EPEVER XTR3210N

EPEVER MPPT Solar Charge Controller

Model: XTRA3210N-G3 User Manual

1. Introduction and Overview

The EPEVER MPPT Solar Charge Controller (Model: XTRA3210N-G3) is an advanced Maximum Power Point Tracking (MPPT) controller designed for off-grid solar systems. It efficiently manages power flow from solar panels to batteries, ensuring optimal charging and discharge processes. This manual provides essential information for the safe and effective installation, operation, and maintenance of your solar charge controller.
Key features include:

- Advanced MPPT Technology with High Tracking Efficiency (up to 99.5%) and Peak Conversion Efficiency (98%).
- Automatic 12V/24V system voltage recognition for Lead-Acid batteries, with manual selection for Lithium types.
- Common negative grounding design for wide application compatibility.
- Intuitive LED indicators, LCD display, and five control buttons for easy parameter adjustment and monitoring.
- Support for various battery types: Sealed, Gel (AGM), Flooded, User-defined Lead-acid, LiFePO4, Li(NiCoMn)O2, and User-defined Lithium.
- Real-time energy statistics function and comprehensive built-in protections against reverse polarity, overcharging, over-discharging, overload, short-circuiting, and reverse current.



Figure 1: Key Features of the EPEVER XTRA-N G3 Solar Charge Controller.

2. Safety Information

WARNING: Please read all instructions carefully before installation and operation to prevent accidents and ensure optimal performance.

- **Electrical Shock Hazard:** Solar panels generate voltage even when not connected. Always disconnect the solar array and battery before wiring or servicing the controller.
- **Hot Surfaces:** The controller's heat sink can become hot during operation. Avoid touching it directly.
- **Battery Safety:** Batteries can produce explosive gases. Ensure adequate ventilation. Do not short-circuit battery terminals.
- **Proper Wiring:** Use appropriate wire gauges and ensure all connections are tight to prevent overheating and damage.
- **Qualified Personnel:** Installation and maintenance should only be performed by qualified personnel.

3. Package Contents

Upon opening the package, please verify that all items are present and undamaged:

- 1 x MPPT Solar Charge Controller 30A (XTRA3210N-G3)
- 1 x Temperature sensor unit for controller (Model: RT-MF58R47K3.81A)
- 1 x User Manual (English)



Figure 2: EPEVER MPPT Solar Charge Controller (XTRA3210N-G3) and included accessories.

4. Setup and Installation

4.1. Installation Location

Choose a well-ventilated, dry, and dust-free location away from direct sunlight and heat sources. Ensure sufficient clearance around the controller for proper heat dissipation. Mount the controller vertically on a non-flammable surface.

4.2. Wiring Sequence

Follow the wiring sequence strictly to prevent damage to the controller or other components. Always connect the battery first, then the load, and finally the solar array. Disconnect in the reverse order.

1. **Connect the Battery:** Connect the battery cables to the controller's battery terminals (marked + and -). Ensure correct polarity. The controller will power on once the battery is connected.
2. **Connect the Load:** Connect the DC load cables to the controller's load terminals (marked + and -).

3. **Connect the Solar Array:** Connect the solar panel cables to the controller's PV terminals (marked + and -). Ensure correct polarity.

