PowMr POW-Sunsmart 10KP

PowMr 10000W Hybrid Solar Inverter User Manual

Model: POW-Sunsmart 10KP | Brand: PowMr

1. Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of your PowMr 10000W Hybrid Solar Inverter. This advanced inverter is designed to efficiently convert 48V DC power from solar panels and batteries into 110V/240V AC split-phase or single-phase power for various applications. Please read this manual thoroughly before installation and use to ensure safe and optimal performance.

2. Safety Information

Adhering to safety precautions is paramount to prevent injury and damage to the equipment. Always follow these guidelines:

- Read all instructions carefully before installation and operation.
- Installation must be performed by qualified personnel in accordance with local electrical codes.
- Ensure all wiring complies with local and national electrical codes and standards.
- Do not disassemble the inverter. There are no user-serviceable parts inside. Refer servicing to qualified personnel.
- Disconnect all power sources (PV array, battery, utility grid) before performing any maintenance or wiring.
- Wear appropriate personal protective equipment (PPE), including insulated gloves and eye protection, during installation and maintenance.
- Avoid contact with live terminals. High voltages are present inside the inverter.
- Ensure proper grounding of the inverter.

3. Product Overview

The PowMr 10000W Hybrid Solar Inverter is a versatile power solution designed for off-grid and hybrid solar systems, featuring advanced MPPT technology and robust protection mechanisms.

3.1 Key Features

- **Upgraded Parallel Version:** Supports parallel operation for expanding capacity up to 60kW, with a maximum of 6 inverters in parallel.

- **Flexible Output:** Supports both split-phase (120V/240V) and single-phase (120V) pure sine wave output simultaneously.
- **High Power Output:** 10000W continuous rated output with a surge capacity of up to 20000W.
- **Efficient PV Input:** Maximum PV input power of 11KW (5500W per MPPT input) with a maximum PV input voltage of 500V DC.
- **Dual MPPT Controllers:** Features dual 100A MPPT controllers with 99.9% efficiency, ideal for high-power modules.
- **Multiple Operating Modes:** Offers four selectable battery charging modes and four AC output working modes to suit diverse application needs.
- **Battery Compatibility:** Works with 48V lead-acid batteries (Seal, AGM, Gel, Flooded) and lithium batteries. Supports batteryless operation.
- **Comprehensive Protection:** Includes safeguards against short circuit, over-current, over/under voltage, overload, and backfeed.
- **Communication Interfaces:** Equipped with CAN, USB, and RS485 interfaces for monitoring and parameter configuration.

3.2 Product Components and Interfaces



Front view of the PowMr 10000W Hybrid Solar Inverter, showcasing its sleek design and central LCD display.



Detailed diagram of the PowMr 10000W Hybrid Solar Inverter, labeling the LCD screen, LED indicators, touchable keys, ON/OFF rocker switch, PV inputs, battery inputs, dry contact, communication ports (CAN/RS485-2, RS485-1, USB-B), grounding screw, AC output, AC input, AC input breaker, and parallel communication port.

No.	Component	No.	Component
1	LCD screen	6	BAT INPUT (+)
2	LED Indicators	7	BAT INPUT (-)
3	Touchable key	8	Dry contact
4	ON/OFF Rocker Switch	9	CAN/RS485-2 port
5	PV INPUT (1/1)	10	RS485-1 port
		11	USB-B port
		12	Grounding Screw
		13	AC OUT (L+L+N)

No.	Component	No.	Component
		14	AC IN (L+L+N)
		15	AC INPUT breaker
		16	Parallel Communication Port

4. Setup and Installation

Proper installation is crucial for the safe and efficient operation of your solar inverter. Always consult a qualified electrician for installation to ensure compliance with all safety standards and local regulations.

4.1 Wiring Diagrams

The inverter supports both single-phase and split-phase configurations to accommodate various electrical system requirements.

