

Marsrock 1400W80

Marsrock 1400W Wind Solar Hybrid Charge Controller User Manual

Model: 1400W80 | Brand: Marsrock

1. INTRODUCTION

This manual provides detailed instructions for the installation, operation, and maintenance of your Marsrock 1400W 12V/24V Off Grid MPPT Wind Solar Hybrid Charge Controller. This controller is designed for dual voltage (12/24V auto detection) systems and supports a maximum of 800W for wind generators and 600W for solar panels, making it ideal for wind-solar hybrid street lighting or home-based wind-solar complementary systems.

Please read this manual thoroughly before installation and operation to ensure safe and efficient use of the product.

2. PRODUCT FEATURES

- **Application Scope:** Designed for dual voltage (12/24V auto detection) and supports a maximum of 800W for wind generators and 600W for solar panels. Ideal for wind-solar hybrid street lighting or home-based wind-solar complementary systems.
- **Operating System:** Wind turbine charging segment integrates advanced booster MPPT (Maximum Power Point Tracking) technology for efficient charging even at low wind speeds. Features a seamless unloading mechanism with an external dump-load resistor. Solar panel charging employs PWM (Pulse Width Modulation) technology via a series-connected MOS tube for enhanced efficiency.
- **Load Operating Modes:** Supports two DC output loads, offering four selectable operating modes to accommodate user preferences. The configuration of the second load automatically mirrors that of the first.
- **Display Interface:** Utilizes a custom LCD display complemented by four operational buttons, providing an intuitive interface that simplifies monitoring, adjustments, and configurations.
- **Protective Measures:** Includes multiple safety features such as reverse charging protection for solar panels, voltage regulation (overcharge and under-voltage), overload protection, reverse polarity prevention, open circuit protection, and built-in lightning protection, safeguarding the system against various electrical anomalies.

3. PRODUCT OVERVIEW

Familiarize yourself with the components and interface of the hybrid charge controller.

