PowMr POW-LVM3.6M-24V

PowMr 3600W Solar Inverter User Manual

Model: POW-LVM3.6M-24V

Brand: PowMr

1. Product Overview

The PowMr 3600W Solar Inverter is a versatile off-grid solution designed to convert 24V DC power from batteries into 110V AC pure sine wave electricity. It integrates a 120A MPPT solar charge controller and an 80A AC charger, making it suitable for various solar power applications. This unit supports multiple battery types, including AGM, Gel, Lead-acid, Lithium-ion, and LiFePO4, and can operate in a batteryless mode.

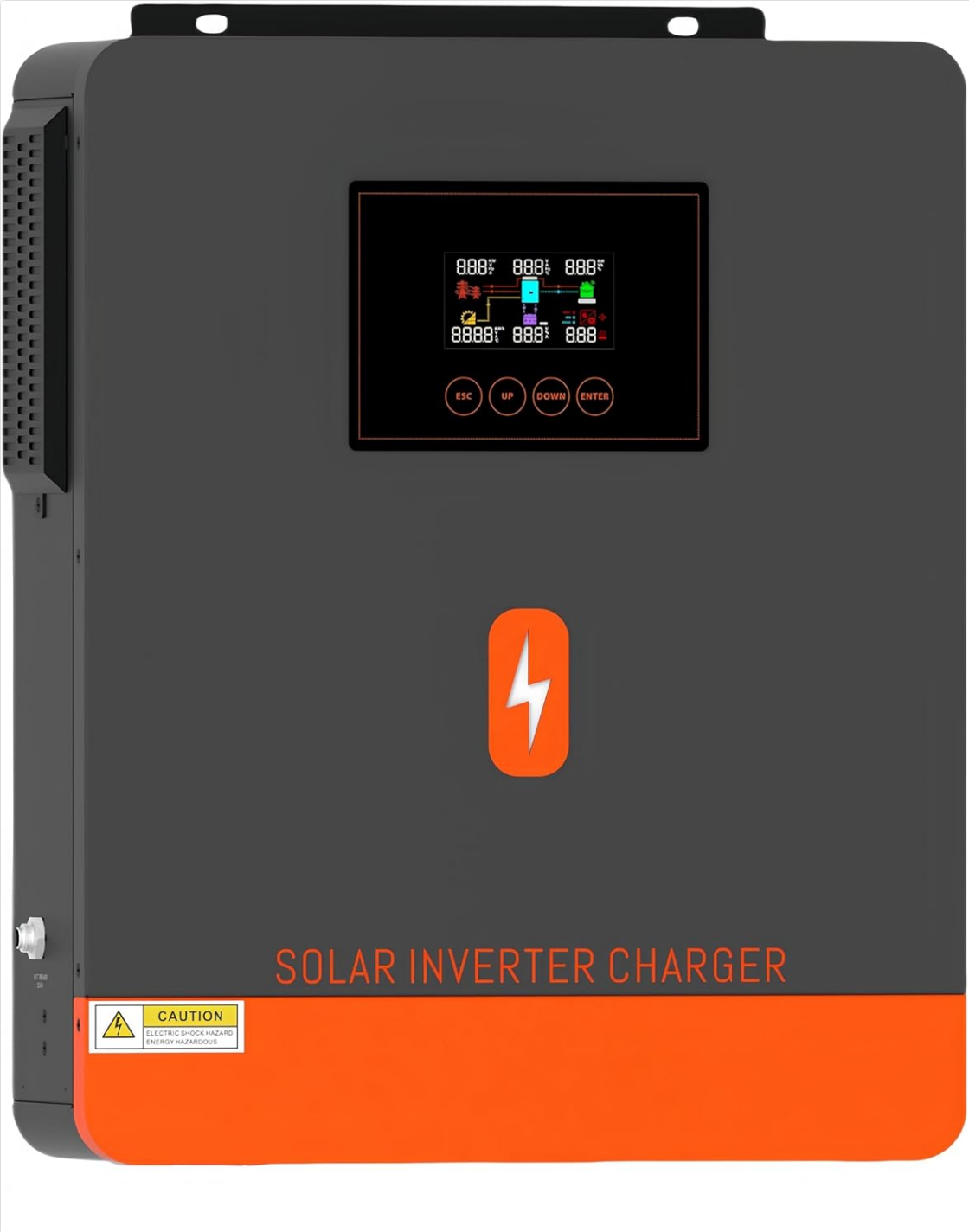

Figure 1.1: Front view of the PowMr 3600W Solar Inverter, showcasing the LCD display and control buttons.

