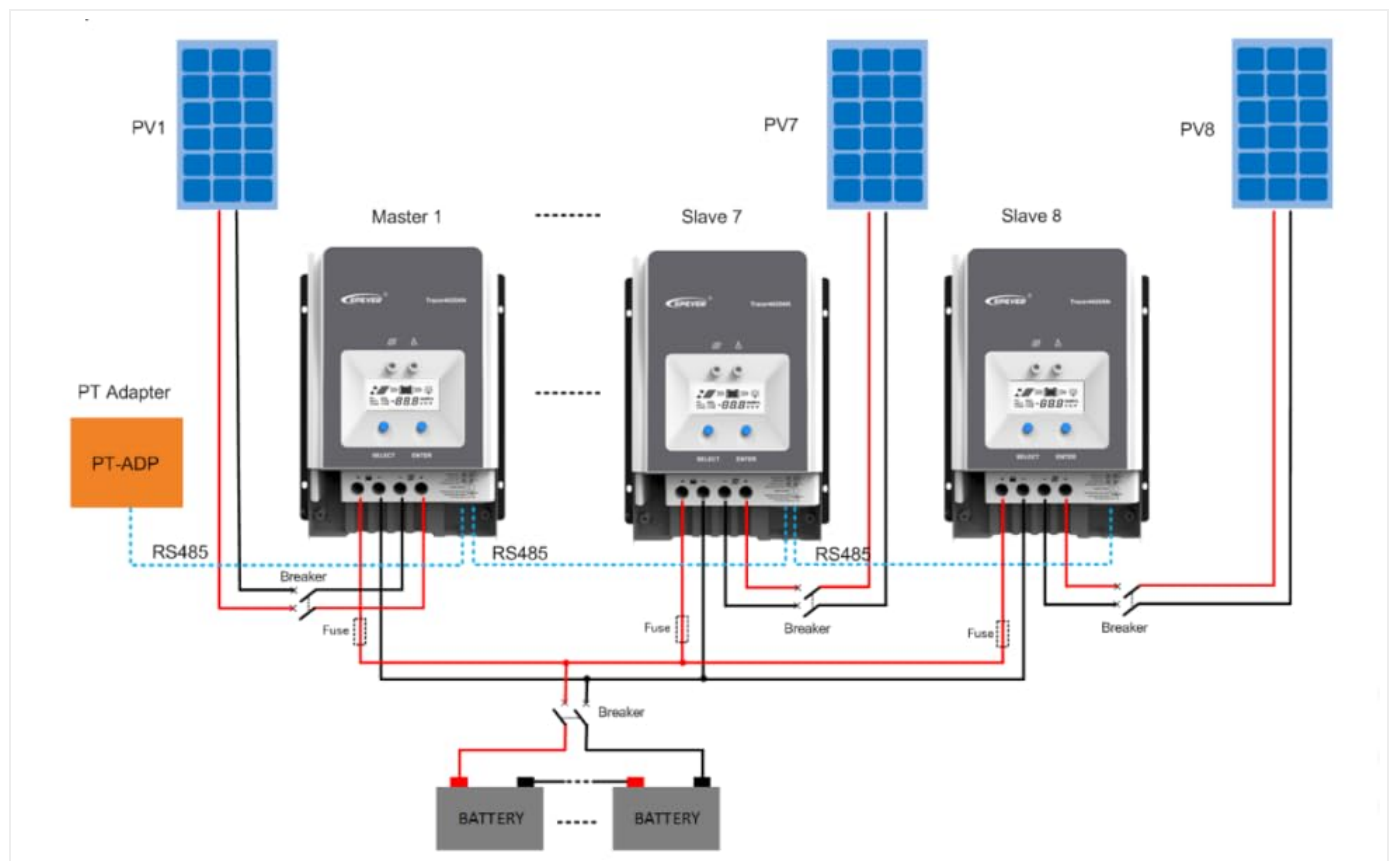


Figure 6: EPEVER MPPT Charge Controller System Connection Diagram. This diagram illustrates a typical system connection for the EPEVER MPPT charge controller, showing how solar panels, battery, load, and optional accessories like remote temperature sensors and communication modules are wired together. It includes connections for a PV combiner box, DC disconnect, and AC/DC inverter.

5. OPERATING INSTRUCTIONS

5.1. LCD Display Operation

Use the 'SELECT' and 'ENTER' buttons on the front panel to navigate through the LCD display menus. The display shows real-

time system data and allows for parameter modification.

5.2. Charging Options

The controller supports 5 battery charging options:

- **Sealed:** For sealed lead-acid batteries.
- **Gel:** For gel lead-acid batteries.
- **Flooded:** For flooded lead-acid batteries.
- **Lithium:** For lithium batteries. Requires PC software for detailed parameter settings.
- **User:** Allows custom charging parameters to be set via PC software or remote meter.

