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› PowMr Hybrid Inverter 2KVA 1600W 12V DC to 230V AC with 80A MPPT Solar Charge Controller Max. PV Input 400V, Works with 12V Lead-Acid and Lithium Batteries

PowMr POW-HVM2H-12V-N

PowMr Hybrid Inverter User Manual

Model: POW-HVM2H-12V-N | Brand: PowMr

1. INTRODUCTION

This manual provides comprehensive instructions for the installation, operation, and maintenance of your PowMr 1600W Solar Hybrid Inverter. This all-in-one inverter integrates a solar energy storage system, battery charging, and pure sine wave AC output, making it ideal for various DC/AC applications including solar power systems, vehicle power supplies, RVs, security monitoring, emergency lighting, and household power systems.



Figure 1.1: PowMr 1600W Solar Hybrid Inverter

2. SAFETY INFORMATION

WARNING: ELECTRIC SHOCK HAZARD, ENERGY HAZARDOUS.

- Installation should only be performed by qualified personnel.
- Ensure all power sources are disconnected before installation or maintenance.
- Proper grounding is essential for safe operation.
- Do not attempt to open or repair the inverter yourself. Refer to authorized service personnel.
- The inverter is equipped with overload, overtemperature, and short-circuit protection. However, always ensure proper load sizing and wiring.
- Keep the inverter away from flammable materials and ensure adequate ventilation.

3. PRODUCT FEATURES

- **Hybrid All-in-One Design:** Integrates solar energy storage, AC charging, and pure sine wave output.
- **High Power Output:** 1600W continuous AC output.
- **Advanced MPPT Controller:** Built-in 80A MPPT solar charge controller for efficient solar energy harvesting.
- **Wide PV Input Range:** Supports 30-400V DC PV input with a maximum PV input VOC of 400V DC.
- **Battery Compatibility:** Suitable for 12V lead-acid (sealed, AGM, gel, flooded) and 12V lithium batteries (requires 'User-defined' setting).
- **Configurable Settings:** Input voltage range and other parameters for household appliances and PCs can be configured via LCD.
- **Flexible Power Source:** Compatible with grid voltage or generator power.
- **Multiple Charging Modes:** Features Solar Only, Grid, Solar & Grid, and Solar Hybrid charging modes.
- **Automatic Restart:** Automatically restarts when AC power recovers.
- **Comprehensive Protection:** Includes overload, overtemperature, and short-circuit protection.
- **Intelligent Battery Charger:** Designed for optimized battery performance.
- **Cold Start Function:** Enables startup in cold conditions.
- **LCD Display & LED Indicators:** Provides dynamic display of system data and operational status.
- **WiFi/GPRS Monitoring Ready:** Supports remote monitoring (WiFi/GPRS module sold separately).
- **Intelligent Cooling Fan:** Built-in sensor chip intelligently adjusts fan speed based on ambient temperature.

POWMr

1600W SOLAR INVERTER

Single-phase 230Vac $\pm$ 5%! Only One “Live” wire!

80A MPPT

Solar Charge Controller
MAX. Charge Current: 80A

2000W

MAX. PV Array Power

400VDC

Max. PV Array Open Circuit
Voltage



Pure Sine
Wave



50/60Hz
Auto



Support lithium
battery



Figure 3.1: Key Features Overview

Intelligent Cooling Fan



The solar inverter has a built-in sensor chip that intelligently adjusts the fan rotation speed according to the ambient temperature and the quality of the environment.

Figure 3.2: Intelligent Cooling Fan System

WiFi Monitoring Ready!

You can see performance in real time without the need of checking on the controller's LCD



Monitor your system



Change parameters



Optional

WiFi module is not included in the package



Figure 3.3: WiFi Monitoring Capability (Module Sold Separately)

4. SETUP AND INSTALLATION

Proper installation is crucial for the safe and efficient operation of your PowMr Hybrid Inverter. Please follow these steps carefully. For a visual guide, refer to the installation video below.

4.1. Installation Video Guide

Your browser does not support the video tag.

