

EPEVER Tracer10415AN

EPEVER 100A MPPT Solar Charge Controller User Manual

Model: Tracer10415AN | Brand: EPEVER

1. INTRODUCTION AND OVERVIEW

The EPEVER Tracer10415AN MPPT Solar Charge Controller is an advanced device designed to efficiently manage power flow from your solar panels to your battery bank. Utilizing Maximum Power Point Tracking (MPPT) technology, it ensures optimal energy harvesting from your photovoltaic system, significantly improving charging efficiency compared to traditional controllers.

This controller features ultra-fast tracking speed, with an efficiency of no less than 99.5%. It incorporates high-quality components from ST and Infineon to ensure product longevity and reliability. The adaptive three-stage charging mode, based on a digital control circuit, effectively prolongs battery life and enhances overall system performance. It also includes comprehensive electronic protections against overcharging, over-discharging, and PV reverse polarity, ensuring safe and reliable operation of your solar system.

The Tracer10415AN supports 12V, 24V, 36V, and 48V DC systems, automatically identifying the system voltage. It offers a wide range of maximum power point operating voltage, improving photovoltaic module utilization. The controller also features real-time energy recording, statistical functions, and automatic over-temperature power reduction.



Image: Front view of the EPEVER 100A MPPT Solar Charge Controller, showing the LCD display and control buttons.

2. PRODUCT FEATURES AND COMPONENTS

The Tracer10415AN controller is equipped with various ports and indicators for comprehensive system management:

- **PV Terminals:** For connecting solar panel input.
- **Battery Terminals:** For connecting to the battery bank.
- **Load Control Relay:** For managing connected DC loads.
- **RBVS Port:** Remote Battery Voltage Sensor port.
- **Generator Relay ON/OFF:** For generator auto-control.

- **RS485 Port:** Isolated RS485 interface with standard MODBUS communication protocol for external communication and monitoring.
- **RTS Port:** Remote Temperature Sensor port.
- **Fuse:** Integrated fuse for protection.
- **Grounding Terminal:** For common negative grounding.
- **PV Reverse Polarity Alarm Indicator:** Visual indicator for PV reverse polarity.
- **LCD Display:** Provides real-time system data and settings.
- **Select/Enter Buttons:** For navigating and confirming settings on the LCD.

