elejoy 20A 12.6V 300W

elejoy 20 Amp 12.6V 300W MPPT Solar Charge Controller User Manual

Model: 20A 12.6V 300W

1. Introduction

The elejoy 20 Amp 12.6V 300W MPPT Solar Charge Controller is designed for efficient and reliable charging of 12.6V LiFePO4 (Lithium Iron Phosphate) batteries. This ultra-compact and lightweight controller maximizes energy harvest from your solar panels, ensuring optimal performance even in varying weather conditions. Its robust design includes comprehensive protection features and an IP67 waterproof rating, making it suitable for various outdoor applications.

Key Features:

- **High-Efficiency MPPT Charging:** Advanced MPPT technology delivers up to 99% tracking efficiency and 97% peak conversion efficiency, maximizing energy from solar panels.
- **12.6V LiFePO4 Battery Support:** Specifically designed to accurately charge 12.6V LiFePO4 batteries.
- **Compact and Lightweight Design:** Ideal for installations where space is limited, offering flexibility without compromising performance.
- **Rugged IP67 Waterproof Design:** Built to withstand harsh outdoor environments, ensuring full functionality in all weather conditions.
- **Comprehensive System Protection:** Equipped with overcurrent and over-temperature protection to ensure the safety and longevity of your solar power system.

2. Safety Information

Please read all safety instructions carefully before installation and operation. Failure to follow these instructions may result in electric shock, fire, or serious injury.

- Ensure all connections are secure and properly insulated to prevent short circuits.
- Do not attempt to disassemble or repair the controller. Contact qualified personnel for service.
- Install the controller in a well-ventilated area, away from flammable materials.
- Verify battery voltage and type before connecting to the controller to ensure compatibility.
- Wear appropriate personal protective equipment (PPE) during installation, including gloves and eye protection.
- Keep children and unauthorized persons away from the solar power system.

- Disconnect all power sources (solar panel and battery) before performing any maintenance or wiring changes.

3. Product Overview

The elejoy MPPT Solar Charge Controller features a durable aluminum casing and a clear display for monitoring system status and adjusting settings. It is designed for ease of use and robust performance.

Image: Front view of the elejoy 20 Amp 12.6V 300W MPPT Solar Charge Controller, showing its compact design and input/output ports.

The controller's display unit provides real-time information on solar input, battery status, and temperature. It also allows for easy adjustment of charging parameters to suit different battery types.

