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› Giosolar 520W Solar Wind Kit 12V Off Grid System User Manual

Giosolar GSN-AW400-AMPV-HY1-T5M-3MB-Z1-1K

Giosolar 520W Solar Wind Hybrid System User Manual

Model: GSN-AW400-AMPV-HY1-T5M-3MB-Z1-1K

1. INTRODUCTION

The Giosolar 520W Solar Wind Hybrid System is an integrated off-grid power solution designed to provide reliable electricity for various applications, including RVs, motorhomes, cabins, and remote homes. This system combines the power generation capabilities of both solar panels and wind turbines, ensuring consistent energy supply even in varying weather conditions. The kit includes a 120W monocrystalline solar panel, a 400W wind turbine generator, a hybrid MPPT charge controller, and a 1000W pure sine wave power inverter, along with necessary cables and mounting hardware.



Figure 1: Overview of the Giosolar 520W Solar Wind Hybrid System components.

2. SAFETY INFORMATION

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

- Always disconnect power before performing any maintenance or wiring.
- Ensure all connections are secure and properly insulated to prevent short circuits.
- Do not attempt to disassemble or repair any component unless explicitly instructed in this manual.
- Install the system in a well-ventilated area, away from flammable materials.
- Wear appropriate personal protective equipment (PPE) during installation, including gloves and eye protection.
- Keep children and unauthorized personnel away from the installation area.

3. COMPONENTS OVERVIEW

The Giosolar 520W system includes the following main components:

- **120W Monocrystalline Solar Panel:** High-efficiency panel designed for optimal power generation.
- **400W Wind Turbine Generator:** Features a low start-up wind speed and robust design for efficient power capture.
- **Hybrid MPPT Charge Controller:** Manages charging from both solar and wind sources, optimizing battery life and system performance.
- **1000W Peak 2000W Pure Sine Wave Power Inverter:** Converts DC battery power to AC power for household appliances.
- **Cables and Connectors:** Includes 5M solar cable with connectors and 3M battery cable with alligator clips.
- **Z Mounting Brackets Set:** For secure installation of the solar panel.



Figure 2: The 120W monocrystalline solar panel, featuring a corrosion-resistant aluminum frame, high-efficiency cells, and resistance to wind and snow loads. Dimensions are approximately 670mm x 1015mm.

