PowMr POW-HVM4.2M-24V-N

PowMr 4200W Solar Inverter User Manual

Model: POW-HVM4.2M-24V-N

1. Introduction

This manual provides essential information for the installation, operation, and maintenance of the PowMr 4200W Solar Inverter. This all-in-one hybrid inverter integrates a pure sine wave inverter, a 120A MPPT solar charge controller, and a battery charger into a single compact unit. It is designed to provide uninterruptible power support for various applications, including homes, RVs, and off-grid systems.
Please read this manual thoroughly before installation and operation to ensure proper use and to prevent damage to the unit or injury to personnel.

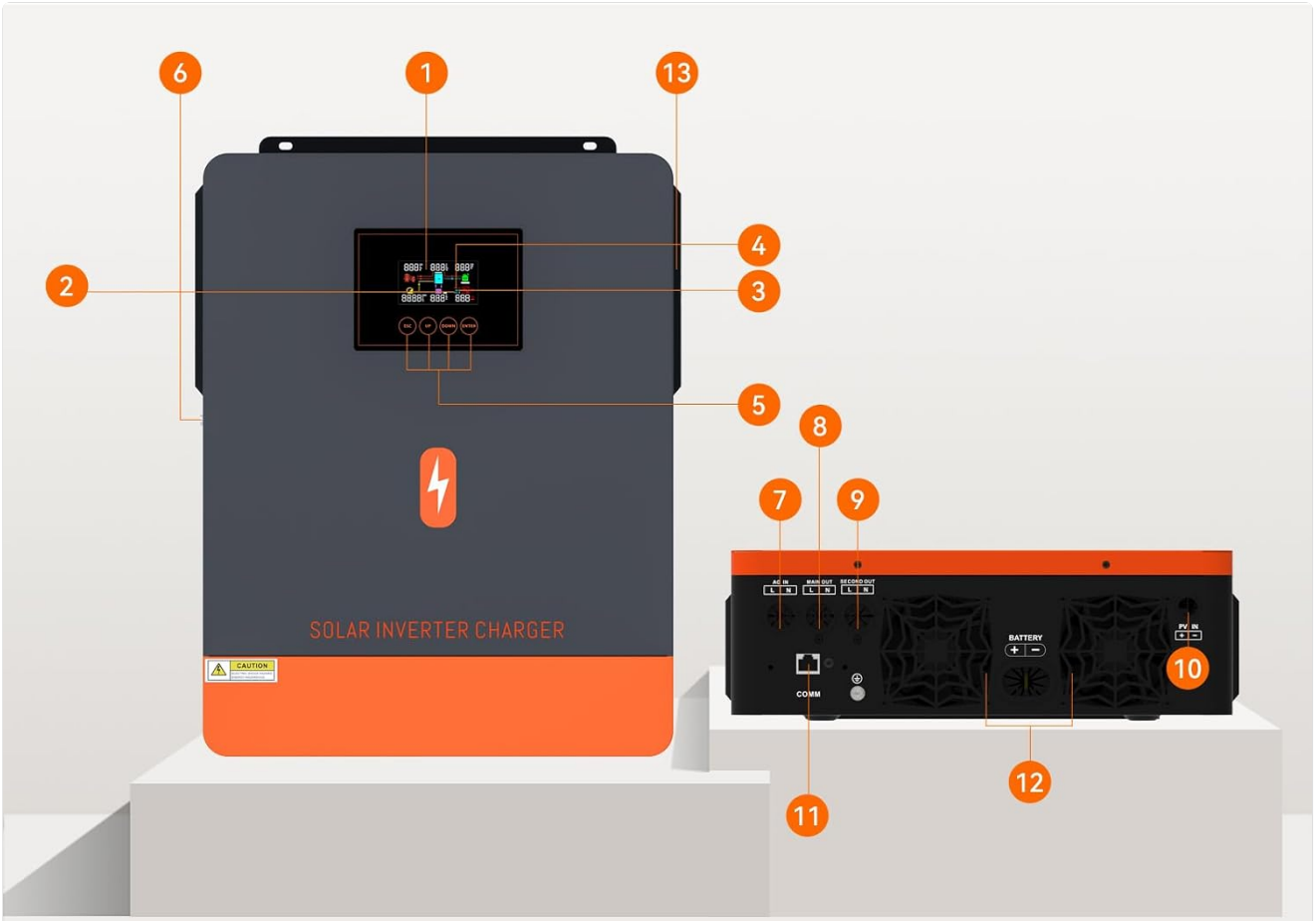
2. Safety Information

WARNING: This section contains important safety instructions that must be followed during installation and operation of the inverter. Failure to follow these instructions may result in serious injury or death.