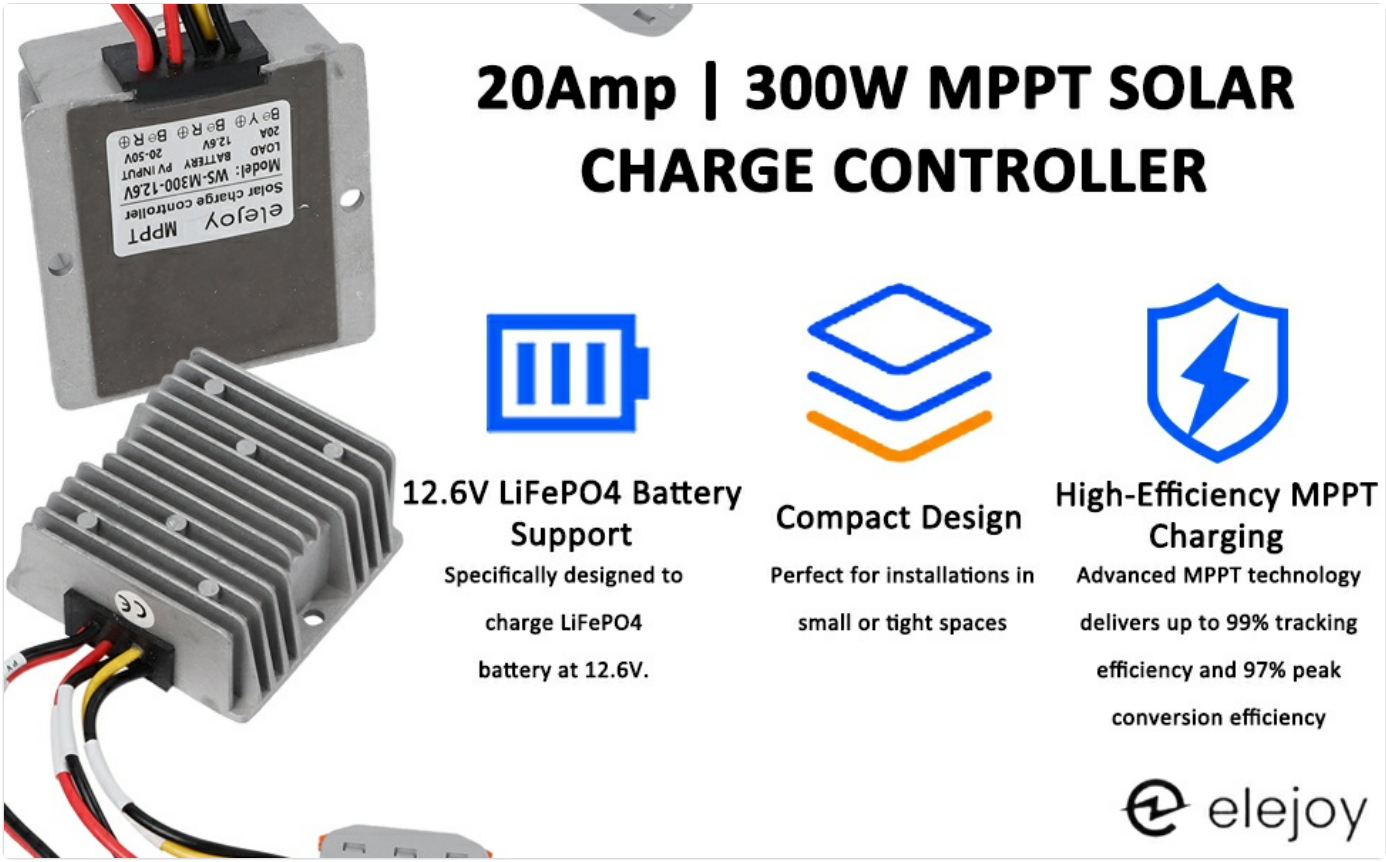

Image: Diagram highlighting key features: 12.6V LiFePO4 Battery Support, Compact Design, and High-Efficiency MPPT Charging.

4. Setup and Installation

Proper wiring is crucial for the safe and efficient operation of your solar charge controller. Follow the diagram below for correct connections.