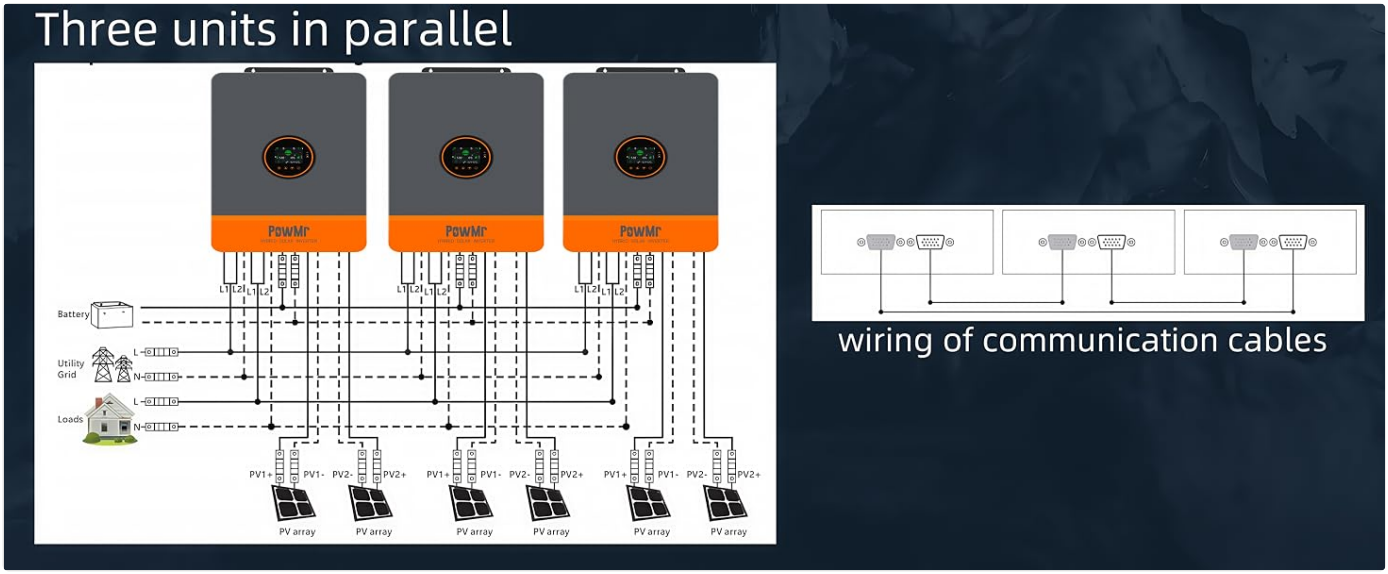
4.1.1 Split-Phase Mode (AC Output 120V/240V)



Wiring diagram illustrating a split-phase connection (120V/240V) for the PowMr 10000W Hybrid Solar Inverter, including PV input, AC input, battery, and inverter output connections to a household load. This configuration provides both 120V and 240V AC power.

In split-phase mode, the inverter provides 120V between L1 and Neutral, and L2 and Neutral, with 240V between L1 and L2. This is suitable for homes requiring both standard 120V and higher voltage 240V appliances.

4.1.2 Single-Phase Mode (AC Output 120V)



Wiring diagram illustrating a single-phase connection (120V) for the PowMr 10000W Hybrid Solar Inverter, including PV input, AC input, battery, and inverter output connections to a household load. This configuration provides 120V AC power.

In single-phase mode, the inverter provides 120V AC output, suitable for standard household appliances and lighting.

4.2 Parallel Operation

The PowMr 10000W Hybrid Solar Inverter supports parallel operation of up to 6 units to significantly expand system capacity and meet higher power demands.

4.2.1 Two Units in Parallel



Diagram showing the wiring for two PowMr inverters connected in parallel, including communication cable connections for synchronized operation.

4.2.2 Three Units in Parallel



Diagram showing the wiring for three PowMr inverters connected in parallel, including communication cable connections for synchronized operation.

4.2.3 Six Units in Parallel

Diagram showing the wiring for six PowMr inverters connected in parallel, including communication cable connections for synchronized operation, achieving maximum system capacity.

Professional guidance is required for actual connections in parallel configurations to ensure safety and optimal performance.

5. Operating Instructions

The PowMr Hybrid Solar Inverter offers flexible operating modes to optimize energy usage based on your preferences and available power sources.

5.1 Charging Modes

Select from four distinct battery charging modes to prioritize solar, utility, or a hybrid approach.