- Only qualified personnel should install or maintain this device.
- Before installation, ensure all power sources are disconnected.
- Do not disassemble the unit. There are no user-serviceable parts inside.
- Ensure proper grounding of the inverter.
- Do not operate the inverter in wet or humid environments.
- Verify correct voltage and polarity for all connections.
- Keep children away from the inverter.

3. Product Features and Components

The PowMr 4200W Solar Inverter is equipped with several features and components for efficient power management.



1	LCD display	6	Power ON/OFF switch	11	RS232/WIFI/Remote LCD Communication Port)
2	Status indicator	7	AC input		
3	Charging indicator	8	Main output	12	Battery input
4	Fault indicator	9	Second output	13	Anti dust cover
5	Touch Function buttons	10	PV 1 and PV 2 input		

Figure 3.1: Inverter Components Overview

This image displays the front and side panels of the inverter, highlighting key components such as the LCD display, indicators, buttons, and various input/output ports.

Front Panel

1. **LCD Display:** Shows system status and settings.
2. **Status Indicator:** LED indicating operational status.
3. **Charging Indicator:** LED indicating battery charging status.
4. **Fault Indicator:** LED indicating system errors or faults.
5. **Touch Function Buttons:** For navigating menus and adjusting settings.
6. **Power ON/OFF Switch:** Main power control for the unit.

Side/Rear Panel

1. **AC Input:** Connection for grid or generator power.
2. **Main Output:** Primary AC output for loads.

3. **Second Output:** Secondary AC output for additional loads.
4. **PV 1 and PV 2 Input:**Connections for solar panel arrays.
5. **RS232/WIFI/Remote LCD Communication Port:** For data communication and remote monitoring.
6. **Battery Input:** Connections for battery bank.
7. **Anti-dust Cover:** Protects internal components.



Figure 3.2: PowMr 4200W Solar Inverter Front View

This image provides a clear view of the inverter's front panel, including the display screen and control buttons.

4. Setup and Installation

Proper installation is crucial for the safe and efficient operation of your PowMr solar inverter. Follow these steps carefully.

4.1 Site Selection

- Install the inverter indoors, away from direct sunlight, heat, and moisture.
- Ensure adequate ventilation around the unit to prevent overheating.
- Mount the inverter vertically on a sturdy surface.

4.2 Wiring Connections

All wiring should be performed by a qualified electrician in accordance with local electrical codes.