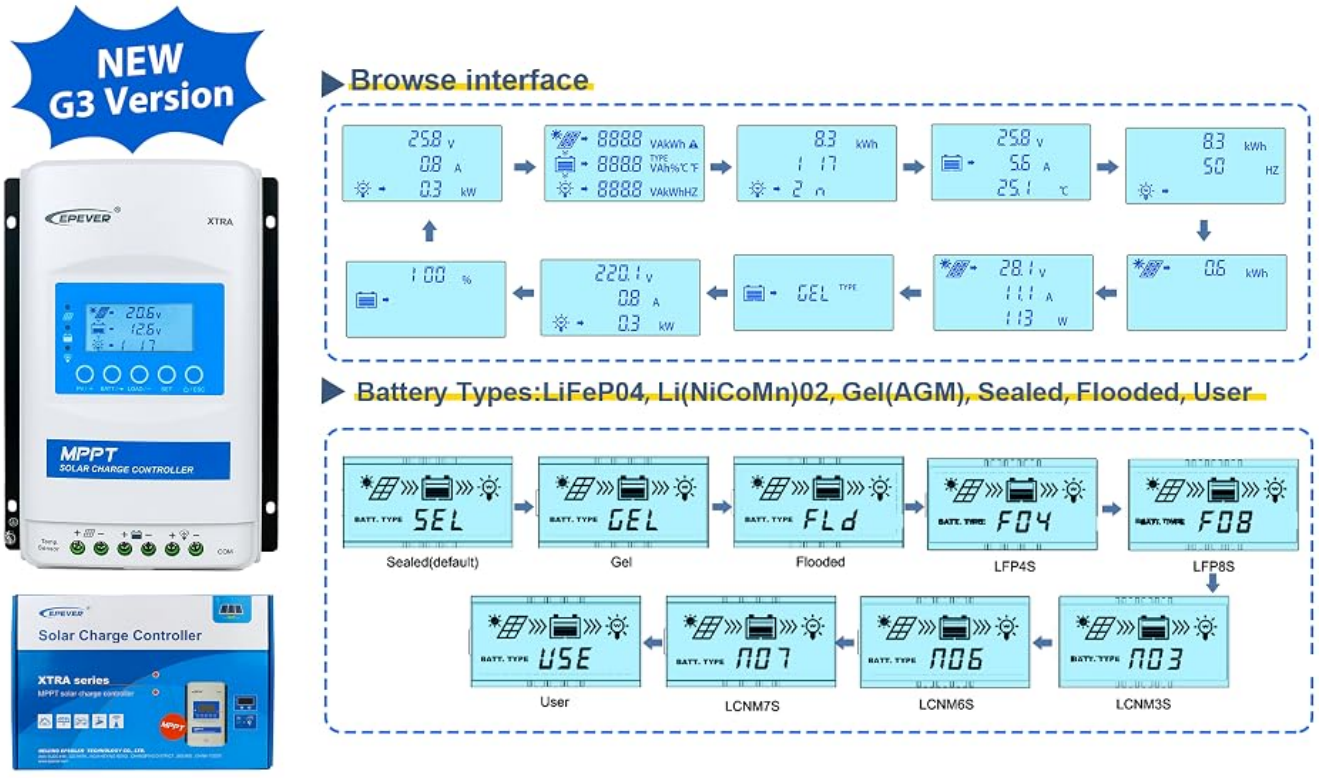


Figure 3: Typical Wiring Diagram for the EPEVER MPPT Solar Charge Controller.

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Video 1: EPEVER MPPT Solar Charge Controller XTRA series overview and basic wiring steps. This video demonstrates the physical aspects and initial setup of the controller.

5. Operating the Controller

5.1. LCD Display and Buttons

The controller features an LCD display and five buttons for user interaction:

- **PV/+:** Browse PV parameters, increase value.
- **BATT/-:** Browse battery parameters, decrease value.
- **LOAD/↔:** Browse load parameters, switch load ON/OFF, move cursor.
- **SET:** Enter/exit setting interface, confirm setting.
- **ESC:** Exit setting interface, return to previous menu.



Figure 4: Front view of the controller showing the LCD display and control buttons.

5.2. Monitoring Parameters

Press the PV/+, BATT/-, or LOAD/↔ buttons to cycle through various real-time parameters on the LCD, including PV voltage, current, and power; battery voltage, current, and temperature; and load voltage, current, and power. The display also shows generated and consumed energy statistics.

5.3. Battery Type Setting

To set the battery type:

1. Press and hold the **SET** button for 5 seconds to enter the setting interface.
2. Use the **PV/+** or **BATT/-** buttons to navigate to the battery type setting.
3. Press **SET** to enter the battery type selection.
4. Use **PV/+** or **BATT/-** to choose your battery type (Sealed, Gel, Flooded, LiFePO4, Li(NiCoMn)O2, User).
5. Press **SET** to confirm and save the setting.

For Lithium battery types, specific voltage parameters can be set under the

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