Product Features

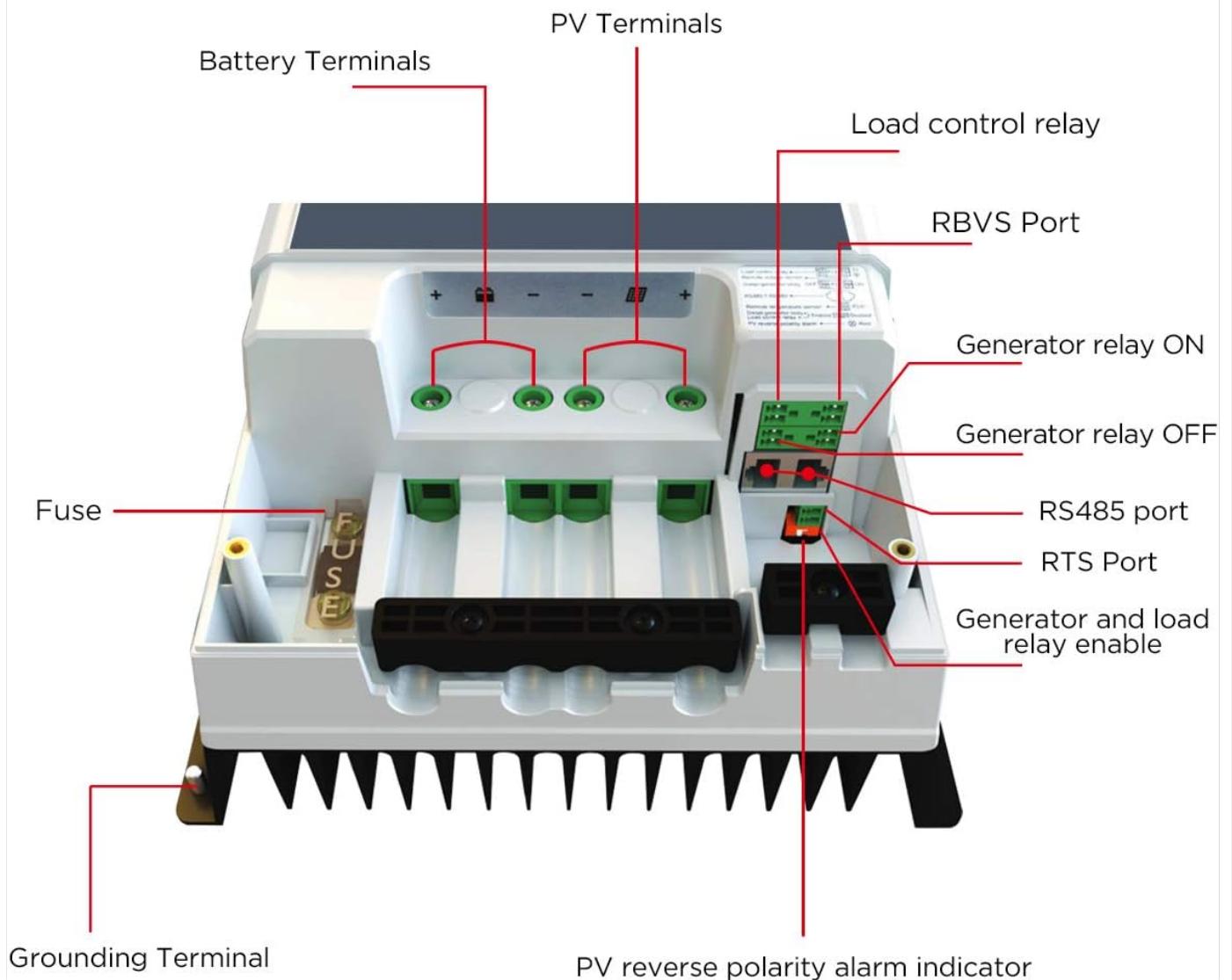


Image: Detailed view of the EPEVER controller's terminals and ports, including PV, Battery, Load, RS485, and sensor connections.

Characteristics



Image: Close-up of the controller highlighting its aluminum alloy material and heat sink for efficient heat dissipation.

3. SETUP AND INSTALLATION

Proper installation is crucial for the safe and efficient operation of your solar charge controller. Always ensure all power sources are disconnected before making any connections.

3.1 Wiring Diagram

The following diagram illustrates a typical wiring setup for the EPEVER MPPT Solar Charge Controller in a solar power system, including connections to solar panels, battery, inverter, and various loads.

Wiring



Image: Comprehensive wiring diagram showing the interconnection of solar panels, the EPEVER controller, battery, inverter, and various household appliances.

3.2 Connection Procedure

Follow these steps for safe and correct installation:

1. **Unboxing and Inspection:** Carefully remove the controller from its packaging. Verify all components are present and undamaged.
2. **Mounting:** Mount the controller in a well-ventilated area, away from direct sunlight and moisture. Ensure adequate clearance around the heat sink for proper air circulation.
3. **Connect to Battery:** Connect the battery cables to the battery terminals on the controller first. Ensure correct polarity (positive to positive, negative to negative). This step is critical for the controller to detect system voltage.
4. **Connect to Solar Panel:** Connect the solar panel cables to the PV terminals on the controller. Ensure correct polarity.
5. **Connect to Load (Optional):** If using the load control feature, connect your DC loads to the load terminals.
6. **Connect Accessories (Optional):** Connect any optional accessories such as the Remote Temperature Sensor (RTS) or communication modules (e.g., MT50, RS485 to USB cable) to their respective ports.

Important Connection Order: Always connect the battery first, then the solar panel. When disconnecting, disconnect the solar panel first, then the battery.

3.3 Installation Demonstration Video

Watch this official video for a visual guide on unboxing, component identification, and installation steps for the Tracer-AN series controller.

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Video: An official demonstration video from iSunergy showing the unboxing, identification of components, and step-by-step installation process for the EPEVER MPPT Solar Charge Controller. This video covers connecting to the battery, solar panel, and other ports, as well as general physical characteristics.