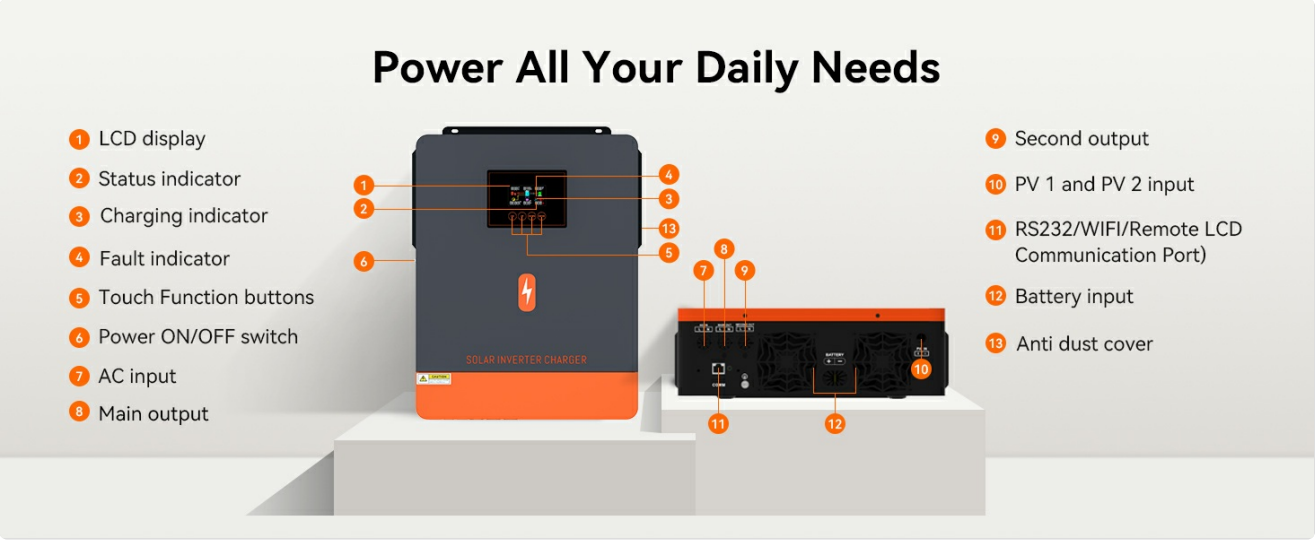


Figure 4.1: Typical Wiring Diagram

This diagram shows the recommended connections for the inverter, including solar panels, battery bank, grid/generator input, and household AC loads. Ensure all connections are secure and correctly polarized.

- **Battery Connection:** Connect the 24V battery bank to the battery input terminals. Ensure correct polarity (+ to + and - to -). The inverter supports 24V Lead Acid and Lithium batteries.
- **PV Input Connection:** Connect your solar panel array to the PV input terminals. Ensure the PV array voltage is within the specified range (60Vdc-500Vdc MPPT range, Max. PV Open Circuit Voltage: 500VDC). Max. PV Array Power: 6200W.
- **AC Input Connection:** Connect the grid or generator power to the AC input terminals. Nominal input voltage: 230Vac.
- **AC Output Connection:** Connect your household appliances or loads to the AC output terminals. The inverter provides a single-phase 220-230VAC output.
- **Grounding:** Connect the inverter to a reliable ground source.

Note: If you have single-phase 110V output requirements, a transformer can be added to adjust the output voltage.

5. Operating Instructions

Once installed, the inverter can be configured and operated using its LCD display and touch buttons.

5.1 Initial Power-Up

1. Ensure all wiring connections are secure and correct.
2. Switch on the battery breaker first, then the AC input breaker (if applicable), and finally the PV input breaker (if applicable).
3. Press the Power ON/OFF switch on the inverter. The LCD display will light up, and the inverter will begin its startup sequence.

5.2 LCD Display and Settings

The LCD display provides real-time system information and allows for configuration of various parameters.



Figure 5.1: Key Specifications Overview

This image summarizes the main technical specifications of the inverter, such as 4.2KW AC output, 120A Max AC Charging Current, 500Vdc Max PV Array Open Circuit Voltage, 150V Starting Voltage, and 35W No-load Power Consumption.

5.3 Charging Modes

The inverter supports four charging modes:

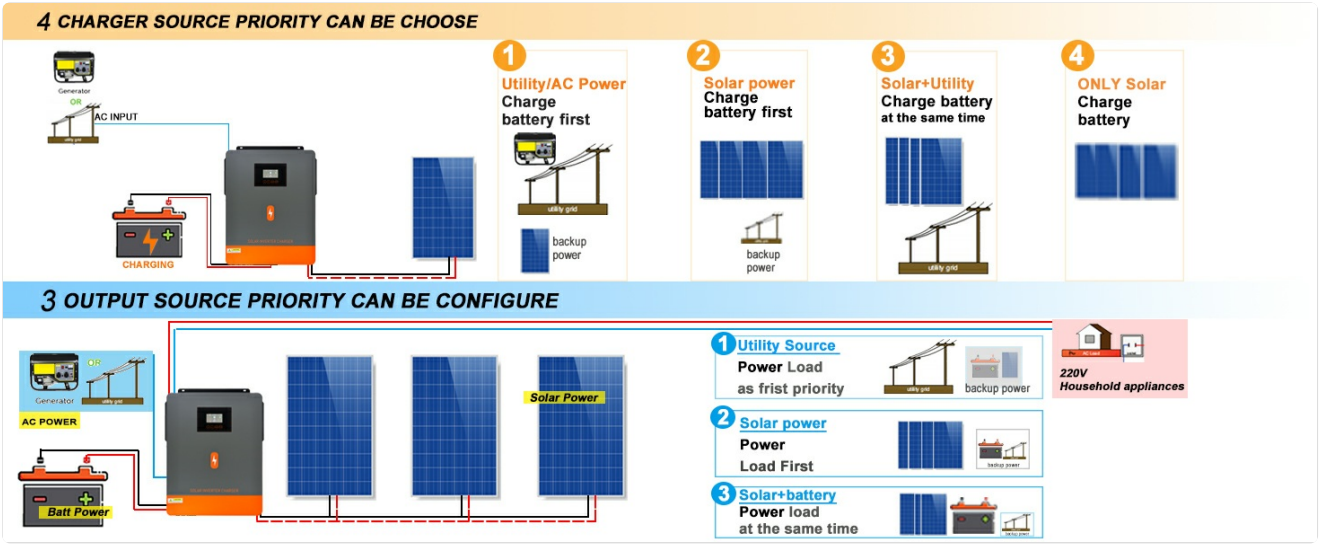


Figure 5.2: Charger Source Priority Options

This diagram illustrates the four selectable charging modes: 1. Utility/AC Power (charge battery first), 2. Solar Power (charge battery first), 3. Solar+Utility (charge battery at the same time), and 4. ONLY Solar (charge battery).

- **Utility/AC Priority:** Charges the battery primarily from the utility grid or generator.
- **Solar Priority:** Charges the battery primarily from solar power.
- **Hybrid Charging:** Utilizes both solar and utility/AC power to charge the battery simultaneously.
- **Battery+Solar:** Prioritizes battery and solar power for loads.

5.4 Output Source Priority

The inverter allows configuration of output source priority:

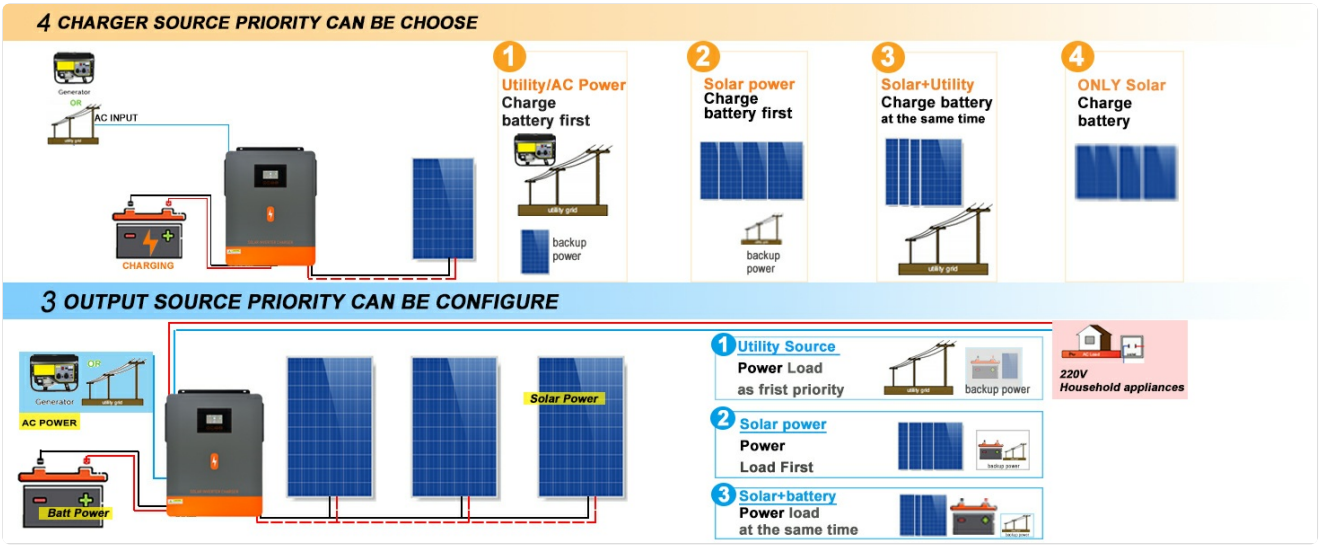


Figure 5.3: Output Source Priority Options

This diagram illustrates the three selectable output source priorities: 1. Utility Source (power load as first priority), 2. Solar Power (power load first), and 3. Solar+Battery (power load at the same time).

- **Utility First:** Prioritizes utility power for loads, using battery/solar as backup.
- **Solar First:** Prioritizes solar power for loads, using utility/battery as backup.
- **SBU (Solar-Battery-Utility):** Prioritizes solar, then battery, then utility.

5.5 Battery Type Compatibility

The inverter is compatible with multiple battery types, including AGM, GEL, FLD, LI (Lithium), SLD, and USER-defined settings.



Figure 5.4: Compatible Battery Types

This image displays the various battery types supported by the inverter, including AGM, GEL, FLD, Lithium (LI), SLD, and a user-configurable option. For Lithium batteries, ensure the battery type is set to 'LI' for proper activation by solar energy after 3 seconds.

5.6 Remote Monitoring

The inverter supports remote monitoring and control via a mobile application called "SMARTESS". A WiFi module and GPRS data are required and need to be purchased separately.

