Pikasola 1400W 12/24v Wind/Solar Hybrid Controller

PIKASOLA 1400W 12/24V Wind/Solar Hybrid Charge Controller User Manual

Model: 1400W 12/24v Wind/Solar Hybrid Controller
Brand: Pikasola

1. Product Overview

The PIKASOLA 1400W 12/24V Wind/Solar Hybrid Charge Controller is designed for off-grid wind and solar complementary systems, such as street lights or home power setups. It automatically matches 12V or 24V battery systems and supports a maximum of 800W from a wind generator and 600W from solar panels.
Key features include:

- **Booster MPPT Technology:** The wind turbine charging component utilizes Maximum Power Point Tracking (MPPT) technology to ensure continuous and efficient charging, even in low wind conditions.
- **Stepless Unloading Function:** Includes an external dump-load resistance for stable power management.
- **PWM Solar Charging:** Solar panel charging is managed using Pulse Width Modulation (PWM) technology via a series MOS tube.
- **Multiple Load Working Modes:** Two DC output loads offer four selectable working models. The second load mirrors the first automatically.
- **User-Friendly Display:** Features a custom LCD screen and four operation keys for easy understanding, handling, and setting adjustments.
- **Comprehensive Protection:** Includes reversed charging protection for solar, over-charge/under-voltage protection, overload voltage protection, battery reverse connection protection, open circuit protection, and lightning protection.



Figure 1.1: PIKASOLA Wind/Solar Hybrid Charge Controller with included dump load resistor.



Figure 1.2: Internal view highlighting the high-performance chip and various protection mechanisms such as short-circuit, reverse, over-charge, and over-discharge protection.

2. Package Contents

Upon opening the package, verify that all components are present and undamaged. The standard package includes:

- 1 x PIKASOLA Wind/Solar Hybrid Charge Controller
- 1 x Unloading Resistor (Dump Load)
- 2 x MC4 Wrenches
- 1 x Operation Manual (this document)