Video 4.1: How to Install the Solar Inverter

This video demonstrates the step-by-step installation process for the PowMr Hybrid Inverter, covering mounting, wiring, and initial setup. It is an official guide from the seller.

4.2. Step-by-Step Installation

1. **Mount the Inverter:** Securely mount the inverter on a wall in a well-ventilated area, away from direct sunlight and moisture.
2. **Install Circuit Breakers:** Install appropriate circuit breakers for AC input, AC output, and PV input circuits in suitable locations.
3. **Remove Terminal Cover:** Carefully remove the terminal cover from the inverter to access the wiring connections.
4. **Prepare Wiring:** Prepare all necessary wiring according to corresponding line gauges, lengths, and terminal types. Refer to the wiring diagram for details.
5. **Configure Battery Voltage:** Configure the battery voltage based on your inverter system voltage (e.g., 12V). For lithium batteries, ensure 'User-defined' setting is selected.
6. **Connect Battery Cables:** Connect the battery cables to the designated battery terminals on the inverter. Ensure correct polarity (positive to positive, negative to negative).
7. **Connect Photovoltaic Input Cables:** Connect the solar panel (PV) input cables to the PV terminals on the inverter.
8. **Connect AC Input and Output Cables:** Connect the AC input cables (from grid/generator) and AC output cables (to loads) to their respective terminals.
9. **Attach Grounding Wire:** Securely attach the grounding wire to the designated grounding terminal on the inverter.
10. **Check Connections:** Before replacing the cover, thoroughly check all connections for reverse polarity, loose wires, and proper insulation.
11. **Replace Terminal Cover:** Once all connections are verified, carefully replace the terminal cover.
12. **Close Battery Circuit Breaker:** Close the circuit breaker connected to the battery bank.
13. **Turn on Inverter Switch:** Turn on the main power switch on the inverter.
14. **Close AC & PV Circuit Breakers:** Finally, close the circuit breakers for AC output, AC input, and photovoltaic input.

