EPEVER LS1012EU

EPEVER LS1012EU 10A PWM Solar Charge Controller User Manual

Model: LS1012EU

1. Introduction

This manual provides essential instructions for the safe and efficient operation of your EPEVER LS1012EU 10A PWM Solar Charge Controller. Please read this manual thoroughly before installation and use to ensure proper functionality and to prevent damage to the device or connected components. This controller is designed for off-grid solar systems, managing the charging of 12V batteries from solar panels and providing a regulated output for DC loads.

2. Product Features and Overview

The EPEVER LS1012EU controller is a reliable and economical solution for solar charging. It features intelligent PWM charging and multiple electronic protections.

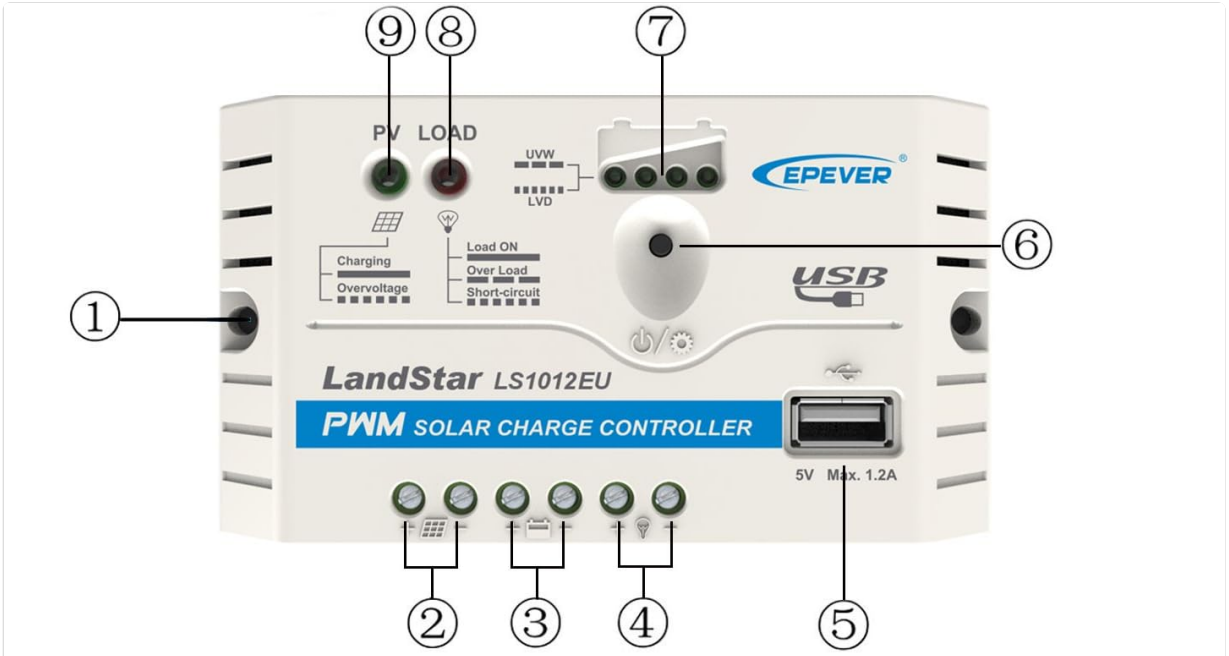

Figure 1 Product Feature

①	Mounting Hole Φ4.5	⑥	Button
②	PV Terminals	⑦	Battery status LED indicator
③	Battery Terminals	⑧	Load status LED indicator
④	Load Terminals	⑨	Charging status LED indicator
⑤	USB Output Port		

Figure 1: EPEVER LS1012EU Solar Charge Controller Front Panel
This image displays the front panel of the EPEVER LS1012EU solar charge controller, highlighting its various components with numbered labels for easy identification. The controller features terminals for PV input, battery connection, and load output, along with a USB port and LED indicators for status monitoring.

Component Identification:

No.	Description	No.	Description
①	Mounting Hole Φ4.5	⑥	Button
②	PV Terminals	⑦	Battery status LED indicator
③	Battery Terminals	⑧	Load status LED indicator
④	Load Terminals	⑨	Charging status LED indicator
⑤	USB Output Port		

Available Models:

- LS0512EU: 5A, 12V
- **LS1012EU: 10A, 12V**
- LS1024EU: 10A, 12/24V auto work
- LS2024EU: 20A, 12/24V auto work
- LS3024EU: 30A, 12/24V auto work

Electronic Protections:

- Load overload protection
- Load short circuit protection
- Battery over discharge protection
- Battery reverse polarity protection

3. Setup and Installation

Proper installation is crucial for the safe and efficient operation of your solar charge controller. Follow these steps carefully:

1. **Mounting:** Secure the controller to a flat, vertical surface using the mounting holes (Φ4.5). Ensure adequate ventilation around the controller.
2. **Battery Connection:** Connect the battery to the battery terminals (③) first. Ensure correct polarity (positive to positive, negative to negative) to avoid reverse polarity protection activation. The controller is designed for 12V systems and supports Sealed, Gel, and Flooded battery types.
3. **Solar Panel Connection:** Connect the solar panel to the PV terminals (②). Ensure correct polarity. The maximum PV open circuit voltage should not exceed 30V.
4. **Load Connection:** Connect your DC loads to the load terminals (④). Ensure the total current draw of your loads does not exceed the controller's rated current.

