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PowMr POW-HVM2KW-12V

PowMr 2000W Solar Inverter User Manual

Model: POW-HVM2KW-12V

1. Introduction

This manual provides essential information for the safe and efficient operation of your PowMr 2000W Solar Pure Sine Wave Inverter. Please read this manual thoroughly before installation and use, and keep it for future reference.

2. Safety Instructions

WARNING: Failure to follow these instructions may result in serious injury or death, and damage to the inverter or other equipment.

- Ensure all connections are secure and correct before powering on the unit.
- Do not disassemble the inverter. Refer all servicing to qualified personnel.
- Install the inverter in a well-ventilated area, away from flammable materials.
- This inverter is designed for indoor use. Avoid exposure to water or excessive humidity.
- Always disconnect power before performing any maintenance or cleaning.
- Use appropriate personal protective equipment (PPE) during installation and maintenance.

3. Product Features

The PowMr 2000W Solar Inverter is an all-in-one power inverter designed for reliable and efficient energy conversion. Key features include:

- **2000W Pure Sine Wave Output:** Provides stable and clean power suitable for sensitive electronics.
- **12VDC to 230VAC Conversion:** Converts 12V DC battery power to 230V AC household power.
- **Built-in 60A MPPT Controller:** Maximizes power harvest from solar panels.
- **Wide PV Input Voltage Range:** Supports 30V to 150V DC from solar arrays.
- **Battery Compatibility:** Compatible with 12V lead-acid (flooded, AGM, sealed, gel) and lithium batteries (LiFePO4, user mode).
- **Multiple Charging Modes:** Supports Solar Only, Solar First, and Mains & Solar charging.
- **Versatile Output Modes:** Offers Solar First, Utility First, SBU Priority, and MKS Priority.

- **Comprehensive Protection:** Includes overload, over-temperature, short-circuit protection, and automatic restart.
- **Smart Cooling Fans:** Improves battery performance and reduces heat for increased longevity.
- **Cold Start Function:** Allows the inverter to start directly from batteries without AC input.

4. Package Contents

Upon unpacking, please verify that all items listed below are included and undamaged:

- 1x PowMr 2000W Hybrid Solar Inverter
- 1x User Manual

If any items are missing or damaged, please contact your dealer immediately.

5. Product Overview and Connections

Familiarize yourself with the inverter's components and connection points before installation.