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Video 1.1: A detailed visual overview of the PowMr 3600W Solar Inverter's physical appearance and various ports.

2. Key Features

- **High Power Output:** Rated 3.6kW pure sine wave output, converting 24V DC to 110V AC.
- **Advanced MPPT Controller:** Features a 120A MPPT solar charge controller with a maximum PV input power of 4200W and 500Vdc.
- **Flexible Charging:** Includes an 80A AC charger, supporting a max hybrid charging current (AC + PV) of 120A.
- **Battery Compatibility:** Compatible with AGM, Gel, Lead-acid, Lithium-ion, and LiFePO4 batteries. Supports

batteryless operation.

- **User-Friendly Display:** LED display provides real-time system information and allows adjustment of input voltage range, battery charging current, and AC/solar charging priority.
- **Comprehensive Protection:** Equipped with dual cooling fans for efficient heat dissipation and multiple protections including short circuit, over/under voltage, overload, reverse polarity, and over-temperature.
- **Communication Interfaces:** Supports RS485 and RS232 communication.

Figure 2.1: Visual representation of the inverter highlighting key technical specifications such as 3.6kW/24V, 97% conversion efficiency, and 120A max solar charge current.

3. Setup and Installation

Proper installation is crucial for the safe and efficient operation of your PowMr solar inverter. Please follow these steps carefully. It is recommended to have a qualified electrician perform the installation.

3.1 Mounting the Inverter

1. Determine a suitable, well-ventilated installation location, away from direct sunlight, moisture, and flammable materials.
2. Secure the inverter to a sturdy wall using two screws through the mounting holes located at the top of the inverter. Ensure it is level and firmly attached.

