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PowMr LVM3.6-110V-24V

PowMr 3600W Solar Inverter User Manual

Model: LVM3.6-110V-24V

1. Introduction

This user manual provides essential information for the safe and efficient operation of your PowMr 3600W Solar Inverter. This pure sine wave hybrid inverter is designed for 24V systems, providing 110V AC output, and features a built-in 120A MPPT charge controller. It integrates advanced SPWM technology for stable power supply and supports various battery types and operating modes. Please read this manual thoroughly before installation and use.

2. Safety Instructions

WARNING: Failure to follow these safety instructions may result in serious injury or death.

- Installation must be performed by qualified personnel in accordance with all local and national electrical codes.
- Ensure the inverter is disconnected from all power sources (PV, battery, utility) before performing any wiring or maintenance.
- Do not disassemble the inverter. There are no user-serviceable parts inside.
- Avoid exposing the inverter to rain, snow, spray, or any liquids.
- Install the inverter in a well-ventilated area, away from flammable materials and explosive gases.
- Ensure proper grounding of the inverter.
- Use appropriate overcurrent protection devices for all circuits connected to the inverter.
- Wear appropriate personal protective equipment (PPE) during installation and maintenance.

3. Product Overview and Features

The PowMr 3600W Solar Inverter is a compact and robust unit designed for off-grid solar power systems. Its intuitive design allows for easy integration and monitoring.



Figure 3.1: Top and rear view of the PowMr 3600W Solar Inverter. The image displays the orange and dark grey casing, the digital LED display panel with control buttons (ESC, UP, DOWN, ENTER), and various connection terminals on the rear. These include AC In, Main Out, Second Out, BMS, WiFi, PV In (solar panel input), and Battery terminals. A yellow caution label is visible near the AC input.

Key Features:

- **High Power Output:** 3600W pure sine wave inverter, converting 24V DC to 110V AC.
- **Integrated MPPT Charge Controller:** Built-in 120A MPPT controller for efficient solar charging.
- **High PV Input Capability:** Supports a maximum PV input of 4200W, 500V (VOC), and 18A.
- **Advanced Control Technology:** Utilizes full digital voltage and current dual closed-loop control with SPWM technology for stable and reliable power.
- **Flexible Charging Modes:** Offers Solar Priority, Solar and Utility Hybrid, and Solar Only battery charging modes.
- **Versatile Load Output Modes:** Provides Utility Priority, Solar Priority, and Solar and SBU Priority load output modes.
- **Informative LED Display:** Real-time system information and operating status display, allowing user configuration of various parameters.
- **Broad Battery Compatibility:** Compatible with 24V lead-acid (sealed, AGM, Gel, Flooded) and lithium batteries.
- **Appliance Compatibility:** Capable of powering various home and office appliances, including motor-type appliances.
- **Lithium Battery Activation:** Lithium batteries can be activated via PV solar input or utility power.

4. Setup and Installation

4.1 Unpacking and Inspection

Before installation, carefully unpack the inverter and inspect it for any damage that may have occurred during transit. Ensure all

components are present.

- Check for physical damage to the inverter casing, display, and terminals.
- Verify that the model number matches your order.
- Retain the packaging materials for future transport or service.

4.2 Mounting the Inverter

Select a suitable mounting location that is:

- Indoors, protected from direct sunlight, rain, and moisture.
- Well-ventilated to allow for heat dissipation.
- On a solid surface capable of supporting the inverter's weight (approximately 21.6 pounds).
- Accessible for wiring and maintenance.
- Away from flammable materials and corrosive substances.

Mount the inverter vertically to ensure proper airflow through the cooling fins.

4.3 Wiring Connections

IMPORTANT: All wiring must be performed with the inverter completely disconnected from all power sources. Use appropriate wire gauges and circuit breakers as per local electrical codes and the inverter's specifications.

4.3.1 PV Input Connection

Connect your solar panel array to the PV input terminals. Ensure the total PV input voltage (VOC) does not exceed 500V and the maximum current is within 18A. It is recommended that all solar panels be connected in series to achieve a PV starting voltage greater than 60V for optimal operation.

- Connect the positive (+) terminal of the PV array to the PV+ terminal on the inverter.
- Connect the negative (-) terminal of the PV array to the PV- terminal on the inverter.
- Ensure polarity is correct to prevent damage.

4.3.2 Battery Connection

Connect your 24V battery bank to the battery terminals. The inverter supports lead-acid (sealed, AGM, Gel, Flooded) and lithium batteries.

- Connect the positive (+) terminal of the battery bank to the BATTERY+ terminal on the inverter.
- Connect the negative (-) terminal of the battery bank to the BATTERY- terminal on the inverter.
- Ensure tight and secure connections to prevent arcing.

4.3.3 AC Input Connection (Utility/Generator)

Connect the utility grid or a generator to the AC IN terminals. This input is used for battery charging and/or bypassing power to loads, depending on the configured operating mode.