Important: Always connect the battery first, then the solar panel, and finally the load. Disconnect in the reverse order: load, then solar panel, then battery.
The controller features a common positive grounding type.

Models:

LS0512EU 5A,12V

LS1012EU 10A,12V

LS1024EU 10A,12/24V auto work

LS2024EU 20A,12/24V auto work

LS3024EU 30A,12/24V auto work

Electronic protections:

- Load overload protection
- Load short circuit protection
- Battery over discharge protection
- Battery reverse polarity protection

Figure 2: Typical Connection Diagram

This image illustrates a typical connection setup for the EPEVER LS1012EU solar charge controller, showing how a solar panel, battery, and various DC loads (such as an LED bulb, smartphone via USB, and a fan) are connected to the controller.

4. Operating Instructions

Once installed, the controller operates automatically to manage your solar charging system.

LED Indicators:

- **Charging Status LED (⑨):** Indicates the charging status from the solar panel to the battery.
- **Battery Status LED (⑦):** Displays the current state of charge of the battery.
- **Load Status LED (⑧):** Shows the status of the connected DC loads (ON/OFF, overload, short-circuit).

USB Output Port:

The controller includes a USB output port (⑤) providing 5V/1.2A for charging small electronic devices.

Button Function (⑥):

The button on the controller is typically used for manual control of the load output (e.g., turning the load ON/OFF). Refer to the specific LED indicator patterns for detailed operational feedback.

5. Maintenance

To ensure optimal performance and longevity of your EPEVER LS1012EU solar charge controller, regular maintenance is recommended:

- **Cleanliness:** Keep the controller clean and free from dust and debris. Use a dry cloth for cleaning.
- **Connections:** Periodically check all wire connections to ensure they are tight and secure. Loose connections can cause overheating and damage.
- **Ventilation:** Ensure that the controller's ventilation openings are not blocked to allow for proper heat dissipation.
- **Battery Health:** Monitor your battery's health and voltage regularly. Ensure the battery type setting (if adjustable) matches your battery.

6. Troubleshooting

If you encounter issues with your controller, refer to the following common problems and solutions:

- **No Charging Indication:**
  - Check solar panel connections and ensure they are correctly polarized.
  - Verify that the solar panel is receiving sufficient sunlight.
  - Confirm battery connections are secure and correctly polarized.
- **Load Not Working:**
  - Check load connections for proper polarity and security.
  - Verify that the total load current does not exceed the controller's rating (10A for LS1012EU).
  - Check the load status LED (⑧) for overload or short-circuit indications.
  - Ensure the battery voltage is above the low voltage disconnect voltage (11.1V). The load will automatically reconnect when the battery voltage reaches 12.6V.
- **Battery Over-Discharge:**
  - The controller will disconnect the load if the battery voltage drops to 11.1V to protect the battery.
  - Ensure adequate solar input to recharge the battery.
  - Reduce load consumption if over-discharge occurs frequently.
- **Reverse Polarity Protection:**
  - If battery or solar panel connections are reversed, the controller's protection mechanism will prevent damage. Correct the polarity immediately.

7. Specifications

Parameter	Value

Parameter	Value
Model	LS1012EU
Rated Charging / Discharging Current	10A
System Voltage	12V
Maximum Allowable Battery Voltage	16V
Battery Type	Sealed / Gel / Flooded
Max. PV Open Circuit Voltage	30V
Low Voltage Reconnect Voltage	12.6V
Low Voltage Disconnect Voltage	11.1V
Grounding Type	Common Positive
Temperature Compensation	-3mV / °C / 2V
Working Temperature	-35°C ~ +55°C
USB Output	5V / 1.2A
Item Weight	103 Grams (3.63 ounces)
UPC	791280364929

8. Warranty and Support

EPEVER products are designed for reliability and performance. While specific warranty details are not provided in this manual, please retain your purchase receipt for any warranty claims.
For technical support, troubleshooting assistance beyond this manual, or warranty inquiries, please contact EPEVER customer service or your authorized dealer. Refer to the contact information provided with your product packaging or on the official EPEVER website.
Note: Improper operation can lead to damage to the controller. Always consult the instruction manual or customer service if you are unsure about any procedure.