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PowMr POW-LVM3K-24V

PowMr 3000W Solar Inverter User Manual

Model: POW-LVM3K-24V

1. Product Overview

The PowMr 3000W Solar Inverter (Model: POW-LVM3K-24V) is a pure sine wave inverter designed to convert 24V DC power to 110V/120V AC. It features a built-in 80A MPPT charge controller and supports a maximum PV input of 4000W at 450V and 13A. This all-in-one solar inverter is compatible with both 24V lead-acid and lithium batteries, offering versatile power solutions for home and office applications. It integrates inverter output and bypass output functions, ensuring reliable power supply.

Key Features:

- **3000W Pure Sine Wave Inverter:** Converts 24V DC to 120V/110V AC, suitable for sensitive electronics.
- **Integrated 80A MPPT Charge Controller:** Maximizes solar power harvesting with a wide PV input range of 120V to 450V and up to 4000W input power.
- **Battery Compatibility:** Designed for 24V Lead-Acid (sealed, AGM, Gel, Flooded) and Lithium batteries, including a built-in lithium battery activation function.
- **Multiple Charging Modes:** Offers four charging modes: PV priority, Utility Priority, Hybrid Charging, and Only Solar Charging.
- **Dual Output Modes:** Supports Inverter and Mains output modes to meet diverse application requirements.
- **User-Friendly Interface:** Equipped with an LCD display and three LED indicators for dynamic system data and operating status.
- **Advanced Protection:** Includes comprehensive protections such as short circuit, over-voltage, under-voltage, overload, and reverse protection to ensure system safety and stability.
- **Efficient Cooling:** Features an intelligent variable speed fan for effective heat dissipation, extending system life.



Figure 1: Front view of the PowMr 3000W Solar Inverter, showing the LCD display and control buttons.

2. Unboxing and Package Contents

Upon opening the package, you will find the following items:

- 1 x PowMr 3000W Solar Inverter Device (Model: POW-LVM3K-24V)
- 1 x Set of Screw Accessories for installation
- 2 x Terminals for electrical connections
- 1 x User Manual for detailed instructions
- 1 x Warranty Card
- 1 x Installation Guide Card

Your browser does not support the video tag.

Video 1: Unboxing the PowMr 3000W Solar Inverter. This video demonstrates the contents of the package, including the inverter unit, accessories, and documentation.



①	AC input port	⑥	Dry contact port	⑪	ON/OFF rocker switch
②	AC output port	⑦	Grounding screw hole	⑫	PV port
③	CAN communication port	⑧	Overload protector	⑬	Touch the key lightly
④	USB communication port	⑨	Battery port	⑭	LED Indicator
⑤	RS485 communication port	⑩	Cooling fan	⑮	LCD screen

Figure 2: Detailed view of the inverter's ports and components, including AC input/output, communication ports, battery port, and cooling fans.

3. Setup and Installation

Proper installation is crucial for the safe and efficient operation of your PowMr solar inverter. Always ensure the inverter is turned OFF before making any connections.

3.1 Site Selection:

- Install the inverter in a well-ventilated area, away from direct sunlight, heat sources, and flammable materials.
- Ensure the mounting surface is sturdy enough to support the inverter's weight (approximately 17.6 pounds).
- Maintain adequate clearance around the unit for proper airflow and cooling.

3.2 Wiring Connections:

Refer to the wiring diagram below for correct connections. It is highly recommended that installation be performed by a qualified electrician.

- **Battery Connection:** Connect the 24V battery bank (Lead-Acid or Lithium) to the designated battery terminals. Ensure correct polarity. The recommended battery capacity is 200AH.
- **PV Input Connection:** Connect your solar panels to the PV input terminals. The inverter requires a minimum PV starting voltage greater than 150V. The maximum open circuit voltage is 450V. At least 4-6 solar panels are typically needed to initiate operation, depending on their individual open circuit voltage.
- **AC Input Connection:** Connect the utility grid or generator to the AC input port.
- **AC Output Connection:** Connect your AC loads (e.g., refrigerators, lamps, televisions, fans) to the AC output port.
- **Grounding:** Always connect the protective earth (PE) conductor to the grounding screw hole.

