

## PowMr PowMr3000

# PowMr 3000W Hybrid Solar Inverter Instruction Manual

MODEL: PowMr3000

## 1. Introduction and Overview

This manual provides essential information for the safe and efficient operation of your PowMr 3000W Hybrid Solar Inverter. This advanced inverter converts 24VDC to 110VAC, features a built-in 60A MPPT charge controller, and produces a pure sine wave output. It is designed for use with both 24V lead-acid and lithium battery systems, offering a peak power capability of 9000W. Please read this manual thoroughly before installation and use.

## 2. Safety Information

**WARNING:** Electrical equipment can be dangerous. Installation and maintenance should only be performed by qualified personnel. Failure to follow these instructions may result in serious injury or death.

- Always disconnect all power sources (solar, utility, battery) before performing any service or maintenance.
- Ensure proper grounding of the inverter.
- Do not operate the inverter in wet conditions or near flammable materials.
- Verify battery compatibility and voltage before connecting.
- Keep children away from the inverter and battery system.
- Refer to local electrical codes and regulations for installation.

## 3. Product Features

- **High Peak Power:** Incorporates a larger toroidal transformer for enhanced load capacity, supporting peak power up to 9000W.
- **Integrated Charge Controller:** Built-in 60A MPPT charge controller for efficient solar charging.
- **Pure Sine Wave Output:** Provides clean and stable power suitable for sensitive electronics.
- **Versatile Battery Compatibility:** Works with various 24V battery types including Flooded, LiCoMnNiO2, LiFePO4, AGM, Gel, and user-defined settings.
- **Multiple Charging Modes:** Supports solar-only, utility priority, and solar priority charging modes.
- **Multiple Discharge Modes:** Offers PV priority, utility priority, and solar-only discharge modes.

- **Robust Protection:** Features dual cooling fans, anti-corrosion and dust-proof design, short circuit protection, over/under voltage protection, overload protection, and reverse protection.
- **User-Friendly Display:** LCD screen and 3 LED indicators for dynamic display of system data and operating status.

## 4. Product Overview and Connections

The PowMr 3000W Hybrid Solar Inverter is designed for comprehensive power management. Below is an overview of its key components and connection points.

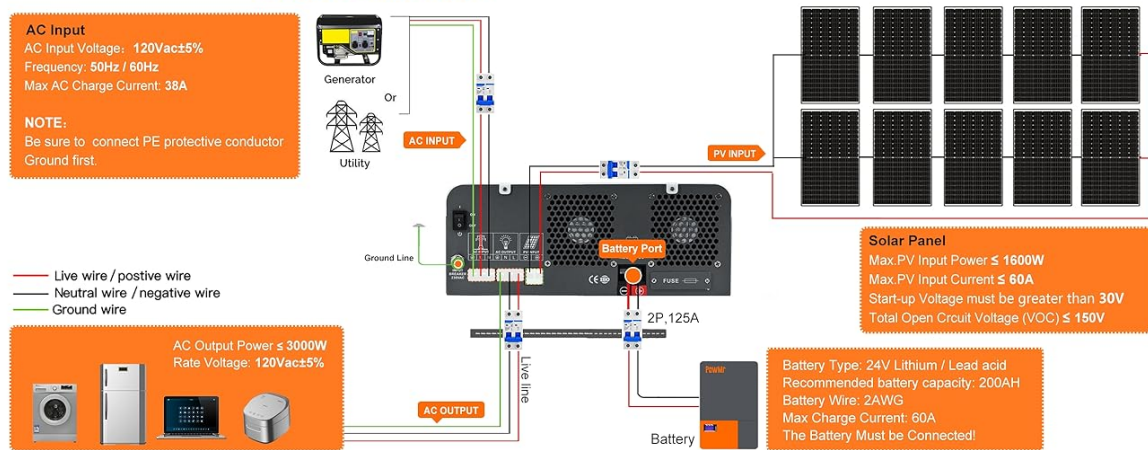
# MULTI-PROTECTION FUNCTIONS

- |                                     |                             |
|-------------------------------------|-----------------------------|
| ① RS232 communication interface     | ① AC input                  |
| ② BMS/RS485 communication interface | ② AC output                 |
| ③ Dry contact ports                 | ③ Photovoltaic input        |
| ④ Fan                               | ④ Battery negative terminal |
| ⑤ Toggle switch                     | ⑤ Battery positive terminal |
| ⑥ Input overcurrent protector       | ⑥ Battery circuit fuse      |



**Image:** PowMr 3000W Hybrid Solar Inverter showing various connection interfaces and protection functions. Key labels include RS232 communication interface, BMS/RS485 communication interface, Dry contact ports, Fan, Toggle switch, Input overcurrent protector, AC input, AC output, Photovoltaic input, Battery negative terminal, Battery positive terminal, and Battery circuit fuse.

