PowMr SunSmart SP5.2K

PowMr 5200W Hybrid Solar Inverter User Manual

Model: SunSmart SP5.2K

1. Introduction

This manual provides essential information for the safe and efficient operation of your PowMr 5200W Hybrid Solar Inverter. Please read this manual thoroughly before installation and use, and keep it for future reference.
The PowMr 5200W Hybrid Solar Inverter is a versatile power solution designed for various applications, including residential homes, cabins, campers, RVs, trailers, and boats. It integrates a 5200W DC 48V hybrid solar inverter with a 100A MPPT solar charge controller. It supports single-phase, split-phase, and three-phase 120/208V/240Vac output, with the capability to connect up to 6 inverters in parallel for increased power output (up to 10400W in split phase with two inverters). The inverter can operate with or without a battery and features intelligent power-saving modes and flexible charging/discharging options based on electricity tariffs.



Figure 1: Front view of the PowMr 5200W Hybrid Solar Inverter, showing the display screen and branding.

2. Key Features

- **High Power Output:** 5200W DC 48V hybrid solar inverter with pure sine wave output.
- **Flexible Phase Configuration:** Supports single-phase, split-phase, and three-phase 120/208V/240Vac output.
- **Parallel Operation:** Capable of connecting up to 6 inverters in parallel for increased power (e.g., up to 10400W in split phase with two inverters).
- **Integrated MPPT Controller:** Built-in 100A MPPT solar charge controller with Max. PV Power: 6000W, PV Input VOC: 120-500V DC.
- **Battery Compatibility:** Supports 48V Lead-acid or Lithium batteries. Can also work without a battery.
- **Communication Interfaces:** Includes CAN, USB, and RS485 for monitoring and control.
- **Peak-Valley Electricity Tariff Function:** Allows users to set battery discharge or mains charging times (3 definable periods) based on local electricity tariffs (BT1ST Mode for Sectional Charging, AC1ST Mode for Sectional Discharging).
- **Intelligent Power Saving (ECO Mode):** Reduces no-load loss by delaying output for 5 minutes and turning off when load is below 50W.
- **Multiple Charging Modes:** Supports Only Solar, Mains Priority, Solar Priority, and Mains & Solar hybrid charging.
- **Output Modes:** Mains bypass and inverter output for uninterrupted power supply.
- **Anti-backflow Grid Connection:** Functionality for on-grid power generation without a battery.
- **Comprehensive Protection:** Includes short circuit, over-current, over/under voltage, overload, and backfeed protection.

3. Specifications

Feature	Detail
Product Dimensions	13.7 x 17.6 x 5.24 inches
Item Weight	30.8 pounds
Model Name	SunSmart SP5.2K
Brand	PowMr
Power Source	Solar and Battery Powered
Wattage	5.2 KW
Manufacturer	PowMr
Country of Origin	China
Recommended Uses	Office, Vehicle, Home

4. Setup and Installation

Proper installation is crucial for the safe and efficient operation of your PowMr Hybrid Solar Inverter. Please follow these steps carefully.

4.1 Unboxing and Initial Inspection

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Video 1: This video demonstrates the installation and operation of the Hybrid Inverter, including unboxing procedures.

1. Carefully open the packaging and remove the inverter and all accessories.
2. Inspect the inverter for any visible damage that may have occurred during shipping.
3. Verify that all components listed in the packing list are present.
4. Familiarize yourself with the inverter's ports and switches.