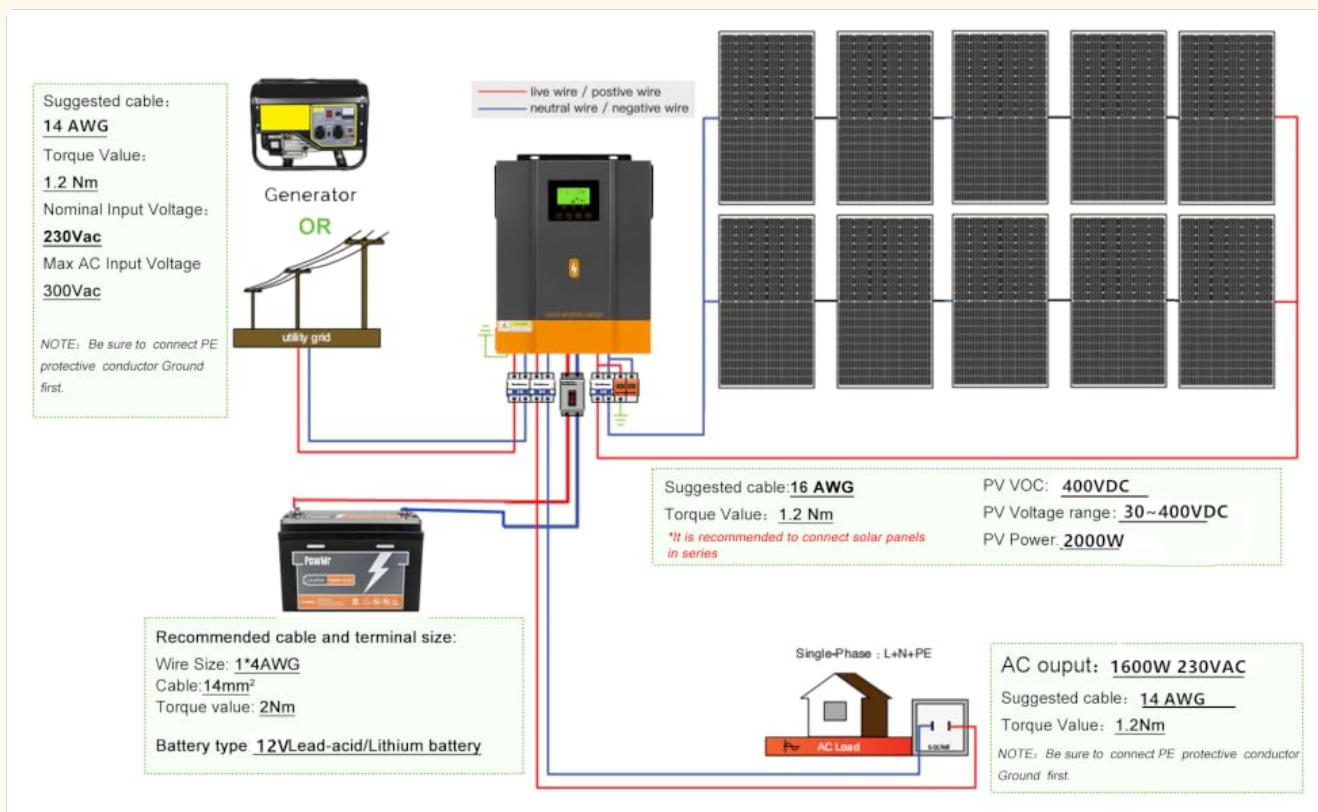


Figure 4.2: General Wiring Diagram

COMPATIBLE WITH MULTIPLE 24V BATTERY



Work with 24V lead-acid (Sealed/AGM/Flooded/Gel) and Lithium Battery (Need to be set via the “User-Defined”)

Figure 4.3: Battery Compatibility and Settings

5. OPERATION

The PowMr Hybrid Inverter features an intuitive LCD display and LED indicators for monitoring system status and configuring operational parameters.

5.1. LCD Display and LED Indicators

The LCD screen provides real-time data on input voltage, output voltage, battery status, charging status, and fault codes. Three LED indicators (Inverter/AC, Charge, Fault) provide quick visual status updates.



Figure 5.1: LCD Display and Function Buttons

5.2. Charging Source Priority

You can configure how the battery is charged based on available power sources:

- **Solar First:** Solar energy is the primary charging source. Utility power charges the battery only if solar energy is unavailable.
- **Solar and Utility (Default):** Both solar and utility power charge the battery simultaneously.
- **Solar Only:** Solar energy is the sole charging source, regardless of utility availability.
- **Utility/AC Power First:** Utility/AC power is the primary charging source.

