

EPEVER XTRA3210N

EPEVER MPPT Charge Controller 30A XTRA3210N User Manual

Model: XTRA3210N | Brand: EPEVER

1. INTRODUCTION

This manual provides detailed instructions for the safe and efficient operation of your EPEVER MPPT Solar Charge Controller, model XTRA3210N. This device is designed to regulate the power from your solar panels to charge various battery types, including Lead-Acid (Sealed, Gel, Flooded) and Lithium batteries, for off-grid photovoltaic systems. Please read this manual thoroughly before installation and operation to ensure optimal performance and longevity of your system.

2. SAFETY INFORMATION

WARNING: Risk of Electric Shock. Do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

WARNING: Risk of Electric Shock When the photovoltaic array is exposed to light, it supplies a DC voltage to this equipment.

WARNING: Hot surfaces - To reduce the risk of burns - Do not touch.

The EPEVER MPPT Solar Charge Controller incorporates multiple protection functions to ensure safe operation:

- PV Over Current/Power Protection
- PV Short Circuit Protection
- PV Reverse Polarity Protection
- Night Reverse Charging Protection
- Battery Reverse Polarity Protection
- Battery Over Voltage Protection
- Battery Over Discharge Protection
- Battery Overheating Protection
- Controller Overheating Protection
- Lithium Battery Low Temperature Protection

- Load Short Circuit Protection
- Load Overload Protection
- TVS High Voltage Transients Protection

3. PACKAGE CONTENTS

Your EPEVER MPPT 30A Kit includes the following items:

- 1 x 30A MPPT Solar Charge Controller XTRA3210N-XDS2
- 1 x Temperature Sensor for Controller (RT-MF58R47K3.81A)
- 1 x MT50 Remote Meter (with 2m cable)
- 1 x Temperature Sensor Cable for Battery (RTS300R47K3.81A)
- 1 x PC Communication Cable (CC-RS485-USB-150U)
- 2 x User Manual (English)

4. PRODUCT FEATURES

The EPEVER XTRA3210N MPPT Solar Charge Controller offers advanced features for efficient solar power management:

- Advanced MPPT Technology with High Tracking Efficiency up to 99.5% and Peak Conversion Efficiency of 98%.
- 12V/24V Auto System Nominal Voltage identification.
- Common Negative Grounding design for wide application compatibility.
- Support for multiple battery types: Sealed (AGM), Gel, Flooded, and User-programmable Lithium (LiFePO₄, Li(NiCoMn)O₂).
- Four stages of charging (bulk, absorption, float, Equalization) to prolong battery lifecycle.
- Backlight LCD Display for intuitive monitoring of PV/Battery/Load status.
- Five buttons for easy adjustment and browsing of system parameters.
- Real-Time energy statistics function.
- View/modify working parameters via MT50, APP, or PC software via RS485 interface.

The MT50 Remote Meter provides additional functionality:

- Automatic identification of the controller and display of relevant parameter data.
- Large-screen informative LCD displays all operating data and system working status.
- Simple and convenient operation.
- Real-time alarm for failure information.
- Longer communication distance based on RS485.
- Diversified load control modes: Manual Control, Light ON/OFF, Light ON+ Timer, Time Control.
- Programmable parameters.
- Energy statistics display function.