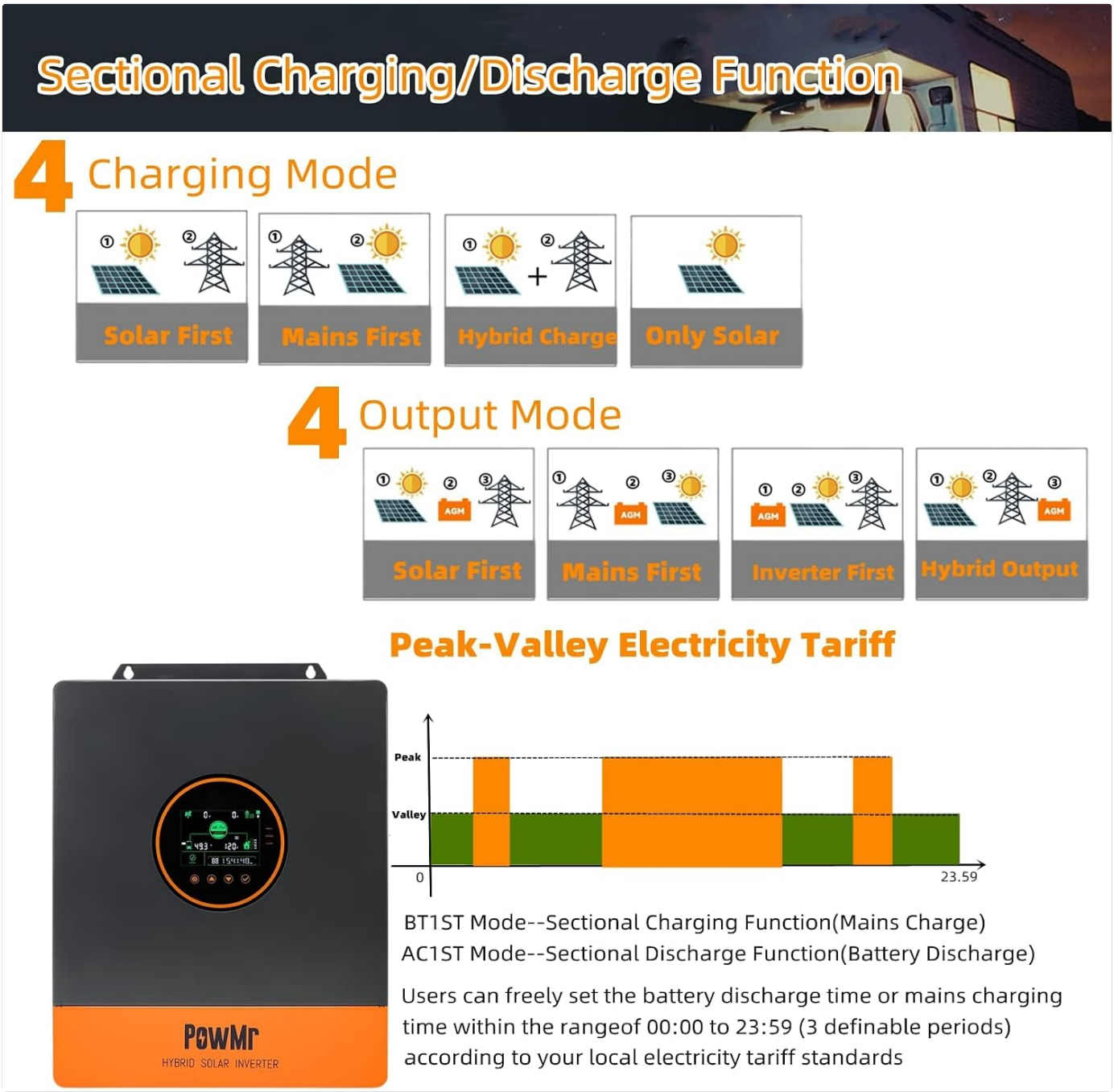


Figure 2: Rear view of the PowMr 5200W Hybrid Solar Inverter, showing the various connection ports for AC input, AC output, PV input,

and battery connections.

4.2 Mounting the Inverter

When installing the inverter, securely fix it to the wall using M5 screws. Ensure the mounting location is well-ventilated and protected from direct sunlight and moisture.

4.3 Wiring Connections

Connect AC input, AC output, PV input, and battery in sequence. Each line requires its own circuit breaker to ensure safety and facilitate future maintenance and cleaning.