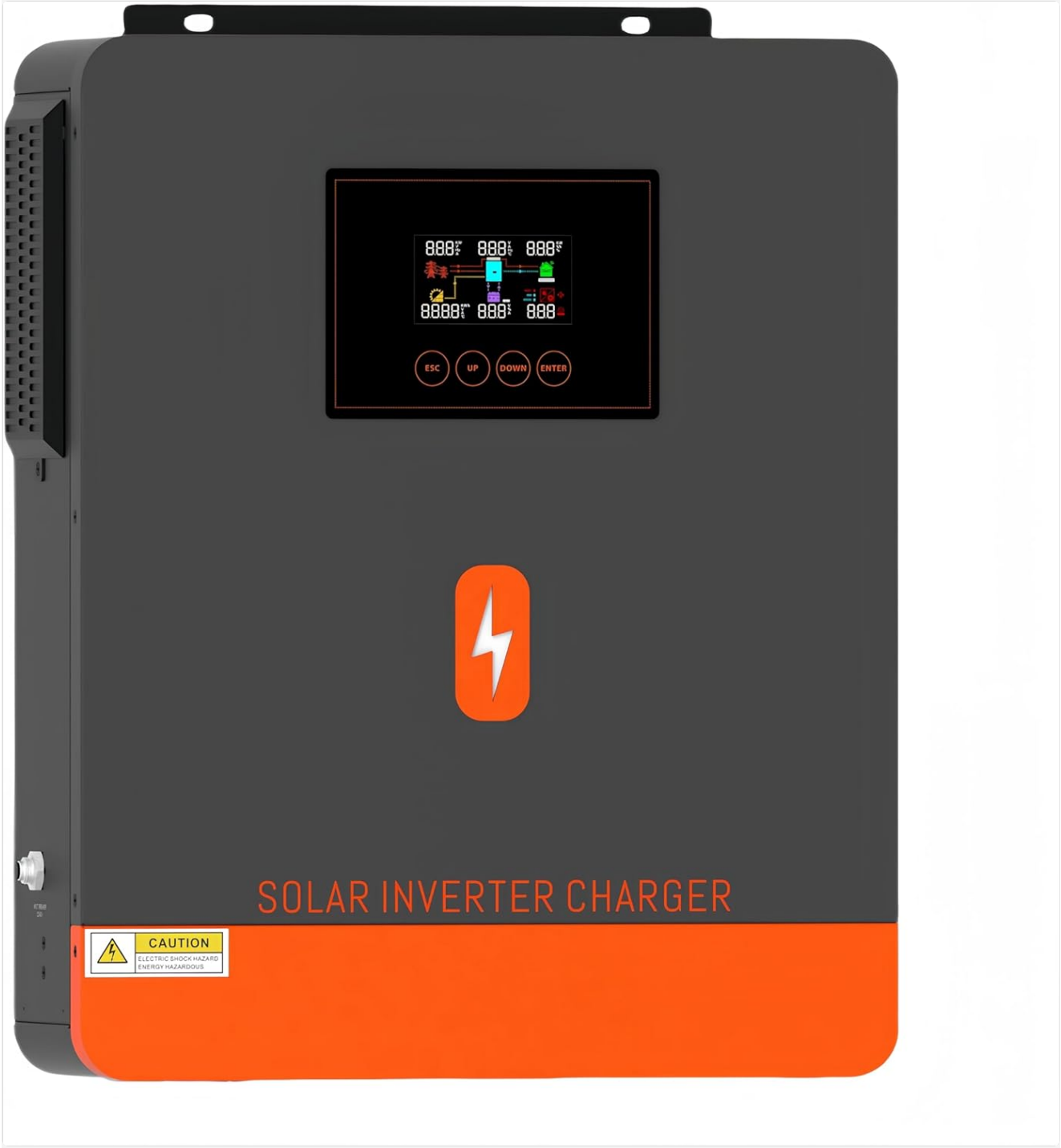

Figure 3.1: The PowMr 3600W Solar Inverter securely mounted on a wall, ready for wiring connections.

3.2 Battery Connection

Before connecting the battery, ensure the inverter is turned off and all circuit breakers are open.

1. Connect the positive (+) and negative (-) cables from your 24V battery bank to a suitably rated DC circuit breaker.
2. Remove the port cover at the bottom of the inverter by unscrewing the four screws. This exposes the connection terminals.
3. Connect the positive (+) and negative (-) cables from the DC circuit breaker to the corresponding battery terminals on the inverter. Ensure correct polarity to prevent damage from reverse connection.

4. Verify the battery voltage is within the acceptable range for the inverter (typically 24V nominal).

Figure 3.2: The inverter connected to a 24V battery, illustrating the battery terminals and the DC circuit breaker.

3.3 PV Array Connection

Connect your solar panels (PV array) to the inverter. Ensure the PV array's voltage and current are within the inverter's specifications.

1. Connect the positive (+) and negative (-) cables from your PV array to the positive and negative PV input ports of the inverter.
2. Double-check all connections for tightness and correct polarity.

3.4 AC Input and Output Connections

The inverter can be connected to utility power or a generator for charging and backup.

1. Connect the utility power or generator to the AC input port of the inverter.
2. Connect your loads to the main AC output port.
3. If utilizing the dual output smart management feature, connect secondary loads to the secondary AC output port.

This feature allows for stable power supply to the secondary output line.

3.5 Powering On

1. After all connections are made and verified, replace the port cover on the inverter.
2. Close the battery circuit breaker.
3. Power on the inverter using its main power switch.
4. If the inverter shows no abnormalities, sequentially activate the PV input, AC input, and AC output lines.

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Video 3.1: A step-by-step guide on how to properly wire the PowMr 3600W solar inverter, including battery, PV, and AC connections.

4. Operating Modes

The PowMr 3600W Solar Inverter offers flexible operating modes to suit various energy needs.

4.1 Charging Modes

The inverter supports three distinct charging modes:

- **Solar Only:** Prioritizes solar power for battery charging.
- **Mains Only:** Uses utility power (AC grid) for battery charging.
- **Mains & Solar Hybrid:** Combines both solar and utility power for efficient battery charging.