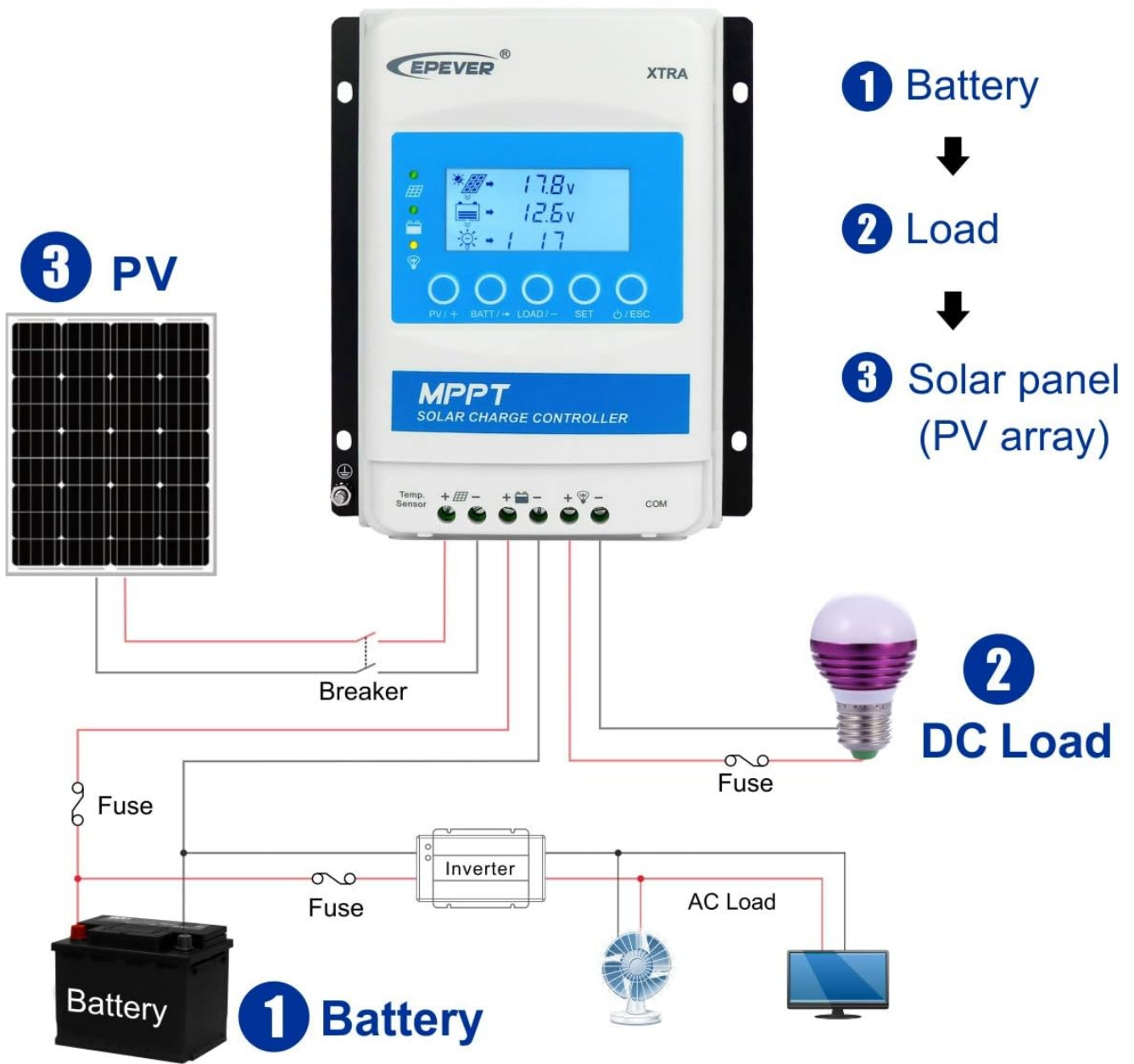
5. SPECIFICATIONS

Key technical specifications for the EPEVER XTRA3210N MPPT Solar Charge Controller:

Parameter	Value (XTRA3210N)
Rated Charge Current	30A
System Nominal Voltage	12V/24VDC Auto Identifying
Battery Voltage Range	8V~32V
Max. PV Open Circuit Voltage	100VDC
Max. PV Input Power	390W/12V, 780W/24V
Max. Conversion Efficiency	98.3%
Full Load Efficiency	96.6%
Self-consumption	≤30mA(12V) / ≤16mA(24V)
Grounding	Common Negative
Dimensions (L x W x H)	230x165x63mm (9.05x6.49x2.48in)
Weight	1.31kg

For a comprehensive overview of electrical parameters across the XTRA series, refer to the table below:

CONNECTING STEP:



Electrical parameters for EPEVER XTRA series charge controllers.

Physical dimensions of the controller:



Solar Charge Controller

XTRA series

MPPT solar charge controller



MPPT



BEIJING EPSOLAR TECHNOLOGY CO., LTD.

