EPEVER Tracer4210AN-G3

EPEVER MPPT Solar Charge Controller 40A Tracer4210AN-G3 Instruction Manual

Model: Tracer4210AN-G3

1. Product Overview

The EPEVER Tracer4210AN-G3 is an advanced Maximum Power Point Tracking (MPPT) solar charge controller designed for off-grid solar systems. It efficiently manages power flow from solar panels to batteries, ensuring optimal charging and extending battery life. This model supports both 12V and 24V battery systems automatically and is compatible with various battery types, including lead-acid and lithium-ion.
This package includes the Tracer4210AN-G3 controller, an MT52 remote meter for monitoring and parameter setting, and a temperature sensor cable (RTS300R47K3.81A) for accurate temperature compensation.

2. Key Features

- Ultra-fast tracking speed and guaranteed tracking efficiency.
- Advanced MPPT control algorithm to minimize maximum power point loss rate and loss time.
- Compatible with lead-acid (Sealed, Gel, Flooded, User) and lithium-ion (LiFePO4, Li(NiCoMn)O2, User) batteries.
- Common negative grounding design.
- Rated charge current: 40A.
- Max. PV input power: 520W (12V battery) / 1040W (24V battery).
- Max. PV open circuit voltage: 100VDC.
- Automatic 12V/24V system voltage recognition.
- Auto-saving function with two voltage disconnect levels.
- Charging power and current limitation function.
- Independent voltage regulation constant voltage output function.
- Battery temperature compensation function (for lead-acid batteries).
- Overheating power reduction function.
- MT52 Remote Meter for real-time data display, alarm information, and diversified load control modes.

3. Package Contents

The product package typically includes the following items:

- 1 x Tracer4210AN-G3 MPPT Solar Charge Controller
- 1 x Remote Meter MT52
- 1 x Temperature Sensor Cable (RTS300R47K3.81A)
- 1 x RS485 Cable
- 2 x User Manuals (one for controller, one for MT52)

4. Installation Instructions

Always Connect the Battery First!
Please read the complete installation instructions to familiarize yourself with the installation steps before proceeding. Do not use electric screwdrivers for connections.