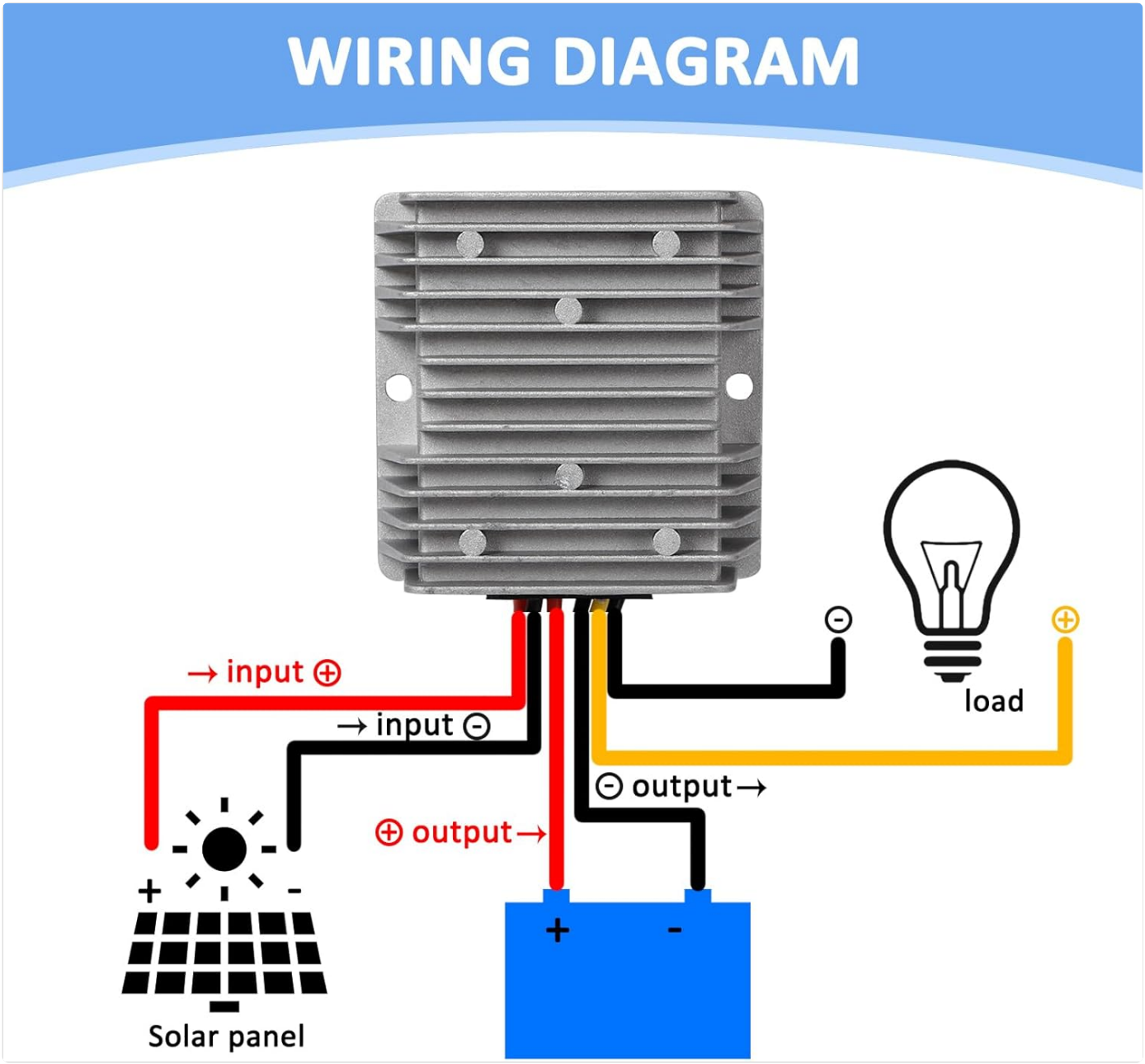

Image: A clear wiring diagram showing connections from the solar panel (input) to the controller, and from the controller (output) to the battery and load. Red wires indicate positive, black wires indicate negative.

1. **Connect the Battery:** First, connect the battery to the charge controller's output terminals. Ensure correct polarity (positive to positive, negative to negative).
2. **Connect the Solar Panel:** Next, connect the solar panel to the charge controller's input terminals. Again, observe correct polarity.
3. **Connect the Load (Optional):** If using a DC load directly from the controller, connect it to the designated load terminals.
4. **Secure Connections:** Ensure all wire connections are tight and secure to prevent loose contacts and potential hazards.

The controller is designed to support 12.6V LiFePO4 batteries. Ensure your battery type matches this requirement for optimal charging.

Image: A visual representation emphasizing the controller's compatibility and specific design for charging 12.6V LiFePO4 batteries.

5. Operating Instructions

The elejoy MPPT Solar Charge Controller features an intuitive display and control buttons for easy operation and monitoring.