5.3. Load Control Modes

The controller offers 4 types of load timer control modes:

- **ON/OFF Mode:** Load is continuously ON or OFF.
- **PV & Time Control Mode:** Load turns ON at dusk and OFF after a set duration or at dawn.
- **PV Voltage Control Mode:** Load turns ON/OFF based on PV array voltage thresholds.
- **Dual Time Control Mode:** Allows setting two distinct time periods for load operation.

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Video 1: EPEVER Tracer AN Series Overview. This video provides a brief overview of the EPEVER Tracer AN Series MPPT Charge Controller, showcasing its design and potentially some operational aspects.

6. MAINTENANCE

- Periodically check all wiring connections for tightness and corrosion.
- Clean the controller's exterior and heatsink fins to ensure proper heat dissipation.
- Inspect the battery terminals for any signs of corrosion and clean if necessary.
- Ensure the installation environment remains dry and free from dust and debris.

7. TROUBLESHOOTING

The controller's LCD display and LED indicators provide valuable information for troubleshooting. Refer to the display for error codes or abnormal readings.

- **No Display/Power:** Check battery connections and fuse. Ensure battery voltage is within the operating range.
- **No Charging:** Verify solar panel connections and ensure sufficient sunlight. Check PV input voltage on the display.
- **Load Not Working:** Check load connections and ensure the load control mode is correctly set. Verify battery voltage is above the low voltage disconnect threshold.
- **Overcurrent/Overpower:** If the input power or charging current exceeds rated levels, the controller will automatically reduce power. This is normal operation.
- **Fault LED Indicator:** If the fault LED is illuminated, consult the specific error code on the LCD display for detailed information and corrective actions.

8. SPECIFICATIONS

Below are the key specifications for the EPEVER Tracer 8420AN MPPT Charge Controller:

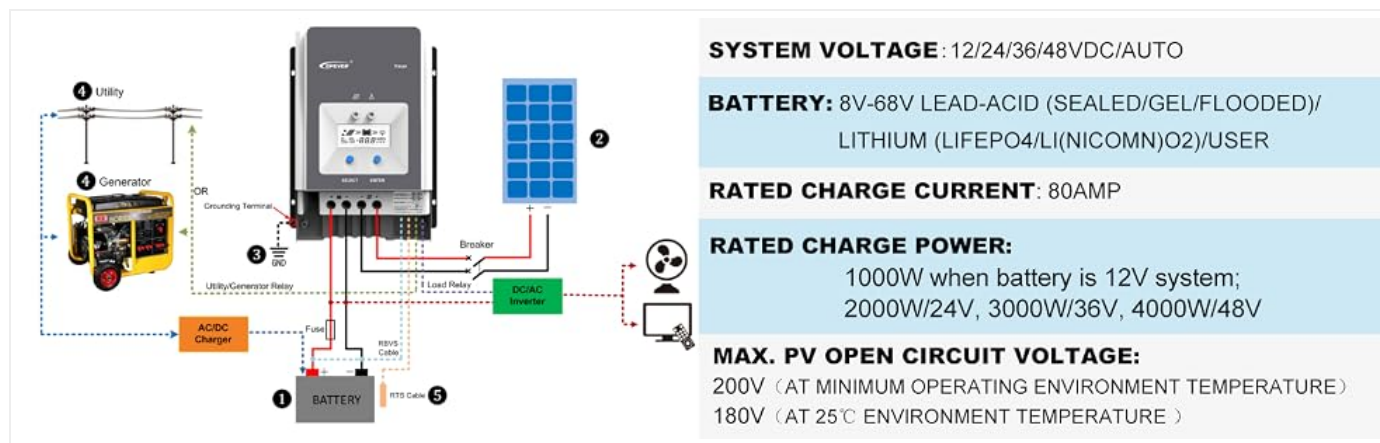


Figure 7: EPEVER Tracer AN Series MPPT Charge Controller Specifications Table. A table detailing the technical specifications for the EPEVER Tracer AN series MPPT charge controllers, including models 6415AN, 8420AN, and 10415AN. It lists nominal battery voltages, rated charge current, tracking efficiency, maximum PV open circuit voltage, battery fuse, and other electrical and environmental parameters.

Parameter	Value (Tracer 8420AN)
Nominal Battery Voltage	12V/24V/36V/48V Auto
Rated Charge Current	80A
Max. PV Open Circuit Voltage	200V
Max. PV Input Power	1500W(12V), 3000W(24V), 4500W(36V), 6000W(48V)
Tracking Efficiency	≥99.5%
DC/DC Transfer Efficiency	Up to 98.6%
Battery Type Options	Sealed, Gel, Flooded, Lithium, User
Grounding	Common Negative Ground
Operating Temperature Range	-25°C to +60°C
Dimensions (L x W x H)	394 x 240 x 134 mm
Weight	6.1 kg

9. WARRANTY AND SUPPORT

The EPEVER Tracer 8420AN MPPT Charge Controller comes with a manufacturer warranty for 30 days from the date of purchase. For technical support, warranty claims, or service inquiries, please contact EPEVER customer service or your authorized dealer.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question