5 line solar cell

Power is greatly increased



VS

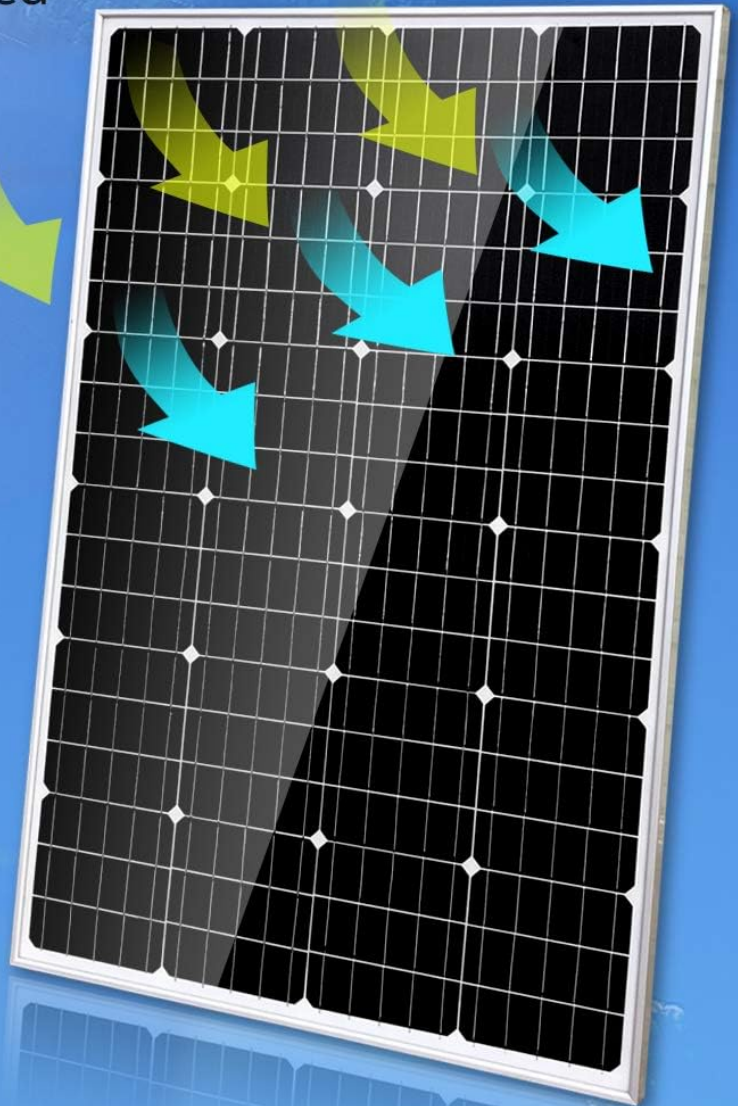
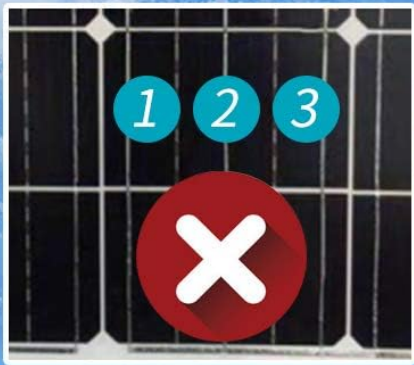


Figure 3: Illustration of the 5-line solar cell technology used in the solar panel, which enhances power generation compared to 3-line designs.

WIND TURBINE GENERATOR

- Low start speed
- High conversion rate
- Low running vibration
- Easy installation
- Beautiful appearance



Figure 4: The 400W wind turbine generator, highlighting its low start speed, high conversion rate, low running vibration, and ease of installation.

4. SETUP AND INSTALLATION

4.1 Site Selection

Choose a location for your solar panel and wind turbine that receives maximum sunlight exposure throughout the day and consistent wind flow, respectively. Avoid areas with shading from trees or buildings for the solar panel, and obstructions for the wind turbine.

4.2 Mounting Solar Panel

Use the provided Z mounting brackets to securely attach the solar panel to a stable surface such as a roof, RV, or ground mount. Ensure the panel is angled for optimal sun exposure based on your geographical location and season.

4.3 Mounting Wind Turbine

Install the wind turbine generator on a sturdy pole or mast in an elevated position, clear of obstacles that could impede wind flow.

Ensure the mounting is robust enough to withstand strong winds.

4.4 Wiring Diagram and Connections

Follow the wiring diagram carefully. All connections must be firm and correctly polarized. Incorrect wiring can damage components or pose a safety hazard.

