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PowMr POW-LVM3.6M-24V

PowMr 3600W Solar Inverter (Model POW-LVM3.6M-24V) User Manual

1. Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of your PowMr 3600W Solar Inverter. This device is a pure sine wave power inverter designed to convert 24V DC power from batteries into 110V AC power for various applications. It integrates a 120A MPPT solar charge controller and an 80A AC charger, offering a comprehensive solution for off-grid and hybrid solar power systems. Please read this manual thoroughly before installation and operation to ensure safe and efficient use.



Figure 1: Front view of the PowMr 3600W Solar Inverter, showing the display and control buttons.

2. Safety Instructions

Adherence to safety precautions is critical during all stages of installation, operation, and maintenance of this inverter. Failure to follow these instructions may result in electric shock, fire, or severe injury.

- **Qualified Personnel:** Installation and wiring must be performed by qualified personnel familiar with electrical systems and safety standards.
- **Disconnect Power:** Always disconnect all power sources (solar panels, batteries, AC grid) before performing any maintenance or wiring.
- **Ventilation:** Ensure adequate ventilation around the inverter to prevent overheating. Do not block ventilation openings.

- **Environment:** Install the inverter in a dry, cool, and well-ventilated area, away from flammable materials, corrosive gases, and excessive dust.
- **Grounding:** The inverter must be properly grounded according to local electrical codes.
- **Battery Safety:** Work with batteries carefully. Wear eye protection and appropriate clothing. Avoid short-circuiting battery terminals.
- **High Voltage:** The inverter operates with high voltages. Do not open the unit or attempt repairs unless specifically instructed by the manufacturer.

3. Product Overview and Features

The PowMr 3600W Solar Inverter is a versatile unit designed for efficient power conversion and management in solar energy systems. Key features include:

- **Pure Sine Wave Output:** Provides stable 110V AC power suitable for sensitive electronics.
- **Integrated MPPT Controller:** Features a 120A Maximum Power Point Tracking (MPPT) solar charge controller for optimized solar energy harvesting.
- **AC Charger:** Includes an 80A AC charger for charging batteries from the utility grid or a generator.
- **High PV Input:** Supports a maximum PV input power of 4200W with an open circuit voltage up to 500Vdc.
- **Battery Compatibility:** Compatible with 24V AGM, Gel, Lead-acid, Lithium-ion, and LiFePO4 batteries. Also supports batteryless operation.
- **LCD Display:** An intuitive LED display provides real-time system information and allows for configurable settings.
- **Multiple Protection Features:** Includes short circuit, over voltage, under voltage, overload, reverse polarity, over-temperature, and over charge protection.
- **Communication Ports:** Equipped with RS485 and RS232 communication interfaces.



Figure 2: Overview of the inverter's off-grid hybrid capabilities, including 24V DC to 110V AC conversion, 120A MPPT controller, 4200W max PV input, battery compatibility, and support for solar, utility, or generator charging. Dimensions are also shown.



Figure 3: Illustration of the inverter's comprehensive protection mechanisms, including short circuit, over current, over voltage, under voltage, overload, backfill, over-temperature, and over charge protection.

4. Setup and Installation

Proper installation is crucial for the safe and efficient operation of the inverter. It is strongly recommended that installation be performed by a certified electrician or qualified solar technician.

4.1 Mounting the Inverter

- Choose a vertical mounting surface that can support the inverter's weight (approximately 22.9 lbs).
- Ensure sufficient clearance around the inverter for proper airflow and heat dissipation.
- Mount the inverter in an area protected from direct sunlight, rain, and excessive humidity.

4.2 Wiring Connections

All wiring must comply with local and national electrical codes. Use appropriate wire gauges for all connections.

1. **Battery Connection:** Connect the 24V battery bank to the inverter's battery terminals. Ensure correct polarity (positive to positive, negative to negative). The inverter supports various 24V battery types including GEL, FLD, Li-ion, and user-defined settings.
2. **PV Array Connection:** Connect the solar panel array to the PV input terminals. Verify that the PV open circuit voltage and current are within the inverter's specifications (Max PV input 4200W, 500Vdc).
3. **AC Input Connection:** Connect the utility grid or generator AC power source to the AC input terminals.
4. **AC Output Connection:** Connect your AC loads to the AC output terminals.
5. **Grounding:** Connect the inverter's ground terminal to a reliable earth ground.



Figure 4: Depiction of the inverter's 120A fast charge capability, illustrating connections to a 24V battery bank and compatibility with GEL, FLD, Li-ion, and user-defined battery types.

5. Operating Instructions

Once installed, the inverter can be configured and operated via its integrated LCD display and control buttons.