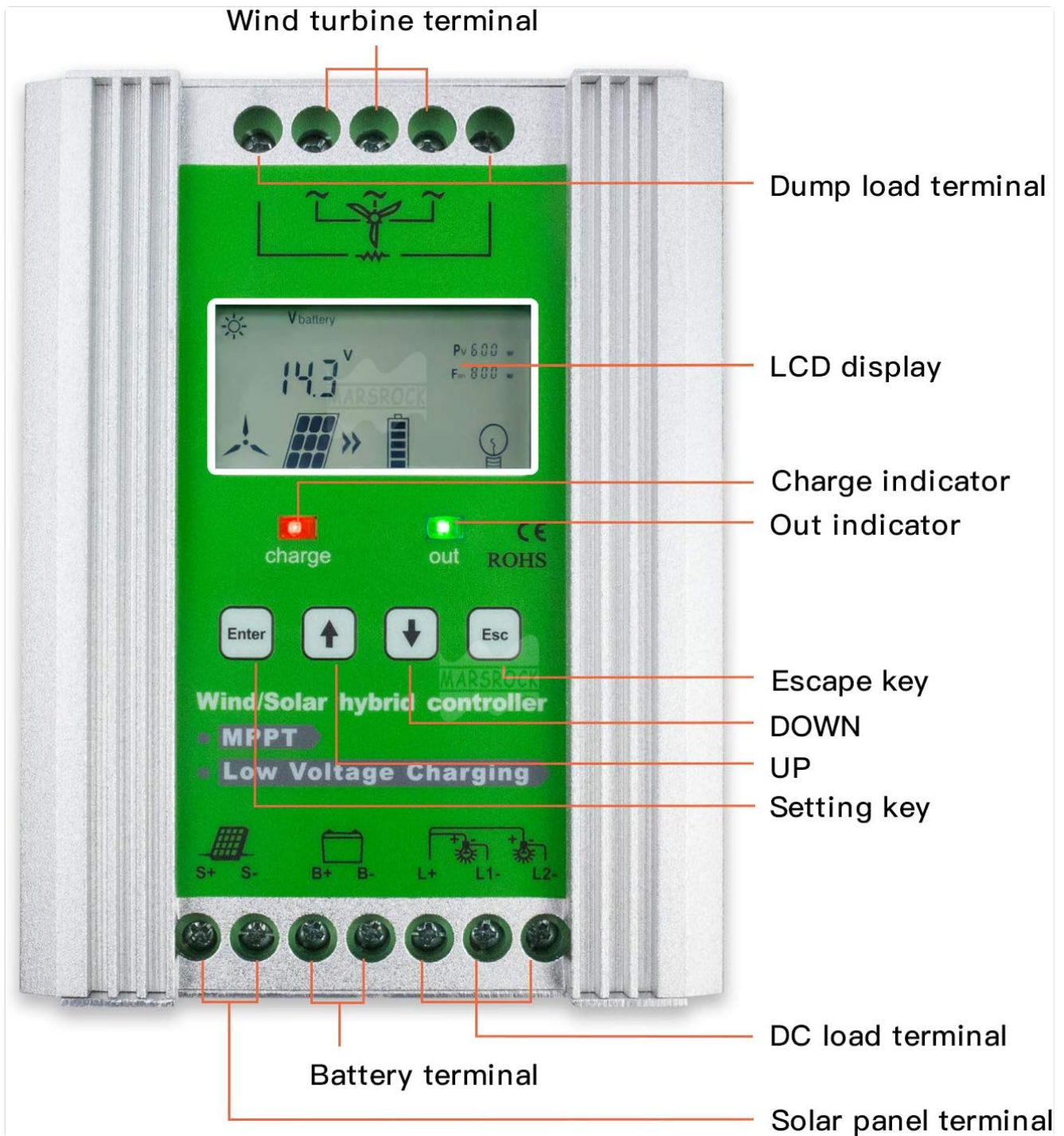


Figure 3.1: Labeled components of the Marsrock Hybrid Charge Controller.

Wind Turbine Terminal: Connects to the wind generator.

Dump Load Terminal: Connects to the external dump load resistor for excess energy dissipation.

LCD Display: Shows system parameters and settings.

Charge Indicator: LED indicating charging status.

Out Indicator: LED indicating load output status.

Control Buttons: Enter, Up, Down, and Esc for navigation and setting adjustments.

Battery Terminal: Connects to the battery bank.

DC Load Terminal: Connects to DC loads.

Solar Panel Terminal: Connects to the solar panels.



Figure 3.2: Marsrock Hybrid Charge Controller and accessories.

4. SETUP AND INSTALLATION

Proper installation is crucial for the safe and efficient operation of your hybrid charge controller. Always ensure all power sources are disconnected before making connections.

4.1 Safety Precautions

- Ensure the installation location is well-ventilated, clean, and dry.
- Keep the controller away from flammable, explosive materials, and direct sunlight.
- Avoid moisture and rain erosion.
- Always connect the battery to the controller FIRST before connecting solar panels or wind turbines.
- Ensure correct polarity for all connections.

4.2 Wiring Diagram

The following diagram illustrates a typical wiring setup for the wind-solar hybrid system. Ensure all connections are secure and properly insulated.