## WIRING DIAGRAM AND TECHNICAL SPECIFICATIONS



**Image:** Detailed Inverter Connection Diagram illustrating connections for AC Input (from generator or utility), PV Input (from solar panels), AC Output (to household appliances), and Battery Input (to battery bank). Important specifications for each input/output are provided.

## 5. Installation and Setup

Proper installation is crucial for the safe and efficient operation of your inverter. Follow all local electrical codes and the instructions provided in this manual.

### 5.1 Wiring Connections

- Connect the battery bank to the inverter's battery terminals, ensuring correct polarity.
- Connect solar panels to the PV input terminals, observing voltage and current limits.
- Connect the utility grid or generator to the AC input.
- Connect your loads (appliances) to the AC output terminals.
- Ensure all connections are secure and properly insulated.

### 5.2 Initial Configuration Settings

After initial wiring, the inverter requires configuration via its LCD display. Press and hold the 'ENTER' key for 10 seconds to access the settings mode. Use 'UP' and 'DOWN' to navigate and 'ENTER' to select/confirm.

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**Video:** This video demonstrates how to configure the settings for the PowMr low frequency solar inverter, including grid input voltage range, operating mode, charging mode, and various other parameters. It provides a visual guide to navigating the inverter's display and making necessary adjustments.

- **Setting 00 (Grid Input Voltage Range):** Choose between 'Narrow Range' (180-265Vac for KE, 92-132Vac for KU) for stable grids or 'Wide Range' (155-265Vac for KE, 77-132Vac for KU) for areas with significant voltage fluctuations.
- **Setting 01 (Grid Frequency Range):** Select between a wide range (40-65Hz) or a narrow range (45-65Hz) based on your grid stability.
- **Setting 02 (Operating Mode):** Configure load output power priority: 'UTI' (Utility priority), 'SOL' (Solar priority), or 'SBU' (Inverter priority).
- **Setting 03 (Charging Mode):** Configure charging source priority: 'CUT' (Utility power priority), 'CSO' (Solar priority), or 'OSO' (Solar only).
- **Setting 04 (Grid Charging Current Percentage):** Adjust the percentage of total charging current from utility.
- **Setting 05 (Solar Charging Current Percentage):** Adjust the percentage of total charging current from solar.

- **Setting 06 (Boost Charging Voltage - CV):** Set according to your battery manual.
- **Setting 07 (Float Charging Voltage):** Set according to your battery manual.
- **Setting 08 (Battery Discharge Cutoff Shutdown Voltage):** Protects the battery from over-discharge. Inverter shuts down if voltage falls below this.
- **Setting 09 (Enable Grid Charging Voltage):** Voltage at which charging source switches to utility in CSO mode.
- **Setting 10 (Exit Grid Charging Voltage):** Voltage at which charging source switches back to solar in CSO mode.
- **Setting 11 (Inverter Output Voltage):** Configures the inverter's AC output voltage (e.g., 110V).
- **Setting 12 (Grid Detection Speed):** Options for 'HI' (Fast), 'IDE' (Medium), 'LO' (Slow) response to voltage changes.
- **Setting 13 (Inverter Output Frequency):** Set to either 50Hz or 60Hz.
- **Setting 14 (Fault Restart Switch):** Enables/disables automatic restart after short circuit or overload fault.
- **Setting 15 (Backlight Control):** Options for 'Always On', 'Always Off', or 'Delayed Off' (turns off after 1 minute of inactivity).
- **Setting 16 (Buzzer Control Switch):** Enables/disables the buzzer alarm during faults.
- **Setting 17 (Battery Under Voltage Alarm Switch):** Enables/disables the low battery voltage alarm. Recommended to keep enabled.
- **Setting 18 (Load Limitation):** Enables/disables battery undervoltage shutdown function to prevent prolonged standby power consumption.
- **Setting 22 (Startup Battery Voltage):** Configures the battery voltage required to manually start the inverter after an abnormal shutdown.
- **Setting 23 (Undervoltage Shutdown Recovery Voltage):** Allows the inverter to automatically restart when battery voltage exceeds this value.
- **Setting 24 (Battery Type):** Select your battery type (e.g., Ternary Lithium, Lithium Iron Phosphate, Sealed Lead-Acid, GEL, Flooded Lead-Acid, or User-Defined).
- **Setting 25 (BMS Function Switch):** Enables/disables BMS communication. If successful, settings 26-29 can be configured.
- **Setting 26 (Undervoltage Shutdown SOC):** Configures the State of Charge (SOC) at which the inverter will shut down due to undervoltage.
- **Setting 27 (Switch to Utility Mode SOC):** Configures the SOC at which the operating mode switches to utility.
- **Setting 28 (Switch to Inverter Mode SOC):** Configures the SOC at which the operating mode switches to inverter priority.
- **Setting 29 (Restart SOC):** Configures the SOC required for normal operation after the inverter is turned on.
- **Setting 30 (Restore Factory Settings):** Allows for a one-click restore to factory settings.
- **Setting ECO (Energy Saving Mode):** Enables or disables the energy-saving mode.