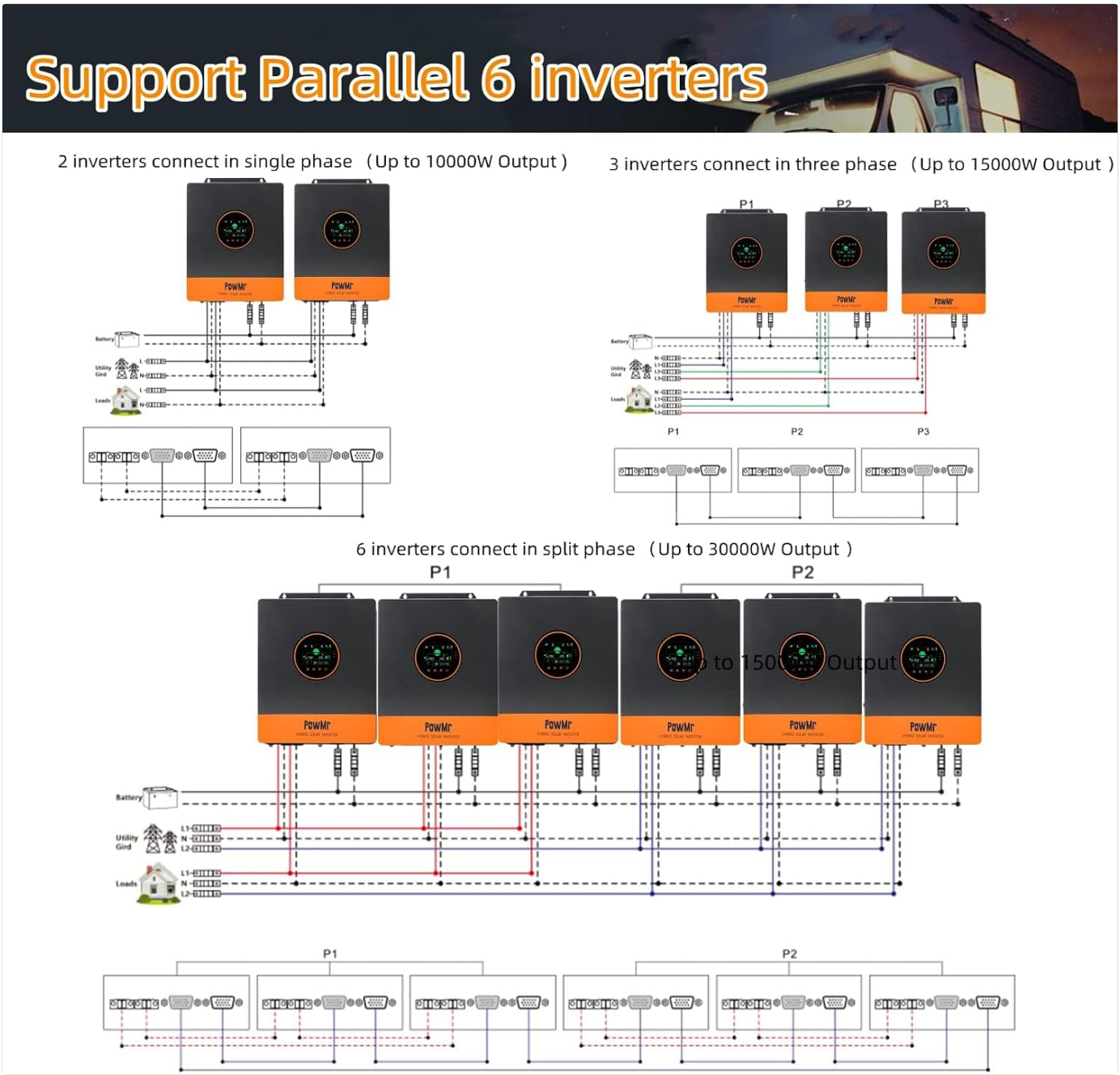


Figure 3: Connection diagram for the PowMr 5200W Hybrid Solar Inverter, illustrating connections for solar panels, battery, mains power, generator, and home load.

- **Battery Connection:** Connect the 48V battery to the inverter's battery terminals. Recommended battery wiring diameter: 30mm² / 7AWG.
- **PV Input Connection:** Connect your solar panels to the PV input terminals. Max PV Input Current: 22A, Max PV Power: 6000W, PV Input VOC: 120-500V DC.
- **AC Input Connection:** Connect the AC input from your mains power or generator. Input Voltage: 90-140Vac±2%, Max AC Input Current: 63A.

- **AC Output Connection:** Connect your loads to the AC output terminals. Rated Output Power: 5200W, Rated Output Voltage: 120Vac (100/105/110V settable).

