

## Manuals+

[Q & A](#) | [Deep Search](#) | [Upload](#)

manuals.plus /

- › [EPEVER](#) /
- › [EPEVER Tracer AN Series 80A MPPT Solar Charge Controller User Manual](#)

## EPEVER 8415AN

# EPEVER Tracer AN Series 80A MPPT Solar Charge Controller User Manual

Model: 8415AN

Brand: EPEVER

## 1. INTRODUCTION

---

The EPEVER Tracer AN Series MPPT Solar Charge Controller is designed for advanced solar power systems. It features Maximum Power Point Tracking (MPPT) technology for high efficiency, ensuring optimal charging of your battery bank from solar panels. This controller supports 12V, 24V, 36V, and 48V auto-identifying system voltages and is compatible with various battery types including Sealed, Gel, Flooded, and User-defined. It includes a remote meter (MT50), temperature sensor (RTS), and PC communication cable (RS485) for comprehensive monitoring and parameter setting.



Figure 1: EPEVER Tracer AN Series 80A MPPT Solar Charge Controller and accessories.

## 2. PRODUCT FEATURES AND OVERVIEW

The Tracer AN series controller incorporates advanced MPPT technology with ultra-fast tracking speed, achieving tracking efficiency no less than 99.5%. It utilizes high-quality components from ST and Infineon for enhanced product longevity. The adaptive three-stage charging mode, based on a digital control circuit, effectively prolongs battery life and improves system performance. Key features include:

- Advanced MPPT technology with  $\geq 99.5\%$  tracking efficiency.
- Support for 12V/24V/36V/48V auto-identifying system voltage.
- Adaptive three-stage charging mode for extended battery life.
- Auto control system to limit charging power and current.
- Wide range of maximum power point operating voltage.
- Support for 4 charging options: Sealed, Gel, Flooded, and User.
- Standard Modbus communication protocol with RS485 interface.
- Dual RS485 ports (RJ45 Connector) for system expansion (up to 8 units in parallel).