## 6. Operation

Once installed and configured, the inverter will operate according to the selected modes. Monitor the LCD display for real-time system status, including input/output voltage, battery charge level, and operational status indicators (AC/INV, CHG, FAULT).

### 6.1 Operating Modes (Setting 02)

- **UTI (Utility Priority):** Utility grid is the primary power source for the load. If utility is unavailable, solar and battery power are used.

- **SOL (Solar Priority):** Solar power is the primary source. If solar cannot meet load requirements, battery power supplements. If solar is unavailable, output switches to utility grid even if battery is charged.
- **SBU (Inverter Priority):** Solar and battery power are prioritized. Solar power is used first, with battery supplementing if needed. If solar is unavailable, output switches to battery power. If battery voltage drops below undervoltage warning, output switches to utility grid.

## 6.2 Charging Modes (Setting 03)

- **CUT (Utility Power Priority):** Utility power primarily charges the battery, with solar simultaneously charging.
- **CSO (Solar Priority):** Solar power primarily charges the battery. If battery voltage falls below the voltage set in Setting 09, the charging source switches to utility. When battery voltage exceeds the value set in Setting 10, it switches back to solar.
- **OSO (Solar Only):** Only solar power charges the battery.

## 7. Maintenance

Regular maintenance ensures the longevity and optimal performance of your PowMr Hybrid Solar Inverter.

- **Cleaning:** Keep the inverter's ventilation openings clear of dust and debris. Use a dry cloth to clean the exterior.
- **Connections:** Periodically check all electrical connections for tightness and signs of corrosion.
- **Battery Inspection:** Inspect battery terminals for corrosion and ensure proper ventilation for lead-acid batteries. Follow battery manufacturer's maintenance guidelines.
- **Environment:** Ensure the inverter is installed in a cool, dry, and well-ventilated area, away from direct sunlight and moisture.

## 8. Troubleshooting

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

- **No Output Power:** Check all input power sources (solar, utility, battery) and ensure they are connected and providing adequate voltage. Verify circuit breakers and fuses.
- **Overload Alarm:** Reduce the connected load. The inverter's peak power is 9000W, but continuous rated power is 3000W.
- **Battery Not Charging:** Check solar panel connections and output. Verify utility input. Ensure charging mode settings (Setting 03) are correct.
- **Inverter Shutting Down:** Check battery voltage. If it's below the discharge cutoff (Setting 08), the inverter will shut down to protect the battery. Check for overheating (ensure fans are clear).
- **Display Issues:** If the display is blank or erratic, check power connections. If backlight is off, check Setting 15.

## 9. Specifications

Specification	Value
Rated Output Power	3000W
Peak Power	9000W

Specification	Value
DC Input Voltage	24VDC
AC Output Voltage	110Vac $\pm$ 10%
Output Frequency	50Hz/60Hz
Max PV Input Power	1600W
Max PV Input Current	60A
MPPT Input Voltage Range	60-105VDC
Maximum AC Input Current	38A
Hybrid Charging Max Charger Current (AC+PV)	60A
Product Dimensions	5 x 18 x 12 inches (5"L x 18"W x 12"H)
Item Weight	44.1 pounds
Display Type	LCD
Color	Black

## 10. Warranty and Support

For warranty information, technical support, or service inquiries regarding your PowMr 3000W Hybrid Solar Inverter, please contact PowMr customer service or visit the official PowMr store.

**PowMr Store:** [Visit the PowMr Store on Amazon](#)

Additional protection plans may be available for purchase to extend coverage beyond the standard warranty period.