

PowMr POW-SunSmart 6.5KP

PowMr 6500W Hybrid Solar Inverter User Manual

Model: POW-SunSmart 6.5KP

1. INTRODUCTION

This manual provides detailed instructions for the installation, operation, and maintenance of your PowMr 6500W Hybrid Solar Inverter. This advanced inverter is designed to efficiently manage solar power, utility power, and battery power, offering flexible energy solutions for various applications. Please read this manual thoroughly before installation and operation to ensure safe and optimal performance of the unit.

6500W SINGLE PHASE& SPLIT PHASE MODE SOLAR INVERTER

SPLIT PHASE:100~120VAC,200~240VAC SINGLE PHASE:100~120VAC

- 6.5KW-AC Output Power
- 140A-Max.AC Charging Current
- Support Split-Phase,Three-phase and Single-Phase Output 120V/208V/240 AC
- Compatible with Lead-acid, Lithium batteries, and Batteryless Run
- Supports Solar, Utility, or Generator Power to Charge the Battery
- Max 6 Unit Parallel Operation



Dimension: 23 x 16.1x 5.2inch
Weight: 41.7lbs

Figure 1: PowMr 6500W Hybrid Solar Inverter, front view showing the display and control buttons.

2. SAFETY INFORMATION

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

- Installation must be performed by qualified personnel.
- Ensure all power sources (solar, utility, battery) are disconnected before installation or maintenance.
- Do not operate the inverter if it is damaged or appears to be malfunctioning.
- Keep the inverter away from flammable materials, moisture, and direct sunlight.
- Ensure proper grounding of the unit.
- This product is designed for indoor use only.

3. PRODUCT OVERVIEW

3.1 Key Features

- **Split-phase and Single-phase Output:** Provides both 120V and 240V simultaneously.
- **Parallel Operation:** Supports up to 6 units in parallel for a total capacity of up to 39kW.

- **Integrated MPPT Controller:** Built-in 140A (70*2) MPPT controller for efficient solar charging.
- **Multiple Charging Modes:** Offers four charging modes: only solar, utility priority, solar priority, and utility & solar hybrid charging.
- **Dual Output Modes:** Mains bypass output and inverter output.
- **Battery Compatibility:** Works with 48V lead-acid (Seal, AGM, Gel, Flooded) and lithium batteries, also supports batteryless operation.
- **Comprehensive Protection:** Includes short circuit, over-current, over/under voltage, overload, and backfeed protection.
- **Communication Interfaces:** Supports CAN, USB, and RS485.

3.2 Physical Components



Figure 2: Rear view of the inverter with labeled connection ports and components.

1. LCD screen
2. Physical buttons
3. LED indicator
4. ON/OFF rocker switch
5. PV input terminals
6. Battery positive port

7. Battery negative port
8. Dry contact
9. RS485/CAN port
10. WIFI port
11. USB-B port
12. CT (Current Transformer)
13. Grounding screw
14. AC output (L1+L2+N)
15. AC input (L1+L2+N)
16. Generator port (L1+L2+N)
17. AC input circuit breaker
18. Parallel communication port

3.3 Package Contents

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

- PowMr 6500W Hybrid Solar Inverter unit
- User Manual
- Warranty Card
- Set of screws and accessories for mounting
- Pair of battery terminals
- Parallel communication cable

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Video 1: Unboxing the PowMr Sunsmart 6.5KP Solar Inverter, showing the contents of the package including the inverter unit, manual, and accessories.

4. INSTALLATION AND SETUP

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

4.1 Mounting the Inverter

Choose a suitable location that is dry, well-ventilated, and away from direct sunlight and heat sources. Ensure the mounting surface can support the inverter's weight (46.4 pounds). Use the provided screws and mounting bracket to securely attach the inverter to a wall or vertical surface.

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Video 2: A visual overview of the PowMr 6500W Hybrid Solar Inverter's appearance, including mounting points.

4.2 Wiring Connections

Before making any electrical connections, ensure the AC input breaker and PV input switches are in the OFF position. Always connect the battery first, then the AC input/generator, and finally the PV arrays.

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Video 3: Detailed wiring guide for the PowMr 6500W Solar Inverter, demonstrating battery, AC, and PV connections.

