PowMr PS-3K-110V

PowMr 2400W Solar Inverter User Manual

Model: PS-3K-110V | Brand: PowMr

1. Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of your PowMr 2400W Solar Inverter. This pure sine wave inverter converts 24V DC to 110V/120V AC and includes a 50A PWM charge controller, designed for off-grid systems in homes, RVs, and other applications. Please read this manual thoroughly before installation and use to ensure safe and optimal performance.



Figure 1: Front view of the PowMr 2400W Solar Inverter.

2. Safety Information

Always observe the following safety precautions to reduce the risk of electric shock, fire, or injury:

- Ensure all wiring is performed by qualified personnel.
- Do not disassemble the inverter. There are no user-serviceable parts inside.
- Install the inverter in a well-ventilated area, away from flammable materials.
- Ensure proper grounding of the unit.
- Disconnect all power sources (AC, DC, PV) before performing any maintenance or wiring.

- The inverter offers comprehensive protection functions including short circuit, over-voltage, under-voltage, overload, and reverse polarity protection. However, proper installation is crucial.



Figure 2: Inverter multi-protection features including short circuit, over/under voltage, overload, and reverse polarity.

3. Product Features

- 2400W pure sine wave inverter converts 24V DC to 110V/120V AC.
- Integrated 50A PWM charge controller.
- Advanced SPWM technology and dual closed-loop control for up to 95% charging efficiency.
- Pure sine wave output ensures high safety for connected electrical systems.
- Four selectable charging modes: solar, utility priority, solar priority, and utility hybrid charging.
- Three selectable output modes: PV priority, utility priority, and inverter priority.
- 360° comprehensive protection: short circuit, over-voltage, under-voltage, overload, and reverse polarity protection.
- Compatible with 24V lead-acid batteries (sealed, AGM, Gel, Flooded).

4. Components and Interface

Familiarize yourself with the various components and connection points of the inverter:



Figure 3: Front panel and rear connection interface of the inverter.

1. LCD display
2. Status Indicator
3. Charging Indicator
4. Fault Indicator
5. Function buttons (ESC, UP, DOWN, ENTER)
6. Circuit breaker
7. AC input
8. Dry connect
9. PV input
10. ON/OFF switch
11. AC output
12. RS232 Communication port
13. DC input/Battery input

5. Setup and Installation

Before installation, ensure you have all necessary components as listed in the "What's in the Box" section. Professional installation is recommended for electrical systems.

5.1 Mounting

Mount the inverter vertically on a sturdy surface in a well-ventilated area, away from direct sunlight, heat sources, and moisture. Ensure sufficient clearance around the unit for proper airflow.

5.2 Battery Connection

The inverter is compatible with 24V Lead-Acid (sealed, AGM, Gel, Flooded) batteries. Connect the battery bank to the DC input/Battery input terminals (13) on the inverter. Observe correct polarity (+ to + and - to -). The recommended battery capacity is 100/200Ah.



Figure 4: Compatible battery types: Flooded, AGM, Gel, and Sealed Lead Acid Batteries.

5.3 PV Array Connection

Connect your solar panels to the PV input terminals (9). Ensure the PV array open circuit voltage does not exceed 80VDC. The maximum PV input current (PWM) is 50A.

5.4 AC Input/Output Connection

Connect the utility grid to the AC input terminals (7) and your household loads to the AC output terminals (11). Ensure all connections are secure and properly insulated. The inverter is suitable for single-phase 110V-120V AC output systems.

6. Operating Instructions

6.1 Powering On/Off

To power on the inverter, ensure all connections are correct, then switch the ON/OFF switch (10) to the 'ON' position. To

power off, switch to 'OFF' and disconnect all power sources.

6.2 LCD Display and Function Buttons

The LCD display (1) shows real-time operating status and parameters. Use the function buttons (5) (ESC, UP, DOWN, ENTER) to navigate menus and adjust settings.

6.3 Charging Modes

The inverter offers four selectable charging modes:

- **Solar Priority:** Solar power is the primary charging source. Utility power is used only when solar power is insufficient.
- **Utility Priority:** Utility power is the primary charging source. Solar power is used only when utility power is unavailable.
- **Solar and Utility:** Both solar and utility power are used simultaneously to charge the battery.
- **Only Solar:** Only solar power is used to charge the battery.

6.4 Output Modes

Users can choose from three output modes for load power supply:

- **PV Priority:** Solar power is the primary source for loads. If solar power is insufficient, utility power or battery power (depending on settings) will be used.
- **Utility Priority:** Utility power is the primary source for loads. If utility power is unavailable, the inverter switches to battery power.
- **Inverter Priority (SBU First):** Battery power is the primary source for loads. When battery voltage is low, it switches to utility power.



Figure 5: Visual representation of the four charging modes and three load output working modes.

7. Maintenance

Regular maintenance ensures the longevity and optimal performance of your inverter:

- Keep the inverter clean and free from dust. Use a dry cloth for cleaning.
- Ensure ventilation openings are not blocked to prevent overheating.
- Periodically check all wiring connections for tightness and signs of corrosion.
- Monitor the LCD display for any fault indicators.

8. Troubleshooting

If the inverter is not functioning as expected, refer to the following general troubleshooting steps:

- **No Power:** Check the ON/OFF switch, circuit breaker (6), and all power connections (AC, DC, PV). Ensure batteries are charged.
- **Fault Indicator (4) On:** Refer to the inverter's specific fault codes (if available in the product's full manual) or contact customer support. Common faults include overload, over-voltage, or short circuit.
- **No AC Output:** Check AC output connections (11) and ensure the inverter is in an appropriate output mode. Verify battery charge level.
- **Battery Not Charging:** Check PV input connections (9) and solar panel performance. Verify utility input (7) if using utility charging. Check charging mode settings.

For persistent issues, please contact PowMr customer support.

9. Specifications

Parameter	Value
Model Name	PS-3K-110V
Rated Output Power	2400W
Output Voltage	110Vac±10%
Output Waveform	Pure Sine Wave
Max. PV Array Open Circuit Voltage	80VDC
Max Solar Charge Current	50A (PWM)
Battery Voltage	24VDC
Compatible Battery Types	Lead-Acid (Sealed, AGM, Gel, Flooded)
Item Weight	15 pounds
Package Dimensions	17.01 x 13.82 x 7.6 inches



Figure 6: Key specifications including dimensions, power rating, and charge current.

10. Applications

The PowMr 2400W Solar Inverter is versatile and can be used in various settings:

- **Home Use:** Powering essential appliances like tube lights, fans, refrigerators, and air conditioners.
- **RV/Vehicle:** Providing off-grid power for recreational vehicles.
- **Office Settings:** Ensuring continuous power for office equipment.
- **Camping:** A reliable power source for outdoor activities.
- **Solar Power Systems:** Integral part of small to medium off-grid solar installations.



Figure 7: Examples of inverter applications in RVs, homes, and camping setups.

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Video 1: An overview of the PowMr 2400W Solar Inverter, showcasing its design and features.

11. What's in the Box

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

- PowMr 2400W Solar Inverter unit
- Integrated charge controller
- Mounting hardware
- User manual (this document)

12. Warranty and Support

For warranty information, technical support, or service inquiries, please contact PowMr directly. You can find more information and contact details on the official PowMr store page:

Visit the PowMr Store on Amazon

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