EPEVER Tracer3210AN

EPEVER Tracer3210AN 30A MPPT Solar Charge Controller Instruction Manual

Comprehensive instruction manual for the EPEVER Tracer3210AN 30A MPPT Solar Charge Controller, covering setup, operation, maintenance, and specifications.

1. Introduction and Overview

The EPEVER Tracer3210AN is a 30A Maximum Power Point Tracking (MPPT) solar charge controller designed for 12V/24V automatic system voltage detection. It features a maximum PV input voltage of 100V and negative grounding. This controller is equipped with an MT50 remote meter, a temperature sensor (RTS), and an RS485 PC communication cable for comprehensive monitoring and control.
This manual provides detailed instructions for the safe and efficient installation, operation, and maintenance of your Tracer3210AN solar charge controller.

2. Product Features

- **Advanced MPPT Technology:** Ensures high tracking efficiency (over 99.5%) for optimal solar energy harvesting.
- **Automatic System Voltage:** Automatically detects 12V or 24V battery systems.
- **High PV Input:** Supports maximum PV input voltage up to 100V.
- **Negative Grounding:** Common negative grounding design for system compatibility.
- **Versatile Battery Compatibility:** Supports Sealed, Gel, Flooded, Lithium, and user-defined battery types.
- **Built-in LCD Display:** Provides real-time display of key charging parameters.
- **Multiple Communication Options:** Includes RS-485 interface for PC software, mobile app connectivity (via optional accessories), and MT50 remote meter.
- **USB Output:** Dual USB ports (5V Max: 2.2A) for charging external devices.
- **Current Limiting Function:** Allows for future expansion of solar panels without overloading.
- **Robust Design:** Features aluminum alloy material for efficient heat dissipation.

3. Components Overview

The EPEVER Tracer3210AN kit includes the following components:

- Tracer3210AN MPPT Solar Charge Controller

- MT50 Remote Meter
- Remote Temperature Sensor (RTS)
- PC Communication Cable (RS485 to USB)
- Mounting Screws and Wall Plugs
- User Manual

Figure 1: EPEVER Tracer3210AN Solar Charge Controller Kit Contents. This image displays the main controller unit, the MT50 remote meter, the remote temperature sensor, the PC communication cable, and mounting hardware.

