**PowMr POW-RELAB 10KU**

# PowMr 10000W Solar Inverter User Manual

Model: POW-RELAB 10KU
Brand: PowMr

## 1. Introduction

This manual provides comprehensive instructions for the installation, operation, and maintenance of the PowMr 10000W Solar Inverter. This off-grid hybrid inverter is designed to convert 48VDC power from solar panels and batteries into 110VAC for household and commercial use. It features a built-in 120A MPPT charge controller and supports various battery types.

Key features include:

- 10000W low-frequency pure sine wave output.
- Integrated 120A MPPT Charge Controller.
- Max PV input power: 6400W at 150V.
- Peak power up to 30000W.
- Compatible with 48V Lead-Acid, LiCoMnNiO2, LiFePO4, AGM, Gel, and USER battery types.
- Multiple charging and discharging modes.
- Robust design with dual cooling fans and comprehensive protection features.

## 2. Safety Instructions

Please read and understand all safety instructions before installing or operating the inverter. Failure to follow these instructions may result in electric shock, fire, or serious injury.

- Installation must be performed by qualified personnel.
- Ensure all power sources are disconnected before making any electrical connections.
- Do not expose the inverter to rain, snow, spray, or any liquids.
- Do not disassemble the inverter. There are no user-serviceable parts inside.
- Ensure proper ventilation around the inverter to prevent overheating.
- Connect the inverter to a properly grounded system.

- Use appropriate wiring gauges for all connections as specified in the installation section.

## 3. Product Overview and Components

The PowMr 10000W Solar Inverter features a robust design with an intuitive interface for monitoring and control.




Figure 3.1: Front and Rear View of the PowMr 10000W Solar Inverter with labeled components.

Key components and their functions:

1. **LCD Display:** Shows real-time operational status, settings, and error codes.
2. **LED Indicators:** Provide quick visual status (AC, INV, CHG, FAULT).
3. **Function Keys:** Buttons for navigation and setting adjustments (ESC, UP, DOWN, ENTER).
4. **Power On/Off Switch:** Main power control for the inverter.
5. **AC Input:** Connection point for grid or generator AC power.

6. **AC Output:** Connection point for loads (appliances, etc.).
7. **Communication Port:** For external communication devices (e.g., monitoring software).
8. **PV Input:** Connection point for solar panel array.
9. **Battery Input:** Connection point for the battery bank.

## 4. Technical Specifications

The following table details the technical specifications of the PowMr 10000W Solar Inverter:

| Parameter | Value |
|---|---|
| Rated Output Power | 10000W |
| Peak Power | 30000W |
| Output Voltage | 110Vac ±10% |
| Output Frequency | 50Hz/60Hz |
| Max PV Input Power | 6400W |
| MPPT Input Voltage Range | 60-150VDC |
| Maximum PV Input Current | 120A |
| Maximum AC Input Current | 60A |
| First Start-up Voltage | > 60V |
| Product Dimensions | 21.46 x 7.87 x 15.75 inches |
| Item Weight | 114.4 pounds |

## 5. Installation Guide

Proper installation is crucial for the safe and efficient operation of your solar inverter. Refer to the connection diagram below and follow the steps carefully.

