EPEVER MPPT 30A+MT50+RS485

EPEVER MPPT Solar Charge Controller User Manual

Model: **MPPT 30A+MT50+RS485** | Brand: **EPEVER**

1. Introduction and Overview

This manual provides detailed instructions for the installation, operation, and maintenance of your EPEVER MPPT Solar Charge Controller (Tracer7810BP+MT50+RS485 kit). This advanced solar charge controller is designed for 12V/24V DC auto-identifying systems, supporting a maximum PV input voltage of 100V. It features common negative grounding and is suitable for various battery types, including Lead-acid (Sealed, Gel, Flooded) and Lithium (LiFePO4, Li-NiCoMn), with user-defined settings available.

The controller boasts a maximum conversion efficiency of 98% and utilizes advanced Maximum Power Point Tracking (MPPT) technology, ensuring a tracking efficiency of no less than 99%. It offers ultra-fast tracking speed and accurate recognition of multiple power points across a wide MPP operating voltage range. The IP67 waterproof rating and gel-potted design contribute to better heat dissipation and a long lifespan, making it ideal for diverse applications such as solar RVs, camping setups, household systems, industrial monitoring, traffic signals, solar street lights, garden lamps, boats, and yachts.



Image of the EPEVER MPPT Solar Charge Controller (Tracer7810BP) along with the MT50 remote meter, communication cable, and mounting hardware.



Image demonstrating the IP67 waterproof rating of the EPEVER solar charge controller, submerged in water.

2. Setup and Installation

Proper installation is crucial for the safe and efficient operation of your solar charge controller. Follow the steps below carefully. Ensure all connections are secure and observe correct polarity.

2.1 Connection Diagram

Refer to the diagram below for the typical wiring sequence. Always connect the battery first, then the solar panel, and finally the load.