# Product Features

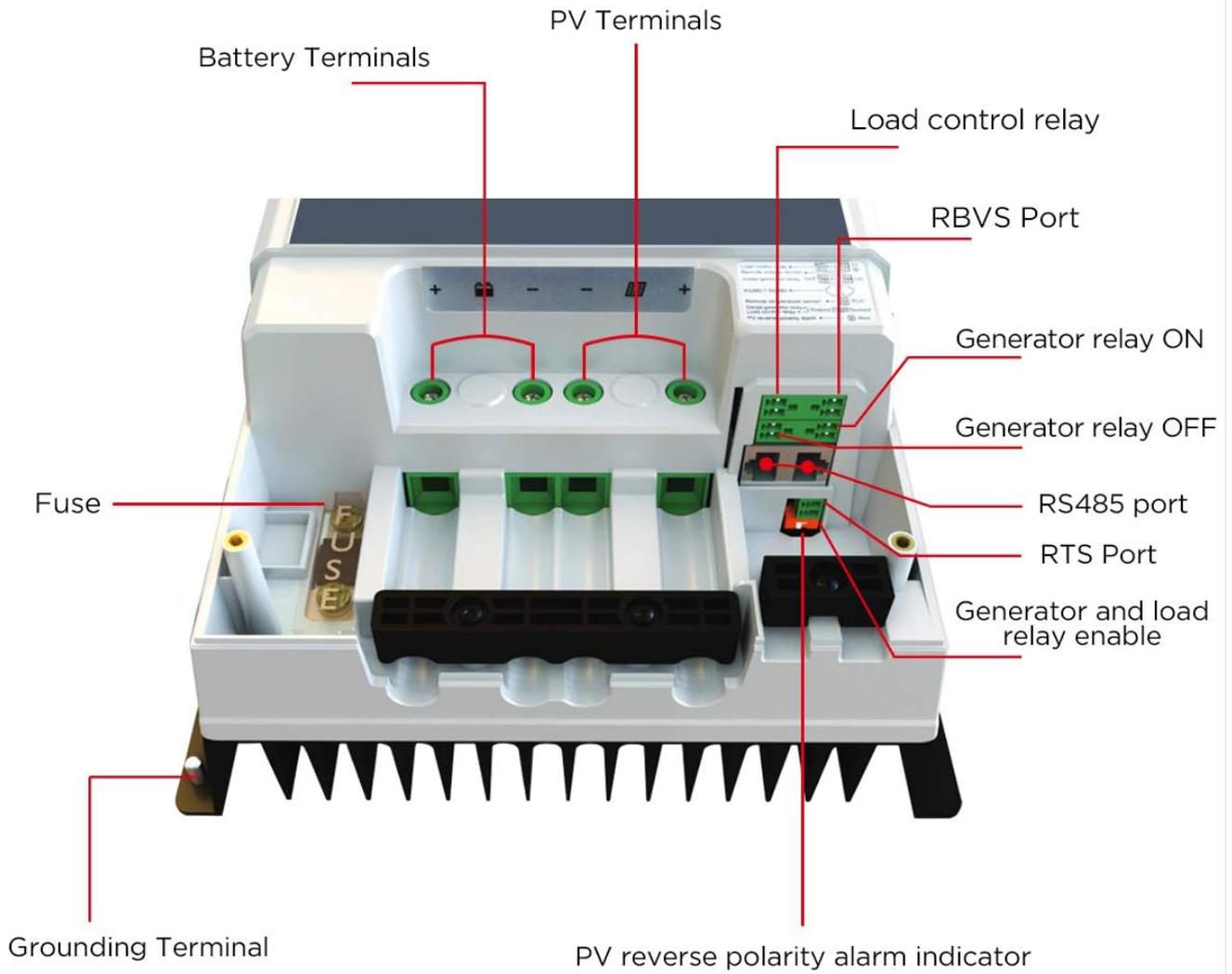


Figure 2: Detailed view of the controller's terminals and indicators, including PV terminals, battery terminals, load control relay, RBVS port, generator relay, fuse, RS485 port, RTS port, and grounding terminal.