4.2 Load Output Modes

The inverter provides three load output working modes:

- **Utility Priority:** Prioritizes utility power to supply loads.
- **Solar Priority:** Prioritizes solar power to supply loads.
- **Solar and SBU Priority:** Prioritizes solar power, then battery, then utility power for loads.

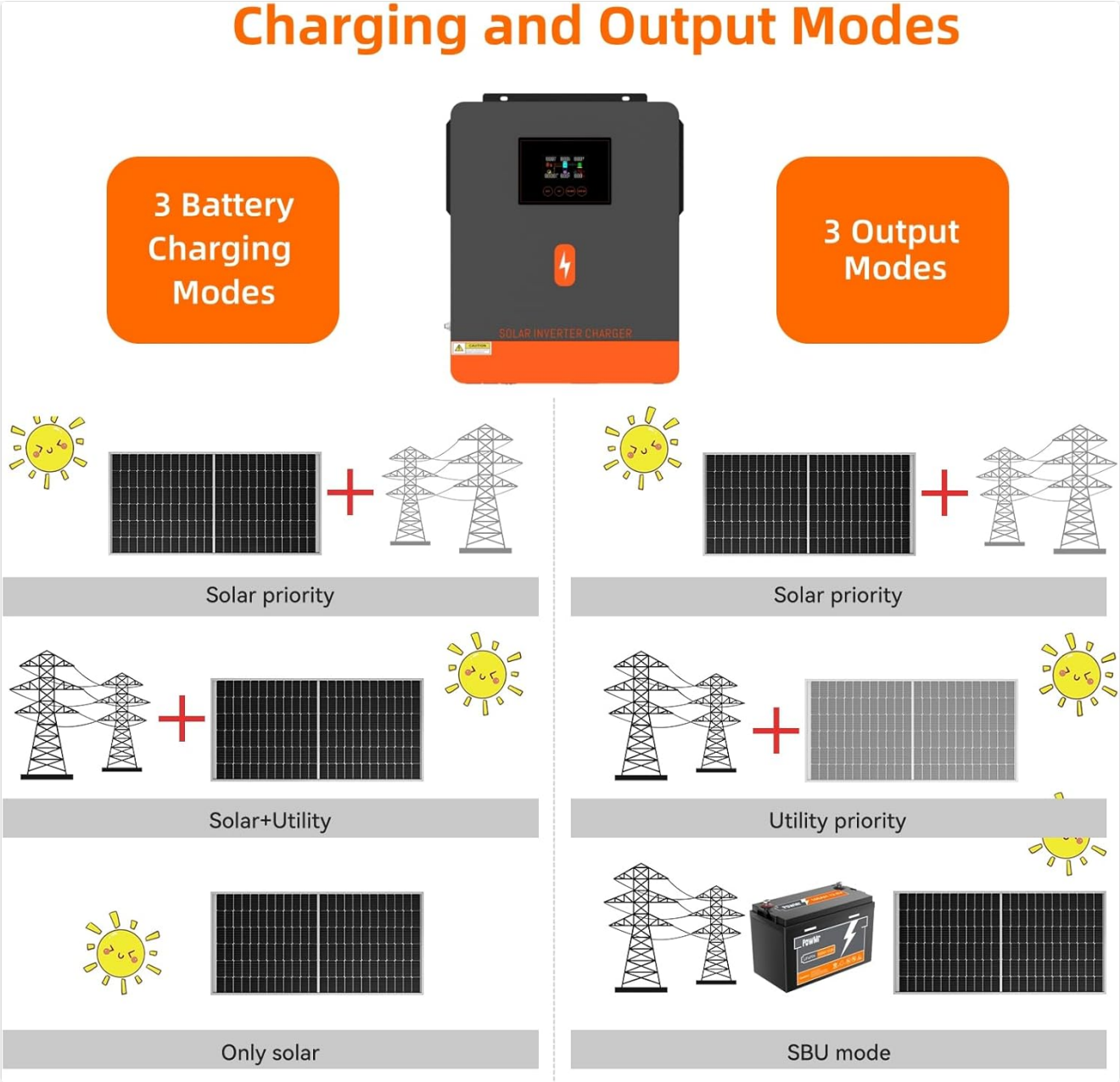

Figure 4.1: Flowchart depicting the various charging and load output priority modes available on the inverter.