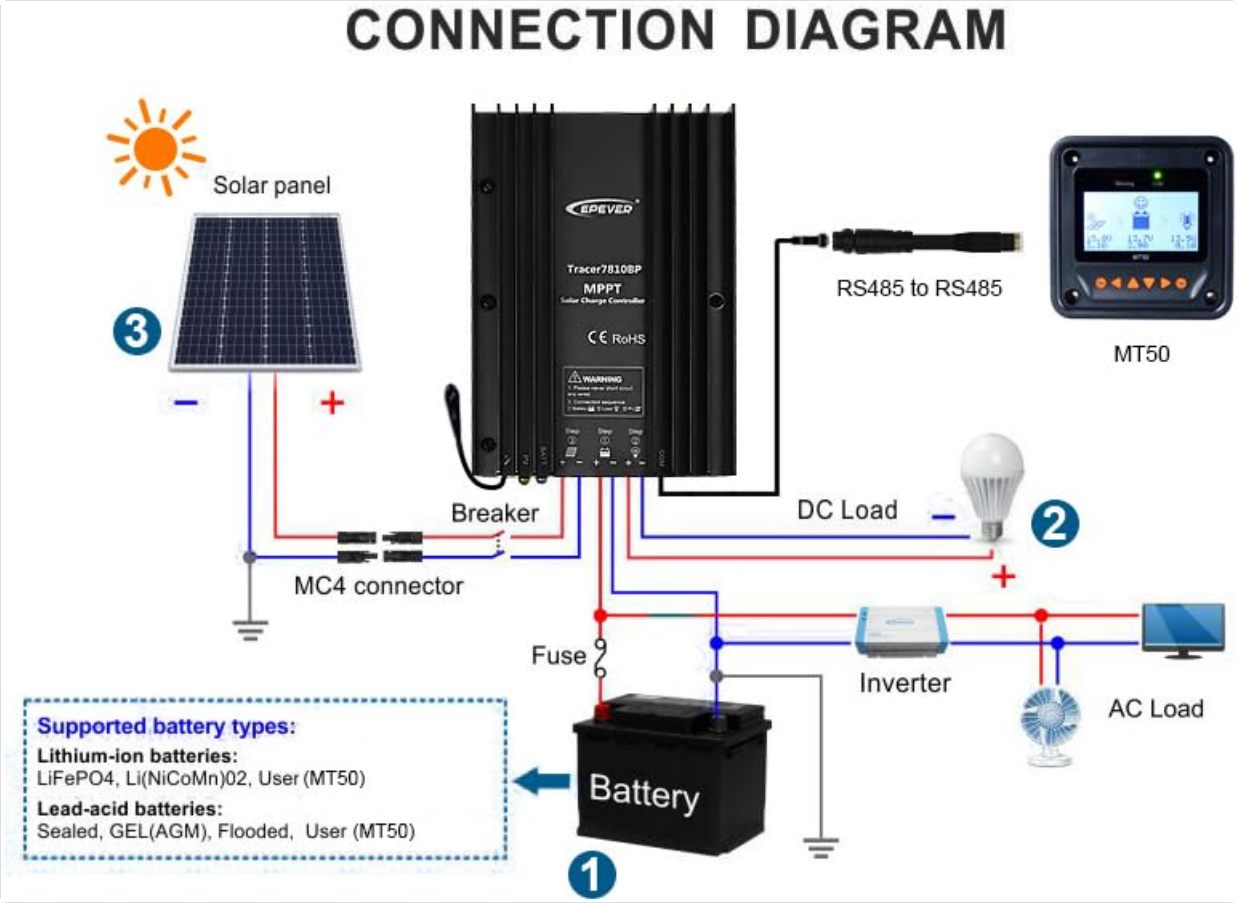


Diagram illustrating the typical connection setup for the EPEVER solar charge controller, including solar panels, battery, and DC/AC loads.

2.2 Wiring Steps

1. **Connect the Battery:** Connect the battery to the controller's battery terminals (BATT+ and BATT-). Ensure correct polarity.
2. **Connect the Solar Panel:** Connect the solar panel to the controller's PV terminals (PV+ and PV-). Ensure correct polarity.
3. **Connect the Load:** Connect your DC load to the controller's load terminals (LOAD+ and LOAD-).
4. **Connect MT50 Remote Meter:** Connect the MT50 remote meter to the controller's RS485 communication port using the provided communication cable.



Close-up view of the Tracer7810BP controller and the CC-RS485-RS485-150U-4LLT communication cable, highlighting the connection points.

2.3 Physical Dimensions

The controller's dimensions are important for planning your installation space.