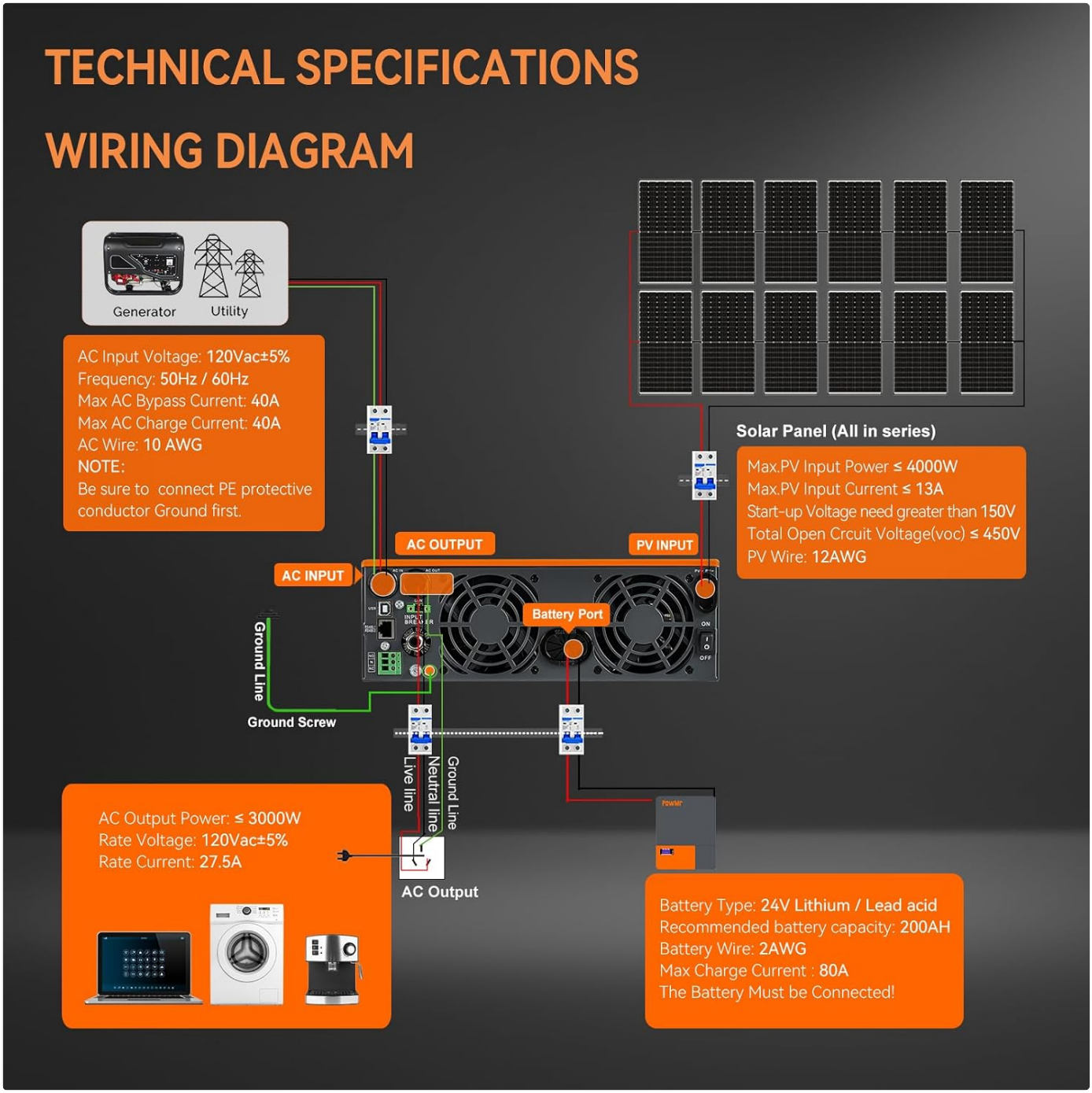


Figure 3: Technical specifications and wiring diagram. This diagram illustrates how to connect solar panels, batteries, and AC loads to the inverter.

