PowMr LVM3.6-110V-24V

PowMr 3600W Solar Inverter User Manual

Model: LVM3.6-110V-24V
Brand: PowMr

1. Introduction

This manual provides essential information for the safe and efficient operation of your PowMr 3600W Solar Inverter. This pure sine wave power hybrid inverter is designed for 24V systems, providing 110V AC output, and features a built-in 120A MPPT charge controller. It is suitable for use with 24V lead-acid and lithium batteries.
Please read this manual thoroughly before installation and operation to ensure proper use and to prevent damage to the unit or injury.

2. Safety Information

WARNING: ELECTRIC SHOCK HAZARD. HIGH VOLTAGE.

- Installation and wiring must be performed by qualified personnel in accordance with all local and national electrical codes.
- Do not attempt to disassemble or repair the inverter. There are no user-serviceable parts inside. Refer all servicing to qualified service personnel.
- Ensure all connections are secure and properly insulated to prevent short circuits.
- Do not operate the inverter in wet conditions or in environments with flammable gases or liquids.
- Always disconnect all power sources (PV, battery, AC input) before performing any maintenance or wiring.
- Ensure proper ventilation around the inverter to prevent overheating.

3. Product Features

- **3600W Pure Sine Wave Output:** Provides stable 110V AC pure sine wave power, suitable for sensitive electronics.
- **Integrated 120A MPPT Charge Controller:** Maximizes power harvest from solar panels.
- **Advanced SPWM Technology:** Ensures stable power supply with full digital voltage and current dual closed-loop control.
- **Flexible Charging Modes:** Supports Solar Priority, Solar and Utility Hybrid, and Solar Only charging modes.

- **Versatile Load Output Modes:** Offers Utility Priority, Solar Priority, and Solar and SBU Priority for diverse application needs.
- **Real-time LED Display:** Shows system information and operating status, allowing for adjustable settings such as input voltage range, battery charging current, and AC/solar charging priorities.
- **Battery Compatibility:** Compatible with 24V lead-acid (sealed, AGM, Gel, Flooded) and lithium batteries. Lithium battery activation via PV solar or utility is supported.
- **Wide Application:** Powers various home and office appliances, including motor-type appliances like tube lights, fans, refrigerators, and air conditioners.

4. Product Overview and Connections

The PowMr 3600W Solar Inverter features a robust design with clearly labeled connection points for easy installation.



Image: PowMr 3600W Solar Inverter. The image displays the top-front view of the inverter, highlighting the digital display panel on the top surface and various connection terminals on the rear panel. Key connections visible include AC In, Main Out, Second Out, Battery terminals (+/-), and PV In terminals (+/-). The unit is dark grey with an orange accent strip and logo. A caution label regarding electric shock is visible near the AC connections.

Connection Points:

- **AC IN (L, N):** For connecting to the utility grid or an AC generator.
- **MAIN OUT (L, N):** Primary AC output for connecting to your loads.
- **SECOND OUT (L, N):** Secondary AC output (if applicable, refer to specific model features).
- **BATTERY (+, -):** For connecting to your 24V battery bank.
- **PV IN (+, -):** For connecting to your solar panel array.
- **BMS (RS 485):** Battery Management System communication port.

- **WIFI (RS 232):** Communication port for Wi-Fi module or other serial communication.

5. Setup and Installation

Proper installation is crucial for the safe and efficient operation of the inverter. Always follow safety guidelines.

5.1 Mounting

- Mount the inverter vertically on a solid surface, ensuring adequate clearance for ventilation.
- Choose a location that is dry, well-ventilated, and protected from direct sunlight, rain, and dust.
- Maintain at least 20 cm (8 inches) clearance around the inverter for proper airflow.

5.2 Wiring Connections

Before making any connections, ensure the inverter's power switch is OFF and all external power sources are disconnected.