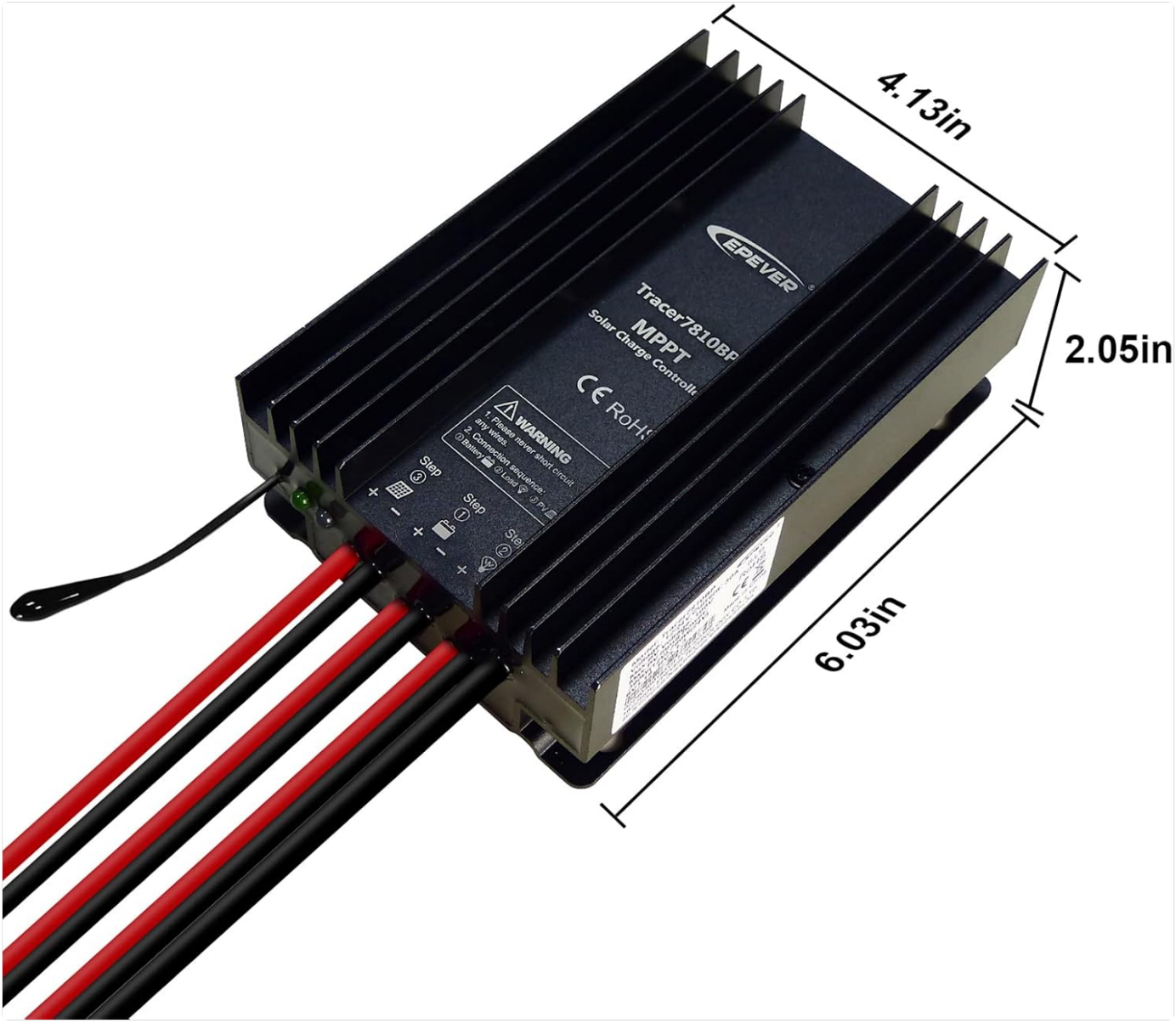


Image showing the physical dimensions of the EPEVER Tracer7810BP solar charge controller.

3. Operating Instructions

The EPEVER MPPT controller offers various functionalities and settings to optimize your solar power system.

3.1 Battery Type Settings

The controller supports Lead-acid batteries (Sealed, Gel, Flooded) and Lithium batteries (LiFePO4, Li-NiCoMn). For Lithium batteries, the system voltage must be manually selected. A 'User' mode is available via the MT50 remote meter for custom parameter settings.

3.2 Load Working Modes

The controller supports multiple load control working modes:

- **Manual Mode:** Load is controlled manually.
- **Light ON/OFF (Default):** Load turns on at dusk and off at dawn.
- **Light ON + Timer:** Load turns on at dusk and stays on for a set duration.
- **Real-time Control Mode:** Allows control of load ON/OFF time through setting a real-time clock.

Note: In Light ON/OFF and Light ON/Timer modes, the load is turned on after a 10-minute delay.