5.1 Initial Power-Up

1. Ensure all wiring connections are secure and correct.
2. Turn on the battery breaker.
3. Turn on the PV array breaker (if applicable).
4. Turn on the AC input breaker (if applicable).
5. The inverter will power on, and the LCD display will illuminate.

5.2 LCD Display and Settings

The LCD display provides real-time operational data and allows users to customize various parameters. Use the 'ESC', 'UP', 'DOWN', and 'ENTER' buttons to navigate and adjust settings.

- **Input Voltage Range:** Adjust the acceptable AC input voltage range for home appliances or personal computers.
- **Battery Charging Current:** Set the maximum battery charging current based on your battery specifications.
- **AC/Solar Charger Priority:** Configure the priority for AC or solar charging.



Figure 5: Close-up view of the inverter's LCD display and control buttons, highlighting configurable settings such as AC/Solar charger priority, battery charging current, and input voltage range.

5.3 Charging Modes

The inverter supports three distinct battery charging modes:

- **Solar Only:** Batteries are charged exclusively by solar power.
- **Mains Only:** Batteries are charged exclusively by the AC utility grid or generator.
- **Mains & Solar Hybrid:** Batteries are charged by a combination of solar and AC power, prioritizing solar when available.

5.4 Load Output Modes

The inverter offers three load output working modes to manage power distribution to your appliances:

- **Utility Priority:** AC loads are primarily powered by the utility grid. Solar power charges batteries.
- **Solar Priority:** AC loads are primarily powered by solar energy. If solar is insufficient, power is drawn from batteries.
- **Solar and SBU Priority:** AC loads are primarily powered by solar. If solar is insufficient, power is drawn from batteries. If both solar and battery power are insufficient, the utility grid provides power.