- Connect the Line (L) wire from the AC source to the AC IN L terminal.
- Connect the Neutral (N) wire from the AC source to the AC IN N terminal.
- Connect the Ground wire to the ground terminal.

4.3.4 AC Output Connection (Loads)

Connect your AC loads to the MAIN OUT and/or SECOND OUT terminals. The inverter provides 110V AC pure sine wave output.

- For MAIN OUT: Connect the Line (L) wire of your load to the MAIN OUT L terminal, and the Neutral (N) wire to the MAIN OUT N terminal.
- For SECOND OUT: Connect the Line (L) wire of your load to the SECOND OUT L terminal, and the Neutral (N) wire to

the SECOND OUT N terminal.
- Ensure proper grounding for all connected loads.

5. Operating Modes

The PowMr inverter offers flexible operating modes to optimize power usage based on your preferences and available power sources.

5.1 Battery Charging Modes

These modes determine the priority of power sources for charging the battery bank:

- **Solar Priority:** Solar power is the primary source for charging. Utility power is used only if solar power is insufficient or unavailable.
- **Solar and Utility Hybrid:** Both solar and utility power are used simultaneously to charge the battery, prioritizing solar when available.
- **Solar Only:** Only solar power is used to charge the battery. Utility power will not be used for charging.

5.2 Load Output Modes

These modes determine the priority of power sources for supplying power to your connected AC loads:

- **Utility Priority:** Utility power is the primary source for loads. If utility power fails, the inverter switches to battery power.
- **Solar Priority:** Solar power is the primary source for loads. If solar power is insufficient, battery power is used. Utility power is only used as a last resort or for charging.
- **Solar and SBU Priority (Solar-Battery-Utility):** Solar power is prioritized first. If solar is insufficient, battery power is used. If both solar and battery are insufficient, utility power is used.

6. LED Display and Configuration

The inverter features an LED display that provides real-time system information and allows for configuration of various operational parameters. The display shows status indicators, input/output voltages, currents, and power levels.
Use the control buttons (ESC, UP, DOWN, ENTER) located below the display to navigate through menus and adjust settings.
Refer to the on-screen prompts for specific parameter adjustments, including:

- Input voltage range for appliances and computers.
- Battery charging current.
- AC and solar charging priorities.
- Battery type selection (Lead-Acid: Sealed, AGM, Gel, Flooded; Lithium).

Note: Specific menu navigation and parameter codes are detailed in the full product manual provided with the inverter.

7. Maintenance

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

- **Cleaning:** Periodically clean the exterior of the inverter with a dry cloth. Ensure ventilation openings are free from dust and debris.
- **Connections:** Annually check all electrical connections (PV, battery, AC input/output) for tightness and signs of corrosion.
- **Environment:** Ensure the installation environment remains within specified temperature and humidity ranges.
- **Battery Health:** Monitor battery voltage and health according to battery manufacturer guidelines.

- **Performance Monitoring:** Regularly check the LED display for any error codes or abnormal operating parameters.

CAUTION: Disconnect all power sources before performing any maintenance or cleaning.

8. Troubleshooting

This section provides solutions to common issues you might encounter. For problems not listed here, please contact customer support.

Problem	Possible Cause	Solution
Inverter not turning on	No battery connection; Battery voltage too low; Power switch off.	Check battery connections; Charge battery; Turn on power switch.
No AC output	Overload; Short circuit; Inverter in fault mode; AC output breaker tripped.	Reduce load; Check for short circuits; Reset inverter; Check/reset AC breaker.
PV charging not active	Insufficient PV voltage; PV array disconnected; MPPT controller fault.	Check PV voltage (must be >60V); Verify PV connections; Contact support if fault persists.
Battery not charging	Charging mode setting incorrect; AC input not present (if AC charging enabled); Battery fault.	Adjust charging mode; Check AC input; Inspect battery health.
Inverter making unusual noise	Overload; Fan obstruction; Internal component issue.	Reduce load; Clear fan vents; Contact customer support.

9. Technical Specifications

Parameter	Value
Model Name	LVM3.6-110V-24V
Rated Power	3600W
DC Voltage	24 Volts (DC)
AC Output Voltage	110Vac
AC Output Frequency	60 Hz
Waveform	Pure Sine Wave
Max. PV Input Power	4200W
Max. PV Input Voltage (VOC)	500V
Max. PV Input Current	18A
MPPT Charge Controller Current	120A
Max. Charger Current (AC + PV)	120A
PV Starting Voltage	>60V

Parameter	Value
Dimensions (L x W x H)	19.69 x 16.46 x 7.24 inches
Item Weight	21.6 pounds
Power Source	Solar and Battery Powered

10. Warranty and Support

PowMr products are designed and manufactured to the highest quality standards. For information regarding warranty coverage, please refer to the warranty card included with your product or visit the official PowMr website.
For technical support, troubleshooting assistance, or service inquiries, please contact PowMr customer support through their official channels. When contacting support, please have your product model number (LVM3.6-110V-24V) and purchase information readily available.
You can visit the PowMr Store on Amazon for more information: PowMr Amazon Store

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