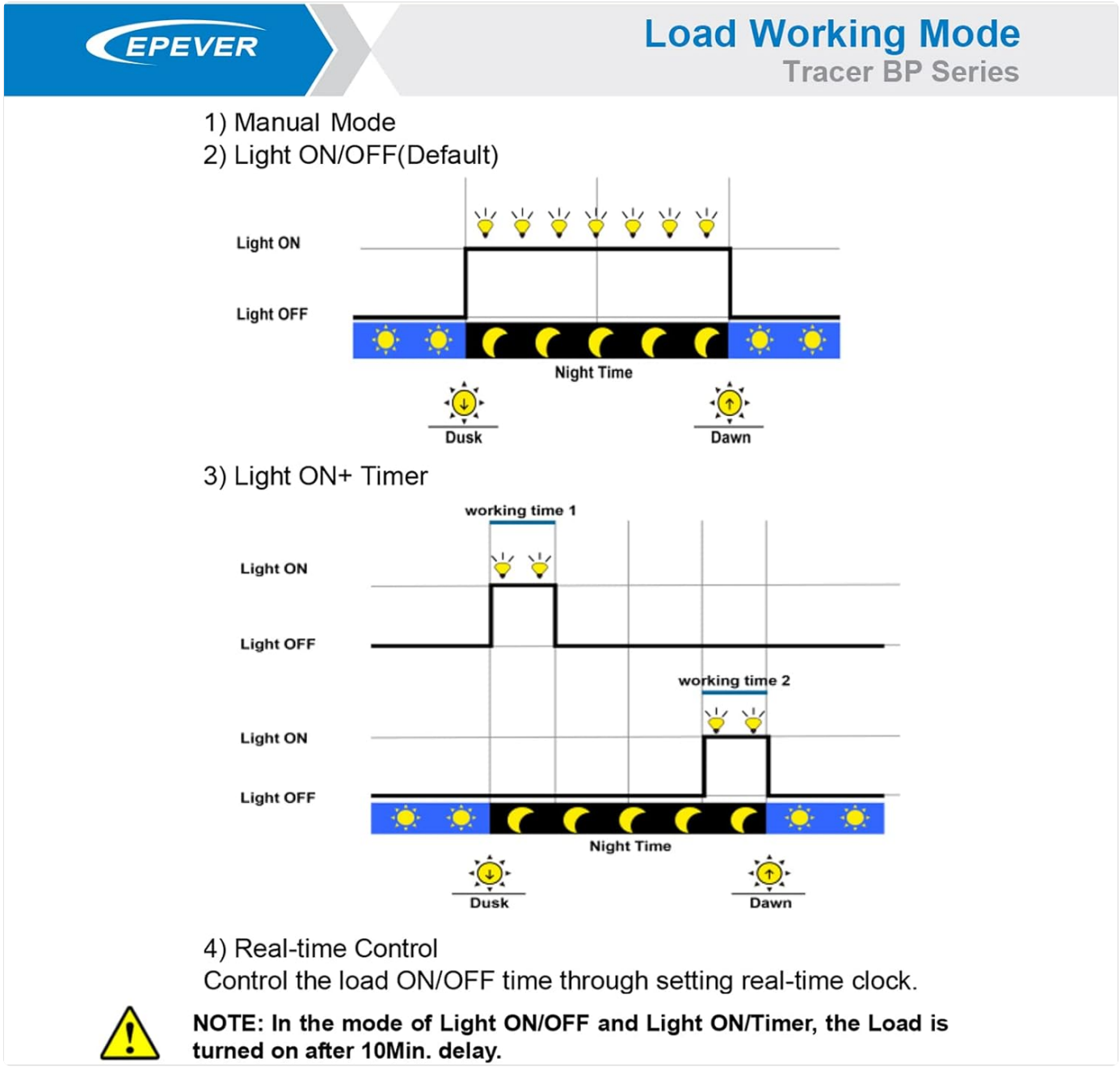


Diagram explaining the various load working modes supported by the Tracer BP series, including Manual, Light ON/OFF, Light ON+Timer, and Real-time Control.

3.3 Monitoring and Parameter Setting

Monitor and set parameters via the MT50 remote meter, or through a WiFi/BLE adapter using the Solar Guardian APP, or PC software. The controller's LED indicators dynamically display the working status and assist in troubleshooting.

3.4 LED Indicators

Understand the status of your system by observing the LED indicators on the controller.



Table describing the meaning of the LED indicators on the Tracer BP series controller, indicating PV connection status, charging status, and battery conditions.

4. Maintenance

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

- **Inspect Connections:** Periodically check all wiring connections (PV, battery, load) for tightness and corrosion. Loose connections can cause overheating and damage.
- **Clean the Controller:** Keep the controller clean and free from dust, dirt, and debris. Use a dry cloth for cleaning. Do not use liquids or solvents.
- **Check for Damage:** Visually inspect the controller for any signs of physical damage, such as cracks, dents, or frayed wires.
- **Monitor Performance:** Regularly check the system's performance using the MT50 remote meter or monitoring software to ensure it is operating within expected parameters.
- **Battery Health:** Ensure your batteries are well-maintained according to their manufacturer's guidelines.

5. Troubleshooting

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



Table outlining common faults, their possible reasons, and troubleshooting steps for the Tracer BP series controller.