4 CHARGER SOURCE PRIORITY CAN BE CHOOSE

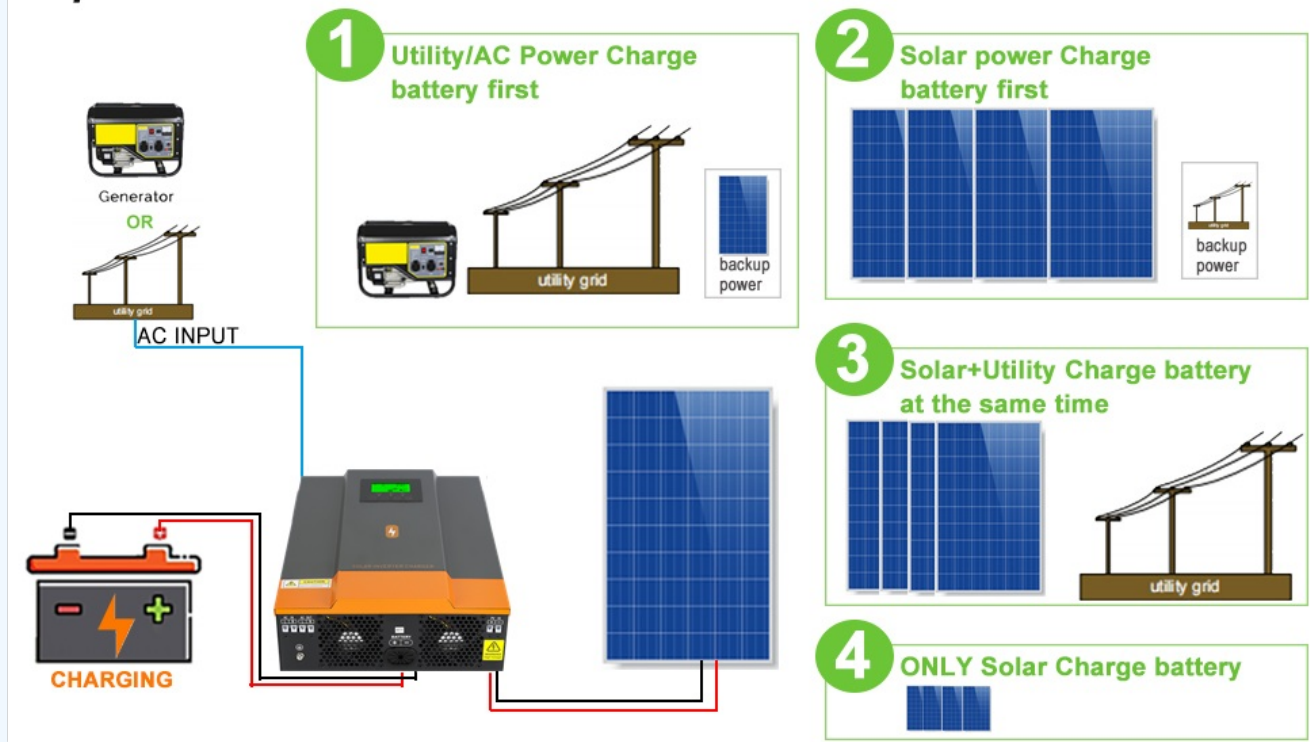


Figure 5.2: Charger Source Priority Options

5.3. Output Source Priority

Configure the priority for supplying power to your loads:

- **Solar First:** Solar energy powers the loads as the primary priority. If solar energy is insufficient, battery power supplies the loads simultaneously.
- **Utility First (Default):** Utility power supplies the loads as the primary priority. Solar and battery power supply loads only when no grid power is available.
- **SBU Priority:** Solar energy powers the loads as the primary priority. If solar energy is insufficient, battery power supplies the loads simultaneously. Grid power is used only if battery voltage drops below a set threshold.