Add: BLDG #18 , CO.PARK , NO.8 HEYING ROAD , CHANGPING DISTRICT , BEIJING , CHINA 102200
www.epever.com

Dimensions of the EPEVER XTRA MPPT solar charge controller.

6. SETUP AND INSTALLATION

Proper installation is crucial for the performance and safety of your solar charge controller. Always ensure the battery is connected first before connecting the solar panel or load. Do not use an electric screwdriver during terminal connections to avoid overtightening and damage.

Connection Steps:

1. Connect the Battery: Ensure correct polarity (+ to + and - to -).
2. Connect the Solar Panel (PV array): Ensure correct polarity.
3. Connect the Load (DC Load): Ensure correct polarity.

For visual guidance on the connection process, please refer to the diagram below:



Connection diagram for the EPEVER MPPT Solar Charge Controller.

For a detailed video guide on unboxing, overview, and connection steps, please watch the official product video:

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Official product video demonstrating unboxing, overview, and connection of the EPEVER MPPT Solar Charge Controller XTRA series.

7. OPERATING INSTRUCTIONS

The XTRA3210N controller features an advanced LCD display and LED indicators for monitoring system status and setting parameters. The MT50 remote meter provides an enhanced interface for control and monitoring.

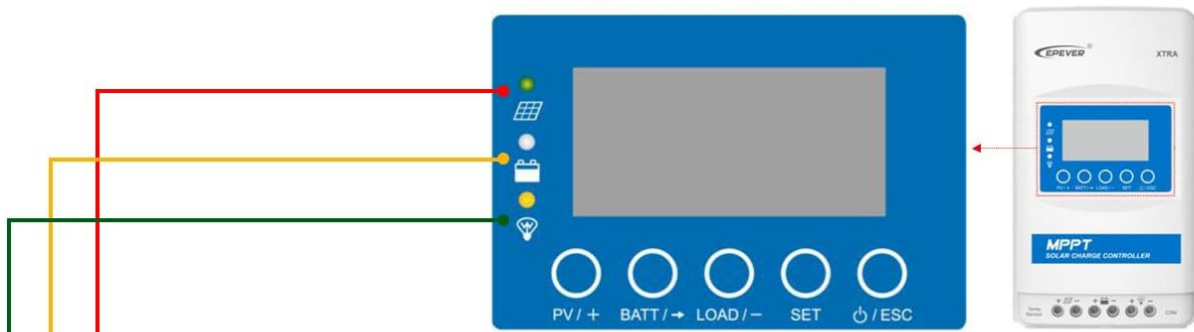
7.1 LCD Display and LED Indicators

The LCD display provides real-time data on PV voltage, battery voltage, load voltage, current, power, and generated/consumed energy. The LED indicators provide quick visual status updates.



Various parameters displayed on the EPEVER MPPT charge controller LCD.

LED Indicator



Indicator	Color	Status	Instruction
	Green	On Solid	PV connection normal but low voltage(low irradiance) from PV, no charging
	Green	OFF	No PV voltage(night time) or PV connection problem
	Green	Slowly Flashing(1Hz)	In charging
	Green	Fast Flashing(4Hz)	PV Over voltage
	Green	On Solid	Normal
	Green	Slowly Flashing(1Hz)	Full
	Green	Fast Flashing(4Hz)	Over voltage
	Orange	On Solid	Under voltage
	Red	On Solid	Over discharged
	Red	Slowly Flashing(1Hz)	Battery Overheating Lithium battery Low temperature ^①
	Yellow	On Solid	Load ON
	Yellow	OFF	Load OFF
PV&BATTLED fast flashing			Controller Overheating System voltage error ^②

①When a lead-acid battery is used, the controller doesn't have the low temperature protection.

②When a lithium battery is used, the system voltage can't be identified automatically

LED indicator statuses and their meanings.

7.2 Setting Parameters (via Controller Buttons)

You can adjust various parameters directly from the controller using the five buttons below the LCD display. The video guide in Section 6 demonstrates how to navigate these settings.