General Troubleshooting Tips:

- **No LED Indicator:** Check if the battery voltage is above 8.5V. The controller requires a minimum voltage to start up.
- **Load Not Outputting:** This could be due to load overload or short circuit. The controller has an auto-recovery function with delays (5s, 10s, 15s, 20s, 25s). Reduce the number of connected loads or check for short circuits. Restarting the controller may also help.
- **Battery Overheating:** If the battery LED flashes red, the battery temperature is too high. The controller will automatically turn off the system. Reduce the ambient temperature or the load.

6. Specifications

Detailed technical specifications for the EPEVER Tracer BP series solar charge controllers.

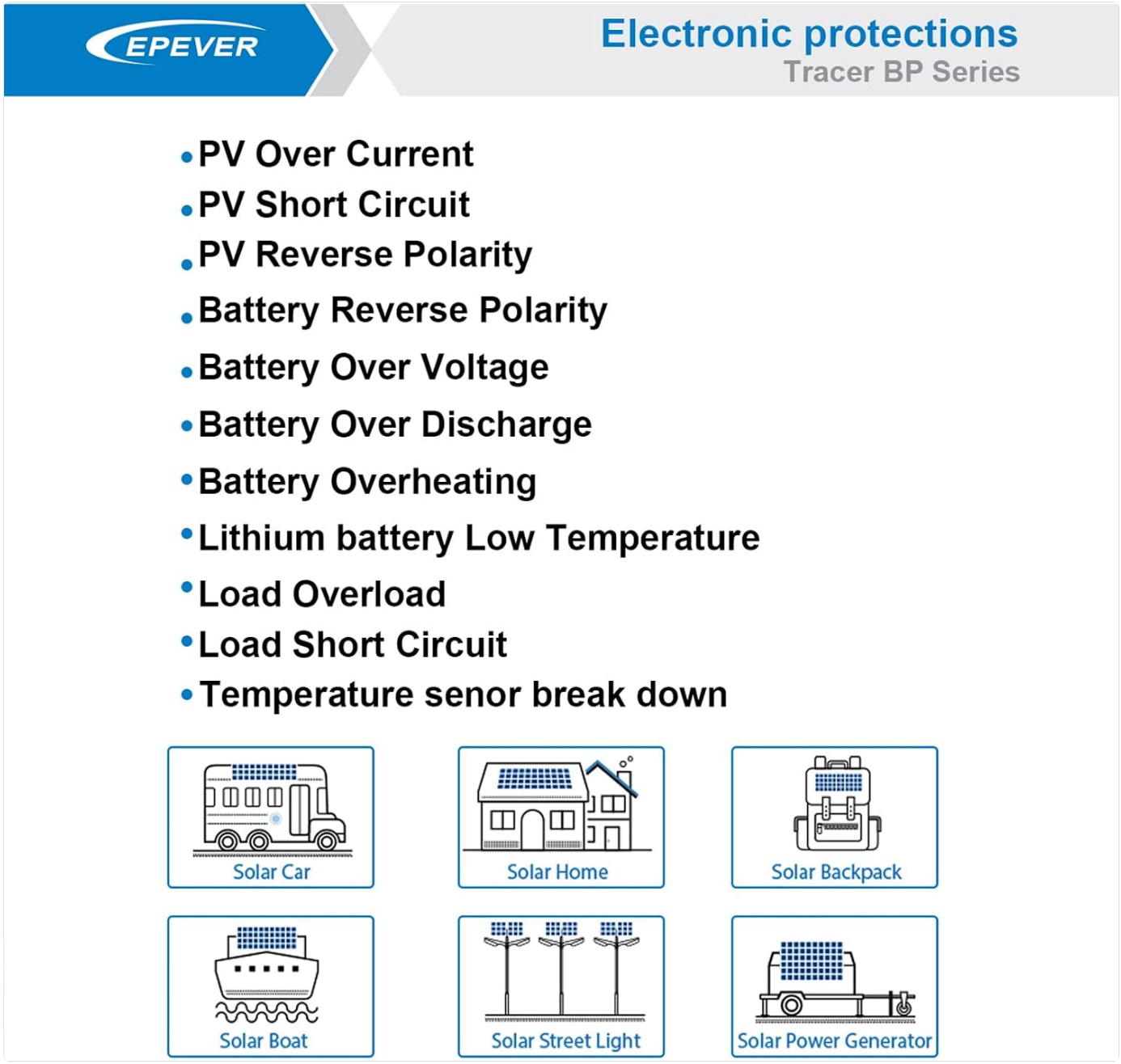


Table detailing the technical specifications of the Tracer BP series, including voltage, current, power, battery types, and environmental conditions.