5. Configurable Settings via LCD Display

The integrated LED display provides real-time system information and allows users to customize various operational parameters.

- **Input Voltage Range:** Adjust the acceptable input voltage range for utility power.
- **Battery Charging Current:** Set the desired battery charging current based on your battery type and capacity.
- **AC and Solar Charging Priority:** Configure the priority between AC and solar charging sources.

Figure 5.1: The LCD display interface, illustrating options for adjusting AC/Solar charger priority, battery charging current, and input voltage range.

6. Applications

The PowMr 3600W Solar Inverter is designed for a wide range of applications, providing reliable power in various settings.

- **Residential Use:** Powering homes and essential appliances.
- **Commercial Photovoltaic Applications:** Supporting small to medium commercial power needs.
- **Agricultural Applications:** Providing power for farm equipment and remote agricultural sites.
- **Emergency Backup:** Ensuring power continuity during outages for critical systems.

Figure 6.1: Examples of the inverter's applications, including residential, commercial, agricultural, and emergency backup scenarios.

7. Technical Specifications

Specification	Value
Rated Output Power	3.6kW (Pure Sine Wave)
DC Voltage Input	24V
AC Voltage Output	110V AC
Max PV Open Circuit Voltage	500Vdc
PV Array MPPT Voltage Range	60-500Vdc

Specification	Value
Maximum PV Input Power	4200W, 18A
Rated Grid Input Voltage	110/120Vac
Max Hybrid Charging Current (AC+PV)	120A
Communication	RS485, RS232
Dimensions (Package)	19.69 x 16.97 x 7.64 inches
Item Weight	22.8 pounds

8. Safety Information

Always observe the following safety precautions to prevent injury and damage to the inverter or connected equipment:

- Ensure all wiring is performed by qualified personnel and complies with local electrical codes.
- Do not connect or disconnect wires while the system is live. Always disconnect power sources (PV, battery, AC input) before servicing.
- Avoid installing the inverter in areas with high humidity, dust, or flammable gases.
- Ensure proper grounding of the inverter.
- Do not attempt to open or repair the inverter yourself. Refer to authorized service personnel.
- Keep children away from the inverter and wiring.

Figure 8.1: The inverter's built-in protection mechanisms, including short circuit, over current, over voltage, under voltage, overload, backfill, over-temperature, and over charge protection.

9. Maintenance

Regular maintenance helps ensure the longevity and optimal performance of your inverter.

- **Cleaning:** Periodically clean the exterior of the inverter and ensure the cooling vents are free from dust and debris. Use a dry, soft cloth.
- **Connection Checks:** Regularly inspect all electrical connections (battery, PV, AC input/output) for tightness and signs of corrosion.
- **Environmental Check:** Ensure the installation environment remains within the specified temperature and humidity ranges.
- **Firmware Updates:** Check the manufacturer's website for any available firmware updates to improve performance or address issues.

10. Troubleshooting

This section provides guidance on common issues you might encounter. For complex problems, contact customer support.

Problem	Possible Cause	Solution
Inverter not powering on	Battery not connected, battery voltage too low, inverter switch off, faulty wiring.	Check battery connections, ensure battery is charged, turn on inverter switch, verify wiring.
No AC output	Overload, short circuit, AC output breaker tripped, inverter fault.	Reduce load, check for short circuits, reset AC output breaker, check LCD for error codes.
Battery not charging from PV	PV array not connected, insufficient sunlight, PV voltage too low/high, MPPT controller fault.	Check PV connections, ensure adequate sunlight, verify PV voltage, check LCD for PV-related errors.
Battery not charging from AC	AC input not connected, utility power outage, AC input breaker tripped.	Check AC input connections, verify utility power, reset AC input breaker.

11. Warranty and Support

For warranty information, technical support, or service inquiries, please refer to the official PowMr website or contact their customer service directly. Keep your purchase receipt and product serial number handy for faster assistance.

Manufacturer: PowMr

Website: PowMr Official Store on Amazon