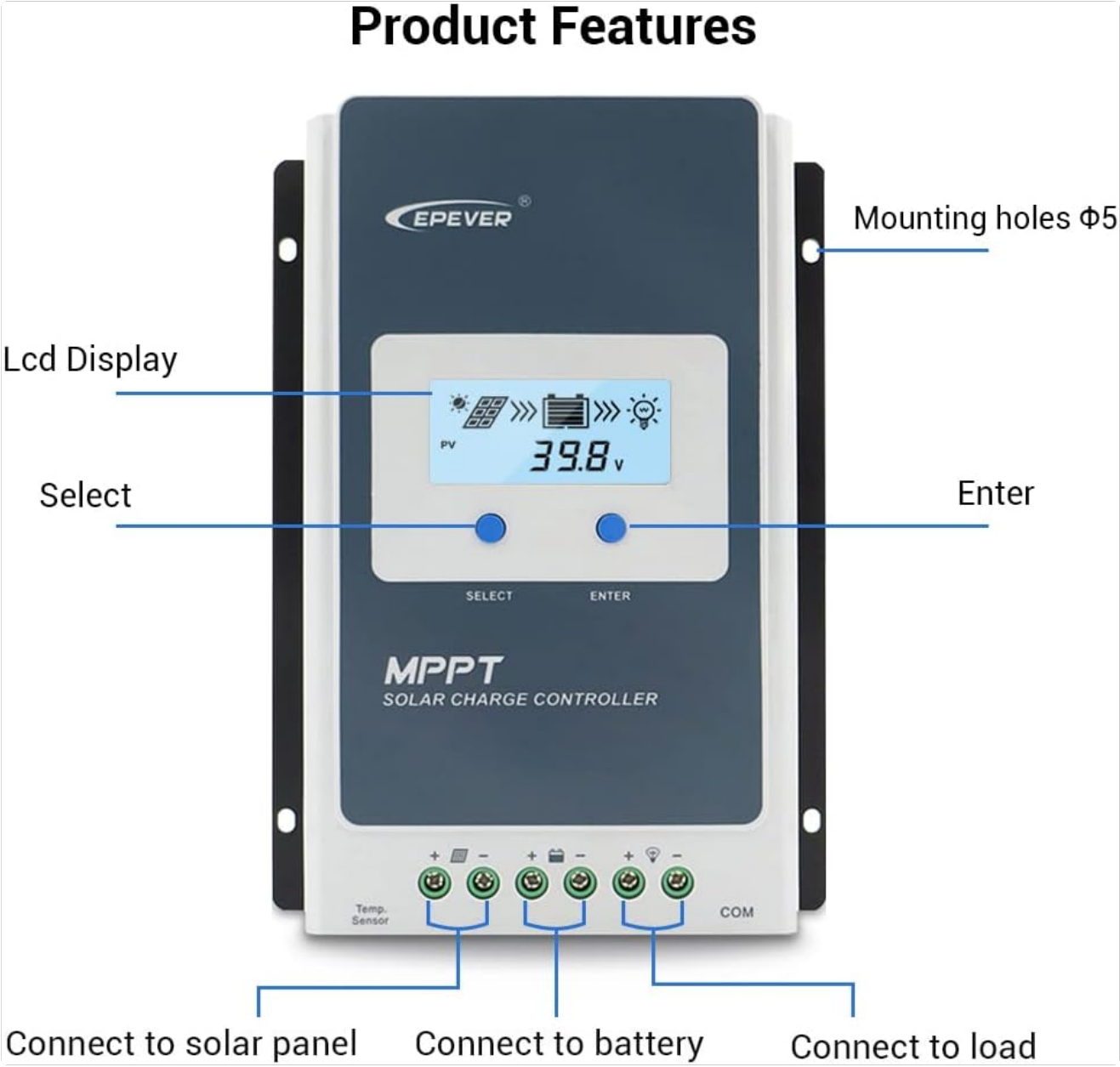


Figure 2: EPEVER Tracer3210AN Product Features Diagram. This diagram highlights the LCD display, select and enter buttons, mounting holes, and connection points for solar panels, battery, load, temperature sensor, and communication port.

4. Setup and Installation

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

4.1 Wiring Instructions

Connection Order: Always connect the battery first, then the solar panel, and finally the load.
Disconnection Order: Disconnect the solar panel first, then the load, and finally the battery.

1. Connect the battery to the controller's battery terminals (BAT+ and BAT-).
2. Connect the solar panel to the controller's PV terminals (PV+ and PV-).
3. Connect the load to the controller's load terminals (LOAD+ and LOAD-).
4. Connect the Remote Temperature Sensor (RTS) to the designated RTS port.
5. Connect the MT50 Remote Meter or PC Communication Cable to the RS485 port as needed.

