PowMr POW-RELAB 10KE

PowMr 10000W Hybrid Solar Inverter (POW-RELAB 10KE) User Manual

Model: POW-RELAB 10KE
Brand: PowMr

1. Introduction

This manual provides essential instructions for the safe and efficient operation, installation, and maintenance of your PowMr 10000W Hybrid Solar Inverter. Please read this manual thoroughly before installation and use, and retain it for future reference. This inverter is designed to convert 48VDC battery power to 220VAC, integrating a 120A MPPT solar charge controller for comprehensive solar power management.

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 in accordance with all local electrical codes.
- Ensure the inverter is disconnected from all power sources (PV array, battery, AC input) before performing any maintenance or wiring.
- Do not disassemble the inverter. There are no user-serviceable parts inside.
- Avoid installing the inverter in direct sunlight, near heat sources, or in areas with flammable materials.
- Ensure proper ventilation around the inverter to prevent overheating.
- Wear appropriate personal protective equipment (PPE), including insulated gloves and eye protection, when working with electrical systems.
- Verify correct polarity when connecting batteries and solar panels. Incorrect polarity can cause severe damage.

3. Product Overview

The PowMr 10000W Hybrid Solar Inverter is a robust solution for off-grid and hybrid solar systems. It features a pure sine wave output, a high-efficiency MPPT charge controller, and advanced protection functions.

3.1 Key Features

- **Output Power:** 10000W rated, with a peak power capability of up to 30000W.
- **Input Voltage:** 48VDC for battery systems.
- **Output Voltage:** 220Vac ±10% at 50Hz/60Hz.
- **MPPT Charge Controller:** Built-in 120A MPPT for efficient solar charging. Max PV input power: 6400W, MPPT voltage range: 60-150VDC.
- **AC Charging:** Maximum AC charging current of 60A. Hybrid charging (AC + PV) up to 120A.
- **Battery Compatibility:** Supports various 48V battery types including Flooded, LiCoMnNiO2, LiFePO4, AGM, Gel, and user-defined settings.
- **High Load Handling:** Optimized toroidal transformer design for enhanced stability and reliability with high-load electrical devices.
- **Display:** LCD screen and 3 LED indicators for dynamic system data and operating status.