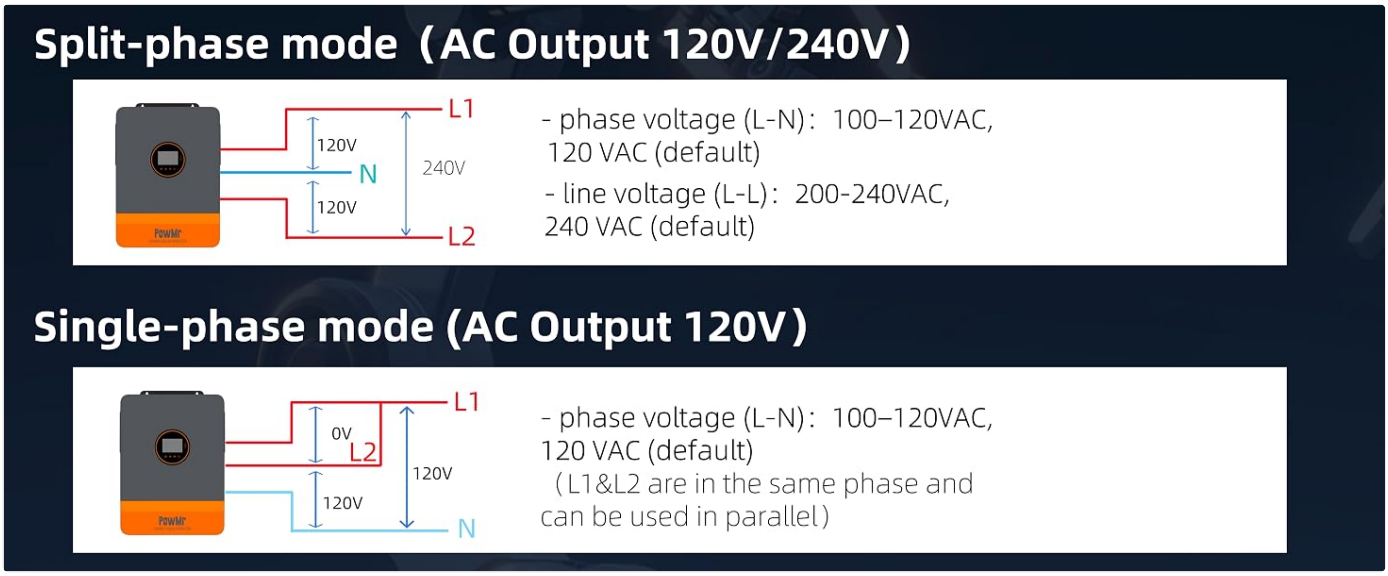


Illustration of the four selectable battery charging modes: Solar First, Mains First, Hybrid Charging, and Only Solar, showing their respective power flow priorities.

- **01 Solar First:** Priority is given to charging the battery by PV (photovoltaic) power. Mains charging will only be initiated if the PV power source fails or is insufficient.
- **02 Mains First:** Priority is given to charging the battery by Mains Power (utility grid). PV charging will only be initiated if the Mains power source fails.
- **03 Hybrid Charging:** This mode combines both PV and Mains Power for battery charging. PV power is prioritized, and Mains Power supplements the charging process when PV energy is insufficient.
- **04 Only Solar:** Only PV charging is initiated. No charging from the utility grid (Mains) will occur in this mode.

5.2 AC Output Modes

The inverter provides four AC output working modes to manage power delivery to your loads.

