

EPEVER Tracer1210AN

EPEVER Tracer-AN Series MPPT Solar Charge Controller User Manual

Model: Tracer1210AN

1. INTRODUCTION

The EPEVER Tracer-AN series MPPT Solar Charge Controller is an advanced, efficient, and multi-functional device designed for solar power systems. It utilizes Maximum Power Point Tracking (MPPT) technology to maximize energy harvest from solar panels, ensuring optimal charging for various battery types including lead-acid and lithium-ion. This manual provides essential information for the safe and effective installation, operation, and maintenance of your Tracer1210AN solar charge controller.



Figure 1: EPEVER Tracer1210AN MPPT Solar Charge Controller with included accessories.

2. SAFETY PRECAUTIONS

Adhering to these safety guidelines is crucial for preventing damage to the controller, batteries, and other components, as well as ensuring personal safety.

- When wiring the controller, ensure the circuit breaker or fuse is open (off) and that the leads of the positive (+) and negative (-) poles are connected correctly. Incorrect polarity can cause severe damage.
- A fuse, with a current rating 1.25 to 2 times the rated current of the controller, must be installed on the battery side. This fuse should be located no more than 150 mm from the battery terminal.
- For installations in areas prone to frequent lightning strikes or unattended locations, an external surge arrester must be installed to protect the system.
- If an inverter is part of your system, connect the inverter directly to the battery terminals **Do not connect the inverter to the load side of the controller.**

- Ensure proper ventilation around the controller to prevent overheating.

3. PRODUCT FEATURES

The Tracer-AN series controllers offer robust features for efficient solar power management:

- **Advanced MPPT Technology:** Features a tracking efficiency of no less than 99.5% and a maximum conversion efficiency of 98%, ensuring maximum energy harvest from your solar modules.
- **Battery Compatibility:** Supports various battery types, including lead-acid (Sealed, Gel, Flooded) and lithium-ion batteries.
- **System Voltage Auto-Identification:** Automatically identifies 12V/24V DC system voltage.
- **Common Negative Ground Design:** Provides enhanced system stability and safety.
- **Charging Power & Current Limitation:** Includes functions to limit charging power and current, and automatically reduce charging power, improving stability even with oversized PV modules or in high temperatures.
- **Adaptive Three-Stage Charging:** Based on a digital control circuit, this mode effectively prolongs battery life.
- **Communication Port Protection:** Equipped with a professional protection chip for the communication port, enhancing reliability.

Features



Figure 2: Key features and connection points of the Tracer-AN series controller.

4. PACKAGE CONTENTS

Upon opening your package, please verify that all the following items are included:

- 1 x EPEVER Tracer-AN Series MPPT Solar Charge Controller (Tracer1210AN)
- 1 x User Manual (this document)
- 1 x MT50 Remote Meter
- 1 x RTS (Remote Temperature Sensor)
- 1 x RS485 Communication Cable

5. SETUP AND INSTALLATION

5.1 Wiring Diagram

The following diagram illustrates a typical wiring setup for the EPEVER Tracer-AN series solar charge controller in a solar power system. Ensure all connections are secure and correctly polarized.



Figure 3: System wiring diagram for the Tracer-AN controller.

5.2 Connection Order

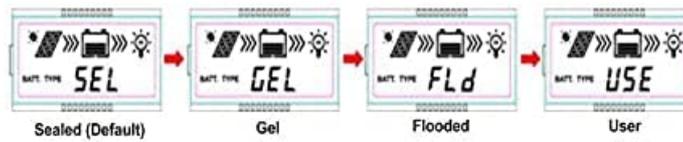
It is critical to connect the components in the correct sequence to prevent damage to the controller and other system components:

1. **Connect the Battery:** First, connect the battery to the controller's battery terminals. Ensure correct polarity (+ to +, - to -).
2. **Connect the Solar Panel:** Next, connect the solar panel(s) to the controller's PV terminals. Verify correct polarity.
3. **Connect the Load:** Finally, connect your DC loads to the controller's load terminals.

5.3 Battery Type Setting

The controller is compatible with various battery types. You must select the correct battery type for optimal charging and battery longevity. The MT50 remote meter or PC software can be used to configure this setting.

Battery Type



Item	Lead-acid battery	Lithium battery
1	Sealed(Default)	LiFePO4(4s/12V; 8s/24V)
2	Gel	Li(NiCoMn)O2 (3s/12V; 6s/24V)
3	Flooded	User(9~34V)
4	User(9~17V/12V; 18~34V/24V)	



CAUTION:

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

Figure 4: Supported Battery Types and their default settings.

