

EPEVER Tracer4210AN G3

EPEVER Tracer4210AN G3 40A MPPT Solar Charge Controller User Manual

Model: Tracer4210AN G3

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1. INTRODUCTION

This user manual provides essential information for the safe and efficient operation of your EPEVER Tracer4210AN G3 40A MPPT Solar Charge Controller. Please read this manual thoroughly before installation and use to ensure proper functionality and to prevent damage to the unit or connected components. Keep this manual for future reference.

2. SAFETY INSTRUCTIONS

WARNING: Failure to follow these instructions may result in severe injury or death, and damage to the controller or other equipment.

- Ensure all wiring is correctly polarized. Incorrect polarity can damage the controller and battery.
- Always connect the battery first, then the solar panel, and finally the load. Disconnect in the reverse order: load, then solar panel, then battery.
- Do not use an electric screwdriver for terminal connections to avoid overtightening and damaging the terminals.
- The controller is designed for 12V/24V battery systems. Verify your battery voltage before connection.
- Ensure the maximum PV input voltage of 100V is not exceeded.
- Install the controller in a well-ventilated area, away from flammable materials and direct sunlight.
- This device is for indoor use only. Protect it from moisture, dust, and corrosive gases.
- Only qualified personnel should perform installation and maintenance.

3. PRODUCT OVERVIEW

The EPEVER Tracer4210AN G3 is a 40A Maximum Power Point Tracking (MPPT) solar charge controller designed

for efficient charging of 12V/24V battery systems. It supports various battery types including Lead-Acid (Sealed, Gel/AGM, Flooded) and Lithium batteries. Its advanced MPPT technology ensures high tracking efficiency and peak conversion efficiency.

Key Features:

- **Automatic System Voltage Identification:** Automatically detects 12V/24V DC battery systems.
- **High Tracking Efficiency:** Advanced MPPT technology with over 99.5% tracking efficiency and 98% peak conversion efficiency.
- **Versatile Battery Compatibility:** Supports Sealed, Gel (AGM), Flooded, and Lithium battery types.
- **Common Negative Grounding:** Ensures compatibility with various system configurations.
- **Multiple Load Control Modes:** Includes manual mode, light ON/OFF, light On+Timer, and test mode.
- **Informative LCD Display:** Backlight LCD for easy monitoring of system parameters.
- **Communication Port:** RS485 communication port with professional protection chip, supporting optional modules (MT52, RTS, PC Cable, Bluetooth, Wifi) for enhanced monitoring and control.
- **Robust Design:** G3 Version offers reduced noise and enhanced stability.

Product Components:

Familiarize yourself with the main components of your Tracer4210AN G3 controller.

Tracer 4210AN



Figure 3.1: EPEVER Tracer4210AN G3 Solar Charge Controller with labeled components including LCD display, mounting holes, select/enter buttons, solar panel terminals, battery terminals, load terminals, remote temp sensor port, and RJ45 communication port.

Tracer 4210AN



Figure 3.2: EPEVER Tracer4210AN G3 Solar Charge Controller illustrating typical applications such as solar homes, power generators, cars, and boats.

4. INSTALLATION

Proper installation is crucial for the performance and longevity of your solar charge controller. Always ensure safety precautions are followed.

Wiring Steps:

Always connect the battery first! Do not use an electric screwdriver.

1. **Connect the Battery:** Connect the battery to the controller's battery terminals. Ensure correct polarity (positive to positive, negative to negative).
2. **Connect the Solar Panel:** Connect the solar panel (PV array) to the controller's solar panel terminals. Verify correct polarity.
3. **Connect the Load:** Connect the DC load to the controller's load terminals. Ensure correct polarity.

Disconnection Steps (Reverse Order):

1. Disconnect the Load.

2. Disconnect the Solar Panel (PV array).
3. Disconnect the Battery.



Figure 4.1: Basic connection diagram for the solar charge controller, illustrating the sequence for connecting the battery, solar panel, and DC load. An inverter for AC load is also shown.