4. OPERATING INSTRUCTIONS

The controller's LCD display provides real-time operational data and allows for configuration of various settings.

4.1 LCD Display Navigation

The LCD displays key information such as battery voltage, PV input voltage, charging current, and load status. Use the "SELECT" and "ENTER" buttons to navigate through the display interfaces.

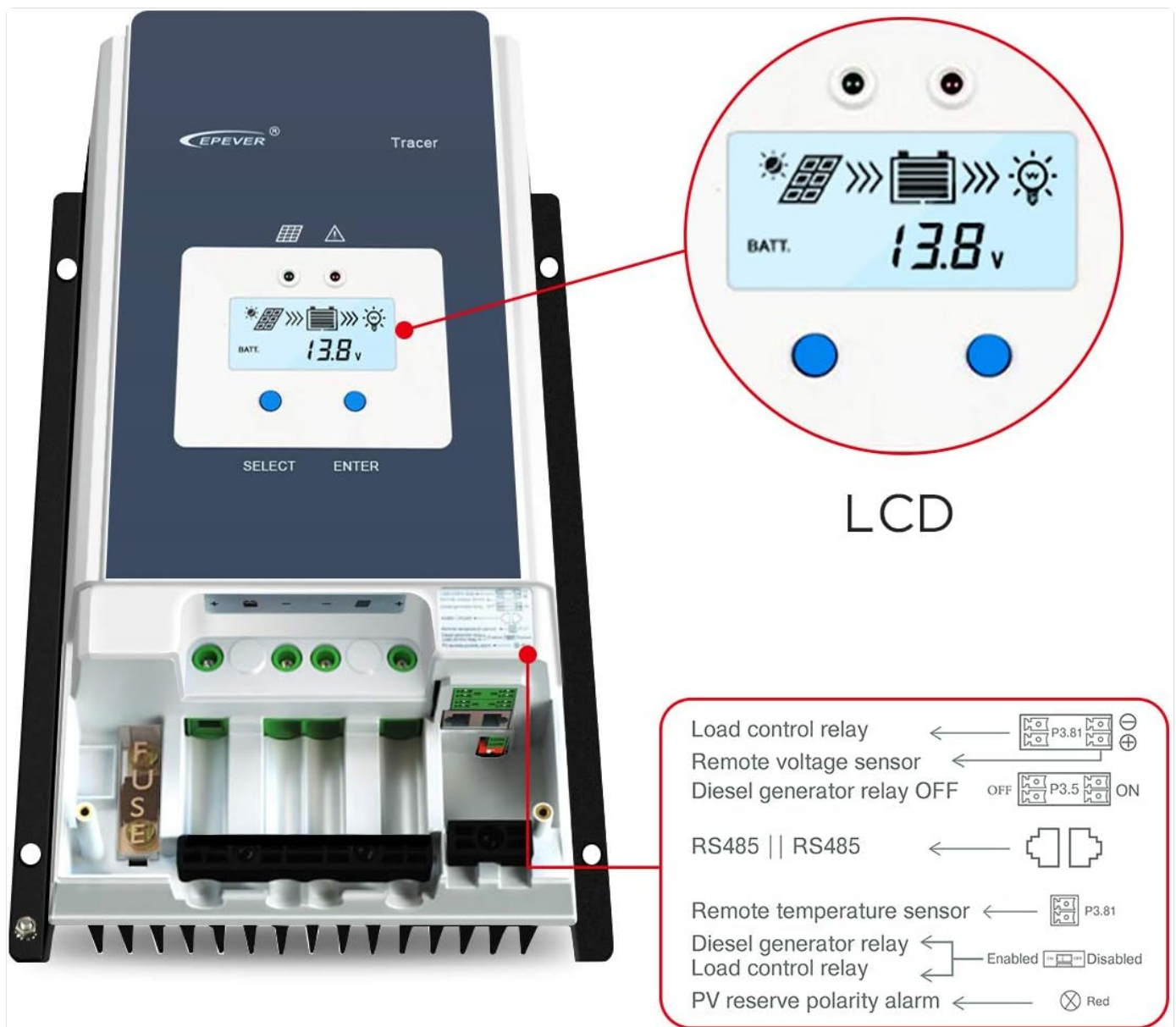


Image: Close-up view of the EPEVER controller's LCD display, showing battery voltage and solar input indicators.