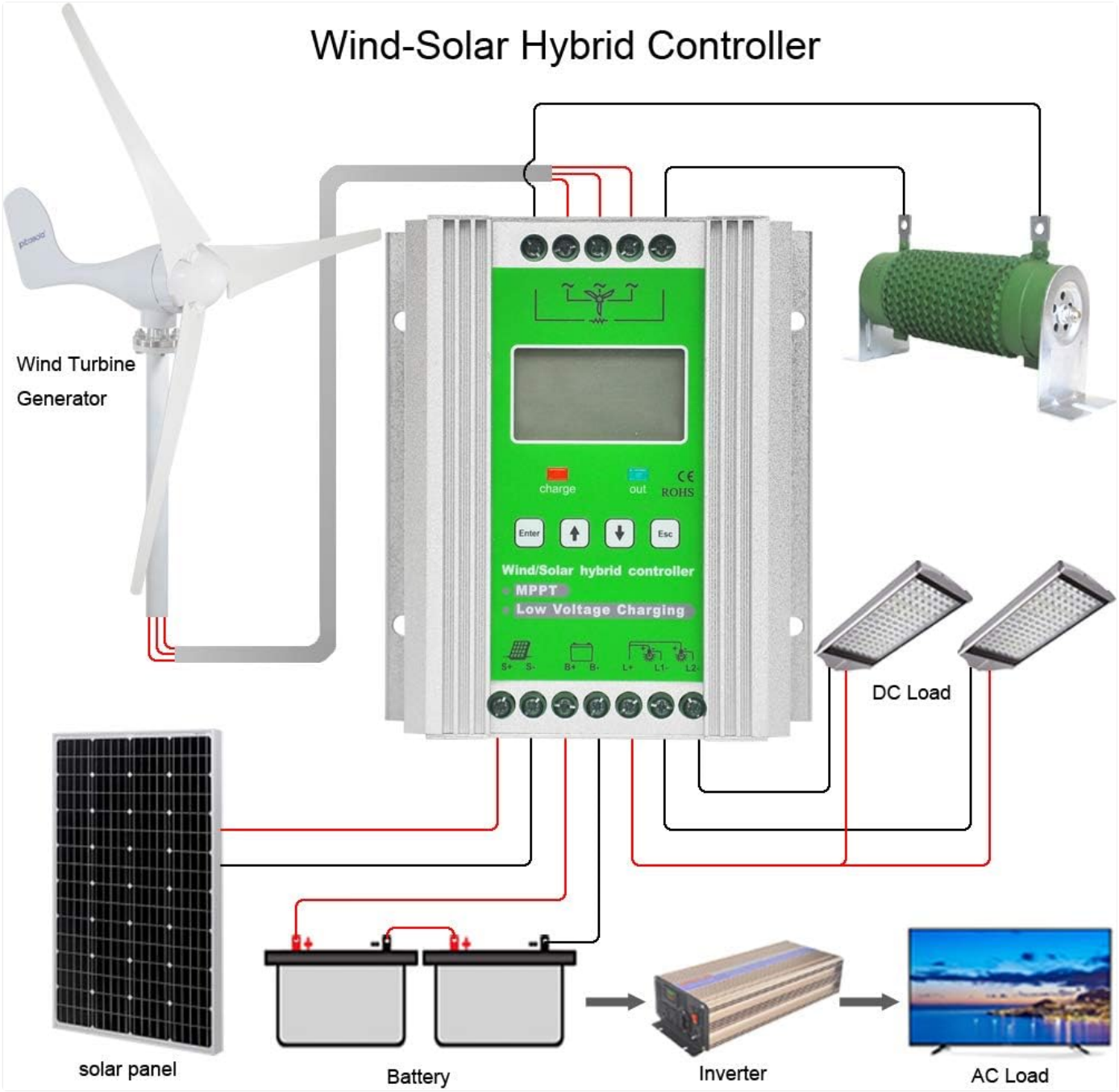


Figure 2.1: Contents of the product package.

3. Safety Information

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

- Ensure all connections are secure and correct before applying power.
- Always disconnect power from solar panels and wind turbine before working on the controller or wiring.
- Use appropriate personal protective equipment (PPE) such as insulated gloves and eye protection.
- Install the controller in a dry, well-ventilated area, away from flammable materials and direct sunlight.
- Do not attempt to disassemble or repair the controller yourself. Refer to qualified personnel for service.
- Ensure proper grounding of the system.
- Be aware that batteries can produce explosive gases; ensure adequate ventilation when working with batteries.

4. Setup and Installation

Proper installation is critical for the safe and efficient operation of your hybrid charge controller. Follow the steps below carefully.

4.1 Wiring Diagram

Refer to the diagram below for correct wiring connections. Ensure all connections are made in the specified order to prevent damage to the controller or other components.



Figure 4.1: Comprehensive wiring diagram for the hybrid system.

4.2 Connection Steps

1. **Connect the Battery:** First, connect the battery to the controller's battery terminals (B+ and B-). Ensure correct polarity. The controller will automatically detect 12V or 24V.
2. **Connect the Wind Turbine:** Connect the wind turbine generator's three-phase AC output to the controller's wind input terminals.
3. **Connect the Solar Panels:** Connect the solar panel array to the controller's solar input terminals (S+ and S-). Ensure correct polarity.
4. **Connect the Dump Load Resistor:** Connect the external dump load resistor to the designated terminals on the controller. This is crucial for energy dissipation from the wind turbine when batteries are full.
5. **Connect DC Loads (Optional):** If using DC loads, connect them to the controller's DC output terminals (L1+, L1-, L2+, L2-).
6. **Power On:** Once all connections are secure and verified, the system can be powered on.

Important: Always connect the battery first and disconnect it last to avoid damaging the controller.

5. Operating Instructions

The controller features an LCD screen and four buttons for easy operation and monitoring.