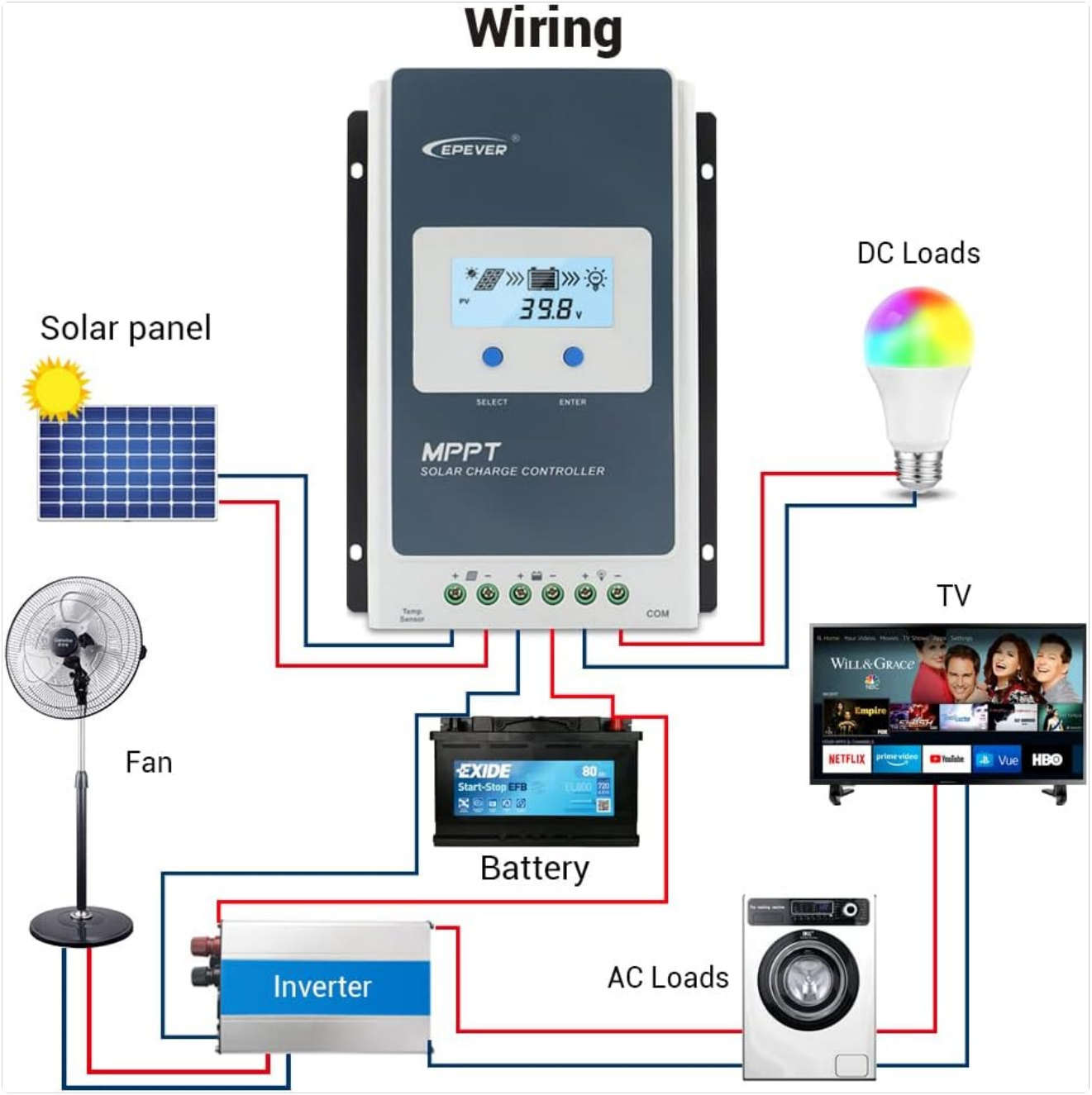


Figure 3: EPEVER Tracer3210AN Wiring Diagram. This diagram illustrates the correct connection sequence for the solar panel, battery, and various DC/AC loads through an inverter.

