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› POWLAND 12000W Solar Hybrid Inverter 48V DC to 120V-240V AC User Manual

POWLAND 12000W-48V

POWLAND 12000W Solar Hybrid Inverter User Manual

Model: 12000W-48V

1. INTRODUCTION

This manual provides essential information for the installation, operation, and maintenance of your POWLAND 12000W Solar Hybrid Inverter. This inverter is designed to provide a reliable and powerful energy solution for both daily use and backup situations, ensuring stable power for various applications.

The inverter features a 12,000W pure sine wave output, capable of powering demanding appliances. It incorporates an advanced MPPT charge controller for efficient solar energy harvesting and supports various battery types, including LiFePO4 and lead-acid batteries. The system is also designed for scalability, allowing up to 6 units to be stacked for a total output of 72,000W.

COMPATIBLE WITH 95% HOUSEHOLD APPLIANCES

Pure Sine Wave Output

12000W

AC Output



Image 1.1: The POWLAND 12000W Solar Hybrid Inverter connected to various household appliances.



Image 1.2: Example installation of the POWLAND Solar Hybrid Inverter for home energy storage.

2. SAFETY INFORMATION

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

- Ensure all wiring is performed by qualified personnel and complies with local electrical codes.
- Do not attempt to open or repair the inverter. Refer all servicing to authorized service personnel.
- Keep the inverter away from flammable materials, moisture, and direct sunlight.
- Ensure proper ventilation around the inverter to prevent overheating.
- Always disconnect all power sources (solar, battery, utility) before performing any maintenance or wiring.

The POWLAND inverter includes 8 safeguard technologies for comprehensive protection:

- Overload Protection
- Short-Circuit Protection
- Reverse Polarity Protection
- Auto-Voltage Cutoff (AC 90-280V)
- Overcurrent Defense
- Overvoltage Protection
- Undervoltage Prevention
- Over-Temperature Protection



Image 2.1: Overview of the inverter's 360° comprehensive protection features.

3. PRODUCT OVERVIEW

The POWLAND 12000W Solar Hybrid Inverter integrates a pure sine wave inverter, a 200A MPPT solar charge controller, and a battery charger into one compact unit. It features a user-friendly interface for monitoring and control.

3.1. LCD HD Display and LED Indicators

The inverter is equipped with a 6.25-inch tempered glass LCD touchscreen and tri-color LED indicators. This display allows for real-time monitoring of energy output, battery status, and solar input. Users can also set various parameters directly from the touchscreen interface.

LCD HD Display

View real-time data and Set different parameter



Image 3.1: The LCD HD Display provides real-time data and parameter settings.



LCD DISPLAY PANEL & LED INDICATORS

The LCD display is equipped with 3 LED indicators to visually display the operating status and programming functions of the solar inverter. The solar inverter charger boasts over 20 customizable parameters, encompassing input/output voltage ranges, battery charging current, battery type selection, and charging/discharging priority settings, among others.

Image 3.2: The LCD display panel and LED indicators for operational status.

3.2. Cooling System

The inverter features an intelligent design with dual cooling fans to optimize heat dissipation and prevent dust accumulation. This ensures efficient and safe operation, maintaining a low noise level of 45dB.



Image 3.3: Intelligent design with dual cooling fans for optimal performance.

4. SETUP AND INSTALLATION

Proper installation is crucial for the safe and efficient operation of your solar hybrid inverter. Always consult a qualified electrician for installation.

4.1. Connection Diagram

The inverter supports various connection configurations, including single-phase and parallel operation for increased power output. Ensure all connections are secure and correctly polarized.

CONNECTION DIAGRAM

- Live wire/postive wire
- Neutral wire/negative wire

Max. AC charging current 0-63A
 Input Voltage Range 85~140Vac

Max PV input current 22A x 2
 Max PV input power 6000W x 2
 Max PV open circuit voltage 500Vdc