3 OUTPUT SOURCE PRIORITY CAN BE CONFIGURE

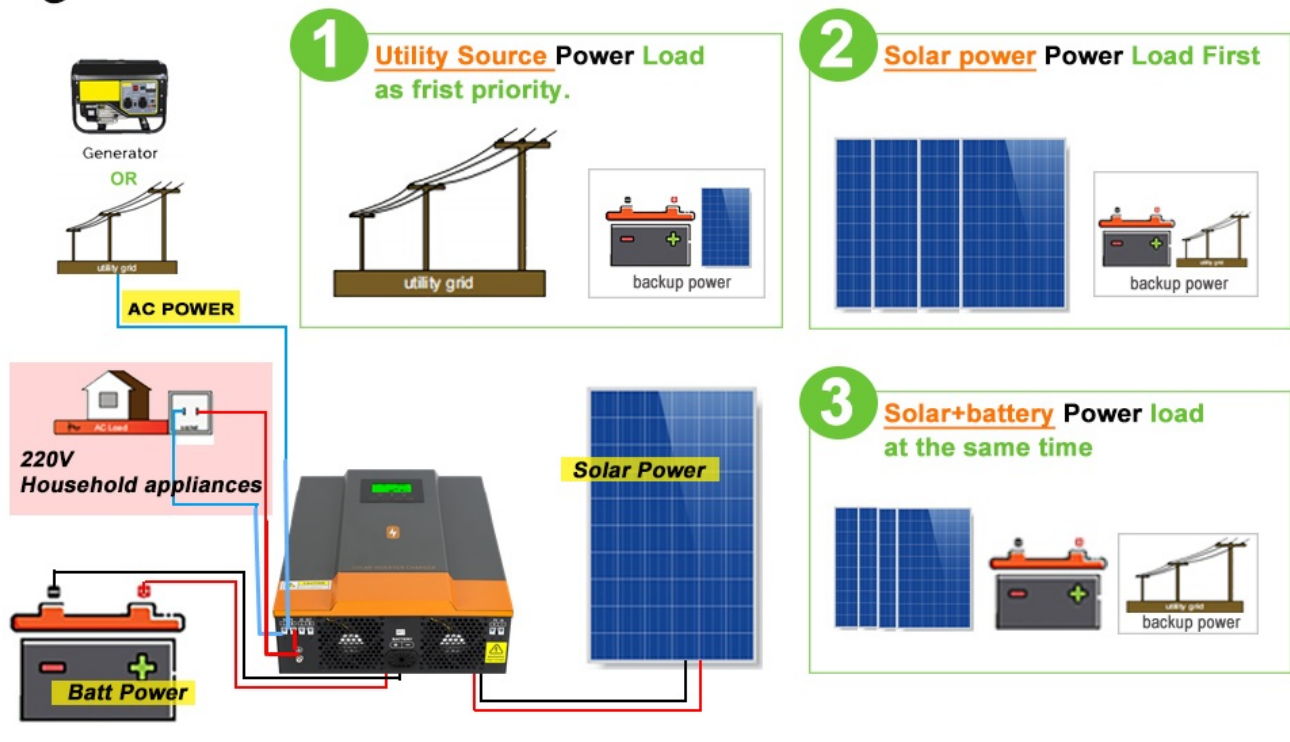
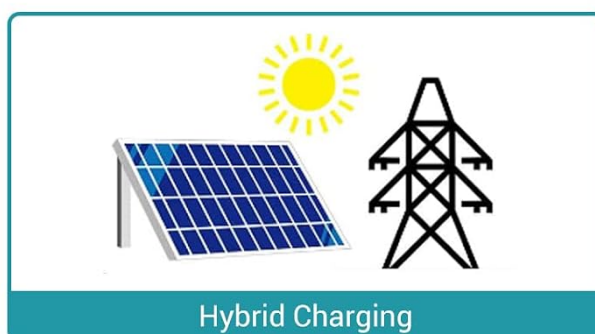
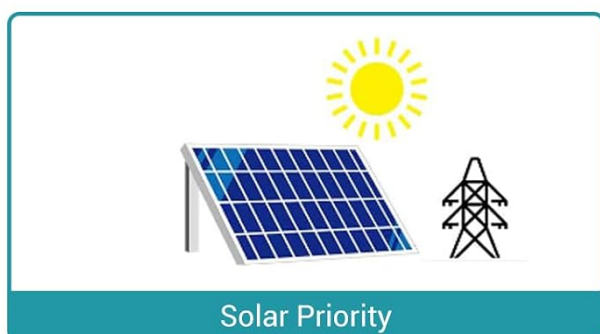
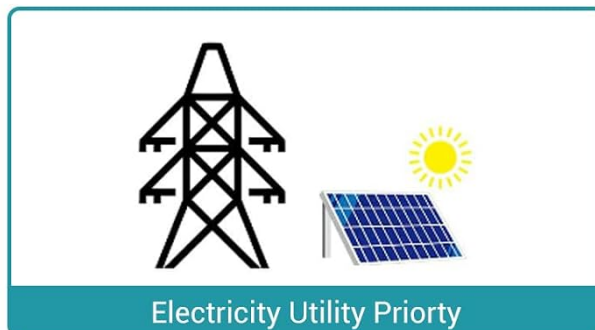


Figure 5.3: Output Source Priority Options

GIVES YOU THE ULTIMATE CONTROL

Four Charging Mode



Three Load Output Modes



Figure 5.4: Visual Representation of Charging and Load Modes

6. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your inverter.