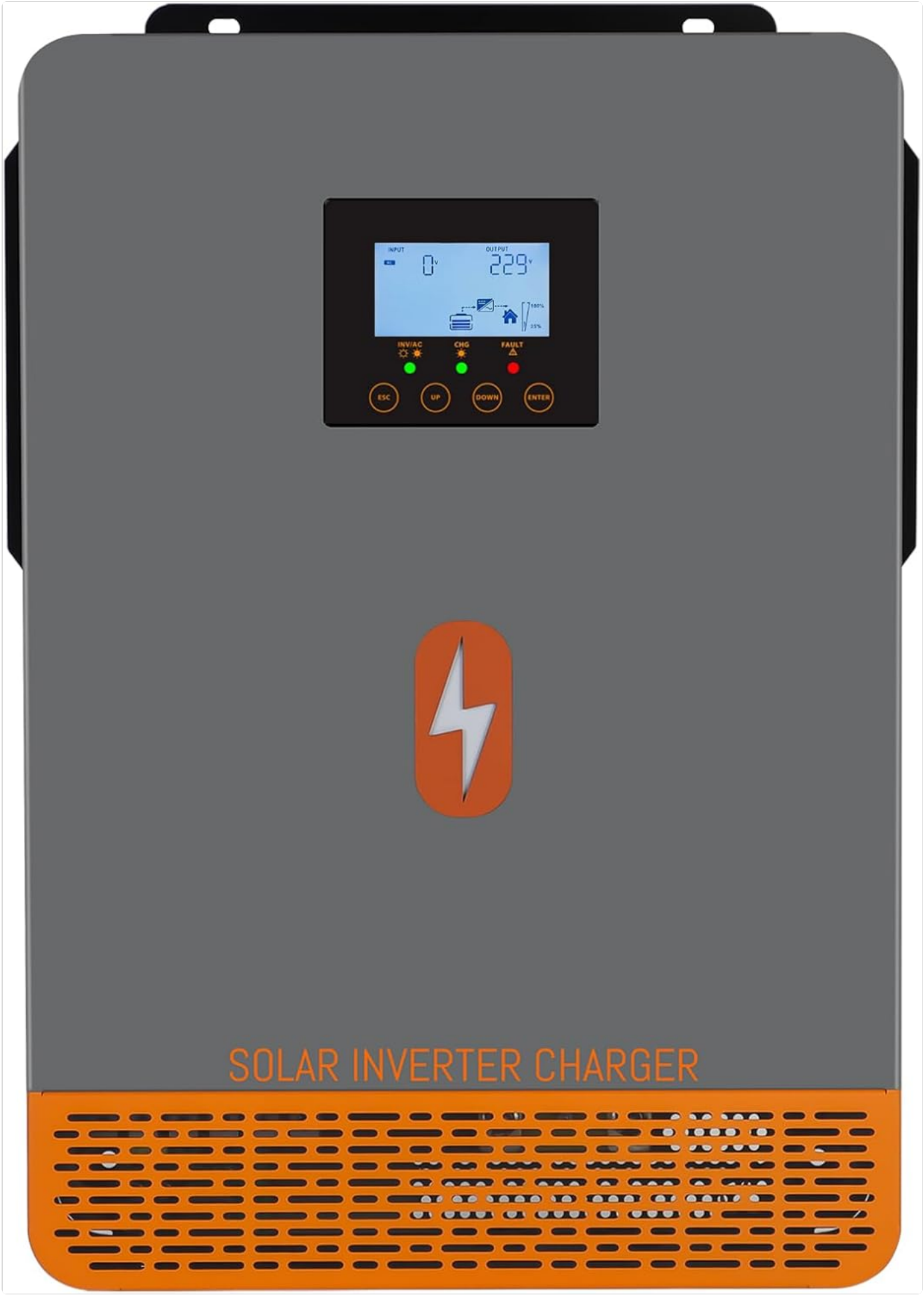


Figure 5.1: Front view of the PowMr 2000W Solar Inverter, showing the display screen, control buttons, and branding.



Figure 5.2: Rear and side view of the PowMr 2000W Solar Inverter, highlighting various connection ports for AC input/output, battery, and solar panels.

5.1. Connection Ports

- **AC Input:** Connects to grid power or generator.
- **AC Output:** Connects to household loads.
- **Battery Terminals:** Connects to 12V battery bank (positive and negative).
- **PV Input:** Connects to solar panel array.
- **Communication Port:** For monitoring and configuration (e.g., with SmartESS app).

6. Setup and Installation

Proper installation is crucial for the inverter's performance and safety. It is recommended that installation be performed by a qualified electrician.

6.1. Mounting the Inverter

- Choose a vertical, flat, and sturdy surface for mounting.
- Ensure adequate clearance around the inverter for ventilation (at least 20 cm on all sides).
- Mount the inverter in a dry, cool, and dust-free environment.

6.2. Wiring Connections

Follow the wiring diagram carefully. All wiring must comply with local electrical codes.

1. **Battery Connection:** Connect the battery cables to the inverter's battery terminals, ensuring correct polarity. Use appropriate cable gauge for the current.
2. **Solar Panel Connection:** Connect the solar panel array to the PV input terminals. Verify the open circuit voltage

(VOC) and maximum power point voltage (Vmp) are within the inverter's specifications (30-150Vdc VOC).

3. **AC Input Connection:** Connect the AC input from the grid or generator to the AC input terminals.
4. **AC Output Connection:** Connect your AC loads to the AC output terminals.
5. **Grounding:** Ensure the inverter is properly grounded to prevent electrical shock.



Figure 6.1: Connection diagram for the PowMr 2000W Solar Inverter, illustrating how to connect solar panels, batteries, and AC loads.