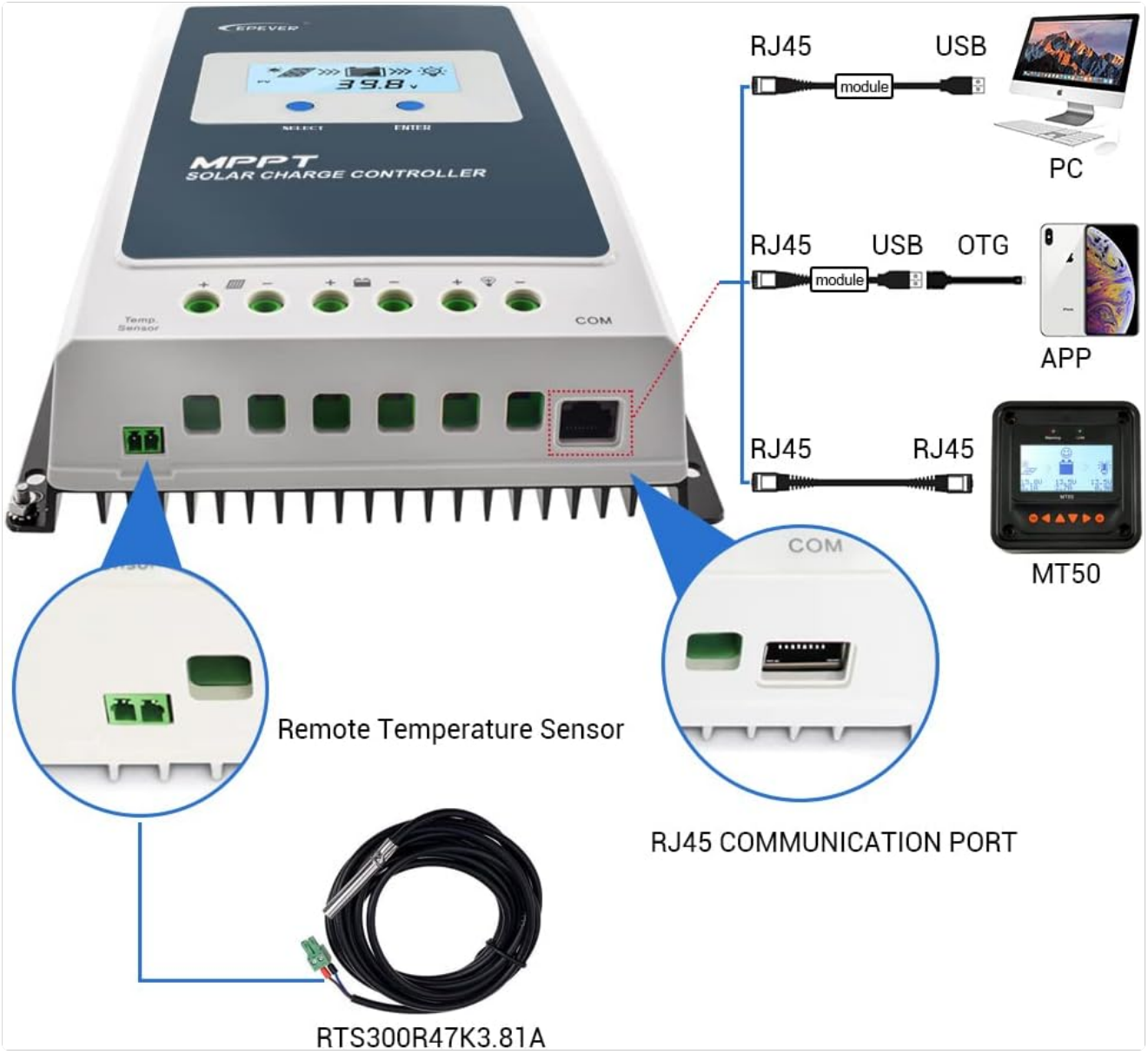


Figure 4: EPEVER Tracer3210AN Communication Ports. This image shows the Remote Temperature Sensor port, the RJ45 communication port, and how to connect to a PC, mobile app (via OTG), or MT50 remote meter.

4.2 Module Installation (if applicable)

The Tracer3210AN controller supports various interface modules for enhanced functionality. To change or install modules:

1. Pry the cover of the controller off using a screwdriver.
2. Insert the desired module (e.g., Display Standard 2 Modules (DS2), USB COM Slave (UCS)) into the designated slot.
3. Replace the cover.

Video 1: EPEVER Tracer-AN Controller Instructions. This comprehensive video demonstrates unboxing, product features, how to change modules, wiring installation, setting battery type, and configuring load working modes.

5. Operating Instructions

5.1 LCD Display and Button Functions

The controller features an LCD display and buttons for monitoring and setting parameters.

- **PV Browsing Interface:** Press the button to view PV data. Hold for 5 seconds to set data.
- **BATT Browsing Interface:** Press the button to view battery data. Hold for 5 seconds to set battery type, capacity, and temperature.
- **Load Browsing Interface:** Press the button to view load data. Hold for 5 seconds to set load working mode.
- **Setting Interface:** Press the button to enter settings. Hold for 5 seconds to set parameters.

