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PowMr PowMr 2000W Solar Inverter

PowMr 2000W Solar Inverter User Manual

Model: PowMr 2000W Solar Inverter

1. Introduction

This manual provides essential information for the installation, operation, and maintenance of your PowMr 2000W Solar Inverter. This device is a pure sine wave hybrid solar charge inverter, integrating solar energy storage, utility charging, and AC sine wave output. It features an 80A MPPT solar charge controller for efficient energy management. Please read this manual thoroughly before installation and use to ensure proper function and safety.

2. Safety Instructions

- **Electrical Safety:** Installation and wiring must be performed by qualified personnel in accordance with local electrical codes.
- **Ventilation:** Ensure adequate ventilation around the inverter to prevent overheating. Do not block ventilation openings.
- **Environment:** Install the inverter in a dry, cool, and dust-free environment. Avoid direct sunlight, moisture, and corrosive substances.
- **Battery Connection:** Always connect the battery with correct polarity. Reverse polarity can cause severe damage.
- **Grounding:** The inverter must be properly grounded to prevent electrical shock.
- **Maintenance:** Disconnect all power sources (solar, utility, battery) before performing any maintenance or cleaning.
- **Children:** Keep the device out of reach of children.

3. Product Overview

3.1 Key Features

- 2000W Pure Sine Wave Inverter: Provides stable and clean AC power.
- 80A MPPT Solar Charge Controller: Optimizes solar power harvesting with up to 98% efficiency.
- Hybrid Functionality: Integrates solar, utility, and battery power sources.

- LCD Display & LED Indicators: Real-time system data, operation status, and fault codes.
- Multiple Charging Modes: Supports Solar First, Utility First, Solar and Utility, and Only Solar charging.
- Multiple Output Modes: Supports Utility First, Solar First, and SBU First (Solar-Battery-Utility) output.
- Wide Battery Compatibility: Compatible with 12V AGM, Gel, Lead-acid, Lithium-ion, and LiFePO4 batteries.
- Comprehensive Protection: Includes short-circuit, over/under voltage, overload, over-temperature, and surge protection.
- Built-in Lithium Activation: For LiFePO4 batteries.

3.2 Product Components

The following image illustrates the main components and connection points of the PowMr 2000W Solar Inverter.