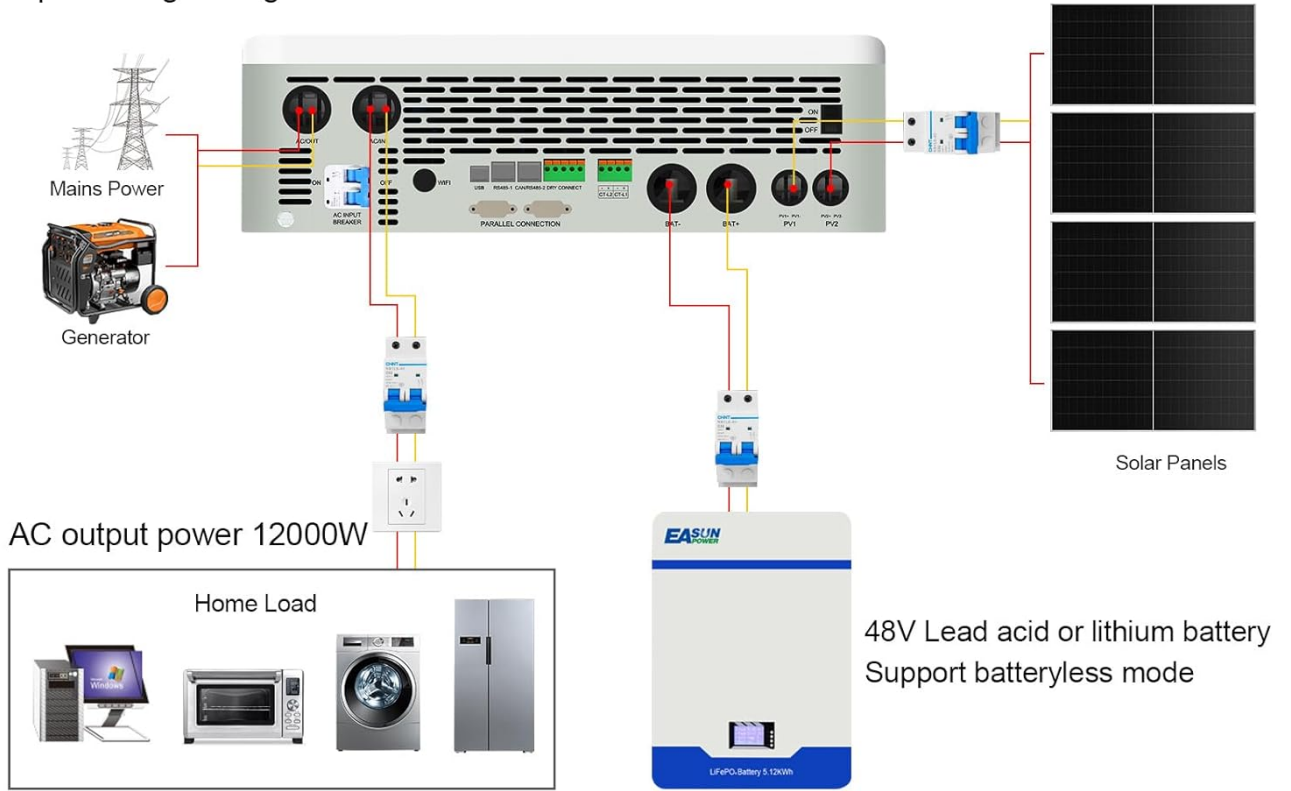


Image 4.1: Standard connection diagram for the inverter, showing solar panels, battery, and home load connections.