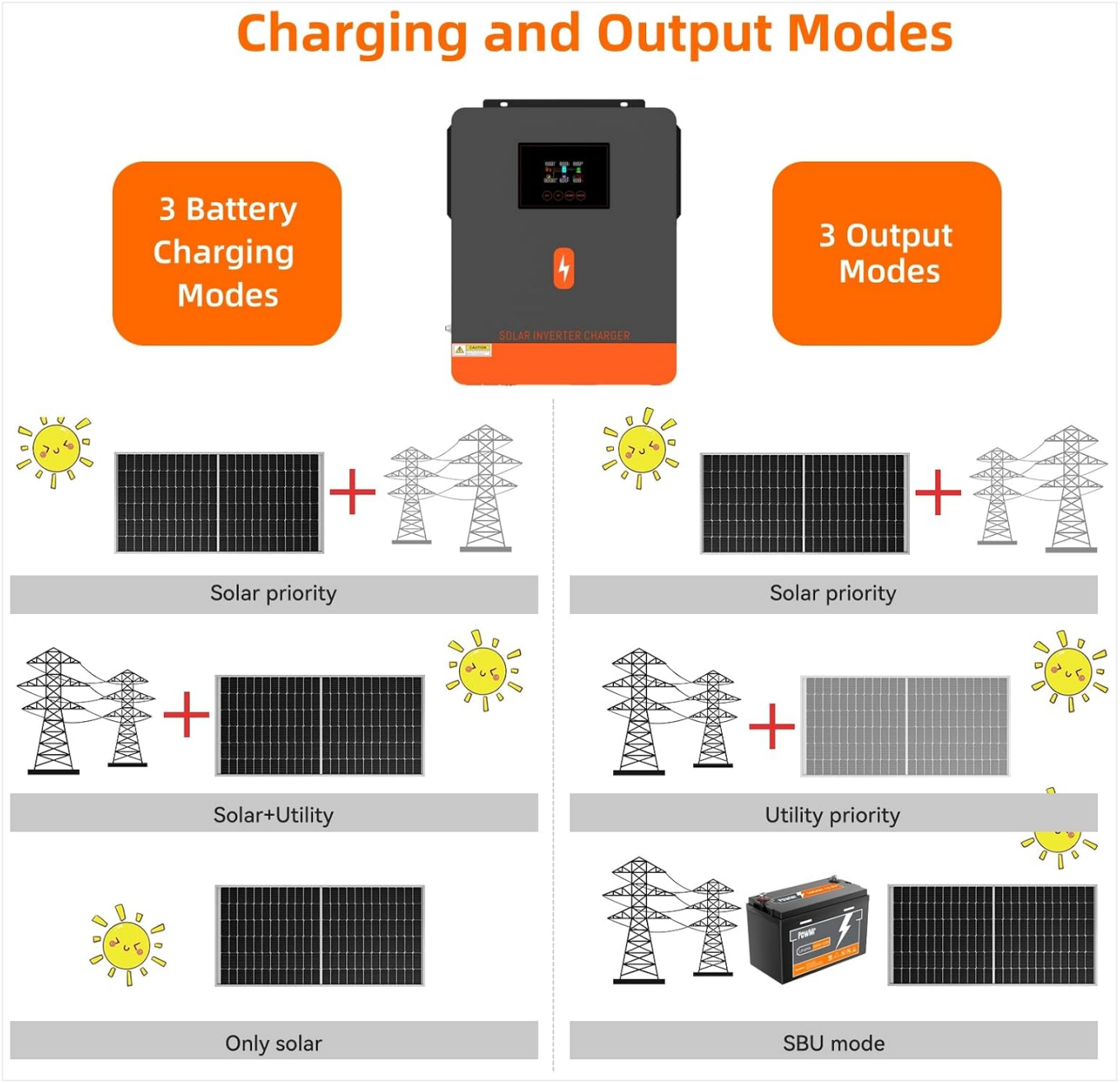


Figure 6: Visual representation of the three battery charging modes (Solar priority, Solar+Utility, Only solar) and three load output modes (Solar priority, Utility priority, SBU mode).

6. 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 to remove dust. The inverter features a dust-proof design, but external cleaning is still beneficial. Ensure ventilation openings are clear.
- **Connection Checks:** Annually inspect all electrical connections (battery, PV, AC input/output) for tightness and signs of corrosion. Tighten any loose connections.
- **Fan Inspection:** Check the dual cooling fans for any obstructions or unusual noises. Ensure they are operating correctly to dissipate heat efficiently.
- **Battery Maintenance:** Follow the battery manufacturer's guidelines for maintenance. This may include checking electrolyte levels (for flooded batteries) and terminal cleaning.
- **Environmental Check:** Regularly verify that the installation environment remains within recommended temperature and humidity ranges.

7. Troubleshooting

This section provides guidance for common issues. For problems not listed here or if issues persist, contact PowMr customer support.

Problem	Possible Cause	Solution
Inverter does not power on	No battery connection, low battery voltage, faulty wiring.	Check battery connections and voltage. Ensure battery breaker is on.
No AC output	Overload, short circuit, inverter fault, AC output breaker off.	Reduce load. Check for short circuits. Verify AC output breaker is on. Check LCD for error codes.
Batteries not charging from PV	PV input voltage too low/high, PV array disconnected, MPPT fault.	Check PV connections and voltage. Ensure PV breaker is on. Verify PV input parameters on LCD.
Batteries not charging from AC	AC input disconnected, AC input voltage out of range, AC charger fault.	Check AC input connections and voltage. Ensure AC input breaker is on.
Over-temperature warning	Insufficient ventilation, blocked fans, excessive ambient temperature.	Ensure clear airflow around the inverter. Clean fan vents. Reduce ambient temperature if possible.

For specific error codes displayed on the LCD, refer to the detailed error code section in the complete product manual (if available) or contact PowMr technical support.

8. Specifications

Technical specifications for the PowMr 3600W Solar Inverter (Model POW-LVM3.6M-24V):

- **Model Name:** POW-LVM3.6M-24V
- **Rated Output Power:** 3.6kW (3600W) Pure Sine Wave
- **DC Input Voltage:** 24V DC
- **AC Output Voltage:** 110V AC
- **Maximum PV Open Circuit Voltage:** 500Vdc
- **PV Array MPPT Voltage Range:** 60-500Vdc
- **Maximum PV Input Power:** 4200W, 18A
- **Rated Grid Input Voltage:** 110/120Vac
- **Maximum Hybrid Charging Current (AC charger + PV charger):** 120A
- **AC Charger Current:** 80A
- **Communication:** RS485, RS232
- **Dimensions (Package):** 19.69 x 16.93 x 7.64 inches (approximate unit size)
- **Item Weight:** 22.9 pounds
- **Recommended Uses:** Home, Office, Vehicle
- **Power Source:** Solar and Battery Powered

9. Warranty and Support

For warranty information, please refer to the documentation provided with your purchase or contact PowMr directly. If you encounter any issues or require technical assistance, please reach out to PowMr customer support. Ensure you have your product model number (POW-LVM3.6M-24V) and purchase details available when contacting support.

Ask a question about this manual

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

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Question

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.

Submit question

Answered questions about this manual

How do I factory reset the PowMr 3600W Solar Inverter (Model POW-LVM3.6M-24V)?

The provided manual for the PowMr 3600W Solar Inverter (Model POW-LVM3.6M-24V) does not contain specific instructions for performing a factory reset. It details setup, operation, maintenance, and troubleshooting, including how to adjust settings via...

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