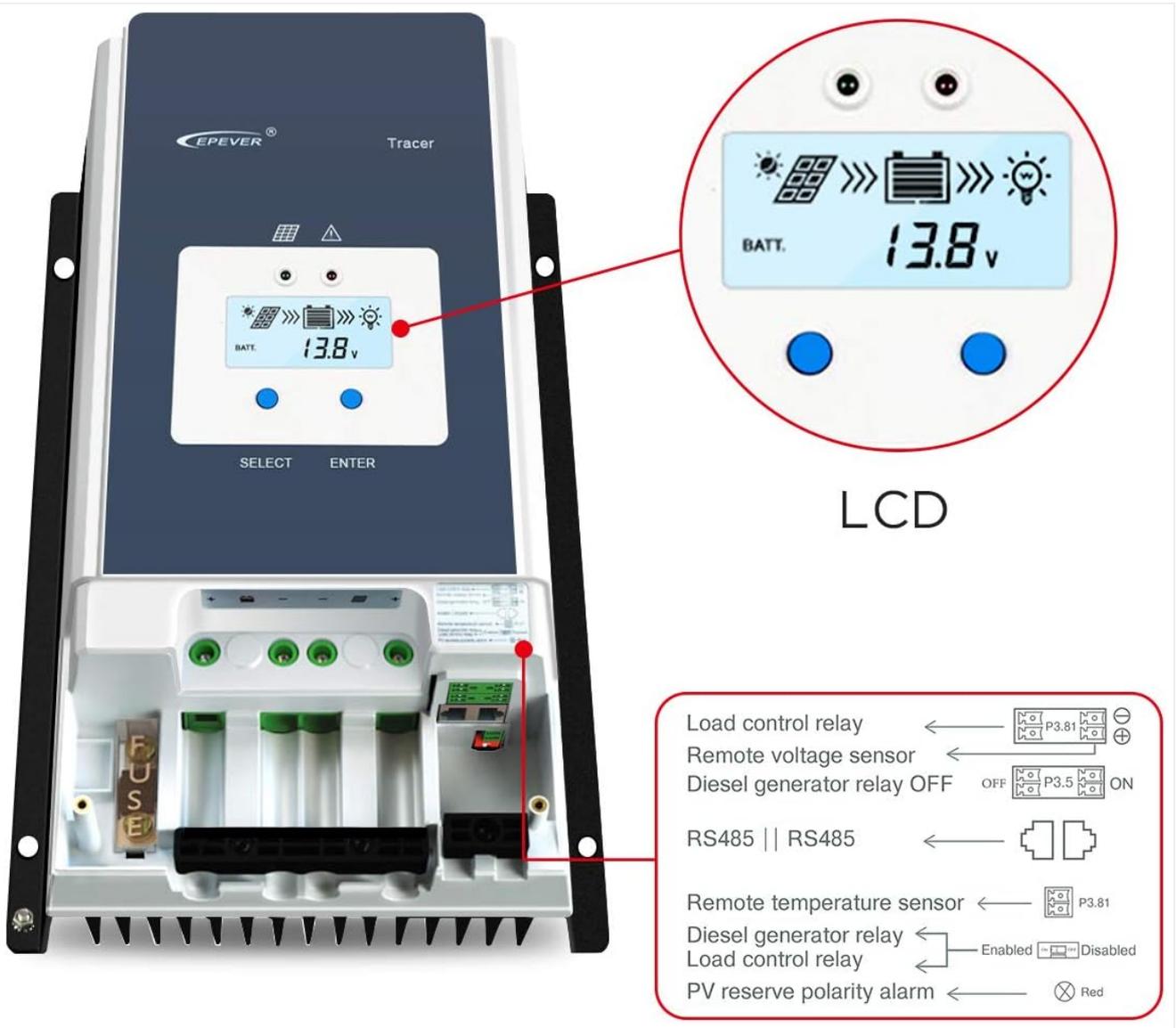


Figure 3: Close-up of the LCD display and control buttons (Select, Enter) on the EPEVER MPPT Solar Charge Controller.

# Characteristics



Figure 4: The controller features an aluminum alloy material for good heat dissipation, ensuring stable operation.