Figure 6.2: The PowMr 2000W Solar Inverter connected to a bank of batteries, demonstrating its compatibility with various battery types including AGM, GEL, FLD, LI, and SLD.

7. Operating Instructions

Once installed, the inverter can be configured and operated via its LCD display and buttons, or through a dedicated monitoring application.

7.1. Initial Power-Up

1. Ensure all connections are secure.
2. Turn on the battery breaker first.
3. Turn on the solar panel breaker (if applicable).
4. Turn on the AC input breaker (if applicable).
5. Press the power button on the inverter to turn it on.

7.2. LCD Display and Button Functions

The LCD display shows real-time system status and allows for parameter configuration.

- **ESC:** Exit menu or return to previous screen.
- **UP/DOWN:** Navigate through menu options or adjust values.
- **ENTER:** Confirm selection or enter a submenu.

7.3. Configuration Settings

The inverter offers various configurable parameters to optimize its operation for your specific setup. Refer to the detailed parameter list in the full manual for specific settings (e.g., battery type, charging current, output priority).
Key Settings:

- **Charging Mode (Parameter 01):** Select between Solar Only, Solar First, or Mains & Solar.
- **Output Priority (Parameter 02):** Choose between Solar First, Utility First, SBU Priority, or MKS Priority.
- **Battery Type (Parameter 05):** Configure for Flooded, AGM, Sealed Lead-Acid, Gel, LiFePO4, or User-defined.
- **Max Charging Current (Parameter 11):** Set the maximum charging current for the battery.

7.4. Monitoring via App

The inverter can be monitored and controlled remotely using the SmartESS app. This requires connecting the inverter to your Wi-Fi network via its communication port.
Note: Some users have reported challenges with app connectivity and data refresh rates. Ensure your inverter's firmware is up to date and follow the app's specific setup instructions.

8. Maintenance

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

- **Cleaning:** Periodically clean the inverter's exterior with a dry cloth. Ensure ventilation openings are free from dust and debris.
- **Connections:** Annually check all electrical connections for tightness and corrosion. Re-tighten if necessary.
- **Battery Inspection:** For lead-acid batteries, check electrolyte levels and terminal condition as per battery manufacturer guidelines.
- **Ventilation:** Ensure the installation area remains well-ventilated and free from obstructions.

9. Troubleshooting

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

Problem	Possible Cause	Solution
Inverter not turning on	No battery connection; Battery voltage too low; Power button not pressed.	Check battery connections; Charge battery; Press and hold power button.
No AC output	Overload; Short circuit; Battery low; AC output breaker tripped.	Reduce load; Check for short circuits; Charge battery; Reset breaker.
Solar panels not charging battery	PV input voltage too low/high; Incorrect PV connection; MPPT controller fault.	Check PV voltage (must be >30V); Verify PV polarity; Contact support if fault persists.

Problem	Possible Cause	Solution
Inverter making loud noise	Cooling fans operating under heavy load; Loose components.	Normal operation under load; Check for loose parts if noise is unusual.
App connectivity issues	Incorrect Wi-Fi setup; Server issues; Outdated app/firmware.	Reconfigure Wi-Fi; Check internet connection; Update app/firmware.

10. Specifications

Detailed technical specifications for the PowMr 2000W Solar Inverter (Model: POW-HVM2KW-12V).

Parameter	Value
Model	POW-HVM2KW-12V
Rated Power	2000W
Battery Voltage	12VDC
AC Output Voltage	230VAC
Waveform	Pure Sine Wave
MPPT Controller Current	60A
Max. PV Array Power	900W
Max. PV Open Circuit Voltage	30 ~ 150VDC
Max. AC Charging Current	80A
Max. (AC + Solar) Charging Current	140A
Dimensions (L x W x H)	49 x 37.5 x 19.4 cm (approx.)
Weight	7.6 kg (approx.)

11. Warranty and Support

PowMr products are designed for reliability and performance. For warranty information and technical support, please refer to the official PowMr website or contact your local dealer.
When contacting support, please have your product model number (POW-HVM2KW-12V) and purchase date available.
For further assistance, you may visit the PowMr Store on Amazon.

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