6.1 Electronic Protections

The Tracer BP series controllers are equipped with comprehensive electronic protections to ensure safe operation and protect your system components.

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Technical Specifications
Tracer BP Series

Item/Model		Tracer5210BP	Tracer7810BP
Nominal system voltage		12/24VDC Auto(Lithium battery do not automatic identification system voltage)	
Battery input voltage range		8.5~32VDC	
Rated charge/discharge curret		20A	30A
Rated charge power		260W/12V;520W/24V	390W/12V;780W/24V
Max.PV open circuit voltage		100V(at min operating environment tem);92V(at 25℃ environment tem)	
MPP Voltage range		(Battery voltage+2V)~72V	
Battery Type		Lead-acid:Sealed(Default)/Gel/Flooded/User;Lithium battery:LiFePO4/Li-NiCoMn/User	
Lead-acid	Equalize Charging Voltage	Sealed:14.6V/Gel: No/Flooded:14.8V/User:9-17V(X2/24V)	
	Boost Charging Voltage	Sealed:14.4V/Gel: 14.2V/Flooded:14.6V/User:9-17V(X2/24V)	
	Float Charging Voltage	Sealed/Gel/Flooded:13.8V/User:9-17V(X2/24V)	
	Low Voltage Reconnect Voltage	Sealed/Gel/Flooded:12.6V/User:9-17V(X2/24V)	
	Low Voltage Disconnect Voltage	Sealed/Gel/Flooded:11.1V/User:9-17V(X2/24V)	
Lithium	Boost Charging Voltage	LiFePO4:14.5V/Li-NiCoMn:12.5V/User:9-17V(X2/24V)	
	Low Voltage Reconnect Voltage	LiFePO4:12.8V/Li-NiCoMn:10.5V/User:9-17V(X2/24V)	
	Low Voltage Disconnect Voltage	LiFePO4:11.1V/Li-NiCoMn:9.3V/User:9-17V(X2/24V)	
Self-consumption		≤13mA/12v;≤11.5mA/24V	
Temperature compensation coefficient		-3mV/℃/2V(Lithium battery don't have temperature compensation coefficient	
Communication		RS485	
Working environment Tem.		-40℃~+60℃	-40℃~+50℃
Enclosure		IP68	
Overall dismension		153.3x105x52.1mm	153.3x105x52.1mm
Mounting hole size		3.5mm	
Mounting dimension		120x94mm	
Power cable		12AWG(4mm²)	10AWG(6mm²)
Net weight		1.20kg	1.26kg

List of electronic protections integrated into the Tracer BP series controllers, such as PV over current, short circuit, and battery protections.

- PV Over Current
- PV Short Circuit
- PV Reverse Polarity
- Battery Reverse Polarity
- Battery Over Voltage
- Battery Over Discharge
- Battery Overheating
- Lithium battery Low Temperature
- Load Overload
- Load Short Circuit
- Temperature sensor break down

7. Warranty and Support

EPEVER products are manufactured with high quality standards. For technical support and warranty inquiries, please contact the authorized seller or manufacturer.