4.2 Battery Type Setting

To optimize charging for your specific battery type (Sealed, Gel, Flooded, or User-defined), you can adjust this setting:

- Navigate to the Battery Voltage interface on the LCD.
- Long press the "ENTER" button to access the battery type setting interface.
- Use the "SELECT" button to cycle through the available battery types (Sealed, Gel, Flooded, User).
- After choosing the desired battery type, wait for 5 seconds or press the "ENTER" button again to successfully modify and save the setting.

4.3 Load Working Mode Setting

The controller offers various load working modes to control connected DC loads. These modes include Light ON/OFF, timed operation, and manual control.

Refer to the table below for available load working modes and their corresponding codes. Use the "SELECT" and "ENTER" buttons to configure the desired mode.

Load Working Mode Options

1**	Timer 1	2**	Timer 2
100	Light ON/OFF	2n	Disabled
101	Load will be on for 1 hour since sunset	201	Load will be on for 1 hour before sunrise
102	Load will be on for 2 hours since sunset	202	Load will be on for 2 hours before sunrise
103-113	Load will be on for 3 ~ 13 hours since sunset	203-213	Load will be on for 3 ~ 13 hours before sunrise
114	Load will be on for 14 hours since sunset	204	Load will be on for 14 hours before sunrise
115	Load will be on for 15 hours since sunset	205	Load will be on for 15 hours before sunrise
116	Test mode	2n	Disabled
117	Manual Mode (Default load ON)	2n	Disabled

To set the load working mode, navigate to the load interface on the LCD and use the "SELECT" button to choose the desired mode. Confirm with "ENTER" or wait for 5 seconds for the setting to apply.

Watch this official video for a visual guide on setting the battery type and load working mode:

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Video: An official demonstration video from iSunergy showing how to navigate the LCD display, set the battery type, and configure the load working mode on the EPEVER MPPT Solar Charge Controller.

5. SPECIFICATIONS

Detailed technical specifications for the Tracer10415AN model:

EPEVER Tracer-AN Series Parameter Table

Model	Tracer5415AN	Tracer6415AN	Tracer8415AN	Tracer10415AN
Nominal System Voltage	12/24/36/48VDC or Auto			
Battery Input Voltage Range	8V ~ 68V			
Battery Type	Sealed(Default)/Gel/Flooded/User			
Battery Fuse	80A/58V	150A/58V		
Rated Charge Current	50A	60A	80A	100A
Rated Charge Power	625W/12V 1250W/24V 1875W/36V 2500W/48V	750W/12V 1500W/24V 3000W/48V 2250W/36V	1000W/12V 2000W/24V 3000W/48V 2000W/24V	1250W/12V 2500W/24V 3750W/36V 5000W/48V
Max. PV Open Circuit Voltage	150V① 138V②			
MPP Voltage Range	(Battery Voltage +2V) ~ 108V③			
Tracking Efficiency	≥99.5%			
Max. Conversion Efficiency	98.30%	98.60%	98.50%	98.60%
Full Load Efficiency	97.80%	98.00%	98.00%	98.00%
Temperature Compensate Coefficient	-3mV/°C/2V(Default)			
Self-Consumption	98mA/12V 60mA/24V 50mA/36V 46mA/48V			
Grounding	Common negative grounding			
Relay	Rated Value:5A/30VDC; Max. Value:0.5A/60VDC			
RS485 Interface	RS485(RJ45)			
LCD Backlight Time	Default:60S,Range:0~999S(0S the backlight is ON all the time)			
Ambient temperature range	-25°C ~ +60°C (Derate above 45°C)			
Mounting hole size	Φ7			
Enclosure	IP20			

Image: Detailed parameter table for EPEVER Tracer-AN series solar charge controllers, including electrical specifications and environmental ratings.