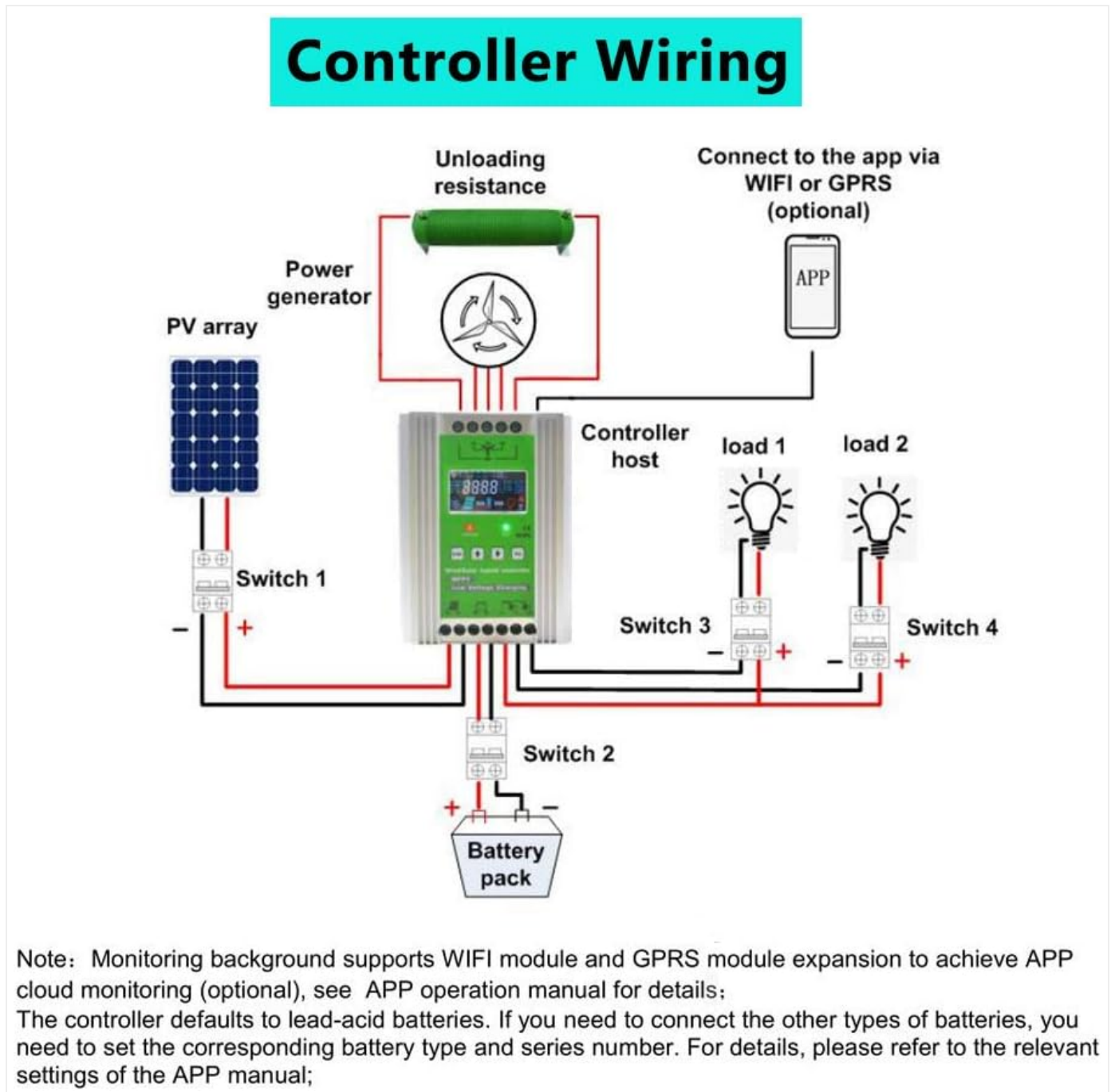


Figure 5: Detailed wiring diagram for the hybrid MPPT charge controller, showing connections for the PV array, power generator (wind turbine), battery pack, and loads. Note: The controller defaults to lead-acid batteries; refer to the manual for setting other battery types.

1. **Connect Battery to Controller:** First, connect the battery pack to the controller's battery terminals (Switch 2 in diagram). Ensure correct polarity (+ to + and - to -).
2. **Connect Solar Panel to Controller:** Connect the solar panel to the PV array input terminals on the controller (Switch 1).
3. **Connect Wind Turbine to Controller:** Connect the wind turbine generator to the power generator input terminals on the controller. Ensure the unloading resistance is also connected as shown.
4. **Connect Inverter to Battery:** Connect the 1000W pure sine wave inverter directly to the battery terminals.
5. **Connect Loads:** Connect your DC loads (if any) to the controller's load outputs (Load 1, Load 2). For AC loads, connect them to the inverter's AC output.