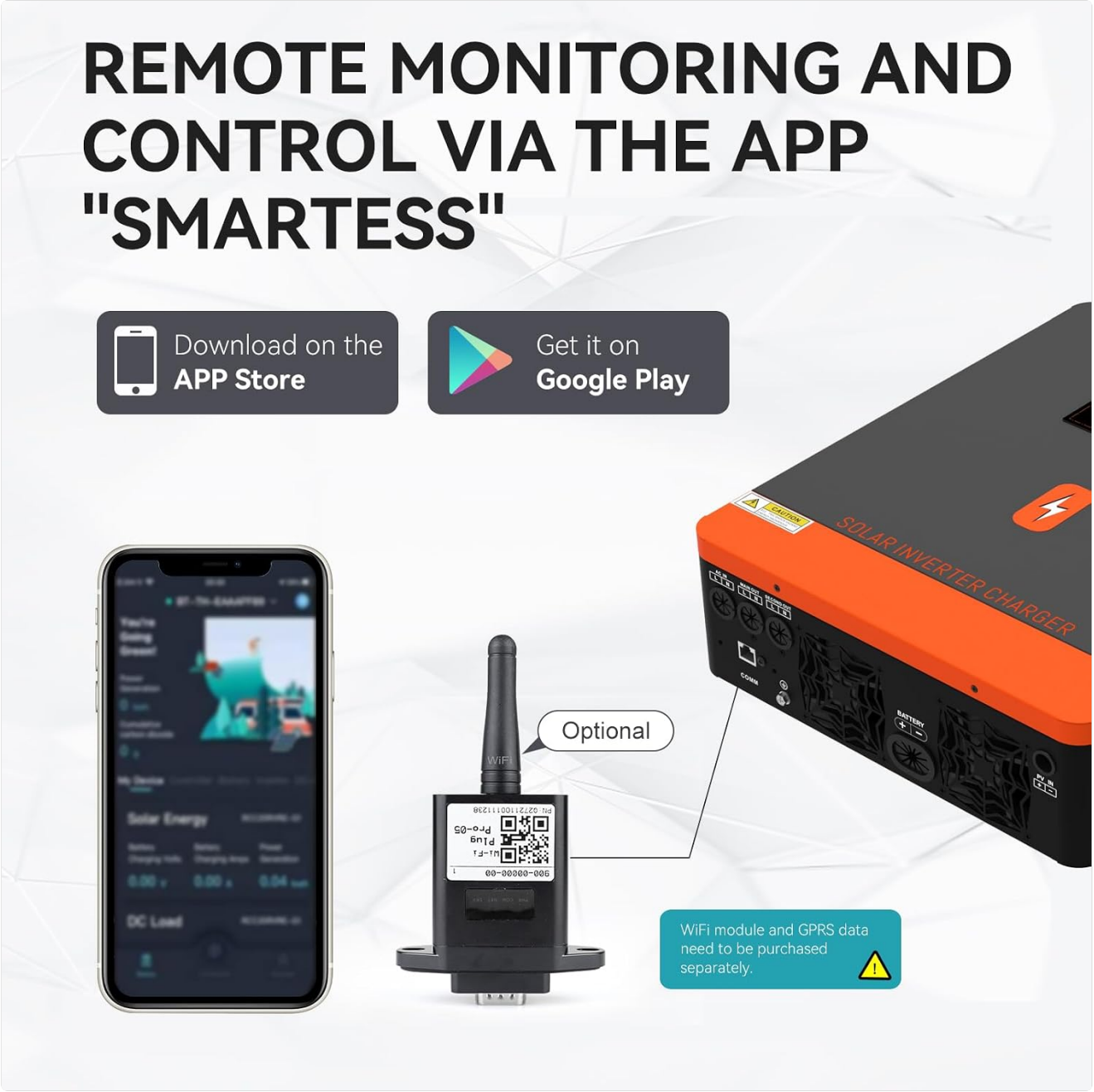


Figure 5.5: Remote Monitoring via App

This image illustrates the capability for remote monitoring and control of the inverter using the 'SMARTESS' application, available on both the App Store and Google Play. A separate WiFi module (e.g., Q2721100111238) is required for this functionality.

6. 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 signs of corrosion.
- **Environment:** Ensure the operating environment remains within specified temperature and humidity ranges.
- **Battery Health:** Monitor battery voltage and health according to battery manufacturer guidelines.

7. Troubleshooting

This section provides solutions to common issues you might encounter.

Problem	Possible Cause	Solution
Inverter not turning on	No battery connection; Battery voltage too low; Power switch off	Check battery connections; Charge battery; Turn on power switch.
No AC output	Overload; Short circuit; Over-temperature; Battery low	Reduce load; Check for short circuits; Allow unit to cool; Charge battery.
PV charging not working	PV voltage too low/high; PV polarity reversed; MPPT fault	Check PV array voltage; Verify PV wiring polarity; Contact support if MPPT fault persists.
Error code on display	Specific system fault	Refer to the detailed error code list in the full manual (if available) or contact technical support.

The inverter features a one-click restore default settings function to prevent damage from incorrect configurations. It also has a battery cold start function (23V) and automatic restart while AC is recovering.



Figure 7.1: LED Pattern for Working Mode

This image illustrates how the RGB LED light on the inverter's logo indicates its current working mode: Purple for PV Mode, Blue for Utility Mode, and Red for Battery Mode. No light indicates Stationary mode.

8. Specifications

Detailed technical specifications for the PowMr 4200W Solar Inverter.



Figure 8.1: Inverter Charger Specifications Label

This image provides a detailed view of the product's specification label, including model number (920422405060107), PV input

parameters, AC output details, and battery requirements.

Parameter	Value
Model Name	POW-HVM4.2M-24V-N
Wattage	4200 watts
Input Voltage (DC)	24VDC
Output Voltage (AC)	220-230VAC (Single-phase)
MPPT Charge Controller	120A
Max. PV Array Power	6200W
Max. PV Open Circuit Voltage	500VDC
PV Array MPPT Voltage Range	60Vdc-500Vdc
No-Load Power Consumption	35W
Product Dimensions	17.39 x 4.56 x 14.09 inches
Item Weight	17.6 pounds
Country of Origin	China

9. Warranty and Support

PowMr products are designed for reliability and performance. For warranty information, please refer to the warranty card included with your product or visit the official PowMr website.
For technical support, troubleshooting assistance, or spare parts, please contact PowMr customer service through their official channels. When contacting support, please have your product model number (POW-HVM4.2M-24V-N) and purchase details ready.

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Details

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