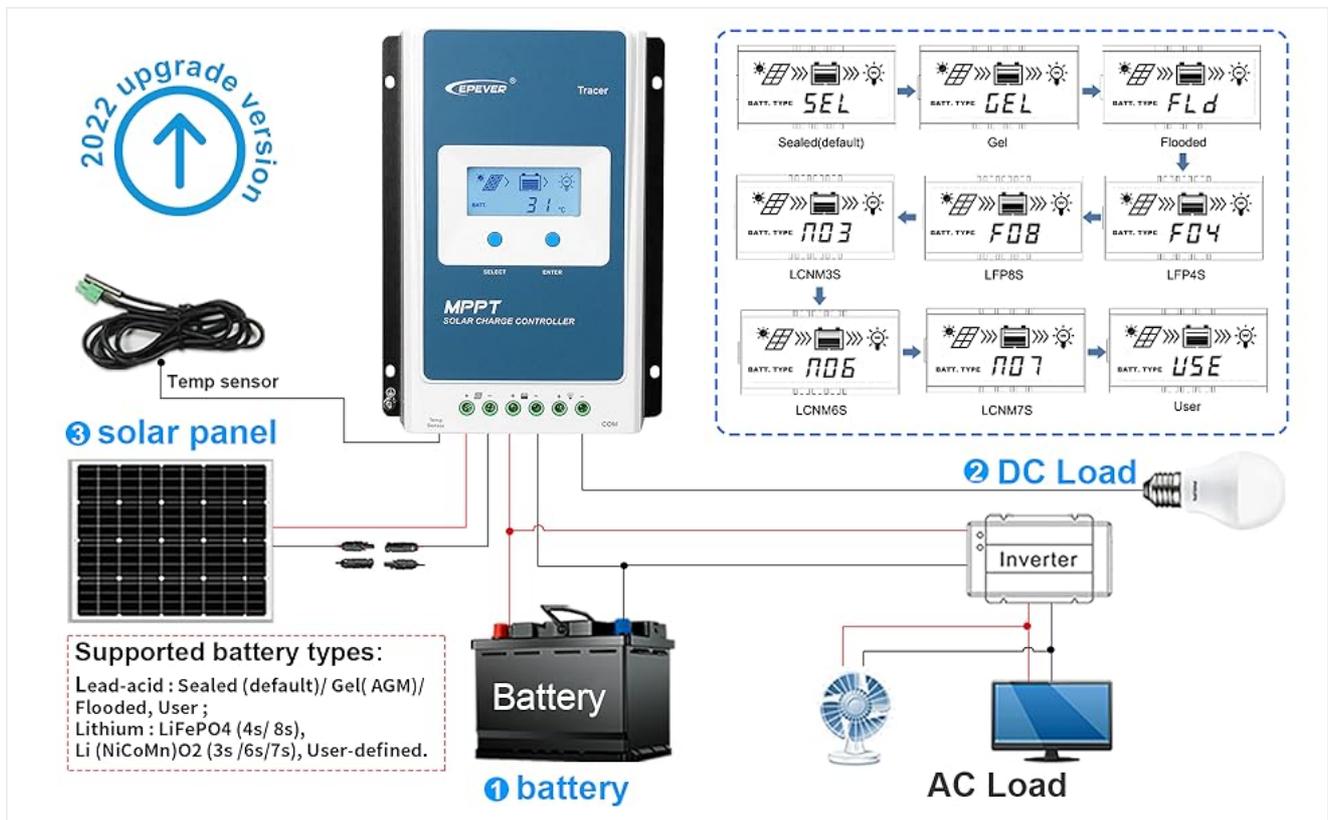


Figure 4.2: Comprehensive wiring diagram showing connections for the solar panel, battery, DC load, inverter for AC load, remote temperature sensor, and various communication accessories like MT50, eBox-WiFi, eBox-BLE, and eLOG01.

Installation Video:

Watch this video for a visual guide on unboxing and setting up a similar EPEVER MPPT controller (30A model). The general connection and setting procedures are applicable to the 40A model.

Video 4.1: Unboxing and setup guide for an EPEVER MPPT 30A Solar Charge Controller. This video demonstrates the physical connections and initial settings, which are similar for the 40A model.

5. OPERATION

The controller features an intuitive LCD display and buttons for monitoring and configuration.

LCD Display and Buttons:

The LCD displays various system parameters. Use the 'SELECT' and 'ENTER' buttons to navigate and confirm settings.

LCD DISPLAY



Figure 5.1: Examples of information displayed on the LCD screen, including PV input voltage/current, charging current, power generation, battery voltage, load work mode, discharge capacity, discharge current, and temperature.

Setting Battery Type:

It is essential to set the correct battery type for optimal charging and battery health.

1. Press the **"ENTER"** button and hold for 5 seconds under the battery voltage interface.
2. Press the **"SELECT"** button when the battery type interface is flashing to cycle through options (e.g., Sealed, Gel, Flooded, Lithium).
3. Press the **"ENTER"** button to confirm the selected battery type.

CAUTION: If the battery type is 'User', refer to Chapter 3 of the full user manual for detailed battery control voltage settings.