4.1. Wiring Diagram

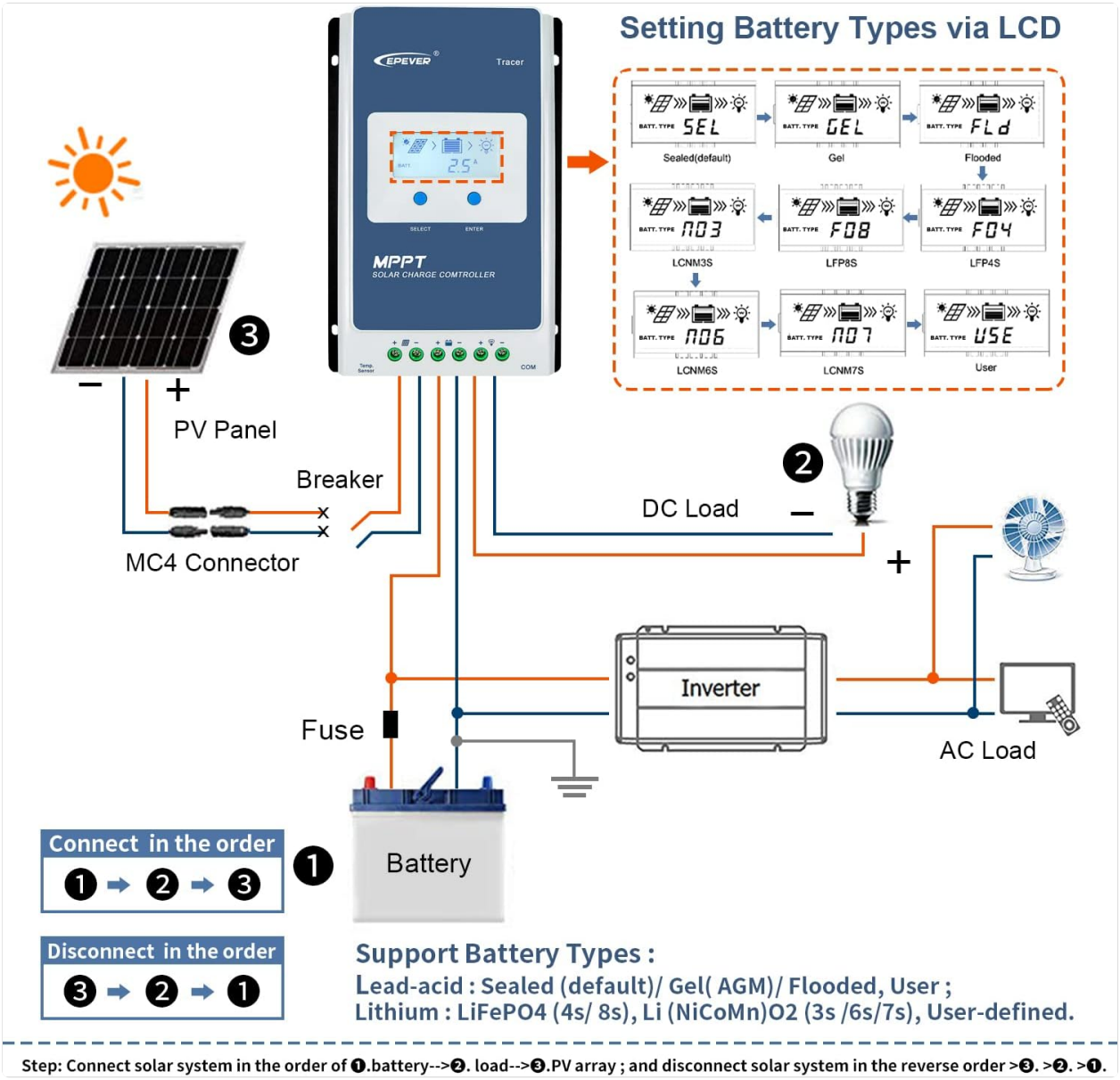

Figure 1: Comprehensive wiring diagram showing connections for PV panel, battery, DC load, and AC load via an inverter. The diagram illustrates the correct sequence for connecting and disconnecting components.

The diagram above illustrates the typical system connection. Ensure all components are connected in the

correct order to prevent damage.

4.2. Connection Steps

1. **Connect Battery:** Connect the battery to the charge controller first. Ensure correct polarity (+ to + and - to -).
2. **Connect Load:** Connect the DC load to the charge controller.
3. **Connect Solar Panel (PV Array):** Connect the solar panel to the charge controller last.

4.3. Disconnection Steps

To disconnect the system, reverse the connection order:

1. **Disconnect Solar Panel (PV Array):** Disconnect the solar panel first.
2. **Disconnect Load:** Disconnect the DC load.
3. **Disconnect Battery:** Disconnect the battery last.

4.4. Detailed Wiring

Ensure all wires are securely fastened in their respective terminals. The controller features terminals for Solar Panel (10mm²/8AWG), Battery (10mm²/8AWG), and Load (10mm²/8AWG).