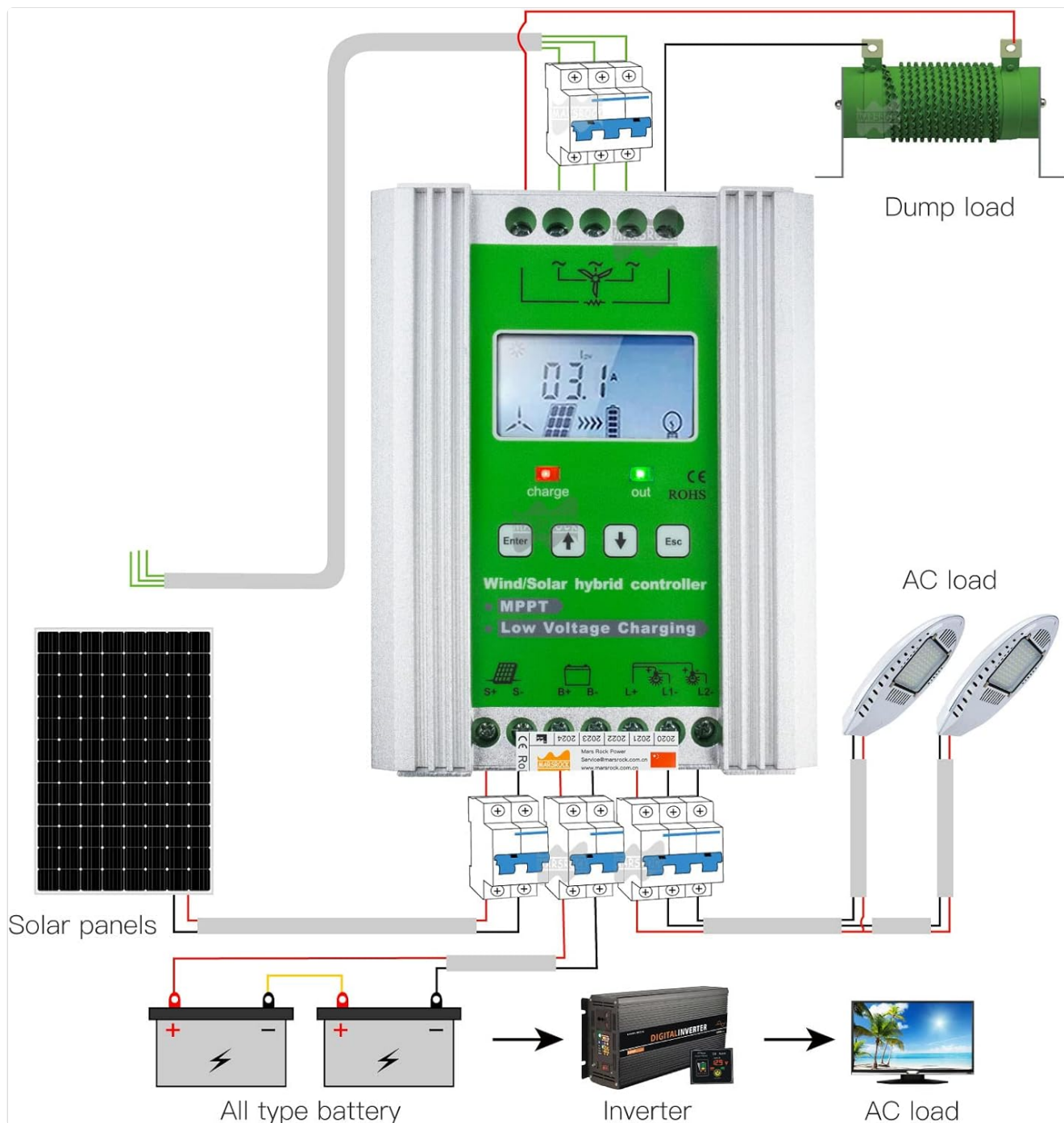


Figure 4.1: System Wiring Diagram.

1. **Connect Battery:** Connect the battery bank to the B+ and B- terminals on the controller. This must be the first connection.
2. **Connect Solar Panels:** Connect your solar panels to the S+ and S- terminals. Ensure the solar panel voltage is compatible with your system voltage (12V panels for 12V battery, 24V panels for 24V battery).
3. **Connect Wind Turbine:** Connect your wind turbine to the wind turbine terminals.
4. **Connect Dump Load Resistor:** Connect the provided dump load resistor to the dump load terminals. This resistor dissipates excess energy to prevent overcharging.
5. **Connect DC Loads (Optional):** Connect your DC loads to the L1+ and L1- (and L2+ and L2- if using a second load) terminals.
6. **Connect Inverter (for AC Loads):** If using AC loads, connect an appropriate inverter to the battery bank.