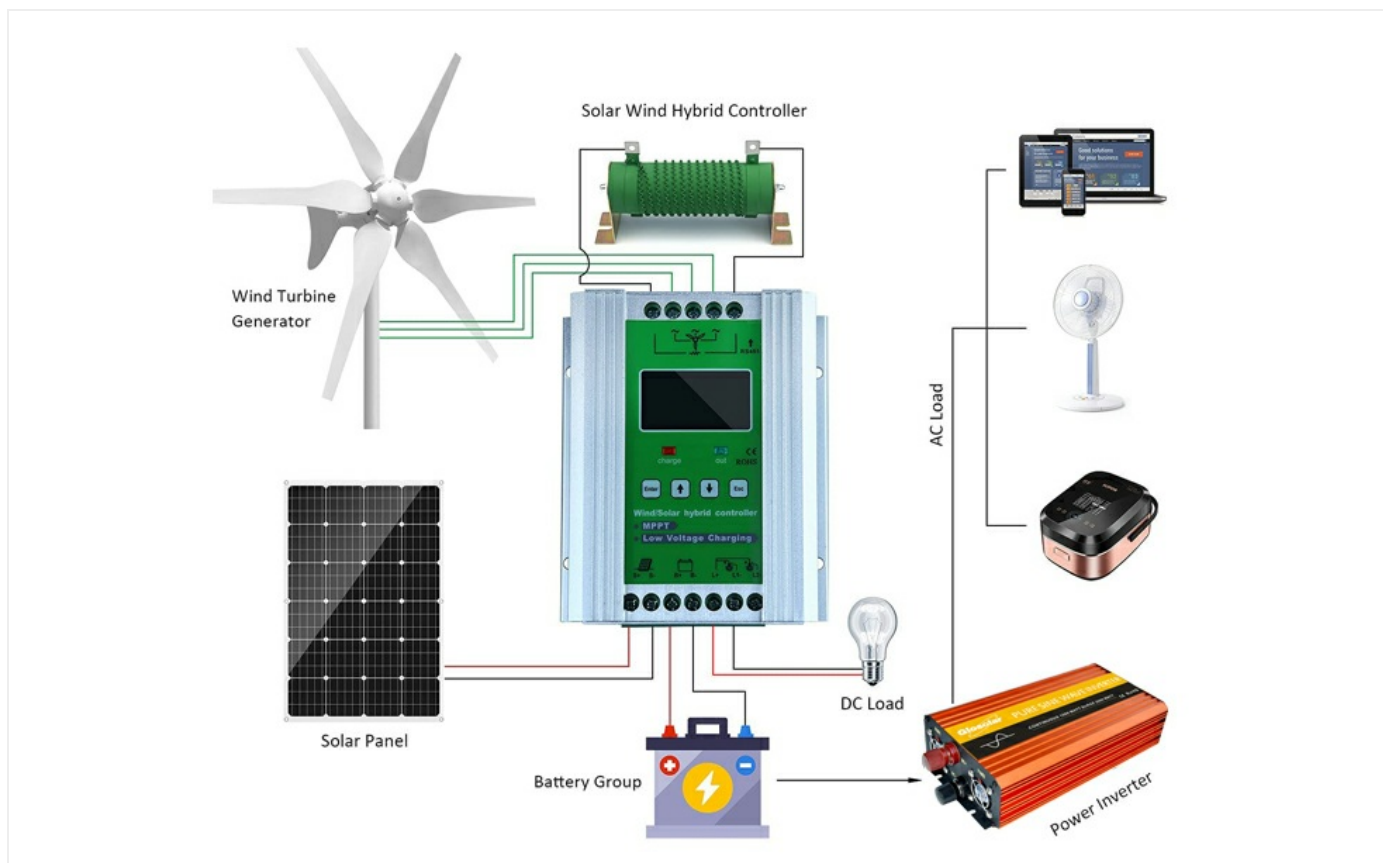


Figure 6: Overall system connection diagram illustrating the flow from solar panel and wind turbine to the controller, battery group, inverter, and finally to DC and AC loads.