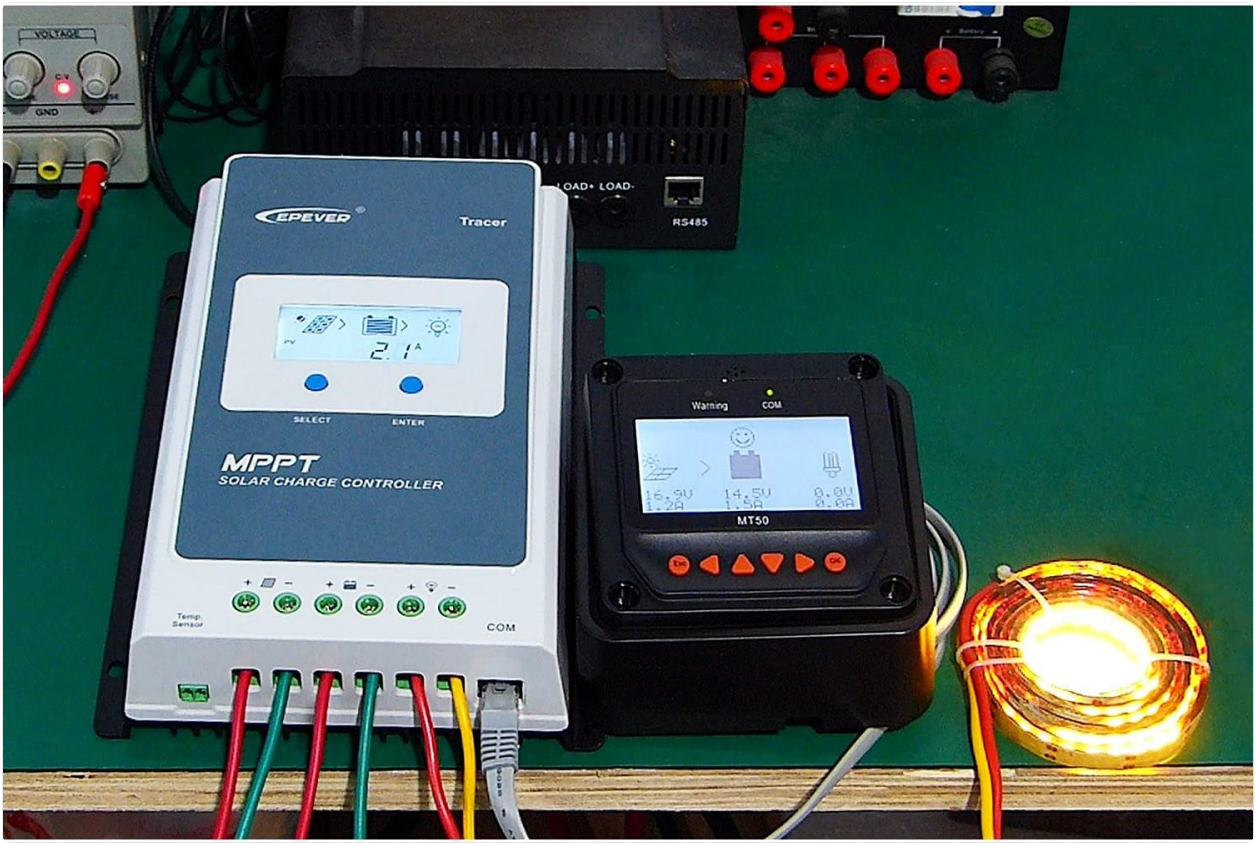

Figure 2: The EPEVER MPPT Solar Charge Controller shown alongside the MT50 remote meter, illustrating their physical connection and interface.

4.5. Connecting Remote Meter (MT52)

The MT52 remote meter connects to the COM port on the charge controller using an RS485 cable. This allows for remote monitoring and parameter adjustments.

Your browser does not support the video tag.

Video 1: This video demonstrates the unboxing and installation process for the EPEVER MPPT Solar Charge Controller kit, including the Tracer-AN, MT50, and RTS. It covers connecting the battery, load, solar panel, and the remote meter.

4.6. Connecting to PC for Monitoring

For advanced monitoring and parameter setting, the controller can be connected to a PC using a CC-USB-RS485-150U cable. This allows access to the EPEVER PC software for detailed system analysis.

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Video 2: This video tutorial explains how to communicate with the EPEVER MPPT charge controller via PC software. It covers the necessary hardware (battery, wires, communication cable, PC) and the steps to install the driver and connect to the software for monitoring.