## 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

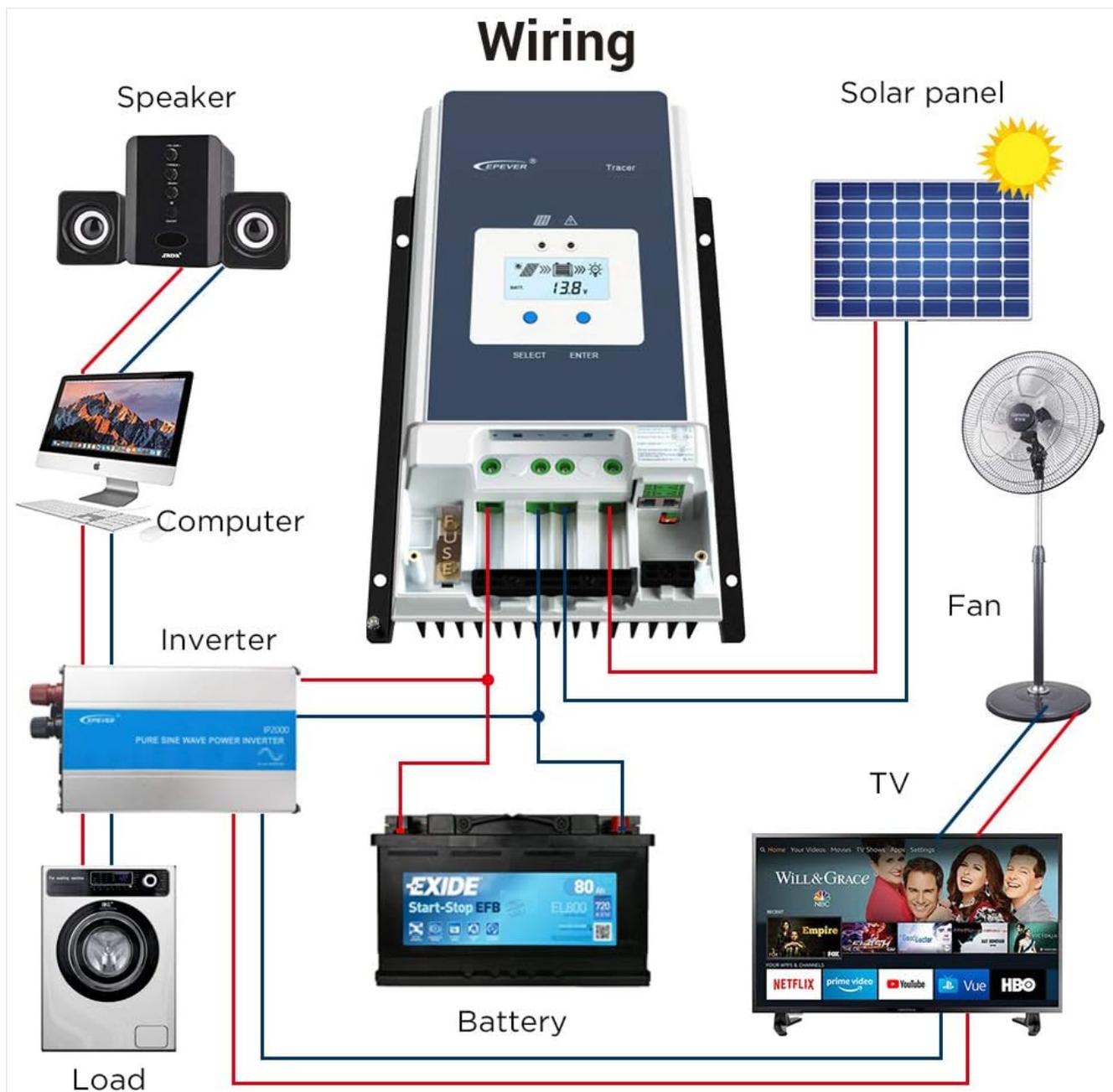


Figure 5: Typical wiring diagram for the EPEVER MPPT Solar Charge Controller in a solar power system, connecting to solar panels, battery, inverter, and various loads like a washing machine, fan, and TV.

### 3.2 Connection Steps

1. **Connect the Battery:** Connect the battery to the controller's battery terminals (positive and negative). Ensure correct polarity.
2. **Connect the Solar Panel:** Connect the solar panel to the controller's PV terminals (positive and negative). Ensure correct polarity.
3. **Connect the Load:** Connect your DC loads to the controller's load terminals (positive and negative).
4. **Connect Accessories:** Connect the MT50 remote meter, RTS temperature sensor, and RS485 communication cable as needed to their respective ports.
5. **Grounding:** Ensure the controller is properly grounded using the grounding terminal.

**Important:** Always connect the battery first, then the solar panel, and finally the load. When disconnecting, reverse the order: disconnect the load, then the solar panel, and finally the battery.

Your browser does not support the video tag.

Video 1: Unboxing and Installation Guide for EPEVER Tracer AN Series MPPT Controller. This video demonstrates the physical unboxing, identification of components, and step-by-step installation process for the solar charge controller, including connections for battery, solar panel,

## 4. OPERATING INSTRUCTIONS

---

### 4.1 Basic Operation via Controller LCD

The controller features an LCD display and two buttons (SELECT and ENTER) for monitoring system status and adjusting parameters. Use the SELECT button to navigate through different display interfaces and the ENTER button to confirm selections or enter parameter settings.

- **Monitoring:** Press SELECT to cycle through various parameters like battery voltage, PV voltage, charging current, load status, etc.
- **Battery Type Setting:** From the battery voltage interface, long-press ENTER to enter the battery type setting. Use SELECT to choose the desired battery type (Sealed, Gel, Flooded, User) and then press ENTER to save.
- **Load Working Mode:** Navigate to the load working mode interface. Long-press ENTER to adjust the load control settings (e.g., Light ON/OFF, Light ON+Timer, Manual Control). Refer to the detailed load working mode table in the full manual for specific codes.

### 4.2 MT50 Remote Meter Operation

The MT50 remote meter provides a comprehensive interface for monitoring and setting controller parameters. It connects via the RS485 port.

- **Monitoring:** The MT50 displays real-time data for PV, battery, and load.
- **Parameter Setting:** Use the navigation buttons on the MT50 to access menus such as 'Control Para.' to adjust battery type, charging voltages (Boost Charge, Float Charge), discharge limits, and load working modes.
- **Custom Parameters:** For advanced customization of battery voltage control parameters, select 'User' battery type on the MT50.

# Romote Moter **MT50**

- ◆ Wide LCD screen displays
- ◆ Used for monitoring and setting the controller
- ◆ Automatically identifies parameter data of solar controllers
- ◆ Longer communication distance based on RS485



Figure 6: The MT50 Remote Meter offers a wide LCD screen for monitoring and setting parameters, automatically identifying data from solar controllers and providing longer communication distance via RS485.