1. **Battery Connection:** Connect the 24V battery bank to the BATTERY terminals (+ and -). Ensure correct polarity. Use appropriate gauge cables for the current draw.
2. **PV Array Connection:** Connect your solar panel array to the PV IN terminals (+ and -). The maximum PV input is 4200W, 500V (VOC), 18A. It is recommended that all solar panels be connected in series for optimal performance, with a PV starting voltage greater than 60V.
3. **AC Input Connection:** Connect the utility grid or AC generator to the AC IN terminals (L and N).
4. **AC Output Connection:** Connect your AC loads to the MAIN OUT terminals (L and N). If applicable, connect secondary loads to SECOND OUT.
5. **Grounding:** Ensure the inverter is properly grounded according to local electrical codes.

After all connections are made, double-check wiring for correctness and security before powering on the system.

6. Operating Modes

The inverter offers various configurable settings via its LED display to optimize performance based on your energy needs.

6.1 Battery Charging Modes

- **Solar Priority:** Solar power is prioritized for charging the battery. Utility power is used only if solar power is insufficient.
- **Solar and Utility Hybrid:** Both solar and utility power are used to charge the battery, with solar typically taking precedence.
- **Solar Only:** Only solar power is used to charge the battery. Utility power is not used for charging.

6.2 Load Output Modes

- **Utility Priority:** AC loads are primarily powered by the utility grid. The inverter switches to battery/solar power only when the utility is unavailable.
- **Solar Priority:** AC loads are primarily powered by solar energy. If solar is insufficient, battery power is used. Utility power is used as a last resort.
- **Solar and SBU Priority (Solar-Battery-Utility):** AC loads are first powered by solar, then by battery, and finally by utility power if both solar and battery are insufficient.

6.3 LED Display and Settings

The integrated LED display provides real-time system information and allows users to adjust various parameters. Use the navigation buttons (ESC, UP, DOWN, ENTER) to navigate menus and modify settings. Refer to the detailed settings section in the full product manual for specific parameter adjustments, including input voltage range for appliances, battery charging current, and AC/solar charging priorities.

7. Technical Specifications

Specification	Value
Model Name	LVM3.6-110V-24V
Rated Power	3600W
DC Voltage	24 Volts (DC)
AC Output Voltage	110V AC (Pure Sine Wave)
Frequency	60 Hz
Max. PV Input Power	4200W
Max. PV Input Voltage (VOC)	500V
Max. PV Input Current	18A
Max. PV Output Current (Charger)	120A
Max. Charger Current (AC + PV)	120A
PV Starting Voltage	>60V
Item Weight	21.6 pounds
Package Dimensions	19.69 x 16.46 x 7.24 inches
Power Source	Solar and Battery Powered

8. Maintenance

Regular maintenance helps ensure the longevity and optimal performance of your solar inverter.

- **Cleaning:** Periodically clean the exterior of the inverter with a dry cloth. Ensure ventilation openings are free from dust and debris. Do not use liquid cleaners.
- **Connection Check:** Annually inspect all electrical connections (PV, battery, AC input/output) for tightness and signs of corrosion. Loose connections can cause overheating and damage.
- **Environmental Check:** Ensure the installation environment remains dry, well-ventilated, and within the specified operating temperature range.
- **Battery Health:** Monitor battery voltage and health as recommended by your battery manufacturer.

9. Troubleshooting

If you encounter issues with your inverter, refer to the LED display for error codes and system status. Common issues can often be resolved by checking connections and power sources.

- **No Power/Display Off:** Check battery connections, battery voltage, and the inverter's power switch. Ensure AC input is present if configured for utility priority.
- **No AC Output:** Check AC output connections, ensure the inverter is not in fault mode, and verify battery voltage is sufficient.
- **Low PV Charging:** Verify solar panel connections, ensure panels are clean and not shaded, and check PV input voltage on the display.
- **Overload Warning:** Reduce the connected load. The inverter may temporarily shut down to protect itself from damage.

For persistent issues or complex problems, contact PowMr customer support or a qualified technician.

10. Warranty and Support

This PowMr Solar Inverter is manufactured by PowMr. For warranty information, technical support, or service inquiries, please refer to the warranty card included with your product or contact the seller/manufacturer directly through their official channels.
When contacting support, please have your product model number (LVM3.6-110V-24V) and purchase details readily available.

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Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

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