Important: Always connect the battery to the controller first. Disconnect in reverse order (loads, solar/wind, then battery).

5. OPERATING INSTRUCTIONS

The controller features an intuitive LCD display and four operational buttons for easy monitoring and configuration.

5.1 LCD Display Functions



Figure 5.1: LCD Display showing various parameters.

The LCD cycles through various parameters, including:

- **V_{battery}**: Current battery voltage.
- **P_{wind}**: Current power generated by the wind turbine.
- **P_{solar}**: Current power generated by the solar panels.
- **V_{float}**: Float charge voltage setting.
- **V_{over}**: Overcharge voltage setting.
- **V_{under}**: Under-voltage protection setting.
- **Operating Mode**: Displays the selected load operating mode (e.g., 24H for 24-hour operation).

5.2 Button Functions

- **Enter:** Press to enter the setup interface or confirm a setting.
- **Up (▲):** Used to switch up browsing pages or increase parameter values.
- **Down (▼):** Used to switch down browsing pages or decrease parameter values.
- **Esc:** Press to exit the setup interface and save the parameters.

5.3 Setting Parameters

To adjust settings such as operating mode, charge current, or voltage limits, navigate through the LCD display using the Up/Down buttons. Press 'Enter' to select a parameter for modification, use Up/Down to change the value, and 'Esc' to save and exit.

For a visual demonstration of product usage and setting adjustments, please refer to the official product video below:

Video 5.1: Demonstration of the Marsrock 1400W80 controller's packaging and basic usage, including navigating the LCD display and adjusting settings.

6. SPECIFICATIONS

Specification	Value
Item Weight	2.5 Kilograms (5.5 pounds)
Display Type	LCD
UPC	674551411426
Manufacturer	Marsrock
Product Dimensions	5.5 x 2.6 x 6.4 inches (140mm x 66mm x 162mm)
Item Model Number	1400W80
Batteries Required	No (for controller operation)
Color	Green
Material	Aluminum
Voltage	12V/24V Auto Detection
Max Wind Generator Power	800W
Max Solar Panel Power	600W

7. MAINTENANCE

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

- **Cleaning:** Periodically clean the controller's exterior with a dry, soft cloth to remove dust and debris. Ensure ventilation openings are clear.

- **Connection Checks:** Regularly inspect all wiring connections for tightness and corrosion. Loose connections can lead to power loss or overheating.
- **Environmental Conditions:** Ensure the operating environment remains within specified temperature and humidity ranges. Avoid exposure to extreme conditions.
- **Battery Health:** Monitor your battery bank's health as per the battery manufacturer's recommendations. A healthy battery is essential for system performance.

8. TROUBLESHOOTING

If you encounter issues with your charge controller, consider the following basic troubleshooting steps:

- **No Display/Power:** Check battery connections and ensure the battery voltage is within the controller's operating range. Verify that the battery was connected first.
- **No Charging:** Verify solar panel and wind turbine connections. Check for sufficient sunlight and wind. Ensure the charge indicator LED is active.
- **Overcharging/Undercharging:** Review your voltage settings (Float, Overcharge, Under-voltage) on the LCD display. Ensure they are appropriate for your battery type and system voltage.
- **Load Not Working:** Check DC load connections and ensure the load output indicator is active. Verify the selected operating mode for the loads.
- **Unusual Behavior:** Disconnect all power sources (solar, wind, then battery), wait a few minutes, and then reconnect in the correct sequence (battery first) to reset the controller.

If problems persist after performing these checks, please contact Marsrock customer support for further assistance.

9. WARRANTY AND SUPPORT

Marsrock products are designed for reliability and performance. For warranty information or technical support, please refer to the documentation included with your purchase or visit the official Marsrock website. When contacting support, please have your product model number (1400W80) and purchase details ready.

You can also visit the [Marsrock Store on Amazon](#) for more information and contact options.

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