## 5. MAINTENANCE

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

- **Visual Inspection:** Periodically check for loose connections, damaged wiring, or signs of overheating.
- **Cleanliness:** Keep the controller clean and free from dust and debris. Ensure the heat sink fins are not obstructed to allow for proper cooling.
- **Firmware Updates:** Check the EPEVER website for any available firmware updates to ensure your controller has the latest features and bug fixes.
- **Battery Health:** Monitor battery voltage and health regularly. Ensure battery terminals are clean and tight.

## 6. TROUBLESHOOTING

If you encounter issues with your controller, refer to the following common troubleshooting steps:

- **No Display/Power:** Check battery connections and voltage. Ensure the fuse is intact.
- **No Charging:** Verify solar panel connections and ensure sufficient sunlight. Check PV voltage.
- **Load Not Working:** Check load connections and ensure the load is enabled in the controller settings (e.g., via MT50 or controller LCD).
- **Error Codes:** Refer to the full user manual for a list of specific error codes and their corresponding solutions.
- **Incorrect Voltage Readings:** Ensure all connections are secure and the remote temperature sensor (RTS) is properly connected and functioning.

## 7. SPECIFICATIONS

Below are the key technical specifications for the EPEVER Tracer AN Series MPPT Solar Charge Controller (Model 8415AN):

<h1>Parameter</h1>				
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 3000W/36V 4000W/48V 2000W/24V	1250W/12V 2500W/24V 3750W/36V 5000W/48V
Max. PV Open Circuit Voltage	150V <sup>①</sup> 138V <sup>②</sup>			
MPP Voltage Range	(Battery Voltage +2V) ~ 108V <sup>③</sup>			
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	
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				

Figure 7: Comprehensive table of technical parameters for Tracer AN series models, including nominal system voltage, battery input voltage range, battery type, rated charge current, rated charge power, max PV open circuit voltage, MPP voltage range, tracking efficiency, max conversion efficiency, full load efficiency, temperature compensates coefficient, self-consumption, grounding, RS485 interface, LCD backlight

time, ambient temperature range, mounting hole size, and enclosure rating.

Specification	Value
Model	Tracer8415AN
Nominal System Voltage	12V/24V/36V/48VDC Auto
Battery Input Voltage Range	8V ~ 68V
Battery Type	Sealed (Default), Gel, Flooded, User
Rated Charge Current	80A
Max. PV Open Circuit Voltage	150V
Tracking Efficiency	≥99.5%
Max. Conversion Efficiency	98.50%
Enclosure	IP20
Item Weight	16.56 pounds (7.53 Kilograms)
Package Dimensions	19.45 x 13.39 x 9.53 inches

## 8. APPLICATION

---

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

- Solar RV systems
- Household solar power systems
- Field monitoring stations
- Off-grid cabins and remote power solutions
- Solar street lighting

# Application



Figure 8: Various application examples for the EPEVER MPPT Solar Charge Controller, demonstrating its use in residential, recreational vehicle (RV), and public lighting setups.

## 9. DIMENSIONS

The physical dimensions of the controller are provided below for installation planning.