- **Clean Regularly:** Keep the inverter's exterior clean and free of dust. Ensure ventilation openings are not blocked. The intelligent cooling fan helps manage internal temperatures.
- **Check Connections:** Periodically inspect all electrical connections for tightness and signs of corrosion. Loose connections can lead to overheating and poor performance.
- **Monitor Performance:** Regularly check the LCD display for any error codes or unusual readings.
- **Battery Health:** Monitor your battery's health and ensure it is properly charged. Follow the battery manufacturer's maintenance guidelines.
- **Environmental Conditions:** Ensure the inverter operates within its specified temperature and humidity ranges.

7. TROUBLESHOOTING

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

- **Inverter Not Turning On:** Check battery connections, battery circuit breaker, and the inverter's main power switch. Ensure sufficient battery voltage.
- **No AC Output:** Verify AC output circuit breaker. Check if the inverter is in fault mode (check fault LED/LCD). Ensure AC input is present if operating in grid-dependent modes.
- **Solar Panels Not Charging:** Check PV input connections and PV circuit breaker. Ensure PV voltage is within the specified operating range (30-400V DC). Check for sufficient sunlight.
- **Overload Warning:** Reduce the connected load. The inverter's output capacity is 1600W. Refer to the load compatibility section for guidance on different load types.
- **Over-temperature Warning:** Ensure adequate ventilation around the inverter. Clear any obstructions from the cooling fan.
- **App/WiFi Connectivity Issues:** Ensure the optional WiFi/GPRS module is correctly installed and powered. Check your network connection and follow the app's troubleshooting steps.
- **Battery Not Charging Optimally:** Verify battery type settings on the inverter (especially for lithium batteries, ensure 'User-defined' is correctly configured). Check battery cable size and connections.

8. SPECIFICATIONS

Parameter	Value
Model Number	POW-HVM2H-12V-N
Rated Power	1600W
Max. PV Input Power	2000W
PV Voltage Range	30-400V DC
Max. PV Input VOC	400V DC
Start-up Voltage	60V DC
Max. Charge Current	80A
Nominal Input Frequency	50/60 Hz
Product Dimensions	42 x 19 x 3.5 cm
Product Weight	4.6 Kilograms

Parameter	Value
Battery Type Compatibility	12V Lead-Acid (Seal, AGM, Gel, Flooded) and Lithium Batteries

8.1. Load Compatibility

Electrical appliances are categorized into resistive and inductive loads. Selecting the correct inverter capacity is crucial.

- **Resistive Loads (e.g., laptops, TVs, electric stoves):** Choose an inverter with a continuous power rating higher than the appliance's rated power. It is recommended to use about 80% of the inverter's rated capacity.
- **Inductive Loads (e.g., microwave ovens, water pumps, air conditioners, motors, compressors):** These devices have high startup currents. Choose an inverter whose continuous power rating is 3-10 times higher than your appliance's rated power.

Do Not Overload !



Note: Different types of loads have different starting impulse currents. **The following values are for reference ONLY!** Customers need to select the appropriate inverter model according to the actual equipment power, current, and load characteristics.

The corresponding selection model of load power and inverter

S/N	Load Type	Load Rated Power	Start impact coefficient η	The minimum continuous output power of the inverter is recommended	For Example
1	Resistive load	P	1	$S=P*\eta$	Electric Soldering iron, Resistance Stove, Oven, Water Heater, Disinfection Cabinet, Rice Cooker etc.
2	Inductive load		3-10		Electric motors, Refrigerators, Transformers, Air conditioners, Electric drills, Lawn mowers, Range hoods, Vacuum cleaners, Washing machines, etc.
3	Resistive load		3-5		TV, Computer host, Display projector, etc.
4	Mixed load		1.5-3		Induction cookers, Hair dryers, Microwave ovens, etc.

Figure 8.1: Load Type and Inverter Selection Guide

9. WARRANTY AND SUPPORT

Your PowMr Hybrid Inverter comes with a user manual included in the box. For any technical assistance, warranty claims, or to request a PDF version of the manual, please contact PowMr customer support through the platform where you purchased the product. Provide your model number (POW-HVM2H-12V-N) and a detailed description of your issue for faster service.

For additional resources and product information, you may visit the official PowMr store on Amazon: [PowMr Store](#)

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

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

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question