Figure 5.1: LCD display and control buttons.

5.1 LCD Display

The LCD screen displays various system parameters, including battery voltage, charging status, and power generation from wind and solar sources. Use the arrow keys to navigate through different display screens.

5.2 Control Buttons

- **Enter:** Used to confirm selections or enter setting modes.
- **Up Arrow (▲):** Navigates up through menu options or increases values.
- **Down Arrow (▼):** Navigates down through menu options or decreases values.
- **Esc:** Exits current menu or setting without saving changes.

5.3 Load Working Modes

The controller supports two DC output loads (L1 and L2). Both loads operate under the same selected mode. There are four working models to choose from, typically controlling when the loads are active based on time or battery voltage. Consult the on-screen menu for specific mode descriptions and how to select them using the control buttons.

6. Maintenance

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

- **Cleaning:** Periodically clean the exterior of the controller with a dry, soft cloth. Do not use liquid cleaners or solvents.
- **Connections:** Annually inspect all wiring connections for tightness and corrosion. Loose connections can lead to overheating and poor performance.
- **Ventilation:** Ensure that the ventilation fins on the controller are free from dust and debris to allow for proper heat dissipation.
- **Battery Check:** Regularly check the battery terminals for corrosion and ensure they are clean and tight. Monitor battery health as per battery manufacturer guidelines.

7. Troubleshooting

This section addresses common issues you might encounter with your hybrid charge controller.

Problem	Possible Cause	Solution
Controller display is blank or not responding.	No power from battery. Incorrect battery connection (polarity reversed or loose). Internal fault.	Check battery voltage and ensure it's within the controller's operating range (12V/24V). Verify battery connections for correct polarity and tightness. If problem persists after checking connections and battery, contact customer support.
Battery not charging from solar panels.	Insufficient sunlight. Solar panel connections are loose or incorrect. Damaged solar panels or wiring. Controller settings for solar charging are incorrect.	Ensure solar panels are receiving adequate sunlight and are clean. Check solar panel wiring for correct polarity and secure connections. Inspect solar panels and wiring for any visible damage. Review controller settings related to solar charging via the LCD menu.
Battery not charging from wind turbine.	Insufficient wind speed. Wind turbine connections are loose or incorrect. Damaged wind turbine or wiring.	Verify wind conditions are sufficient for turbine operation. Check wind turbine wiring for secure connections. Inspect wind turbine and wiring for any visible damage.
Loads are not receiving power.	Load connections are loose or incorrect. Load working mode is set incorrectly. Battery voltage is too low (under-voltage protection activated). Overload protection activated.	Check load wiring for correct polarity and secure connections. Adjust the load working mode via the controller's menu. Charge the battery to an acceptable voltage level. Reduce the load connected to the controller.

If you encounter issues not listed here or if the suggested solutions do not resolve the problem, please contact Pikasola customer support.

8. Specifications

Detailed technical specifications for the PIKASOLA 1400W 12/24V Wind/Solar Hybrid Charge Controller.

Feature	Detail
Model	1400W 12/24v Wind/Solar Hybrid Controller
Brand	Pikasola
System Voltage	12V / 24V (Auto-matching)
Max Wind Generator Power	800W
Max Solar Panel Power	600W
Display Type	LCD
Color	Green
Product Dimensions	16.5"L x 5.55"W x 2.6"H (6.3 x 5.46 x 2.5 inches)
Item Weight	5.59 pounds (2.54 Kilograms)
UPC	745499000482