5. OPERATING INSTRUCTIONS

5.1 Initial Power-Up

After all components are securely connected according to the wiring diagram, the system is ready for initial power-up. The hybrid MPPT controller will automatically detect the 12V/24V system voltage. The color screen display on the controller will show real-time charging status and battery voltage.

5.2 Monitoring System Performance

The controller's display provides key operational data. Monitor the battery charge level, input from the solar panel, and output from the wind turbine. The MPPT control algorithm ensures efficient charging even at low wind speeds.

5.3 Battery Management

The controller supports various battery types including lead-acid, ternary lithium, and lithium iron phosphate. Ensure the correct battery type is selected in the controller settings for optimal charging and protection functions (overcharge, over-discharge, overload).

6. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your Giosolar system.

- **Solar Panel Cleaning:** Periodically clean the surface of the solar panel with a soft cloth and water to remove dust, dirt, and debris. A clean panel ensures maximum sunlight absorption.
- **Wind Turbine Inspection:** Annually inspect the wind turbine blades for any damage or wear. Check the mounting pole for stability and ensure all bolts are tight. The turbine is hermetically sealed to prevent dust and rain intrusion.
- **Controller Checks:** Ensure the controller is free from dust and moisture. Verify that all wiring connections to the controller are secure and free from corrosion.

- **Battery Maintenance:** For lead-acid batteries, check electrolyte levels periodically and top up with distilled water if necessary. Keep battery terminals clean and free of corrosion.
- **General Inspection:** Regularly inspect all cables for signs of wear, fraying, or damage. Replace any damaged components immediately.

7. TROUBLESHOOTING

This section provides solutions to common issues you might encounter.

Problem	Possible Cause	Solution
No power output from system	Loose connections; Low battery voltage; Controller error; Insufficient sun/wind.	Check all wiring connections; Verify battery voltage; Check controller display for error codes; Ensure adequate sun and wind conditions.
Low power generation	Dirty solar panel; Obstructed wind turbine; Incorrect panel angle; Weak sun/wind.	Clean solar panel surface; Clear obstructions around wind turbine; Adjust solar panel angle; Wait for better weather conditions.
Battery not charging	Incorrect battery type setting; Faulty battery; Controller issue; Reverse polarity.	Verify battery type setting on controller; Test battery health; Check controller for faults; Re-check battery polarity.
Inverter not working	Low battery voltage; Overload; Loose connection; Inverter fault.	Charge battery; Reduce load; Check inverter connections; Consult inverter manual or contact support.

8. SPECIFICATIONS

Detailed technical specifications for the Giosolar 520W Solar Wind Hybrid System:

Feature	Specification
Brand	Giosolar
Model Number	GSN-AW400-AMPV-HY1-T5M-3MB-Z1-1K
Solar Panel Type	Monocrystalline Silicon
Solar Panel Max Power	120 Watts
Wind Turbine Power	400 Watts
System Voltage	12 Volts (Automatic 12V/24V recognition for controller)
Inverter Power	1000W Continuous / 2000W Peak Pure Sine Wave

Feature	Specification
Charge Controller	Hybrid MPPT with Dump Load, Color Screen Display
Included Components	120W Monocrystalline solar panel, 400W Wind Turbine Generator, Solar Wind Hybrid MPPT Charge Controller, 1000W Peak 2000W Pure Sine Wave Power Inverter, 5M solar cable with connectors, 3M battery cable with alligator clip, Z Mounting Brackets Set
Item Weight	15.5 Pounds (total kit)
UPC	751105029372

9. WARRANTY AND SUPPORT

Giosolar products are manufactured to high quality standards. For warranty information and technical support, please refer to the warranty card included with your product or visit the official Giosolar website. If you encounter any issues not covered in this manual, please contact Giosolar customer service for assistance.

For further assistance, you may visit the Giosolar Store on Amazon: [Giosolar Store](#)

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