3.2 Physical Description

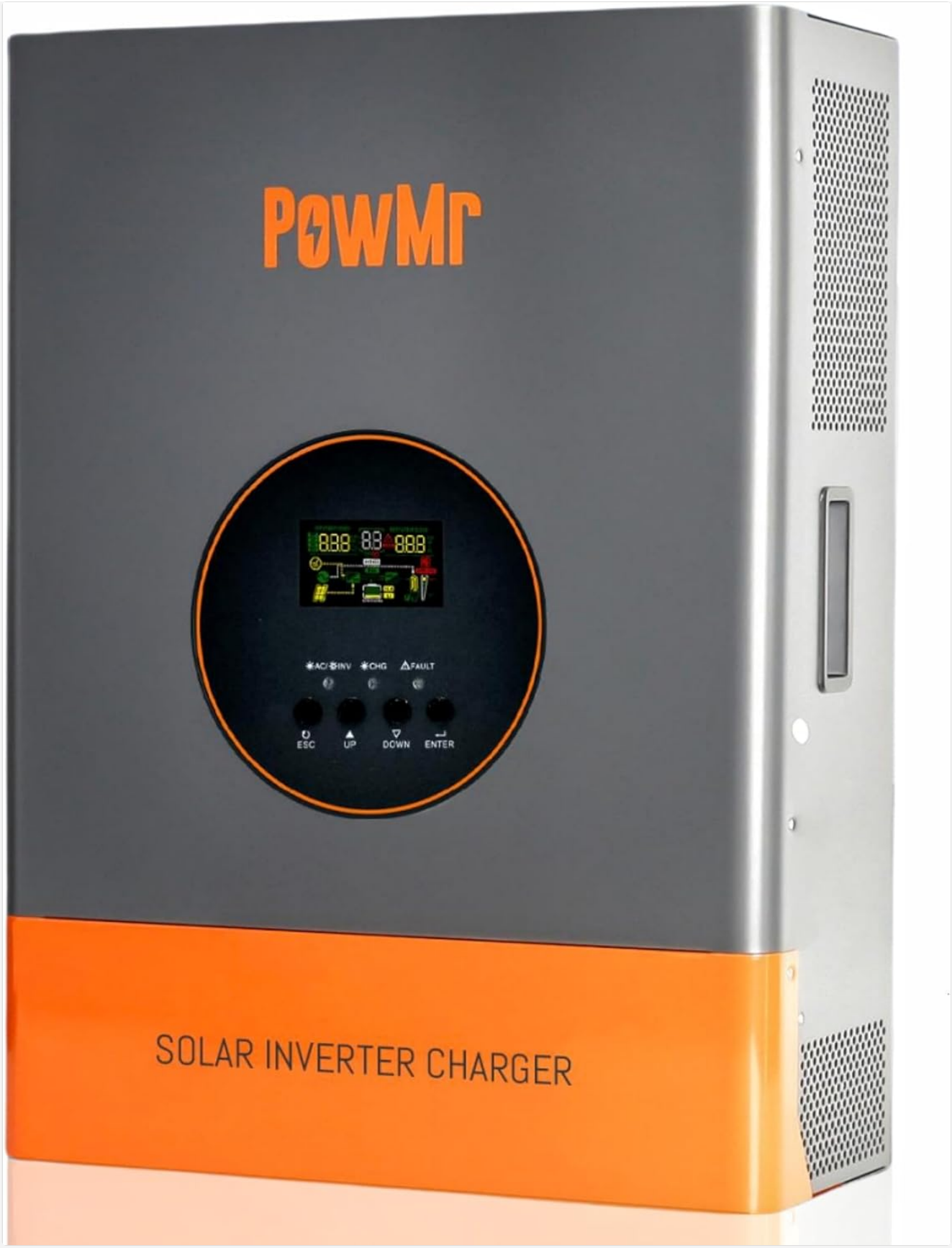


Image 3.1: Front view of the PowMr 10000W Hybrid Solar Inverter, showing the LCD display and control buttons.

Image 3.2: The inverter highlighting its 10000W pure sine wave output, 120A MPPT controller, 48VDC input, 220V AC output, 30000W peak power, and dimensions.

The inverter measures approximately 21.46 x 15.75 x 7.87 inches and weighs 114.6 pounds. It features a durable finish with high anti-corrosion and dust-proof design.

3.3 Connection Ports and Controls

Image 3.3: Rear view of the inverter showing the various connection ports and a toggle switch.

1. **Toggle switch:** Main power switch for the inverter.
2. **AC input:** Connection for grid or generator AC power.
3. **AC output:** Connection for loads requiring 220VAC.
4. **Communication port:** For data monitoring and external communication.
5. **PV input:** Connections for solar panel array.
6. **Battery input:** Connections for the 48V battery bank.

4. Setup and Installation

Careful planning and correct installation are crucial for the safe and optimal performance of your hybrid solar inverter.

4.1 Site Selection

- Install the inverter indoors, in a dry, well-ventilated area.

- Ensure adequate clearance around the unit for airflow and heat dissipation.
- Mount the inverter vertically on a sturdy, non-flammable surface.
- Avoid areas with excessive dust, corrosive gases, or high humidity.

4.2 Wiring Connections

Image 4.1: Diagram illustrating the AC input (grid/generator), AC output (loads), PV input (solar panels), and Battery input connections.