1. **Battery Connection:** Connect the 48V battery bank to the battery positive and negative ports. Ensure correct polarity.
2. **AC Input (Utility/Generator) Connection:** Connect the AC power source (utility grid or generator) to the designated AC input terminals (L1, L2, N).
3. **AC Output (Load) Connection:** Connect your electrical loads to the AC output terminals (L1, L2, N). The inverter supports both 120V and 240V output.
4. **PV Array Connection:** Connect the solar panel arrays to the PV input terminals (PV1+, PV1-, PV2+, PV2-). The inverter has dual MPPT inputs. Ensure PV input voltage and current are within specified limits.
5. **Grounding:** Connect the grounding screw to a reliable earth ground.



Figure 3: Split-phase and single-phase wiring diagrams illustrating connections for AC input, AC output, and PV arrays.

4.3 Parallel Operation

The PowMr 6500W Hybrid Solar Inverter supports parallel operation of up to 6 units to increase total power capacity. Use the parallel communication port and cable to connect multiple inverters. Refer to the detailed parallel installation guide for specific wiring and configuration instructions.



Figure 4: Examples of parallel connection setups for two, three, and six inverter units.

5. OPERATING INSTRUCTIONS

Once installed, the inverter can be configured and operated using the LCD screen and physical buttons.

5.1 Initial Power-Up and Settings

1. After all wiring is complete and checked, close the battery circuit.
2. Turn on the inverter using the ON/OFF rocker switch.
3. The LCD screen will display system status. Use the physical buttons to navigate through the menu and configure settings such as charging modes, output modes, and battery type.
4. Close the AC input and photovoltaic circuits.
5. Close the load circuit.

5.2 Charging Modes

The inverter offers four customizable charging modes:

- **Only Solar:** Prioritizes solar power for battery charging.
- **Utility Priority:** Prioritizes utility power for charging, using solar as a secondary source.
- **Solar Priority:** Prioritizes solar power for charging, using utility only when solar is insufficient.
- **Utility & Solar Hybrid:** Combines both utility and solar power for charging.

5.3 Output Modes

Two output modes are available:

- **Mains Bypass Output:** Loads are powered directly from the utility grid or generator.
- **Inverter Output:** Loads are powered by the inverter, drawing energy from solar or batteries.

6. MAINTENANCE

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

- **Cleaning:** Periodically clean the exterior of the inverter and ensure ventilation openings are free from dust and debris. Use a dry cloth.
- **Connection Checks:** Annually inspect all electrical connections for tightness and signs of corrosion.
- **Battery Health:** Monitor battery voltage and health according to the battery manufacturer's recommendations.
- **Software Updates:** Check the manufacturer's website for any available firmware updates.

7. TROUBLESHOOTING

If you encounter issues with your inverter, refer to the following general troubleshooting steps. For specific error codes or persistent problems, consult the full user manual or contact PowMr customer support.

- **No Power/Display Off:** Check battery connections, AC input breaker, and the inverter's ON/OFF switch.
- **Low Output Power:** Verify PV array connections and ensure sufficient sunlight. Check battery charge level.
- **Overload Warning:** Reduce the connected load. Ensure the total load does not exceed the inverter's rated output.
- **Unusual Noises:** Disconnect power and inspect for loose components or foreign objects. Contact support if noise persists.
- **Error Codes:** Refer to the detailed error code section in the complete user manual for specific diagnostic steps.

8. SPECIFICATIONS

Detailed technical specifications for the PowMr 6500W Hybrid Solar Inverter (Model POW-SunSmart 6.5KP).

Feature	Specification
Model Name	SunSmart 6.5KP

Feature	Specification
Rated Output Power	6500W continuous (Surge: 13000W)
Rated Output Voltage	120/240Vac (split-phase and single-phase)
Max. PV Input Power	10kW (5000W * 2)
Max. PV Input Voltage	550Vdc
Max. PV Input Current	18A
PV Starting Voltage	>150V
MPPT Controller	Built-in 140A (70*2)
Battery Input Voltage	48V
Compatible Battery Types	Lead-acid (Seal, AGM, Gel, Flooded), Lithium
Communication Support	CAN, USB, RS485
Product Dimensions	15.9 x 5 x 22.6 inches
Item Weight	46.4 pounds
Power Source	Solar and Battery Powered
Recommended Uses	Home, Office, Vehicle (Off-grid backup, self-sufficiency)

9. WARRANTY AND SUPPORT

For warranty information, technical support, or service inquiries, please refer to the warranty card included in your package or visit the official PowMr website. Keep your purchase receipt and product serial number handy for faster service.