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Video 4: This video provides detailed instructions on how to connect the inverter for Split Phase output at 240V.

4.4 Parallel Operation Setup

The PowMr 5200W Hybrid Solar Inverter supports parallel operation for increased power output. Up to 6 units can be connected in single-phase, split-phase, or three-phase configurations.

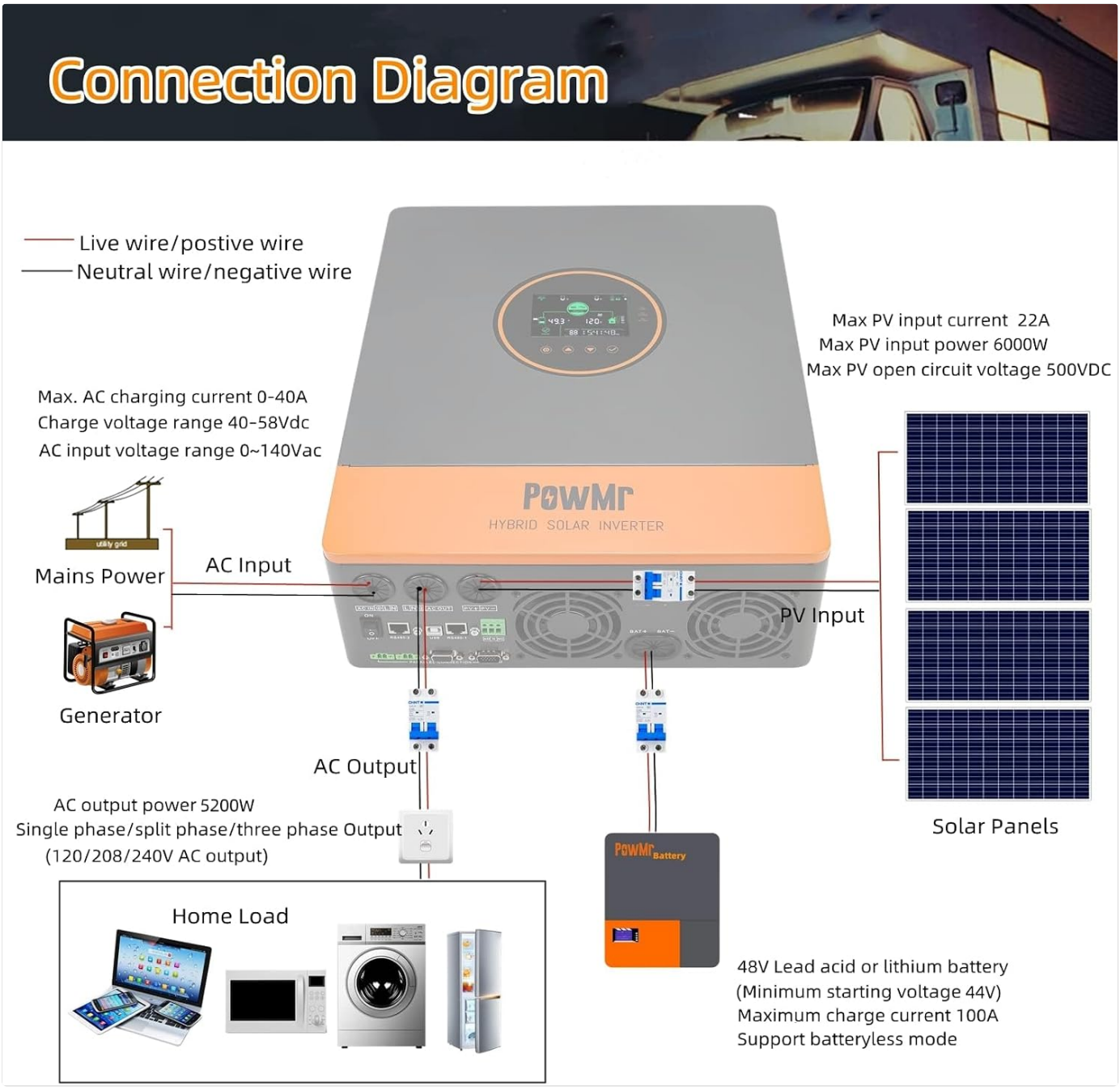


Figure 4: Diagram illustrating parallel connection options for multiple PowMr inverters, including single-phase, three-phase, and split-phase setups.