7.1 Manufacturer and Importer Information

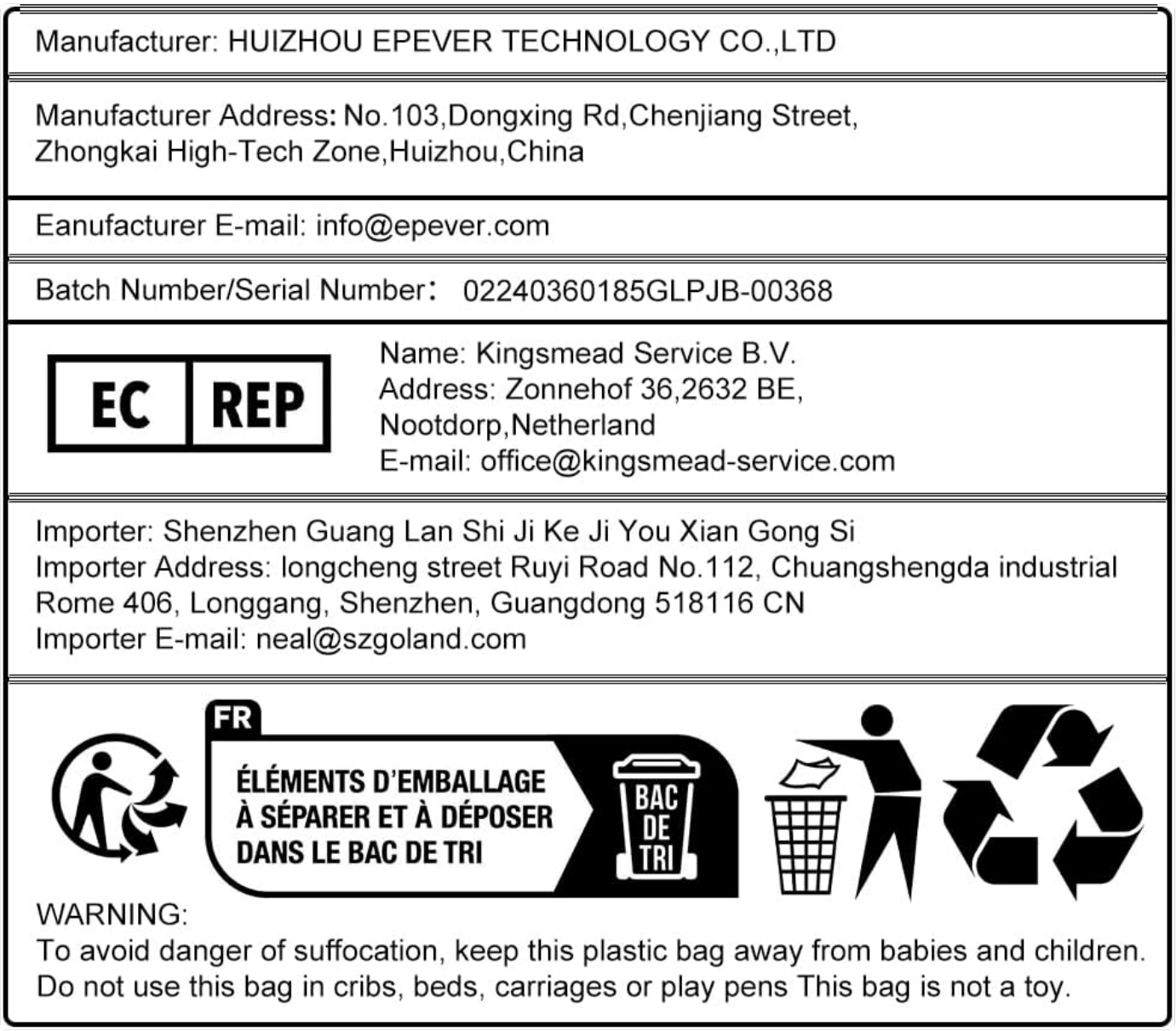


Image displaying the manufacturer (HUIZHOU EPEVER TECHNOLOGY CO.,LTD) and importer (Shenzhen Guang Lan Shi Ji Ke Ji You Xian Gong Si) details, including addresses and contact emails.

Manufacturer: HUIZHOU EPEVER TECHNOLOGY CO.,LTD
Manufacturer Address: No. 103, Dongxing Rd, Chenjiang Street, Zhongkai High-Tech Zone, Huizhou, China
Manufacturer E-mail: info@epever.com

Importer: Shenzhen Guang Lan Shi Ji Ke Ji You Xian Gong Si
Importer Address: Longcheng street Ruyi Road No.112, Chuangshengda industrial Rome 406, Longgang, Shenzhen, Guangdong 518116 CN
Importer E-mail: neal@szgoland.com

Authorized Sales Agent: GolandCentury is an official authorized sales agent for the EPEVER brand. They offer the latest versions of controllers and inverters and accessories.

Service Centers: GolandCentury has established warehouses and service centers in Chicago (USA), Munich (Germany), Toronto (Canada), and Melbourne (Australia). Professional engineer teams provide free technical support to customers.

Ask a question about this manual

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

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you@example.com

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Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question