4. Operating Modes

The PowMr 3000W Solar Inverter offers flexible operating modes to optimize power usage based on your needs.

4.1 Charging Modes:

You can configure the inverter to prioritize different power sources for battery charging:

- **PV Priority:** Solar power is the primary source for charging. Utility/generator power is used only when solar power is insufficient.
- **Utility Priority:** Utility/generator power is the primary source for charging. Solar power is used only when utility/generator power is unavailable.
- **Hybrid Charging:** Combines solar and utility/generator power for charging, optimizing efficiency.

- **Only Solar Charging:** Only solar power is used for charging the batteries.

4.2 Output Modes:

The inverter supports two main output modes for supplying power to your loads:

- **Inverter Mode:** Power is supplied from the battery bank (converted by the inverter).
- **Mains Mode (Bypass):** Power is supplied directly from the utility grid or generator, bypassing the inverter.

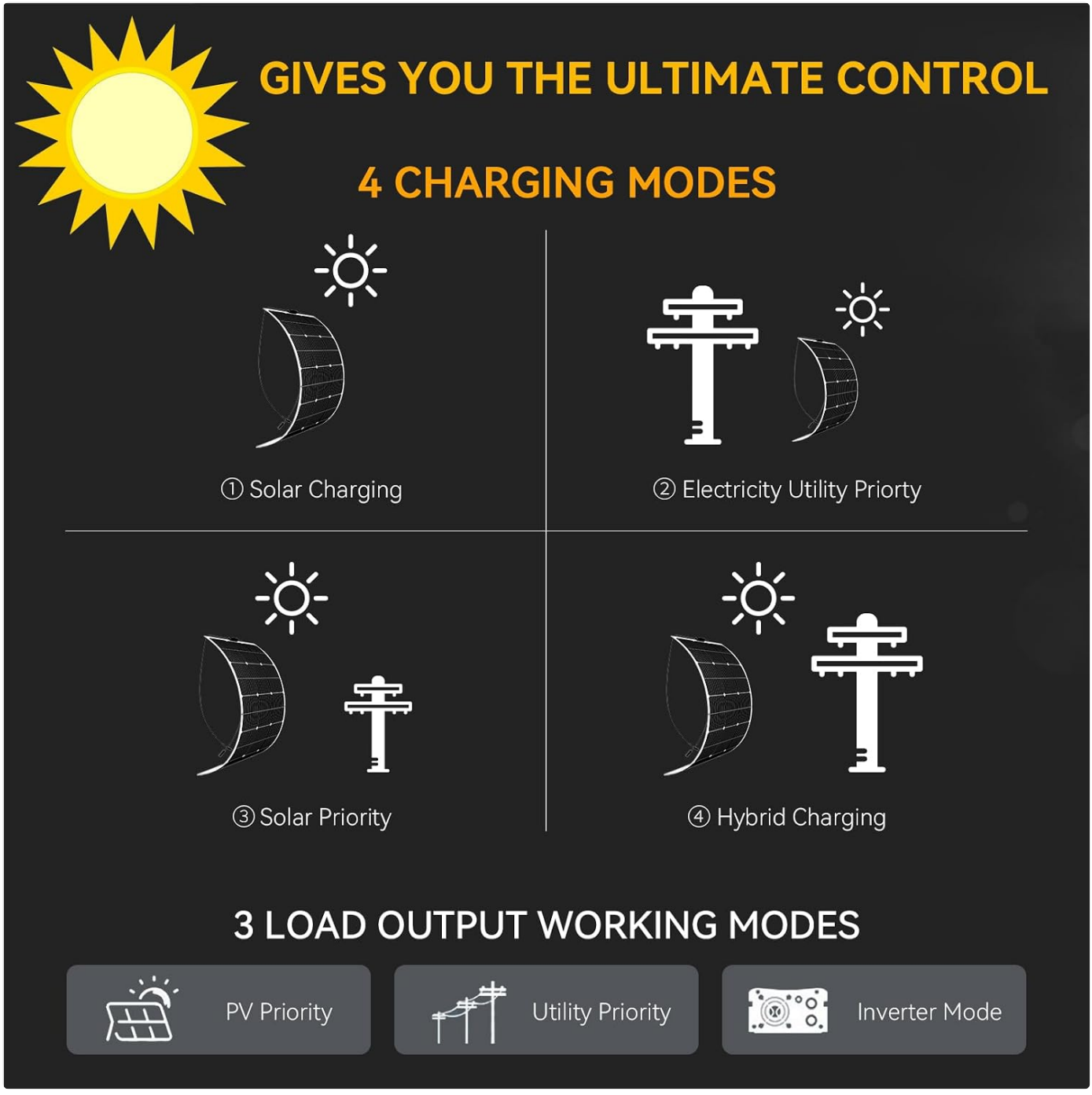


Figure 4: Overview of the four charging modes and three load output working modes, providing visual guidance for system configuration.

5. Maintenance

Regular maintenance ensures the longevity and optimal performance of your PowMr solar inverter.

- **Cleaning:** Periodically clean the exterior of the inverter and ensure ventilation openings are free from dust and debris. The intelligent variable speed fan helps manage internal temperatures.

- **Connection Checks:** Regularly inspect all electrical connections (PV, battery, AC input/output) for tightness and signs of corrosion. Loose connections can lead to overheating and system malfunction.
- **Battery Health:** Monitor your battery bank's health according to the battery manufacturer's guidelines. Ensure proper charging and discharging cycles.
- **Environmental Conditions:** Ensure the operating environment remains within the specified temperature and humidity ranges to prevent damage.

6. Troubleshooting