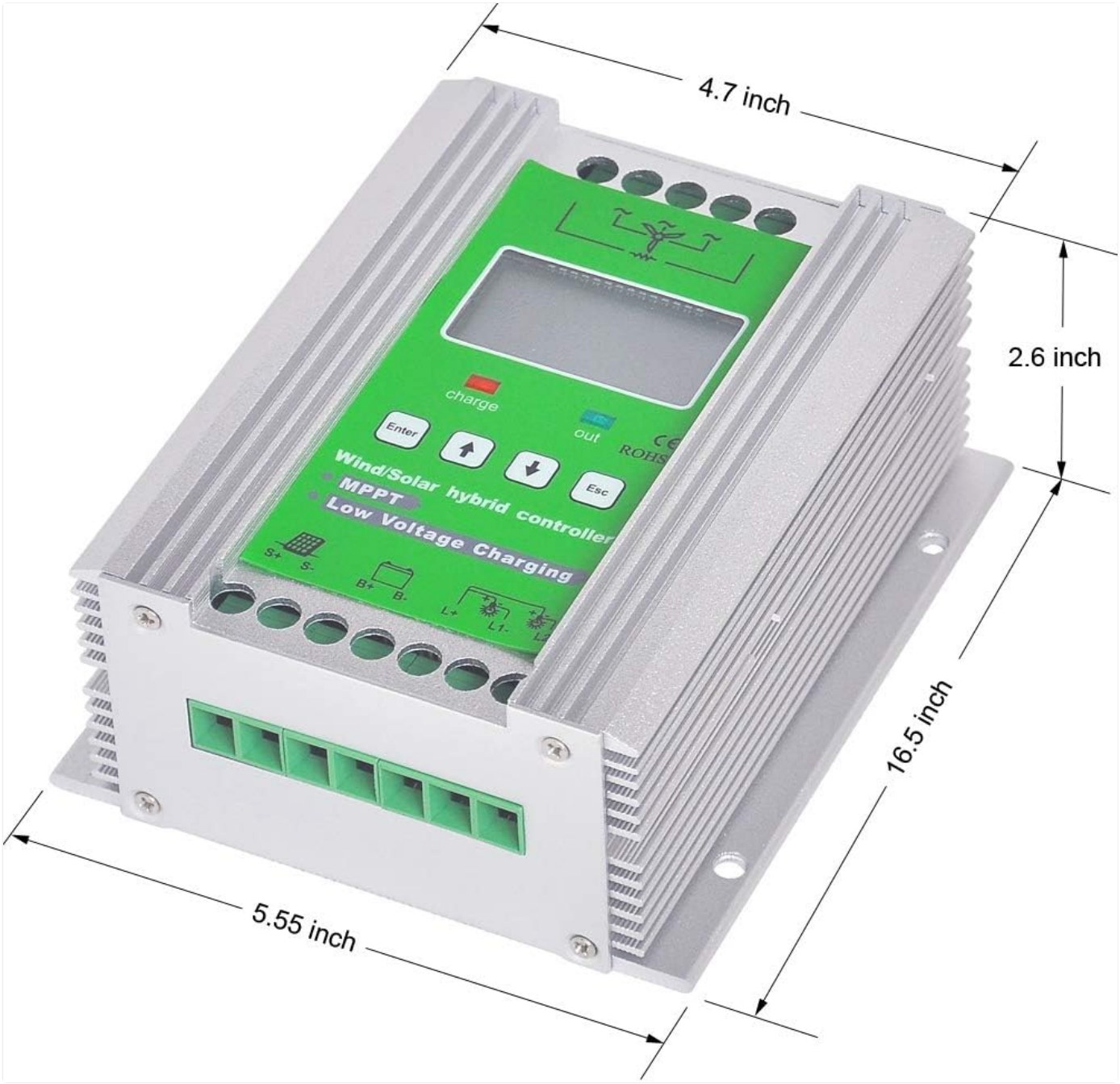


Figure 8.1: Product dimensions.

9. Warranty and Support

Pikasola is committed to providing high-quality products and customer satisfaction. For warranty information, technical support, or service inquiries, please contact Pikasola customer service through the retailer where the product was purchased or visit the official Pikasola website.

Please have your product model and purchase date available when contacting support.

Online Support: Visit the Pikasola Store on Amazon

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