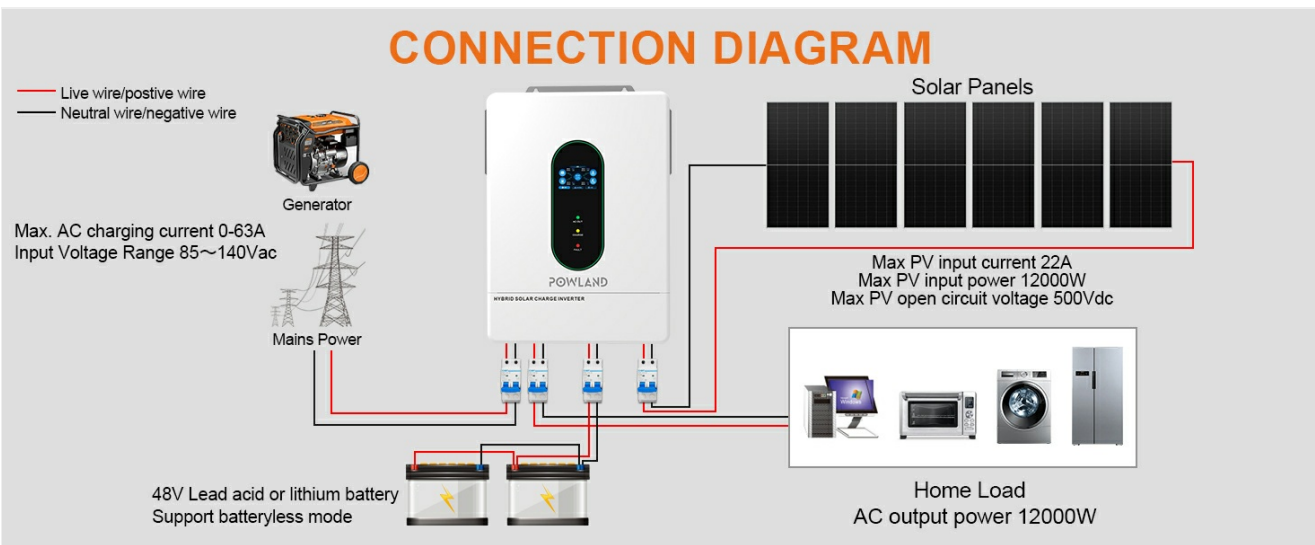


Image 4.2: Alternative connection diagram including generator and mains power input.

4.2. Parallel Operation

For higher power requirements, up to 6 units of the inverter can be connected in parallel, achieving a total output of up to

72,000W. This is facilitated by proprietary phase synchronization technology.

- 2 inverters in single phase: Up to 24,000W output.
- 3 inverters in single phase: Up to 36,000W output.
- 6 inverters in single phase: Up to 72,000W output.