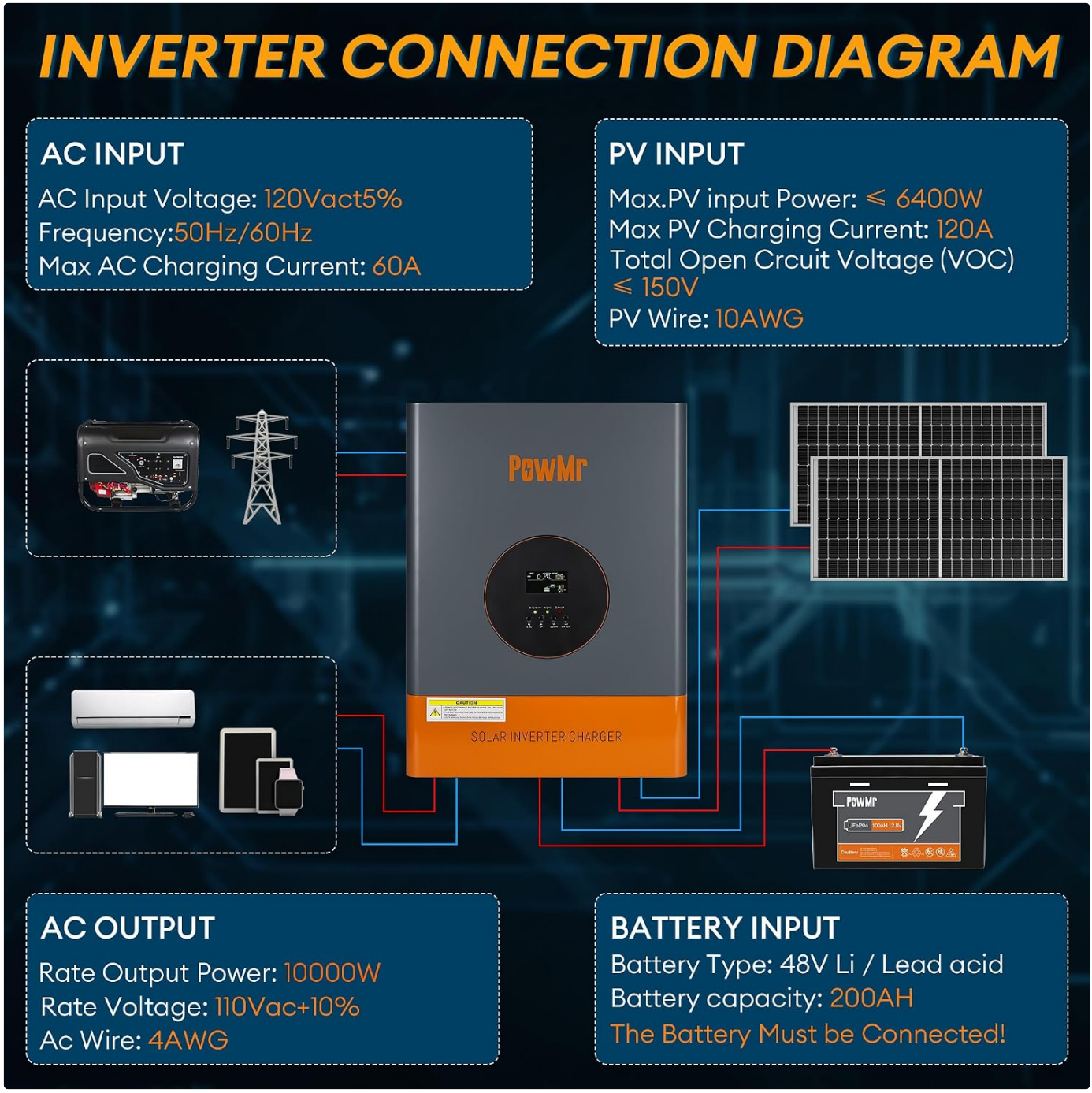



Figure 5.1: Inverter Connection Diagram.

## 5.1 Wiring Requirements

- **AC Input Wire:** Ensure the AC input voltage is 120Vac ±5% with a frequency of 50Hz/60Hz. Max AC charging current is 60A.
- **PV Input Wire:** Max PV input power is 6400W. Max PV charging current is 120A. Total Open Circuit Voltage (VOC) should be ≤ 150V. Use 10AWG PV wire.
- **AC Output Wire:** Rated output power is 10000W. Rated voltage is 110Vac +10%. Use 4AWG AC wire for loads.
- **Battery Input:** Compatible with 48V Li / Lead acid battery types. Recommended battery capacity is 200AH. The battery must be connected first.

## 5.2 Installation Steps

1. **Mounting:** Choose a dry, well-ventilated area away from direct sunlight and heat sources. Ensure sufficient clearance for airflow.
2. **Battery Connection:** Connect the 48V battery bank to the inverter's battery input terminals. Ensure correct polarity

(+ to + and - to -). This is the first connection to be made.