The PowMr solar inverter is equipped with multiple protection functions to safeguard the system. If an issue arises, the LCD display and LED indicators will provide diagnostic information.

Common Protections and Indicators:

- **Short Circuit Protection:** The system will automatically shut down to prevent damage from short circuits.
- **Over Voltage and Under Voltage Protection:** Protects the inverter and connected devices from voltage fluctuations outside safe operating limits.
- **Overload Protection:** Prevents damage when the connected load exceeds the inverter's capacity.
- **Reverse Protection:** Safeguards against incorrect battery polarity connections.
- **Lithium Battery Activation:** The built-in function helps activate dormant lithium batteries.

For specific error codes and detailed troubleshooting steps, please refer to the "Troubleshooting" section in the comprehensive User Manual provided with your product.

7. Technical Specifications

Specification	Value
Product Dimensions	14 x 11 x 4.7 inches
Item Weight	17.6 pounds
Item Model Number	POW-LVM3K-24V
Brand	PowMr
Recommended Uses	Office, Home
Power Source	Solar Powered
Wattage	3000 watts
Max. PV Input Power	4000W
Max. PV Input Voltage	450V
Starting PV Voltage	>150V
Max. Charging Current (MPPT)	80A

Specification	Value
Output Voltage	110V/120Vac Pure Sine Wave
Battery Voltage	24V
Country of Origin	China

8. Warranty and Support

Your PowMr 3000W Solar Inverter comes with a warranty. Please refer to the Warranty Card included in your package for specific terms and conditions, including coverage duration and claims procedures.
For technical support, troubleshooting assistance, or warranty claims, please contact PowMr customer service directly. Contact information can typically be found on the manufacturer's official website or on the warranty card.
Note: Protection plans may be available for purchase separately to extend coverage beyond the standard manufacturer's warranty.

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