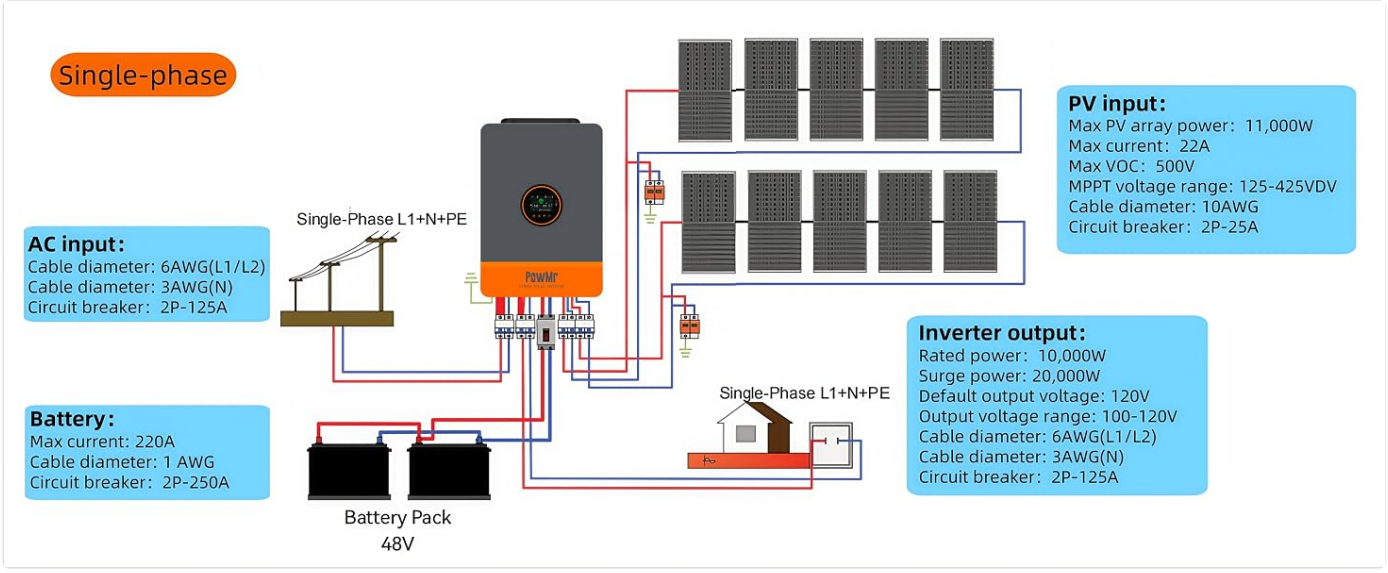
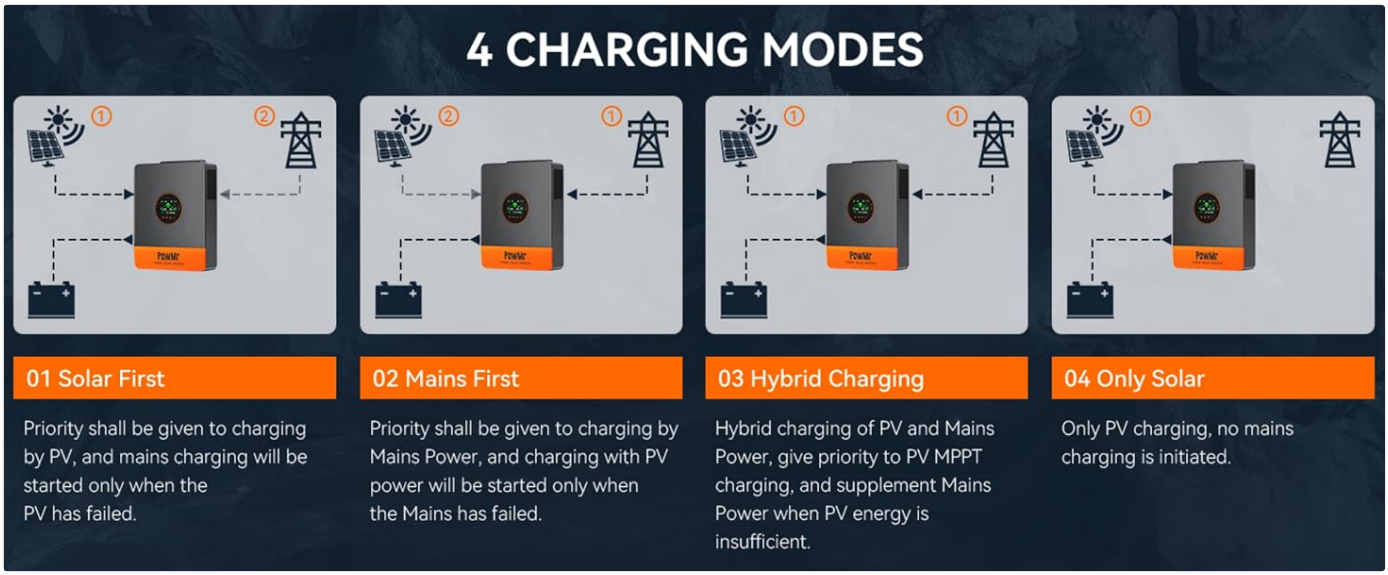


Illustration of the four selectable AC output working modes: PV Priority, Mains Priority, Inverter Priority, and Solar & Utility Hybrid, showing their respective power delivery priorities.