Setting Load Working Mode:

The controller offers various load control modes to manage your DC loads.

1. Press the **"ENTER"** button and hold for 5 seconds under the load mode interface.
2. Press the **"SELECT"** button when the load mode interface is flashing to choose your desired mode (e.g., Manual, Light ON/OFF, Light On+Timer, Test Mode).

3. Press the "**ENTER**" button to confirm the load mode.

CAUTION: Light ON/OFF, Test mode, and Manual mode are set via Timer1. Timer2 will be disabled and display "2n".

6. MAINTENANCE

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

- **Check Connections:** Periodically inspect all wiring connections for tightness and corrosion. Loose connections can cause overheating and damage.
- **Clean the Controller:** Keep the controller clean and free from dust and debris. Use a dry cloth to wipe the exterior. Ensure ventilation openings are not blocked.
- **Inspect for Damage:** Check for any physical damage to the casing, cables, or terminals.
- **Monitor Performance:** Regularly check the LCD display for normal operation and parameter readings. Any unusual readings may indicate a problem.
- **Battery Inspection:** Ensure batteries are well-maintained according to their manufacturer's guidelines.

7. TROUBLESHOOTING

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

Common Issues and Solutions:

- **No Display/Controller Not Powering On:**
 - Check battery connections and ensure they are secure and have correct polarity.
 - Verify battery voltage is within the controller's operating range (8-32V).
- **No Charging Current from Solar Panel:**
 - Check solar panel connections and polarity.
 - Ensure there is sufficient sunlight and the solar panel is not shaded.
 - Verify PV open circuit voltage is below 100V.
- **Load Not Working:**
 - Check load connections and polarity.
 - Verify the load working mode setting (e.g., ensure it's not in 'OFF' mode).
 - Check if the battery voltage is too low, triggering low voltage disconnect.
- **Overheating:**
 - Ensure the controller is installed in a well-ventilated area.
 - Check for obstructions around the heatsink.
 - Reduce load or PV input if consistently overheating.

For more detailed troubleshooting, refer to the comprehensive user manual provided with your product or contact EPEVER customer support.

8. SPECIFICATIONS

Technical specifications for the EPEVER Tracer4210AN G3 40A MPPT Solar Charge Controller.

Product model				
	1210AN	2210AN	3210AN	4210AN
Dimensions	6.77*5.47*1.73in	8.66*6.06*2.05in	8.99*6.46*2.17in	9.92*7.09*2.48in
Max power current	10A	20A	30A	40A
Power terminals	12AWG(4mm ²)	6AWG(16mm ²)		
MPPT voltage range	(Battery voltage+2V) ~72V			
Battery input Voltage range	8V~32V			
Max. PV input power	130W/12V 260W/24V	260W/12V 520W/24V	390W/12V 780W/24V	520W/12V 1040W/24V
Max. PV open Circuit voltage	100V②92V③			
Grounding	Common negative			
Weight	0.57kg	0.94kg	1.26kg	1.65kg
				

Figure 8.1: Comparison table of EPEVER Tracer AN series models, highlighting key specifications such as rate charge current, discharge current, battery voltage range, max PV voltage, max PV input power, controller terminal size, and recommended cable size.

EPEVER Tracer4210AN G3 Specifications

Parameter	Value
Model	Tracer4210AN G3
Rated Charge Current	40A
Rated Discharge Current	40A

Parameter	Value
Battery Voltage Range	8-32V
Max. PV Open Circuit Voltage	100V
Max. PV Input Power (12V Battery)	520W
Max. PV Input Power (24V Battery)	1040W
Grounding	Common Negative
Dimensions	252 cm (Length) x 180 cm (Width) x 63 cm (Height) - <i>Note: These dimensions appear to be incorrect based on typical product sizes and image scaling. Please refer to the official product documentation for accurate dimensions.</i>
Item Weight	1.86 Kilograms
Material	Aluminum
Display Type	LCD

PRODUCT SIZE

Tracer 4210AN



Figure 8.2: Product dimensions of the Tracer4210AN G3 controller. Please verify these measurements with the physical product or official documentation before installation.

9. WARRANTY & SUPPORT

EPEVER products are designed for reliability and performance. For specific warranty terms and conditions, please refer to the warranty card included with your product or visit the official EPEVER website.

If you encounter any issues or require technical assistance, please contact EPEVER customer support. Have your product model and serial number ready when contacting support.

Online Resources:

- Official EPEVER Website: www.epever.com
- Product Support: Refer to the contact information on the EPEVER website for your region.