①At minimum operating environment temperature
②At 25°C environment temperature
③The maximum PV open circuit voltage must never exceed 138V or 180V at 25°C environment temperature

Size

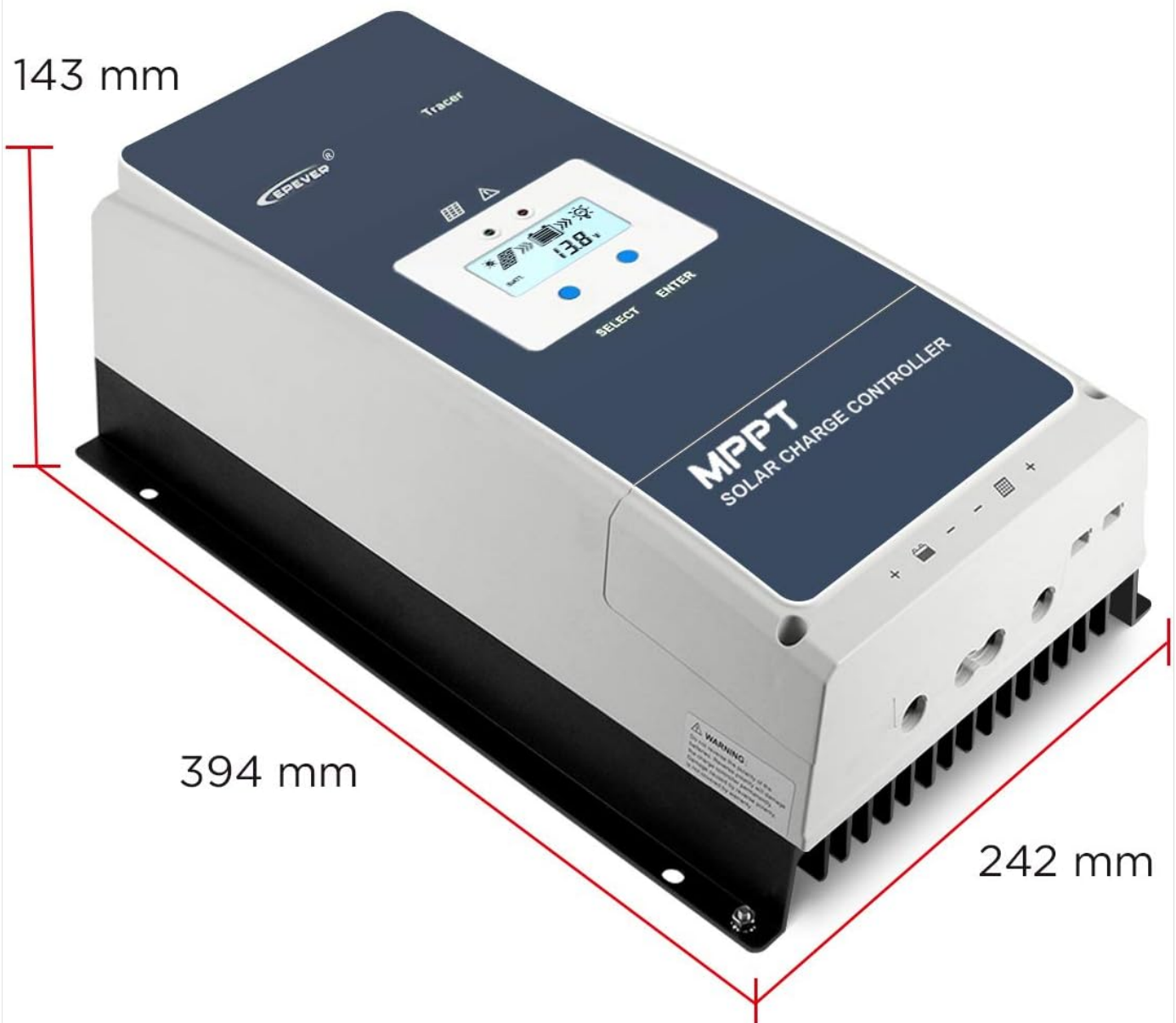


Image: Diagram showing the physical dimensions (length, width, height) of the EPEVER solar charge controller in millimeters.

6. MAINTENANCE

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

- **Visual Inspection:** Periodically inspect the controller for any signs of damage, corrosion, or loose connections. Check for dust or debris accumulation, especially on the heat sink.
- **Cleanliness:** Keep the controller clean and free from dust. Use a dry, soft cloth for cleaning. Do not use abrasive cleaners or solvents.
- **Connection Checks:** Ensure all wiring connections (battery, PV, load) are tight and secure. Loose connections can lead to power loss or overheating.
- **Ventilation:** Verify that the ventilation openings and heat sink fins are not obstructed to allow for proper heat dissipation.