5. Operating Instructions

5.1. LCD Display Overview

The controller features an LCD display for real-time monitoring of system status and parameters. Use the 'SELECT' and 'ENTER' buttons to navigate through the menus.

Figure 3: The MT50 remote meter displaying real-time monitoring data and options for parameter setting, providing a user-friendly interface for system management.

5.2. Setting Battery Type

The controller supports various battery types. To set the battery type:

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 (Sealed, Gel, Flooded, LiFePO4, Li(NiCoMn)O2, User).
3. Press the "ENTER" button to confirm the battery type.

For lithium batteries, specific series configurations are available (e.g., LiFePO4 4s/8s, Li(NiCoMn)O2 3s/6s).

5.3. Setting Load Working Mode

The MT52 remote meter allows for diversified load control modes:

- Manual Control
- Light ON/OFF
- Light ON + Timer
- Time Control

Refer to the MT52 User Manual for detailed instructions on setting these modes.

5.4. Setting Battery Parameters (via MT50/MT52)

For advanced battery parameter settings, use the MT50/MT52 remote meter. Navigate to 'Control Para.' in the menu interface. You can adjust parameters such as Over Voltage Disconnect, Charging Limit, Equalize Charging, Boost Charging, Float Charging, Low Voltage Reconnect, and Discharge Limit. When setting parameters for 'USER' battery type, ensure the voltage parameters follow the specified logic (e.g., Over Voltage Disconnect Voltage > Charging Limit Voltage).

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Video 3: This video provides a detailed guide on how to set various parameters for the EPEVER Tracer-AN series charge controller using the MT50 remote meter. It covers battery type selection, load working modes, and advanced battery voltage settings.

6. Specifications

Parameter	Value
Rated Charge Current	40A
System Voltage	12V/24V Auto Work
Max. PV Input Power (12V)	520W
Max. PV Input Power (24V)	1040W
Max. PV Open Circuit Voltage	100VDC
Battery Voltage Range	8V~32V
Terminal Size	6AWG (16mm²)
Dimensions (L*W*H)	252 x 180 x 63mm (9.92 x 7.09 x 2.48 inches)

Parameter	Value
Net Weight	1.65kg (3.64 lbs)
Display Type	LCD
Material	Lithium (compatible)

7. Electronic Protections

The Tracer4210AN-G3 controller includes multiple electronic protections to ensure safe operation:

- PV Over Current/Power
- PV Short Circuit
- PV Reverse Polarity
- Night Reverse Charging
- Battery Reverse Polarity
- Battery Over Voltage
- Battery Over Discharge
- Battery Overheating
- Controller Overheating
- Lithium Battery Low Temperature
- Load Short Circuit
- Load Overload
- TVS High Voltage Transients

8. Troubleshooting

If you encounter issues with your EPEVER MPPT Solar Charge Controller, consider the following:

- **No Display/Power:** Ensure the battery is correctly connected and has sufficient voltage. Check all wiring for loose connections or incorrect polarity.
- **No Charging:** Verify solar panel connections and ensure adequate sunlight. Check PV input voltage and current on the display. Confirm battery type settings are correct.
- **Load Not Working:** Check load connections and ensure the load is not overloaded or short-circuited. Verify load control mode settings on the MT52.
- **Abnormal Readings:** Ensure temperature sensor is correctly connected and not damaged. Check communication cables for secure connections.

For persistent issues, refer to the detailed troubleshooting section in the full user manual or contact EPEVER technical support.

9. Support Information

For technical assistance, product inquiries, or warranty claims, please contact EPEVER's authorized sales agent, Goland Century. They offer free technical support and have service centers in various regions.
Contact Information:

- **Technical Support:** Available through Goland Century technicians.

- **Software Download:** EPEVER PC software can be downloaded from the official EPEVER website.

Please refer to the official EPEVER website or your product documentation for the most up-to-date contact details and support resources.