5.1 Display Interface

The display shows real-time data including solar panel voltage, battery voltage, charging current, and internal temperature. Use the navigation buttons (ESC, OK, Up, Down, Left, Right) to browse through different screens and settings.

5.2 Setting Battery Type

It is critical to set the correct battery type for proper charging and to prevent damage to your battery. This controller supports Lead-Acid, NCM, LFP (LiFePO4), and Custom battery types.

1. Press the **ESC** button to enter the main menu.
2. Navigate to **"Setting"** using the Up/Down arrows and press **OK**.
3. Select **"Battery Type"** and press **OK**.
4. Choose **"LFP Battery"** for LiFePO4 batteries (or your specific battery type) and confirm with **OK**.
5. Adjust any specific voltage or current parameters if using a "Custom Battery" setting, referring to your battery's specifications.

5.3 Monitoring System Status

From the main display, you can monitor:

- **Solar Panel Voltage (V):** Input voltage from your solar panels.
- **Battery Voltage (V):** Current voltage of your connected battery.
- **Charging Current (A):** Current flowing from the solar panel to the battery.
- **Temperature (°C):** Internal temperature of the controller and ambient temperature.

6. Maintenance

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

- **Regular Inspection:** Periodically check all wiring and connections for any signs of wear, corrosion, or looseness. Tighten connections as needed.
- **Cleaning:** Keep the controller's exterior clean and free from dust and debris. Use a soft, dry cloth. Do not use harsh chemicals or abrasive cleaners.
- **Environmental Protection:** The controller has an IP67 waterproof rating, meaning it is protected against dust and immersion in water up to 1 meter for 30 minutes. However, avoid prolonged submersion or exposure to extreme conditions beyond its rating.

Image: The elejoy solar charge controller partially submerged in water, demonstrating its IP67 waterproof capability.

- **Ventilation:** Ensure the controller has adequate airflow around it, especially if installed in an enclosed space, to prevent overheating.
- **Battery Health:** Monitor your battery's health and perform any recommended maintenance as per the battery manufacturer's guidelines.

7. Troubleshooting

If you encounter issues with your solar charge controller, refer to the following common troubleshooting steps:

Problem	Possible Cause	Solution
No display/No power	Loose battery connection, discharged battery, faulty wiring.	Check battery connections and polarity. Ensure battery has sufficient charge. Inspect all wiring.

Problem	Possible Cause	Solution
Battery not charging	No solar input, incorrect battery type setting, faulty solar panel, open circuit in wiring.	Verify solar panel connection and ensure it's receiving sunlight. Check battery type setting on the controller. Test solar panel output. Inspect wiring for breaks.
Overcharging/Undercharging	Incorrect battery type or charging parameters set.	Review and correct the battery type and charging voltage/current settings in the controller's menu.
High temperature warning	Insufficient ventilation, excessive load, direct sunlight exposure.	Ensure adequate airflow around the controller. Reduce load if possible. Relocate the controller to a cooler, shaded area.

If the problem persists after attempting these solutions, please contact elejoy customer support for further assistance.

8. Specifications

Detailed technical specifications for the elejoy 20 Amp 12.6V 300W MPPT Solar Charge Controller:

Image: A table detailing the input voltage, rated voltage, output current, output power, waterproof grade, and conversion efficiency. Also includes product dimensions.

Feature	Value
Input Voltage	20-50 V
Rated Voltage	12.6 V
Output Current	24A Max

Feature	Value
Output Power	300W Max
Waterproof Grade	IP67
Conversion Efficiency	97%
Product Dimensions (L x W x H)	3"L x 2.96"W x 1.26"H (7.6cm x 7.5cm x 3.2cm)
Material	Aluminum
Item Weight	0.31 Kilograms

9. Warranty and Support

elejoy products are manufactured to high-quality standards. For warranty information, technical support, or service inquiries, please contact elejoy customer service through the retailer where the product was purchased or visit the official elejoy website.
Please retain your proof of purchase for warranty claims.