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

7. TROUBLESHOOTING

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

- **No Display/No Power:**
 - Check battery connections and ensure they are secure and correctly polarized.
 - Verify battery voltage is within the controller's operating range.
 - Inspect the fuse for continuity.
- **No Charging/Low Charging Current:**
 - Check solar panel connections and polarity.
 - Ensure solar panels are receiving adequate sunlight and are not shaded.
 - Verify PV open circuit voltage (Voc) and maximum power point voltage (Vmpp) are within the controller's specifications.
 - Check for any error codes on the LCD display and consult the manual's error code section (if available in full manual).
- **Battery Not Fully Charged:**
 - Confirm the correct battery type is selected in the controller settings.
 - Ensure the battery capacity is appropriate for the solar array size.
 - Check for excessive load consumption.
- **Overheating:**
 - Ensure proper ventilation around the controller and that the heat sink is not obstructed.
 - Verify ambient temperature is within the specified operating range.
 - Check for short circuits or excessive current draw from loads or PV.

For more detailed troubleshooting or persistent issues, please contact EPEVER customer support.

8. APPLICATIONS

The EPEVER Tracer10415AN MPPT Solar Charge Controller is versatile and suitable for a wide range of applications, including:

- Solar RV systems
- Off-grid household solar systems
- Field monitoring stations
- Street lighting systems

- Remote power systems

Application



Image: Collage showing diverse applications of the solar charge controller, including residential rooftops, RVs, streetlights, and remote installations.

9. OPTIONAL ACCESSORIES AND COMMUNICATION

The Tracer10415AN controller supports various accessories for enhanced monitoring and control, leveraging its RS485 communication port.

Optional Accessories for EPEVER Controller

Accessory	Description
Remote Temperature Sensor (RTS300R47K3.81A)	Acquisition of battery temperature for undertaking temperature compensation of control parameters. The standard length of the cable is 3m (length can be customized). The RTS300R47K3.81A connects to the port (4th) on the controller. NOTE: The temperature sensor short-circuited or damaged, the controller will be charging or discharging at the default temperature 25°C.
USB to RS485 cable (CC-USB-RS485-150U)	USB to RS485 converter is used to monitor each controller on the network using Solar Station PC software. The length of cable is 1.5m. The CC-USB-RS485-150U connects to the RS-485 Port on the controller.
OTG cable (OTG-12CM)	Used to connect a mobile communication cable and to achieve real-time monitoring of the controller and modification of the parameters by using mobile APP software.
Remote Meter (MT50)	MT50 can display various operating data and fault of the system. The information can be displayed on a backlit LCD screen, the buttons are easy-to-operate, and the numeric display is readable.
WiFi Serial Adapter (eBox-WiFi-01)	After the controller is connected with the eBox-WiFi-01 through the standard Ethernet cable (parallel cable), the operating status and related parameters of the controller can be monitored by the mobile APP software through WiFi signals.
RS485 to Bluetooth Adapter (eBox-BLE-01)	After the controller is connected with the eBox-BLE-01 through the standard Ethernet cable (parallel cable), the operating status and related parameters of the controller can be monitored by the mobile APP software through Bluetooth signals.
Logger (eLOG01)	After the controller is connected with the eLOG-01 through the RS485 communication cable, it can record the operating data of the controller or monitor the real-time operating status of the controller via PC software.

Image: Table detailing various optional accessories for the EPEVER controller, including sensors, communication cables, remote meters, and data loggers, along with their functions.

For setting and use of accessories, please refer to the individual accessory manuals.

10. WARRANTY AND SUPPORT

EPEVER products are designed for reliability and performance. This product comes with a standard manufacturer's warranty against defects in materials and workmanship.

For warranty claims, technical support, or service inquiries, please contact EPEVER customer service through their official website or the contact information provided with your purchase. Please have your product model number (Tracer10415AN) and purchase date ready when contacting support.

Always refer to the official EPEVER website for the most up-to-date warranty information and support resources.

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