# Size

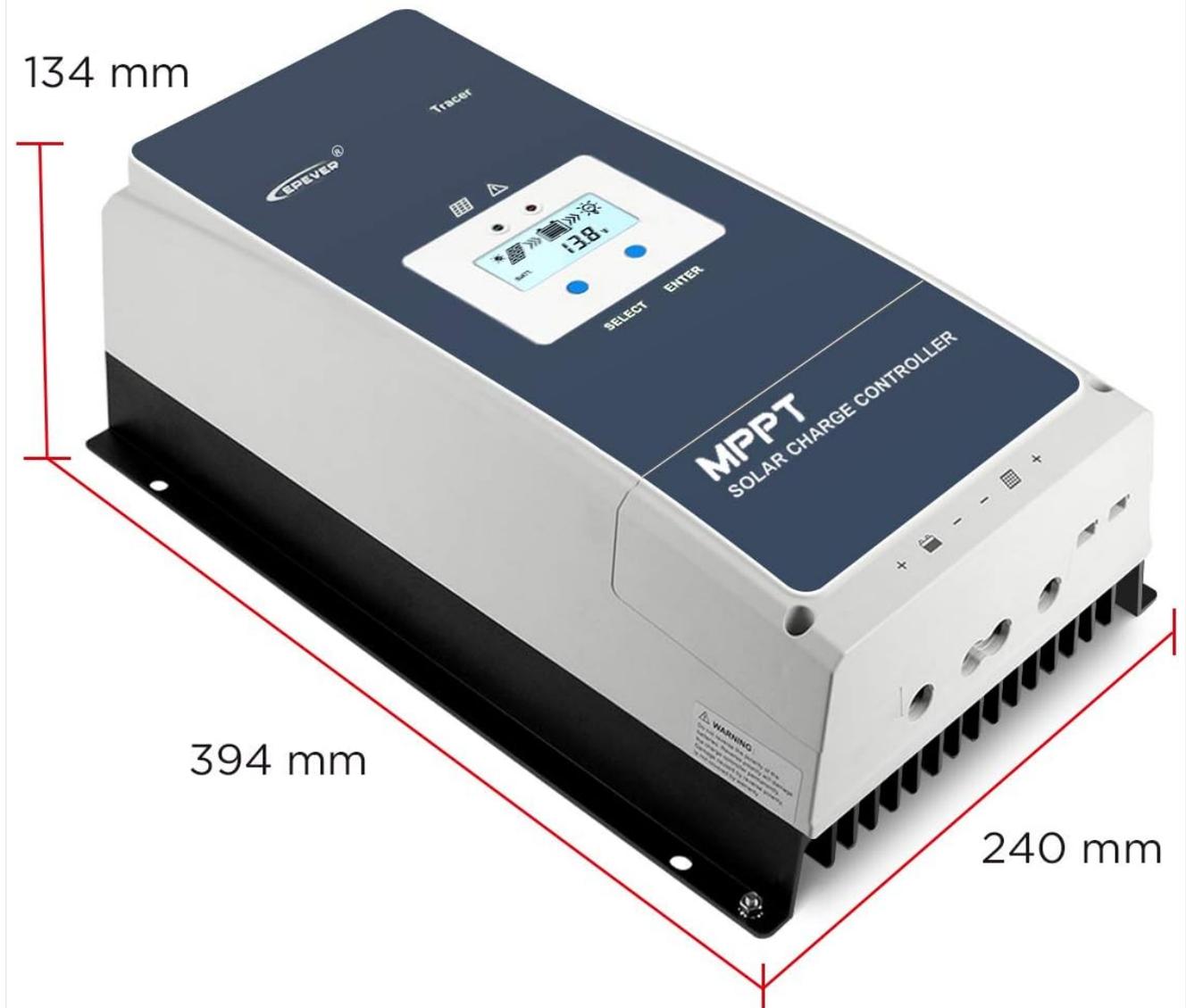


Figure 9: Dimensions of the EPEVER MPPT Solar Charge Controller: 394 mm (length) x 240 mm (width) x 134 mm (height).

## 10. ACCESSORIES

The EPEVER Tracer AN Series 80A MPPT Solar Charge Controller comes bundled with essential accessories to enhance its functionality and ease of use:

- **MT50 Remote Meter:** A wide LCD screen display used for monitoring and setting controller parameters. It automatically identifies parameter data of solar controllers and offers longer communication distance based on RS485.
- **RTS (Remote Temperature Sensor):** Acquires battery temperature for undertaking temperature compensation of control parameters. The standard length of the cable is 3m.
- **RS485 Communication Cable:** A USB to RS485 converter cable (CC-USB-RS485-150U) used to monitor or set parameters by using PC software. The length of the cable is 1.5m.

# MODEL: TRANCER8415AN+MT50+RTS+RS485



- Nominal System Voltage: 12/24/36/48VDC or Auto
- Rated charge current: 80A
- Max. PV open circuit voltage: 150V/138V(At 25°C)
- Battery Type: Sealed(Default)/Gel/Flooded/User

Figure 10: The EPEVER Tracer AN Series MPPT Solar Charge Controller shown with its included MT50 remote meter, RTS temperature sensor, and RS485 communication cable.

## 11. WARRANTY AND SUPPORT

EPEVER products are designed for reliability and performance. For specific warranty details, please refer to the warranty card included with your product or visit the official EPEVER website. For technical support, troubleshooting assistance, or service inquiries, please contact EPEVER customer service through their official channels. Keep your purchase receipt for warranty claims.