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Video 5: This video demonstrates how to connect multiple inverters in parallel for increased power capacity.

For parallel operation, ensure the following:

- All inverters must be connected to the same battery bank.
- Connect the parallel communication lines (included in package) between the inverters, ensuring correct male and

female connector orientation.

- The AC input wire must originate from the same source for all parallel units.
- Recommended circuit breaker type for AC input and output: 2P—63A.

5. Operating Instructions

The inverter features a smart LCD screen and three LED indicators for dynamic display of system data and operating status. Use the function keys to navigate the menu and adjust settings.



Figure 5: Close-up view of the PowMr 5200W Hybrid Solar Inverter's smart LCD screen, showing various parameters and indicators.

5.1 Parameter Setup

To configure the inverter's parameters, access the setup menu via the LCD screen. This video demonstrates how to adjust various settings, including charging modes, output modes, and battery types.

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Video 6: This video explains the parameter setup process for the Hybrid Inverter, guiding users through the menu options.

Key settings include:

- **Charging Modes:** Select from Only Solar, Mains Priority, Solar Priority, and Mains & Solar hybrid charging.
- **Discharge Modes:** Configure sectional discharging functions (AC1ST Mode).
- **Battery Type:** Set the inverter to match your battery type (Lead-acid, Lithium, etc.).
- **ECO Mode:** Enable or disable the intelligent power-saving mode.

5.2 Parallel Operation Settings

For parallel operation, specific settings must be configured on each inverter. One inverter will act as the master unit, and the others as slave units.

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Video 7: This video details the setup process for parallel operation, including setting communication addresses and parallel modes.

1. **RS485 Communication Address:** Go to setting 30 and set the master unit as "1". For slave units, choose "2" or higher.
2. **Parallel Mode:** In setting 31, choose the parallel mode you need:
    - "SIG" - Single Device
    - "PAL" - Single-phase Parallel Operation
    - "2P0/2P1/2P2" - Split-phase Parallel Operation (2P0 for master, 2P1 or 2P2 for slave depending on 208V or 240V output)
    - "3P1/3P2/3P3" - Three-phase Parallel Operation
3. After completing the settings, restart the inverter to enable the parallel operation mode.

6. Maintenance

Regular maintenance ensures the longevity and optimal performance of your inverter. Always disconnect all power sources before performing any maintenance.

- **Cleaning:** Keep the inverter clean and free from dust. Use a dry cloth to wipe the exterior. Ensure ventilation openings are not blocked.
- **Connections Check:** Periodically check all wiring connections for tightness and signs of corrosion. Loose connections can lead to overheating and poor performance.
- **Fan Inspection:** Ensure the cooling fans are operating correctly and are free from obstructions.
- **Environmental Conditions:** Verify that the inverter is operating within its specified temperature and humidity ranges.

7. Troubleshooting

This section provides solutions to common issues you might encounter with your inverter. For problems not listed here,

please contact customer support.

Problem	Possible Cause	Solution
Inverter not turning on	No battery connection, battery voltage too low, or power switch is off.	Check battery connections, ensure battery is charged, and turn on the power switch.
No AC output	Overload, short circuit, or AC output breaker tripped.	Reduce load, check for short circuits, and reset the AC output breaker.
Fault code displayed	Specific system error.	Refer to the inverter's display for the specific fault code and consult the detailed troubleshooting section in the full manual (if available) or contact support.
Battery not charging	PV input issue, incorrect charging mode, or battery fault.	Check PV connections and voltage, verify charging mode settings, and inspect battery health.

8. Warranty and Support

The PowMr 5200W Hybrid Solar Inverter comes with a standard manufacturer's warranty. For specific warranty terms and conditions, please refer to the warranty card included with your product or visit the official PowMr website.
For technical support, troubleshooting assistance, or warranty claims, please contact PowMr customer service through their official channels. You can also visit the PowMr Store on Amazon for more information and resources.
Protection plans are also available for extended coverage:

- 2-Year Protection Plan
- 3-Year Protection Plan
- Complete Protect (monthly plan)

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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.

Name

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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