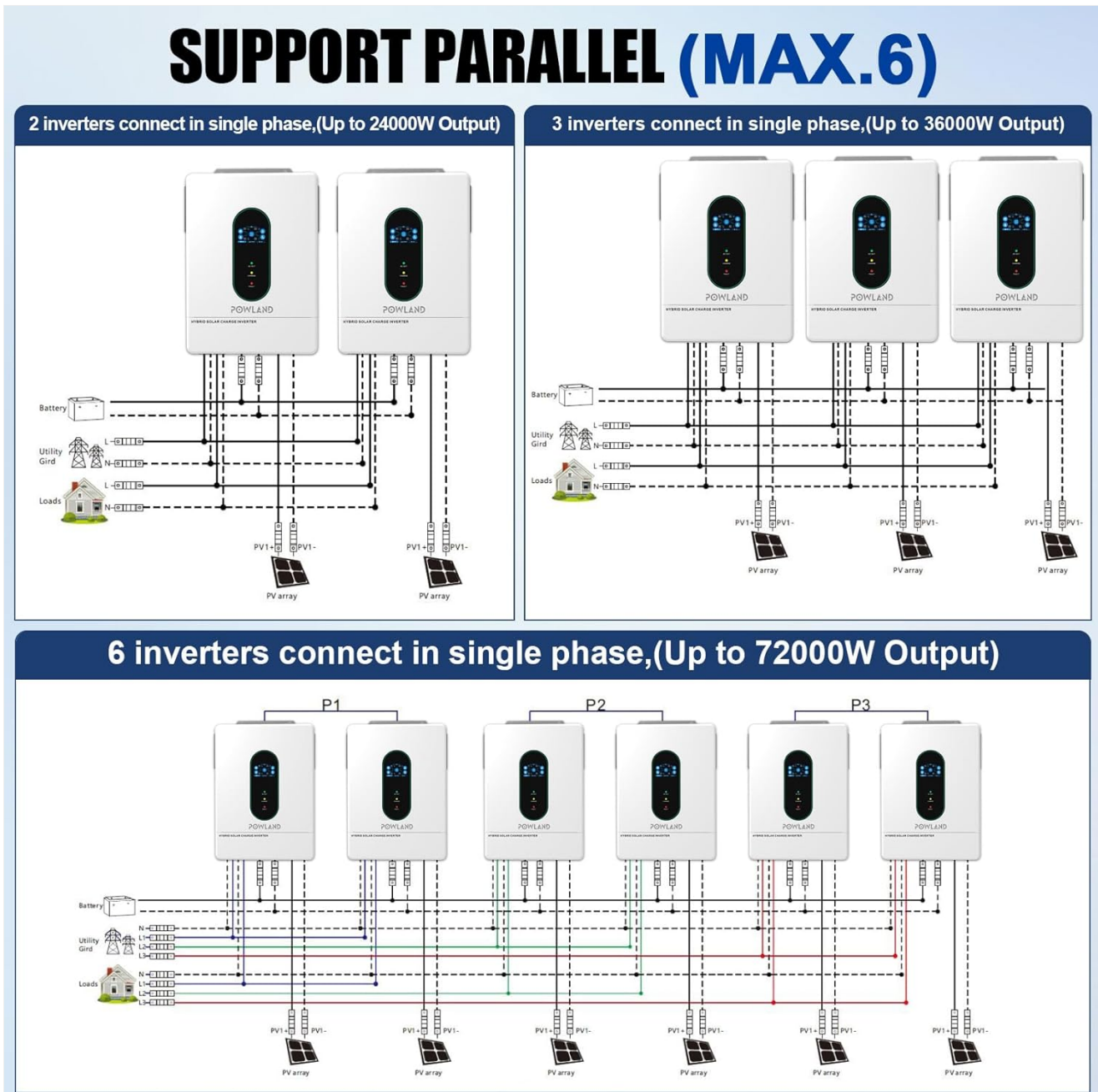


Image 4.3: Parallel connection diagrams for multiple inverters.

5. OPERATING INSTRUCTIONS

Once installed, the inverter is ready for operation. The LCD display provides all necessary information for monitoring and adjusting settings.

5.1. Battery Compatibility and ECO Mode

The inverter offers universal compatibility with various battery types, including lead-acid and lithium batteries. It also supports a battery-free mode for direct PV-to-AC conversion.

- **Supported Battery Types:** SLD, FLD, AGM, GEL, LI (Lithium).

- **Battery-less Mode:** Allows the inverter to operate directly from solar input without a battery.
- **Smart ECO Mode:** Extends battery life by optimizing charge and discharge cycles.
- **Lithium Battery Activation:** Features an activation function for dormant lithium batteries, triggered by utility or photovoltaic access.

COMPATIBLE WITH MULTIPLE BATTERY TYPES

Lithium Batteries Activation, Works with **48V** battery system



- ✓ Support Batteryless Mode
- ✓ Activation function when the battery is dormant
- ✓ Utility/Photovoltaic access triggers battery activation

Image 5.1: The inverter is compatible with multiple battery types.



Image 5.2: Visual representation of compatible battery types.

6. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your POWLAND Solar Hybrid Inverter.

- **Cleaning:** Periodically clean the exterior of the inverter, especially the ventilation openings, to prevent dust buildup. Use a dry, soft cloth. Do not use liquid cleaners.
- **Inspection:** Regularly inspect all cables and connections for any signs of wear, damage, or loose connections. Ensure all terminals are tight.
- **Ventilation:** Ensure the area around the inverter remains clear and unobstructed to allow for proper airflow and cooling by the dual intelligent fans.
- **Battery Check:** If using batteries, follow the manufacturer's maintenance guidelines for your specific battery type.

7. TROUBLESHOOTING

If you encounter issues with your inverter, refer to the following general troubleshooting steps. For complex problems, contact technical support.

- **No Power Output:** Check all input power sources (solar, battery, utility) and ensure they are connected and supplying power. Verify circuit breakers are not tripped.
- **Inverter Overheating:** Ensure the inverter's ventilation openings are not blocked and that there is sufficient clearance around the unit for airflow. Reduce load if necessary.
- **Error Codes on LCD:** Consult the full product manual for a list of specific error codes and their corresponding solutions.
- **Battery Not Charging:** Check solar panel connections and output. Verify battery settings on the inverter match your battery type.

8. SPECIFICATIONS

Key technical specifications for the POWLAND 12000W Solar Hybrid Inverter:

Feature	Specification
Output Power	12000 Watts
Input Voltage	48 Volts (DC)
Output Voltage	120V-240V AC (Pure Sine Wave)
MPPT Charge Controller	Built-in 200A
Max. PV Array Input	12000W, 500Vdc, 22A
AC Charging Current	0-63A
AC Input Voltage Range	85~140Vac
Frequency	50Hz/60Hz (Auto Sensing)
Battery Compatibility	48V LiFePO4/Lead Acid (Supports battery-less mode)
Parallel Capability	Up to 6 units (72,000W total)
Item Weight	60.9 pounds
Dimensions	30 x 23 x 9 inches (Package)
IP Rating	IP65-rated casing

Image 8.1: Key specifications of the POWLAND 12000W 48V Solar Inverter.

9. TECHNICAL SUPPORT

For any questions regarding the product, installation, operation, or troubleshooting, please contact our technical support team. Our engineers are available to assist you with any issues.

- **Contact Information:** Refer to the product packaging or the official POWLAND website for the most current technical support contact details.
- **Returns:** This product is eligible for 30-day easy returns.