5.2 Setting Battery Type

To ensure proper charging, set the correct battery type:

1. Press the **SET** button for the setting interface.
2. Press the **BATT** button and hold for 5 seconds to enter the battery type interface.
3. Press the **PV+** or **LOAD-** buttons to choose the battery type (e.g., Sealed, GEL, FLD, LiFePO4, Li(NiCoMn)O2, USE).
4. Press the **SET** button to confirm the battery type.

CAUTION: When the default battery type is selected, the battery voltage control parameters will be set by default and cannot be changed. To change these parameters, select "User" battery type.

5.3 Setting Load Working Mode

The controller offers various load working modes:

- **Manual Control Mode (default):** Press the button to open/close the load.
- **Light ON/OFF:** Load turns on/off based on light conditions.
- **Light ON + Timer:** Load turns on based on light and stays on for a set duration.
- **Time Control:** Load operates according to a programmed schedule.

Refer to the MT50 remote meter or PC software for detailed configuration of load working modes.

6. Maintenance

To ensure optimal performance and longevity of your EPEVER Tracer3210AN solar charge controller, regular maintenance is recommended:

- **Inspect Connections:** Periodically check all wiring connections for tightness and corrosion. Loose connections can cause overheating and damage.
- **Clean Controller:** Keep the controller clean and free from dust and debris. Ensure the heat sink fins are not obstructed to maintain proper cooling.
- **Monitor Performance:** Regularly check the LCD display or connected remote meter/app for normal operating parameters (PV voltage, battery voltage, charging current).
- **Battery Inspection:** Inspect battery terminals for corrosion and ensure the battery is in good condition. For flooded batteries, check electrolyte levels.
- **Environmental Check:** Ensure the installation environment is within the specified temperature and humidity ranges.

7. Troubleshooting

If you encounter issues with your Tracer3210AN controller, consider the following common troubleshooting steps:

- **No Display/Power:** Check battery connections and ensure the battery voltage is within the operating range. Verify fuses are intact.

- **No Charging:** Confirm solar panel connections are secure and receiving adequate sunlight. Check PV voltage on the display. Ensure the battery type is correctly set.
- **Load Not Working:** Verify load connections. Check the load working mode settings. Ensure the battery has sufficient charge.
- **Error Codes:** Refer to the full user manual for specific error codes displayed on the LCD or MT50 remote meter.