- **Battery Type:** Press the SET button for the setting interface. Hold for 5 seconds to enter battery type selection. Use the UP/DOWN buttons to choose (Sealed, Gel, Flooded, User for Lithium) and SET to confirm.
- **Battery Capacity:** From the setting interface, press the BATT+/- button to navigate to the battery capacity setting. Use UP/DOWN to adjust and SET to confirm.
- **Temperature Units:** From the setting interface, press the BATT+/- button twice to switch between Celsius and Fahrenheit.
- **LCD Cycle Time:** From the setting interface, press the BATT+/- button to navigate to the LCD cycle time setting. Use UP/DOWN to adjust the display cycle duration.
- **Load Working Mode:** From the setting interface, press the LOAD+/- button to enter the load working mode.

Use UP/DOWN to select from options like Light ON/OFF, Light ON+Timer, Time Control, or Manual Control.

7.3 Setting Parameters (via MT50 Remote Meter)

The MT50 Remote Meter offers a more comprehensive interface for monitoring and setting parameters. Connect the MT50 to the controller via the RS485 communication port.

- **Monitoring:** View real-time data such as PV voltage, current, battery voltage, load status, and energy statistics.
- **Device Info:** Access information about the connected controller.
- **Control Parameters:** Adjust detailed battery charging parameters (e.g., over voltage disconnect, charge limit, boost charge, float charge, low voltage reconnect, discharge limit) and load working modes.

For detailed instructions on setting parameters via the MT50, refer to the specific sections in the full user manual (pages 21-23) or the relevant segments in the product video.

8. MAINTENANCE

Regular maintenance ensures the optimal performance and longevity of your EPEVER MPPT Solar Charge Controller. Perform the following checks periodically:

- **Visual Inspection:** Check for any loose connections, damaged wiring, or signs of overheating.
- **Cleanliness:** Keep the controller free from dust and debris. Ensure ventilation openings are clear.
- **Terminal Tightness:** Periodically check and tighten all terminal connections to prevent resistance and overheating.
- **Battery Health:** Monitor battery voltage and performance. Ensure battery terminals are clean and free of corrosion.
- **Environmental Conditions:** Ensure the controller is operating within its specified temperature range and is protected from direct sunlight and moisture.

9. TROUBLESHOOTING

If you encounter issues with your EPEVER MPPT Solar Charge Controller, refer to the following general troubleshooting steps. For specific error codes or complex issues, consult the detailed troubleshooting section in the full user manual.

- **No Display/Power:** Check battery connections and voltage. Ensure the battery is adequately charged.
- **No Charging:** Verify solar panel connections and ensure sufficient sunlight. Check for PV over-voltage or short-circuit conditions.
- **Load Not Working:** Check load connections and ensure the load is not overloaded or short-circuited. Verify the load working mode settings.
- **Battery Over-Discharge:** Check load consumption and battery capacity. Adjust low voltage disconnect settings if necessary.
- **Unusual Readings:** Ensure all sensors (e.g., temperature sensor) are correctly connected and functioning.

If problems persist, contact technical support as detailed in Section 11.

10. OPTIONAL ACCESSORIES

Enhance the functionality of your EPEVER MPPT Solar Charge Controller with these optional accessories:

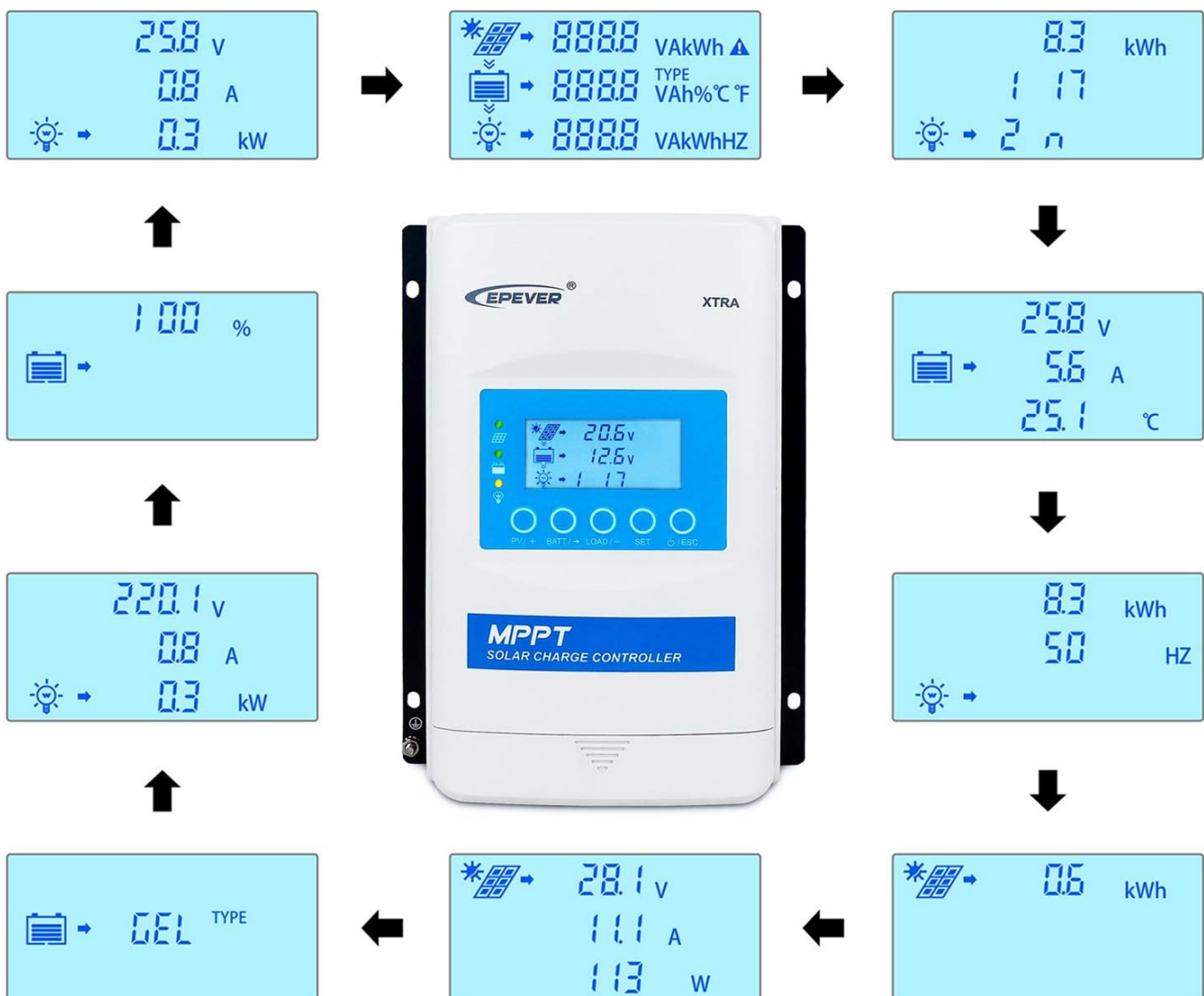
- **Remote Temperature Sensor (RTS300R47K3.81A):** Acquires battery temperature for accurate temperature

compensation of control parameters.

- **USB to RS485 Cable (CC-RS485-USB-150U):** Used to monitor and configure the controller via PC software (Solar Station PC software).
- **Remote Meter (MT50):** Provides a comprehensive display and control interface for monitoring and setting parameters.
- **WiFi Serial Adapter (eBox-WIFI-01):** Allows monitoring and control via mobile APP through WiFi signals.
- **RS485 to Bluetooth Adapter (eBox-BLE-01):** Enables monitoring and control via mobile APP through Bluetooth signals.
- **Logger (eLOG01):** Records operating data of the controller for real-time monitoring via PC software.
- **PT Adapter (PT-ADP):** Manages and communicates with multiple controllers in parallel.

The RS485 communication port allows for connection to various accessories:

LCD DISPLAY



RS485 communication connections for EPEVER charge controller.

11. WARRANTY AND SUPPORT

EPEVER products are backed by a commitment to quality and customer satisfaction. For any technical assistance or support, please contact GolandCentury, the official authorized sales agent for EPEVER. GolandCentury has established warehouse and service centers in key locations including Chicago (USA), Munich (Germany), Toronto

(Canada), and Melbourne (Australia).

Our technicians provide free technical support to ensure you have a seamless experience with your solar products. For warranty claims or service requests, please provide your product model and purchase details to the support team.