1. **Battery Connection:** Connect the 48V battery bank to the battery input terminals. Ensure correct polarity (positive to positive, negative to negative). The inverter supports various 48V battery types including Flooded, LiCoMnNiO2, LiFePO4, AGM, Gel, and user-defined settings.
2. **PV Array Connection:** Connect the solar panel array to the PV input terminals. The maximum PV array open circuit voltage is 150VDC, and the MPPT voltage range is 60-150VDC. Ensure the total PV power does not exceed 6400W.
3. **AC Input Connection:** Connect the AC utility grid or a compatible generator to the AC input terminals. Rated input voltage is 154-265Vac, with a maximum AC input current of 60A.
4. **AC Output Connection:** Connect your AC loads to the AC output terminals. The inverter provides 10000W

rated power at 220Vac ±10% (50Hz/60Hz).

All wiring should be appropriately sized for the expected current and protected with circuit breakers or fuses as required by local electrical codes.

Image 4.2: Illustration of battery charging current (Max AC 60A, Max PV 120A) and compatible 48V battery types: GEL, FLD (Flooded), Li-ion (Lithium-ion), and USE (User-defined).

5. Operating Instructions

Once all connections are securely made and verified, you can begin operating the inverter.

5.1 Powering On/Off

1. **To Power On:** First, switch on the battery breaker, then the PV array breaker, and finally the AC input breaker (if connected). Turn on the inverter's main toggle switch. The LCD display will illuminate, and the inverter will initiate its startup sequence.
2. **To Power Off:** First, turn off the AC input breaker, then the PV array breaker, and finally the battery breaker. Turn off the inverter's main toggle switch.

5.2 LCD Display and Settings

The LCD screen provides real-time system data, including input/output voltages, current, power, battery status, and operating mode. The 3 LED indicators provide quick status updates.
The inverter features a comprehensive menu system with approximately 41 adjustable parameters. These settings allow customization of charging modes, discharge priorities, battery types, and other operational parameters. Refer to the detailed parameter settings section in the full product manual for specific instructions on navigating and adjusting these settings.

5.3 Charge and Discharge Modes

The inverter supports flexible charging and discharge strategies:

- **3 Charging Modes:**
  - Solar-only charging
  - Utility priority charging (AC first, then solar)
  - Solar priority charging (Solar first, then AC)
- **3 Discharge Modes:**
  - PV priority discharge (Solar first, then battery, then utility)
  - Utility priority discharge (Utility first, then solar, then battery)
  - Solar-only discharge (Loads powered only by solar/battery)

6. Maintenance

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

- **Cleaning:** Periodically clean the exterior of the inverter with a dry cloth. Ensure ventilation openings are free from dust and debris. The inverter features a dust-proof design to prolong its lifespan.
- **Connections:** Annually inspect all wiring connections for tightness and signs of corrosion. Loose connections can lead to overheating and system failure.
- **Ventilation:** Ensure the dual cooling fans are operating correctly and are not obstructed. Efficient heat dissipation is critical for performance.
- **Environment:** Verify that the installation environment remains within the specified temperature and humidity ranges.

7. Troubleshooting

This section provides guidance for common issues. For complex problems, contact technical support.