CAUTION:

When the default battery type (Sealed, Gel, Flooded) is selected, the battery voltage control parameters will be set by default and cannot be changed. To customize these parameters, you must select the "User" battery type.

6. OPERATING INSTRUCTIONS

6.1 MT50 Remote Meter

The MT50 remote meter provides a convenient interface for monitoring and controlling your solar system. It allows for:

- Real-time data monitoring of PV input, battery status, and load output.
- Remote load switch control.
- Browsing and modification of device parameters, charging control parameters, and load control parameters.

6.2 RS485 Communication

The RS485 communication port allows you to connect the controller to a PC or other monitoring equipment. Using the provided RS485 cable and EPEVER software, you can:

- Monitor the solar charging system's data in real-time.
- Set and adjust various system parameters.

6.3 Temperature Sensor (RTS)

The RTS (Remote Temperature Sensor) is essential for accurate battery charging. It acquires the battery's ambient temperature, allowing the controller to perform temperature compensation for control parameters. This ensures optimal charging voltage and current, prolonging battery life. The standard length of the RTS cable is 3 meters.

7. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your solar charge controller and overall system:

- **Inspect Connections:** Periodically check all wiring connections for tightness and corrosion. Loose connections can lead to power loss and overheating.
- **Clean the Controller:** Keep the controller clean and free from dust, dirt, and debris. Use a dry cloth to wipe the exterior. Ensure ventilation openings are not blocked.
- **Check Ventilation:** Verify that the controller has adequate airflow around it, especially around the heat dissipation aluminum alloy (see Figure 5).
- **Monitor System Performance:** Regularly check the readings on the MT50 remote meter or PC software to ensure the system is operating within expected parameters.



Figure 5: Controller characteristics showing heat dissipation and insulating material.

8. TROUBLESHOOTING

This section provides general guidance for common issues. For more detailed troubleshooting, refer to the

comprehensive manual available on the EPEVER website or contact customer support.

Problem	Possible Cause	Solution
Controller display is off / No power	Battery not connected or low voltage; reversed polarity; blown fuse.	Check battery connections and voltage; verify polarity; replace fuse if necessary.
Battery not charging	Solar panel not connected or insufficient sunlight; PV open circuit voltage too low; battery type misconfigured.	Check PV connections; ensure adequate sunlight; verify PV voltage; confirm correct battery type setting.
Load not working	Load disconnected; load overcurrent; battery low voltage protection; load control setting.	Check load connections; reduce load; charge battery; adjust load control settings via MT50.

9. SPECIFICATIONS

Detailed technical specifications for the Tracer1210AN model:

Parameter	Value (Tracer1210AN)
System Nominal Voltage	12/24VDC Auto
Rated Charge Current	10A
Rated Discharge Current	10A
Battery Input Voltage Range	8V ~ 32V
Max. PV Open Circuit Voltage	100V
Max. PV Input Power (12V)	130W
Max. PV Input Power (24V)	260W
MPP Voltage Range	Battery Voltage +2V ~ 72V
Grounding	Common Negative
Dimensions (L x W x H)	172 x 139 x 44 mm (6.77 x 5.47 x 1.73 inches)
Item Weight	0.57 kg (1.26 lbs)
Display Type	LCD

Size



Model	Tracer1210AN	Tracer2210AN	Tracer3210AN	Tracer4210AN
Mechanical Parameters				
Dimension	172x139 x 44mm	220x154x 52mm	228x164x55mm	252x180x63mm
Mounting dimension	130x130mm	170x145mm	170x164mm	210x171mm
Mounting hole size	Φ5mm			
Terminal	12AWG(4mm ²)	6AWG(16mm ²)	6AWG(16mm ²)	6AWG(16mm ²)
Recommended cable	12AWG(4mm ²)	10AWG(6mm ²)	8AWG(10mm ²)	6AWG(16mm ²)
Weight	0.57kg	0.94kg	1.26kg	1.65kg

Figure 6: Mechanical parameters and dimensions for Tracer-AN series models.

10. WARRANTY AND SUPPORT

EPEVER products are manufactured to high-quality standards. For warranty information, technical support, or service inquiries, please refer to the warranty card included with your product or visit the official EPEVER website. Ensure you have your product model and serial number available when contacting support.