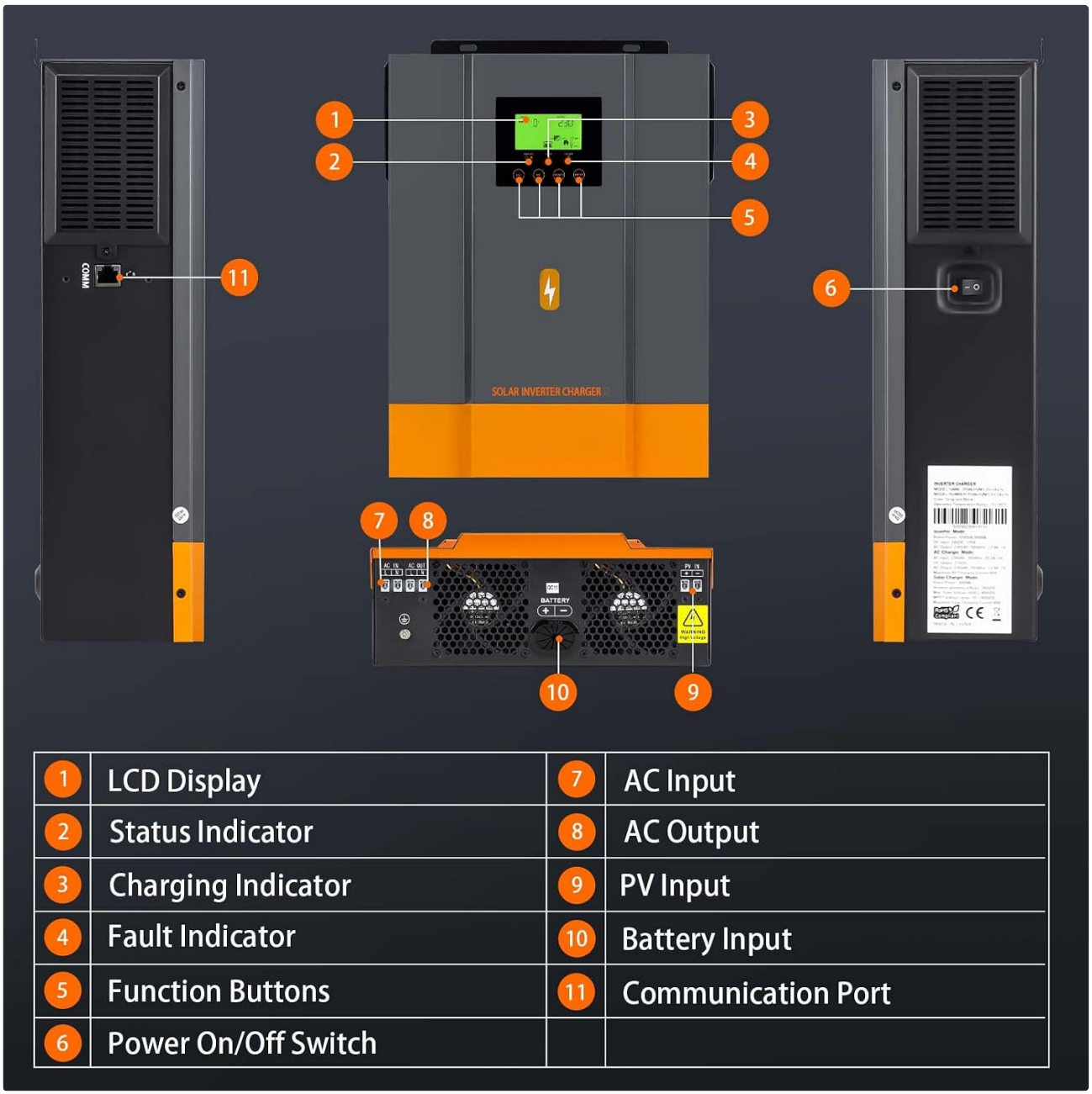


Image Description: A detailed view of the PowMr 2000W Solar Inverter from front, side, and bottom, with numbered labels indicating its various components. The front panel shows the LCD display (1), Status Indicator (2), Charging Indicator (3), Fault Indicator (4), and Function Buttons (5). The side view shows the Power On/Off Switch (6) and Communication Port (11). The bottom view highlights the AC Input (7), AC Output (8), PV Input (9), and Battery Input (10).

1. **LCD Display:** Shows system data and operating status.

2. **Status Indicator:** Indicates the inverter's operational status.
3. **Charging Indicator:** Shows battery charging status.
4. **Fault Indicator:** Illuminates when an error occurs.
5. **Function Buttons:** Used for navigation and settings adjustment.
6. **Power On/Off Switch:** Main power control for the inverter.
7. **AC Input:** Connection point for utility grid or generator AC power.
8. **AC Output:** Connection point for AC loads.
9. **PV Input:** Connection point for solar panel array.
10. **Battery Input:** Connection point for the 12V battery bank.
11. **Communication Port:** For external communication devices.

4. Setup and Installation

4.1 Mounting the Inverter

Mount the inverter vertically on a wall or sturdy surface. Ensure there is sufficient clearance around the unit for proper airflow (at least 20 cm on all sides). Avoid mounting near flammable materials or in direct sunlight.

4.2 Wiring Connections

Follow the wiring diagram carefully. All connections must be secure and properly insulated. Use appropriate wire gauges for all connections to prevent overheating.