7.1 Protection Functions

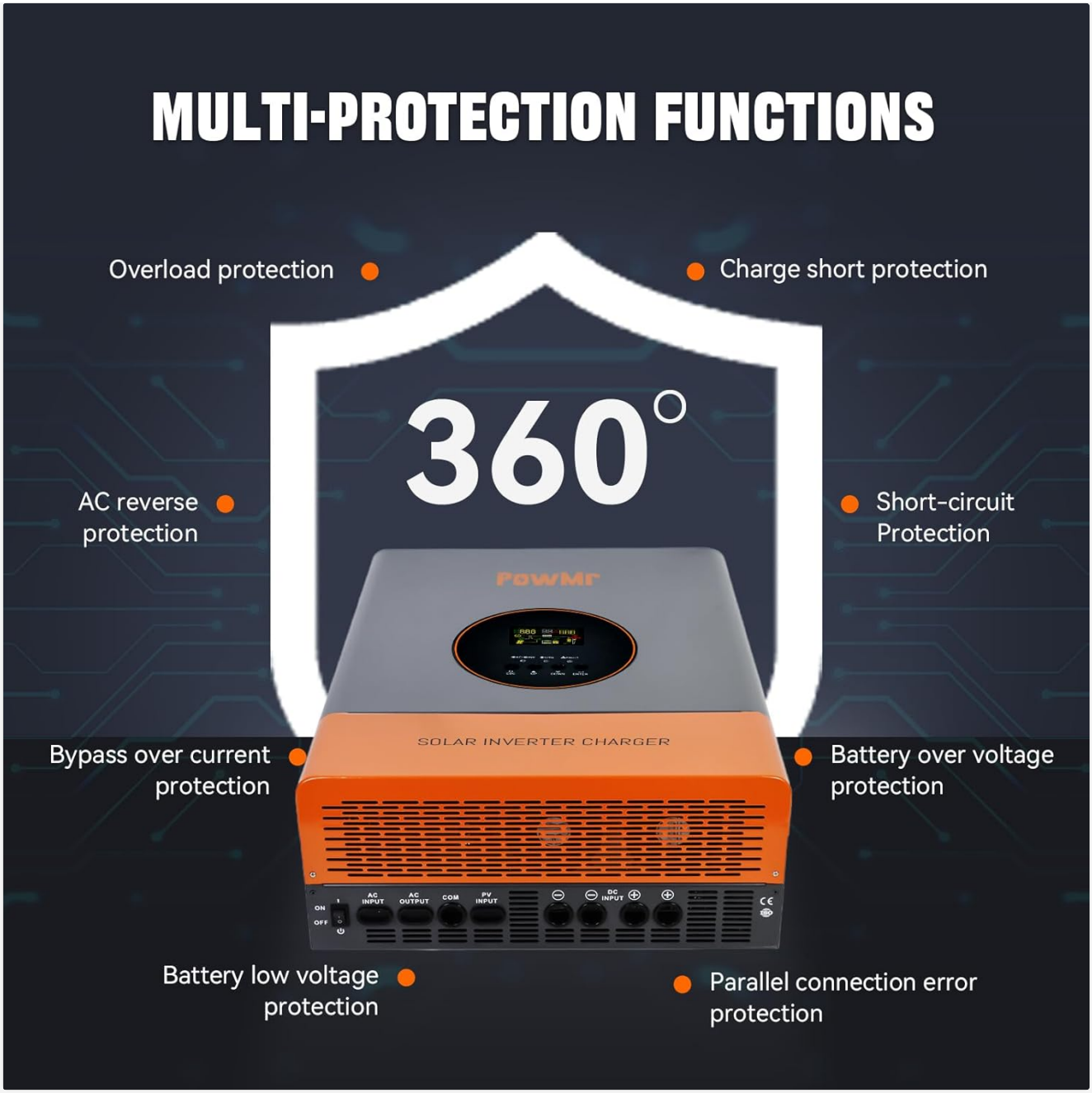


Image 7.1: Diagram illustrating the various protection mechanisms integrated into the inverter.

The inverter is equipped with multiple protection features to ensure safe operation:

- **Overload Protection:** Shuts down output if connected loads exceed the inverter's capacity.
- **Charge Short Protection:** Protects against short circuits in the charging circuit.
- **Short-circuit Protection:** Protects the AC output from short circuits.
- **Battery Over Voltage Protection:** Prevents battery overcharging.
- **Battery Low Voltage Protection:** Prevents battery over-discharge.
- **Bypass Over Current Protection:** Protects the bypass circuit from excessive current.
- **AC Reverse Protection:** Prevents damage from incorrect AC input wiring.
- **Parallel Connection Error Protection:** Ensures correct configuration in parallel systems.

7.2 Common Issues

- **Inverter Not Turning On:** Check battery connections, battery voltage, and all breakers. Ensure the main toggle switch is in the ON position.
- **No AC Output:** Verify input sources (PV, AC utility), check for overload conditions, and ensure protection

functions have not been triggered.