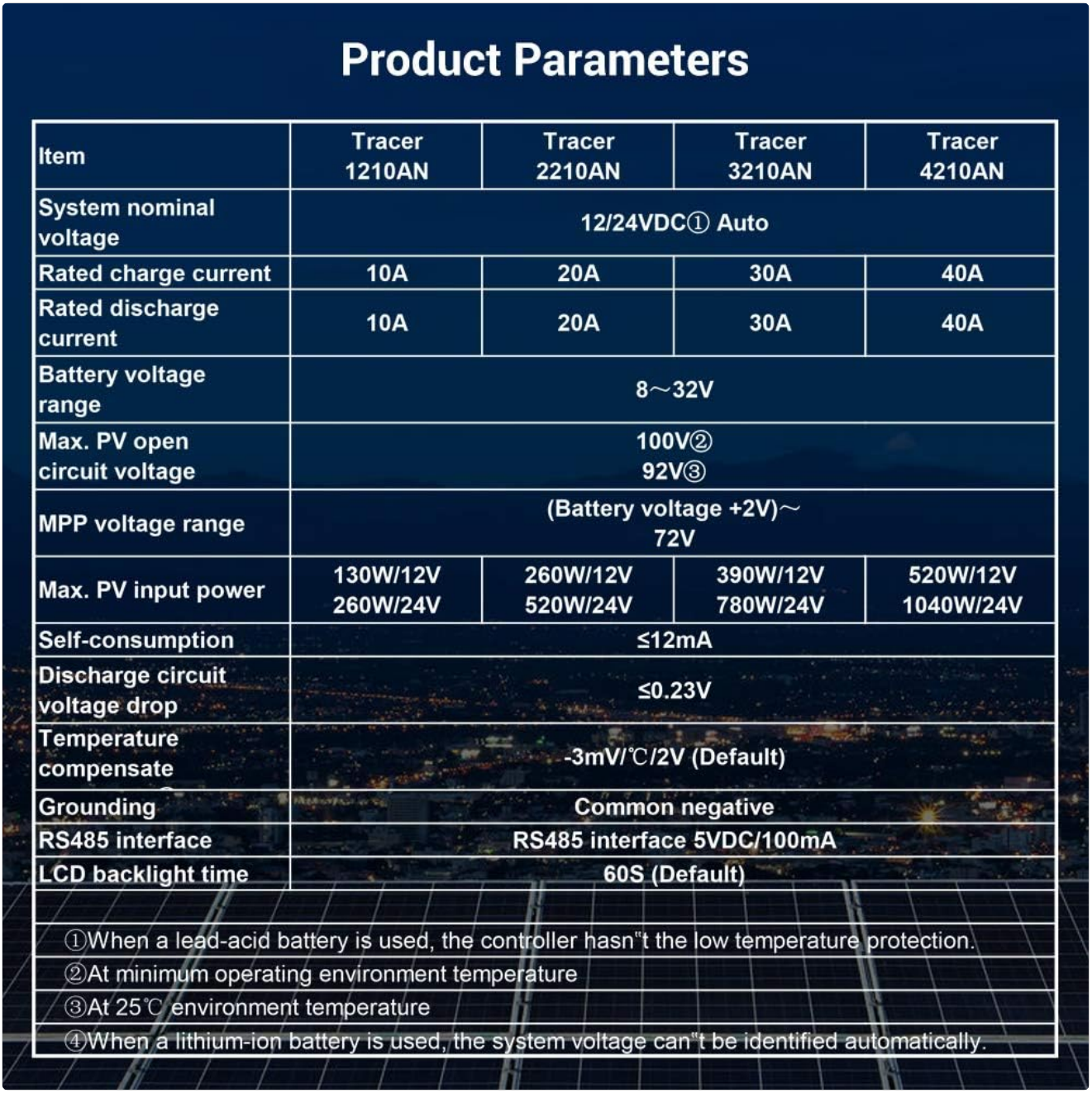
For persistent issues, contact EPEVER customer support or consult a qualified technician.

8. Technical Specifications

Below are the detailed specifications for the Tracer3210AN model:

Item	Tracer 3210AN
System nominal voltage	12/24VDC Auto
Rated charge current	30A
Rated discharge current	30A
Battery voltage range	8~32V
Max. PV open circuit voltage	100V
MPP voltage range	(Battery voltage +2V)~72V
Max. PV input power	390W/12V, 780W/24V
Self-consumption	≤12mA
Discharge circuit voltage drop	≤0.23V
Temperature compensate coefficient	-3mV/°C/2V (Default)
Grounding	Common negative
RS485 interface	5VDC/100mA
LCD backlight time	60S (Default)
Storage temperature range	-20℃ ~ +70℃
Relative humidity	≤95%, N.C.
Enclosure	IP30
Mounting hole size	Φ5mm

Note: When a lead-acid battery is used, the controller has no low temperature protection. Max PV open circuit voltage is at minimum operating environment temperature. At 25℃ environment temperature. When a lithium-ion battery is used, the system voltage cannot be identified automatically.



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/℃/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℃ environment temperature
④When a lithium-ion battery is used, the system voltage can"t be identified automatically.

Figure 5: EPEVER Tracer3210AN Product Parameters Table. This table provides detailed electrical and environmental specifications for various Tracer models, including the 3210AN.

9. Connectivity Options

The Tracer3210AN controller offers various connectivity options for monitoring and control:

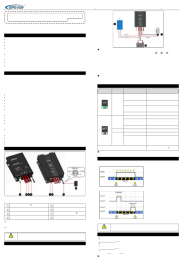
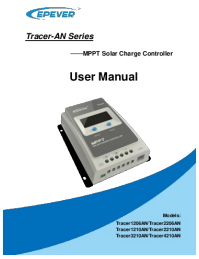
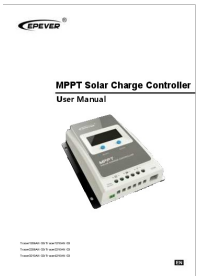
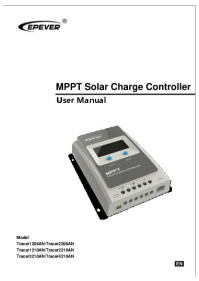
- **MT50 Remote Meter:** Displays operating data and fault information. Easy to operate with a numeric display.
- **PC Software:** Connect via USB to RS485 cable (CC-USB-RS485-150U) for monitoring and parameter modification using Solar Station PC software.
- **Mobile App:** Connect via OTG cable (OTG-12CM) or optional WiFi/Bluetooth adapters (eBox-WiFi-01, eBox-BLE-01) for real-time monitoring and parameter modification via mobile app.
- **Logger:** eLOG01 logger can record operating data of the controller for later review.

10. Warranty and Support

For warranty information, technical support, or service inquiries, please refer to the warranty card included in your product packaging or visit the official EPEVER website. Ensure you have your product model and serial number

available when contacting support.
For additional resources and FAQs, you may visit theEPEVER Store on Amazon.

Related Documents - Tracer3210AN

	EPEVER Tracer BP MPPT Solar Charge Controller User Manual & Technical Specifications Explore the EPEVER Tracer BP MPPT Solar Charge Controller user manual, featuring advanced Maximum Power Point Tracking technology for efficient solar charging. Learn about its features, wiring, LED indicators, load working modes, comprehensive protection mechanisms, troubleshooting, and detailed technical specifications for various battery types including sealed, gel, flooded, and lithium batteries. Ideal for solar home systems, traffic signals, solar street lights, and garden lamps.
	EPEVER Tracer AN Series MPPT Solar Charge Controller User Manual User manual for EPEVER Tracer AN series MPPT solar charge controllers, covering safety instructions, installation, operation, troubleshooting, and technical specifications for models Tracer1206AN, Tracer2206AN, Tracer1210AN, Tracer2210AN, Tracer3210AN, and Tracer4210AN.
	EPEVER Tracer-AN Series MPPT Solar Charge Controller User Manual Detailed user manual for the EPEVER Tracer-AN Series MPPT solar charge controllers, covering safety, installation, operation, troubleshooting, and technical specifications. Learn about MPPT technology, battery charging stages, and system configuration.
	EPEVER Tracer-AN G3 Series MPPT Solar Charge Controller User Manual Comprehensive user manual for the EPEVER Tracer-AN G3 series MPPT solar charge controllers, detailing installation, operation, safety, key features like advanced MPPT and multi-stage charging, remote monitoring capabilities, and essential technical specifications for efficient solar energy management in RVs, household systems, and field applications.
	EPEVER Tracer AN Series MPPT Solar Charge Controller User Manual Comprehensive user manual for the EPEVER Tracer AN series MPPT solar charge controllers, covering installation, operation, specifications, safety instructions, and troubleshooting for models including Tracer1206AN, Tracer2206AN, Tracer1210AN, Tracer2210AN, Tracer3210AN, and Tracer4210AN.

Advanced MPPT Charge Controller -XTRA-N G3

What is XTRA-N G3 charge controller?

The XTRA-N G3 series solar charge controllers are engineered to meet the increasing requirements of off-grid energy systems. These controllers include a built-in Bluetooth module for easy management via the EPEVER app.

Equipped with advanced Maximum Power Point Tracking (MPPT) algorithms, the controllers optimize the tracking of the Maximum Power Point to maximize energy harvest across various environmental conditions. They are designed for efficient operation, featuring a three-stage charging process that adapts to battery lifespan and system efficiency while minimizing static power consumption.

The controllers are built with an IP33 ingress protection rating for reliable performance and include an isolated RS485 communication port to support diverse applications. They are compatible with multiple types of lead batteries, providing the necessary adjustments to maintain safe battery operation across different user cases such as RVs, residential systems, and monitoring setups.

[EPEVER XTRA-N G3 Advanced MPPT Charge Controller]

Detailed information on the EPEVER XTRA-N G3 Advanced MPPT Charge Controller, including features, naming conventions, setup guide, and accessories for solar off-grid systems.