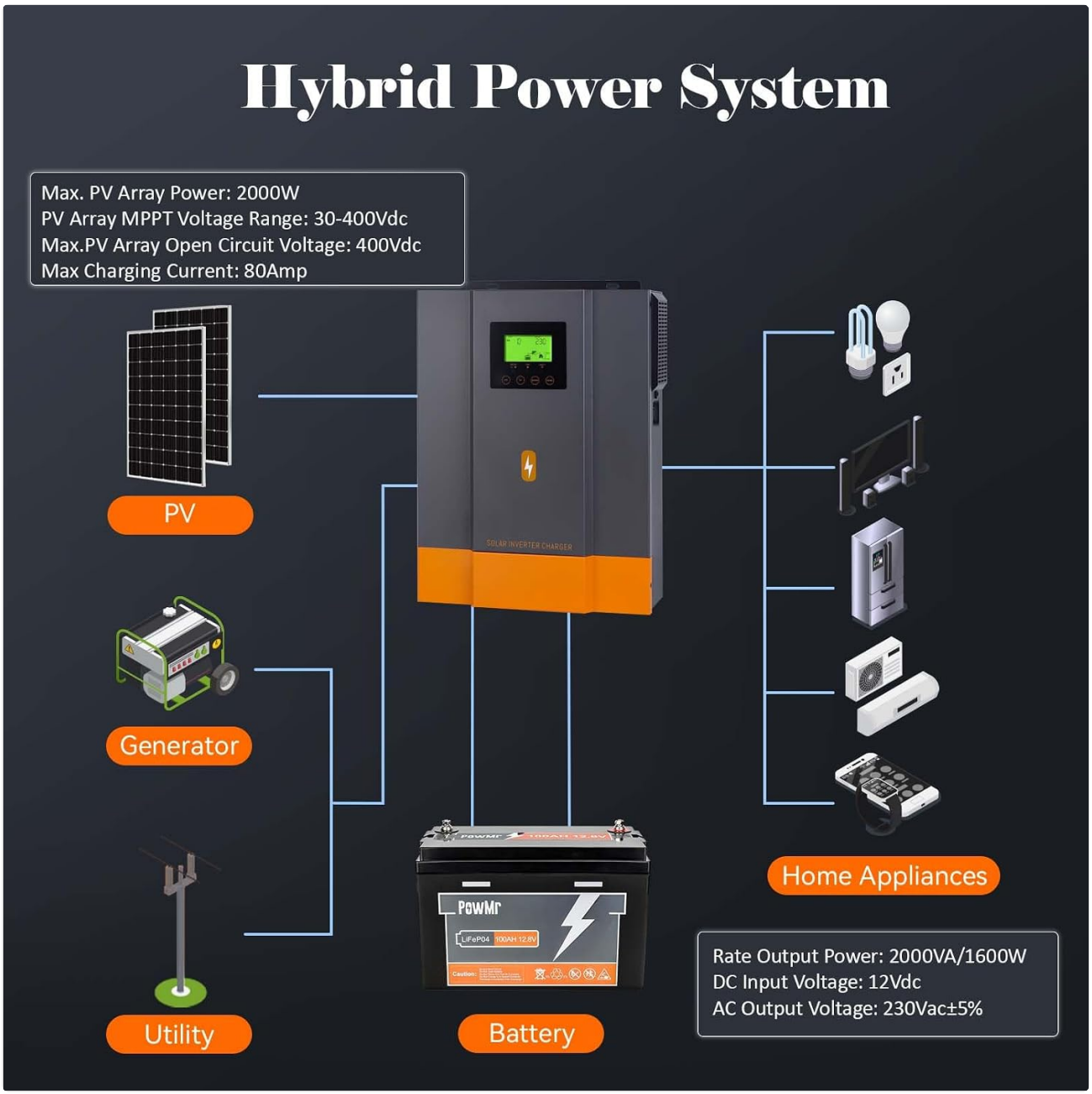


Image Description: A diagram illustrating the connections for a hybrid power system using the PowMr 2000W Solar Inverter. It shows solar panels (PV) connected to the inverter, a generator and utility grid connected to the AC input, a 12V battery bank connected to the battery input, and various home appliances connected to the AC output. Key specifications like Max PV Array Power (2000W), PV Array MPPT Voltage Range (30-400Vdc), Max PV Array Open Circuit Voltage (400Vdc), Max Charging Current (80Amp), Rate Output Power (2000VA/1600W), DC Input Voltage (12Vdc), and AC Output Voltage (230Vac±5%) are also displayed.

1. **Battery Connection:** Connect the 12V battery bank to the Battery Input terminals (10). Ensure correct polarity (positive to positive, negative to negative).
2. **PV Array Connection:** Connect the solar panel array to the PV Input terminals (9). Verify that the PV array voltage and current are within the inverter's specifications (MPPT voltage range: 30-400Vdc, Max open circuit voltage: 400Vdc).
3. **AC Input Connection:** Connect the utility grid or a generator to the AC Input terminals (7).
4. **AC Output Connection:** Connect your AC loads (appliances) to the AC Output terminals (8).

4.3 Compatible Battery Types

The inverter is compatible with various 12V battery types. Ensure your battery settings on the inverter match your battery type for optimal performance and lifespan.



Image Description: An image showing the PowMr 2000W Solar Inverter alongside icons representing various compatible 12V battery types: GEL, AGM, Flooded, LiFePO4, Lithium, and User-Defined. This highlights the inverter's versatility in battery support.