3. **PV Array Connection:** Connect the solar panel array to the PV input terminals. Verify that the PV array's open circuit voltage and current are within the inverter's specifications.
4. **AC Input Connection (Optional):** If using grid or generator power, connect the AC input source to the inverter's AC input terminals.
5. **AC Output Connection:** Connect your AC loads (appliances, distribution panel) to the inverter's AC output terminals.
6. **Grounding:** Ensure the inverter is properly grounded according to local electrical codes.
7. **Power On:** Once all connections are secure and verified, switch on the battery breaker, then the PV breaker (if applicable), and finally the inverter's power switch.

# 6. Operating Modes

The PowMr 10000W Solar Inverter offers flexible charging and discharging modes to optimize energy management.

## 6.1 Charging Modes

The inverter supports three charging modes:

- **Solar-Only:** The battery is charged exclusively by solar power.
- **Utility Priority:** The battery is primarily charged by utility (grid) power. Solar power acts as a supplementary source if utility power is insufficient or unavailable.
- **Solar Priority:** The battery is primarily charged by solar power. Utility power is used only when solar power is insufficient.

## 6.2 Discharging Modes

The inverter supports three discharge modes for powering loads:

- **PV Priority:** Loads are primarily powered by solar PV. If PV power is insufficient, battery power is used. Utility power is used as a last resort.
- **Utility Priority:** Loads are primarily powered by utility (grid) power. Battery power is used only when utility power is unavailable.
- **Solar-Only:** Loads are powered exclusively by solar PV and/or battery. Utility power is not used for discharging.

## 6.3 Battery Compatibility

The inverter is compatible with various 48V battery types, including:




Figure 6.1: Compatible Battery Types.

- AGM (Absorbent Glass Mat)
- GEL
- FLD (Flooded)
- Lithium (LiCoMnNiO2, LiFePO4)
- USER (Customizable settings for other battery types)

## 7. Maintenance

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

- **Cleaning:** Periodically clean the exterior of the inverter with a dry cloth. Ensure ventilation openings are free from dust and debris. Do not use liquid cleaners.
- **Connections:** Annually check all electrical connections (battery, PV, AC input/output) for tightness and signs of

corrosion. Tighten any loose connections.

- **Ventilation:** Ensure the area around the inverter remains clear to allow for proper airflow and heat dissipation. The inverter includes dual cooling fans for this purpose.
- **Environmental Conditions:** Verify that the inverter is operating within its specified temperature and humidity ranges.
- **Battery Health:** Monitor your battery bank's health and charge levels regularly. Refer to your battery manufacturer's guidelines for specific maintenance.

## 8. 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; 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 inverter to cool; Charge battery. |
| PV charging not active | Insufficient solar input; PV connection issue; MPPT range not met. | Check solar panel output; Verify PV wiring; Ensure PV voltage is within 60-150VDC. |
| Unusual noise from inverter | Loose components; Overload; Fan obstruction. | Contact support; Reduce load; Clear fan vents. |

The inverter is equipped with multiple protections against short circuit, over/under voltage, overload, and reverse polarity to ensure safe and efficient operation. If an error code appears on the LCD, refer to the specific error code section in the full manual (if available) or contact support.

## 9. Warranty and Support

PowMr stands behind the quality of its products. For warranty information, technical support, or service inquiries, please contact PowMr customer service through their official channels or the retailer where the product was purchased.

Please have your model number (POW-RELAB 10KU) and purchase date ready when contacting support.

For more information, you may visit thePowMr Store on Amazon.

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

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## Answered questions about this manual

**How do I configure and set up the PowMr POW-RELAB 10KU 10000W Solar Inverter?**

To configure and set up your PowMr POW-RELAB 10KU solar inverter, follow these essential steps based on the user manual:Wiring Sequence: You must connect the 48V battery bank first before connecting solar panels or...

**Read full answer**