- **LCD Display Not Working:** If the unit powers on but the display is blank, check internal ribbon cable connections (if comfortable and authorized by support, otherwise contact support).
- **Unusual Noises:** Minor fan noise is normal during operation, especially under heavy load. Excessive or unusual noises may indicate a problem; disconnect power and contact support.

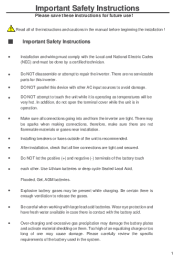
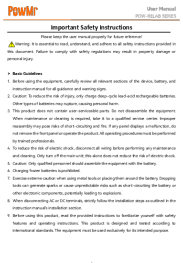
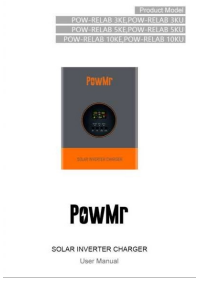
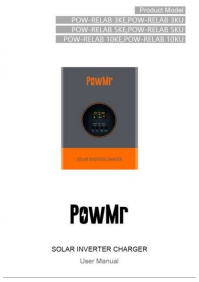
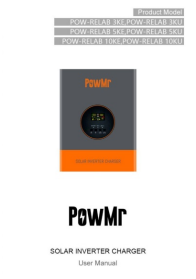
8. Specifications

Feature	Specification
Model Name	POW-RELAB 10KE
Rated Output Power	10000W (10 KW)
Peak Power	30000W
DC Input Voltage	48VDC
AC Output Voltage	220Vac ±10%
Output Frequency	50Hz/60Hz
Max PV Input Power	6400W
MPPT PV Voltage Range	60-150VDC
Max PV Input Current	120A
Max AC Charging Current	60A
Hybrid Charging Max Current	120A (AC charger + PV charger)
Product Dimensions	21.46 x 15.75 x 7.87 inches
Item Weight	114.6 pounds
Recommended Uses	Home, Office, Vehicle
Power Source	Solar and Battery Powered

9. Warranty and Support

For warranty information, please refer to the documentation provided with your purchase or contact the seller directly. Warranty terms typically cover manufacturing defects for a specified period.
For technical support, troubleshooting assistance, or inquiries regarding parts and service, please contact PowMr customer service through their official channels or the retailer from whom the product was purchased. Providing your model number (POW-RELAB 10KE) and purchase details will help expedite support.
No official product videos were found in the provided data.

Related Documents - POW-RELAB 10KE

	PowMr Solar Inverter User Manual Comprehensive user manual for the PowMr Solar Inverter, detailing installation, operation, safety instructions, technical specifications, and troubleshooting for this 5000W off-grid 48V inverter.
	PowMr POW-RELAB Series User Manual: Installation, Operation, and Safety Guide Comprehensive user manual for the PowMr POW-RELAB series grid-tied inverter-chargers. Covers safety instructions, installation, operation, troubleshooting, and technical specifications for residential and commercial solar energy storage systems.
	PowMr POW-RELAB Series Solar Inverter Charger User Manual Comprehensive user manual for the PowMr POW-RELAB series solar inverter chargers, covering installation, operation, maintenance, and troubleshooting for models POW-RELAB 3KE, 3KU, 5KE, 5KU, 10KE, and 10KU.
	PowMr POW-RELAB Series Solar Inverter Charger User Manual This user manual from PowMr provides comprehensive guidance on the installation, operation, maintenance, and specifications of the POW-RELAB series grid-tied solar inverter-chargers, suitable for residential and commercial solar energy storage systems.
	PowMr POW-RELAB Series User Manual: Installation, Operation & Maintenance Guide Comprehensive user manual for PowMr POW-RELAB series solar inverter-chargers (3KW, 5KW, 10KW models). Covers installation, operation, safety, troubleshooting, and specifications for residential and commercial solar energy storage systems.

	[PowMr POW-RELAB Series Solar Inverter Charger User Manual] User manual for PowMr POW-RELAB series grid-tied solar inverter-chargers. Provides detailed information on installation, operation, safety, troubleshooting, and specifications for residential and commercial solar energy storage systems.