5. Operating Instructions

5.1 Powering On/Off

1. **To Power On:** Ensure all connections are secure. Turn on the battery breaker first, then the PV array breaker (if applicable), and finally the AC input breaker (if applicable). Press the Power On/Off Switch (6) on the inverter.
2. **To Power Off:** Turn off the AC output breaker first, then the AC input breaker, followed by the PV array breaker, and finally the battery breaker. Press the Power On/Off Switch (6) to turn off the inverter.

5.2 LCD Display and Function Buttons

The LCD display (1) shows real-time operational data such as input voltage, output voltage, battery status, and charging current. Use the Function Buttons (5) (ESC, UP, DOWN, ENTER) to navigate through menus and adjust settings.

5.3 Charging Modes

The inverter supports four charging modes, which can be configured via the LCD display settings:



Image Description: A diagram illustrating the four available charging modes and three load output working modes of the PowMr 2000W Solar Inverter. The charging modes are: Solar First, Utility First, Solar and Utility, and Only Solar. The load output working modes are: Utility First, Solar First, and SBU First (Solar-Battery-Utility).

- **Solar First:** Prioritizes solar power to charge the battery. Utility power is used only if solar power is insufficient.
- **Utility First:** Prioritizes utility power to charge the battery. Solar power is used only if utility power is unavailable.
- **Solar and Utility:** Both solar and utility power are used simultaneously to charge the battery.
- **Only Solar:** Only solar power is used to charge the battery. Utility power is not used for charging.

5.4 Output Modes

The inverter supports three load output working modes:

- **Utility First:** Prioritizes utility power to supply loads. If utility power fails, the inverter switches to battery

power.

- **Solar First:** Prioritizes solar power to supply loads. If solar power is insufficient, it switches to utility or battery power.
- **SBU First (Solar-Battery-Utility):** Prioritizes solar power, then battery power, and finally utility power to supply loads.

6. Maintenance

- **Regular Inspection:** Periodically check all wiring connections for tightness and signs of corrosion.
- **Cleaning:** Keep the inverter's ventilation openings clear of dust and debris. Use a dry cloth to clean the exterior. Do not use liquid cleaners.
- **Battery Health:** Monitor battery voltage and health regularly, especially for lead-acid batteries.
- **Firmware Updates:** Check the manufacturer's website for any available firmware updates.

7. Troubleshooting

The inverter's LCD display will show fault codes if an issue occurs. Refer to the specific fault code in the full product manual (if available from the manufacturer) for detailed troubleshooting steps. Common issues and general advice:

- **No Power:** Check all power connections (battery, PV, AC input). Ensure the Power On/Off Switch is engaged. Verify battery voltage is above the cold start voltage (11.5Vdc).
- **No AC Output:** Check AC output connections and ensure loads are not exceeding the inverter's rated power (2000VA/1600W). Check for overload or short-circuit fault codes.
- **Battery Not Charging:** Verify PV input voltage and current. Check solar panel connections. Ensure charging mode settings are correct.
- **Over-Temperature Fault:** Ensure adequate ventilation around the inverter. Clear any obstructions from the cooling fans. Reduce load if operating in a hot environment.



Image Description: An image highlighting the multi-protection functions of the PowMr 2000W Solar Inverter. These include Short-circuit Protection, Surge Protection, Overload Protection, Over-Temp Protection, Low Voltage Protection, High Voltage Protection, and Cold Start Function. These built-in protections help prevent damage to the inverter and connected devices.

8. Specifications

Feature	Specification
Rated Output Power	2000VA / 1600W
DC Input Voltage	12Vdc
Nominal Output Voltage	230Vac ±5%
Output Frequency	50Hz/60Hz
Maximum PV Open Circuit Voltage	400Vdc
PV Array MPPT Voltage Range	30-400Vdc

Max Charging Current	80Amp
Cold Start Voltage	11.5Vdc
Product Dimensions	15 x 13 x 5 inches
Item Weight	12.38 pounds



Image Description: A side view of the PowMr 2000W Solar Inverter with its dimensions clearly marked: 357mm/14.1in in height, 273mm/10.8in in width, and 95mm/3.8in in depth. The image also reiterates key specifications such as 2000W Power (Pure Sine Wave Inverter), 80A MPPT Solar Charge Controller, 12Vdc DC Input Voltage, and 230Vac AC Output Voltage.

9. Warranty and Support

For warranty information and technical support, please refer to the documentation included with your product or contact PowMr customer service directly. Keep your purchase receipt as proof of purchase for warranty claims.

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