- **01 PV Priority:** This mode selects PV power as the primary source for loads, maximizing the use of solar energy. It is suitable for regions with relatively stable power grids.
- **02 Mains Priority:** The inverter supplies power from the utility grid (Mains) primarily. It switches to inverter power supply (from battery/PV) only when Mains power has failed, functioning as a backup UPS.
- **03 Inverter Priority:** This mode prioritizes power from the inverter (battery/PV) to supply loads, maximizing the use of stored DC energy. It is suitable for areas with stable power grids.
- **04 Solar & Utility Hybrid:** In a utility bypass state, if no battery is connected or the battery is full, the load power is supplied by both PV and the utility. Any surplus PV energy can be fed back to the grid if the grid connection function is enabled.

5.3 LCD Display and Communication

The inverter features an intuitive LCD HD display screen for real-time monitoring and configuration, along with multiple communication interfaces.



The LCD HD display screen provides real-time monitoring of photovoltaic system operating data, including voltage, current, power, and system status, allowing users to easily track performance.

The LCD display allows users to view critical system parameters and status. The inverter also includes CAN, USB, and RS485 interfaces for seamless connectivity to external devices, data acquisition modules, and for modifying device parameters.

6. Maintenance

Regular maintenance ensures the longevity and optimal performance of your PowMr Hybrid Solar Inverter. Perform the following checks periodically:

- **Visual Inspection:** Regularly inspect all wiring and connections for signs of wear, damage, or loose connections. Ensure all cables are securely fastened.
- **Ventilation:** Keep the inverter's ventilation openings clear of dust and debris to ensure proper airflow and cooling. Overheating can reduce efficiency and lifespan.
- **Battery Terminals:** Periodically check battery terminals for corrosion. Clean any corrosion with a wire brush and apply a protective coating if necessary.
- **System Monitoring:** Monitor the LCD display for any error codes or unusual readings. Address any warnings promptly.
- **Environment:** Ensure the environment around the inverter is clean, dry, and within the specified operating temperature and humidity ranges.
- **PV Panels:** Keep solar panels clean from dirt, dust, and debris to maximize energy harvest.

7. Troubleshooting

This section provides general guidance for common issues you might encounter. For complex problems or issues not listed here, please contact customer support.

- **No Power Output:**
  - Check the AC input breaker and ensure it is in the ON position.
  - Verify all battery connections are secure and the battery voltage is within the operating range.
  - Check PV input voltage and connections from the solar panels.
  - Ensure the inverter's main ON/OFF switch is in the ON position.
- **Low Power Output:**
  - Verify PV panel cleanliness and orientation towards the sun.
  - Check the battery charge level; a low battery can limit output.
  - Ensure the connected load does not exceed the inverter's continuous power rating.
- **Error Codes on LCD:**
  - Note down the specific error code displayed on the LCD.
  - Refer to the full product manual (if available) for a detailed explanation of error codes.
  - Contact PowMr customer support with the error code for assistance.
- **Overload Protection Triggered:**
  - Reduce the connected load by disconnecting some appliances.
  - The inverter will typically automatically restart after a cool-down period once the overload is removed.
- **Battery Not Charging:**
  - Check PV input connections and ensure solar panels are producing power.
  - Verify battery connections are correct and secure.
  - Ensure the selected charging mode (e.g., Solar First, Hybrid Charging) is appropriate for your setup.

8. Specifications

The following table outlines the key technical specifications for the PowMr 10000W Hybrid Solar Inverter:

Feature	Detail
Rated Output Power	10000W (continuous), 20000W (surge)
Rated Output Voltage	120/240Vac (split-phase/single-phase)
Max PV Input Power	11KW (5500W per MPPT input)
Max PV Input Voltage	500V DC
PV Starting Voltage	≥150V
MPPT Controller Current	Dual 100A
Battery Voltage	48V
Compatible Battery Types	Lead-acid (Seal, AGM, Gel, Flooded), Lithium

Feature	Detail
Parallel Capability	Up to 6 units (60kW total)
Communication Interfaces	CAN, USB, RS485
Product Dimensions	24.4 x 17.5 x 5.1 inches
Item Weight	57.2 pounds
Model Name	POW-SunSmart 10KP

9. Warranty and Support

PowMr products are designed for reliability and performance. For detailed warranty information, including terms, conditions, and registration, please refer to the official PowMr website or the warranty card included with your product.

For technical assistance, troubleshooting, or inquiries regarding spare parts, please contact PowMr customer support through their official channels. When contacting support, please have your product model number (POW-Sunsmart 10KP) and purchase information readily available.

You can also visit the official PowMr Store on Amazon for additional product information and support resources:Visit the PowMr Store on Amazon

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Question

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

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