## Temank POWLVM

# PowMr 5000W Solar Inverter User Manual

Model: POWLVM
Brand: Temank

## Product Overview

The PowMr 5000W Solar Inverter is a pure sine wave power inverter designed for off-grid solar energy systems. It features a built-in 80A MPPT charge controller and supports both 48V lead-acid and lithium batteries. This inverter is capable of handling a maximum PV input of 5500W, 500V, and 22A, providing a 5000W output. It offers multiple charging and load output modes to suit various application requirements, including utility, generator, and solar charging.


48.0
5.00
AC/INV
CHARGE
FAULT
SET
UP
DOWN
ENT
PowMr
SOLAR INVERTER CHARGER
The product is indoor product.
It is forbidden to use it outdoors
All-in-one solar charge inverter
RoHS
COMPLIANT
MADE IN CHINA

Figure 1: Front view of the PowMr 5000W Solar Inverter, showcasing the LCD display and control buttons.

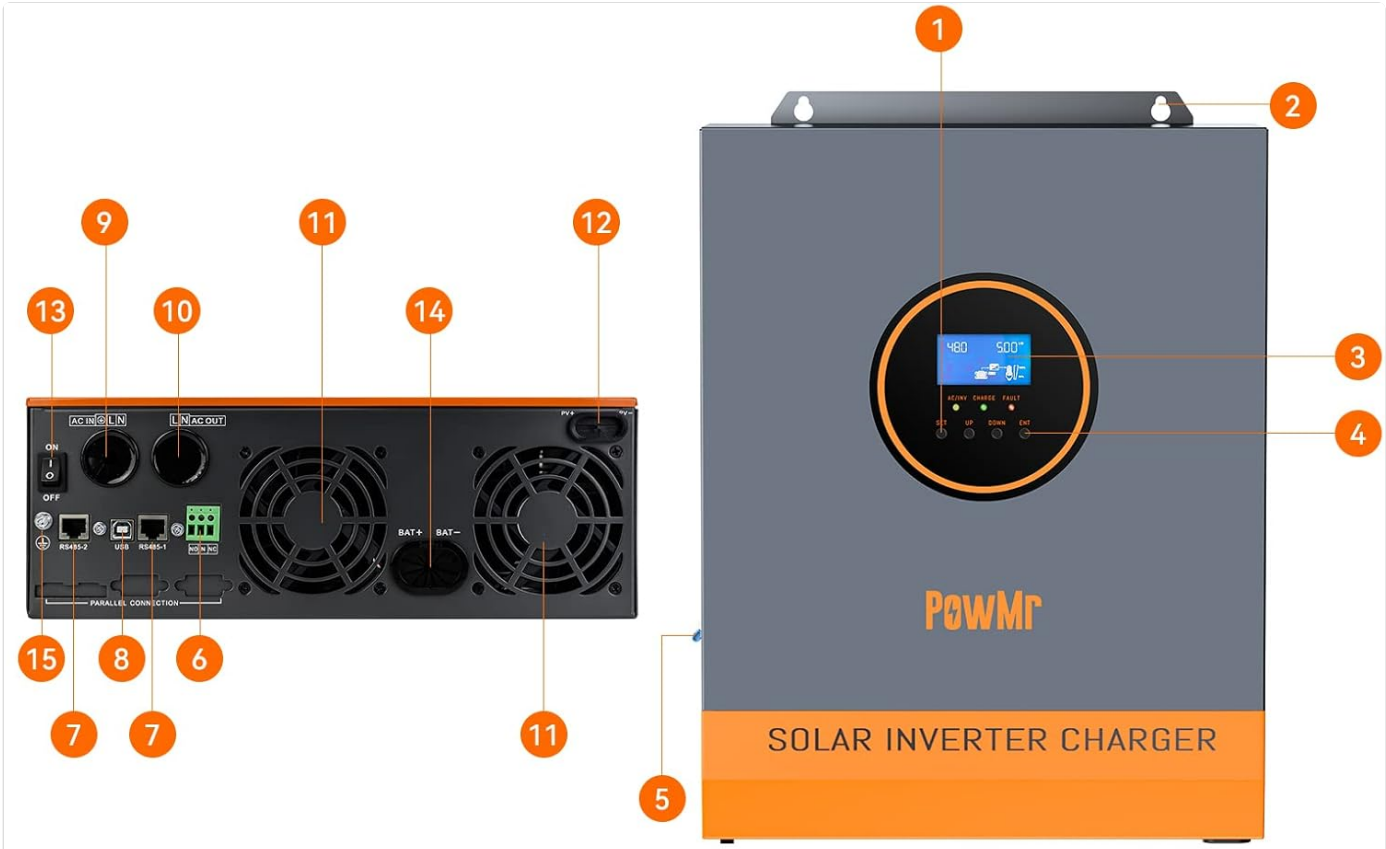
Key features include full digital voltage and current double closed-loop control, advanced SPWM technology for pure sine wave output, and an intelligent variable speed fan for efficient heat dissipation. The unit is equipped with an LCD display and three LED indicators for dynamic system data and operating status display.


Figure 2: Overview of the 5000W Off-Grid Solar Inverter's main specifications and capabilities, including 5KW AC output, 40A Max AC Charging, 80A Max Hybrid Charging Current, and 150V Starting Voltage.

## Setup and Installation

Proper installation is crucial for the safe and efficient operation of your solar inverter. Ensure all connections are secure and follow local electrical codes. The inverter package includes the inverter unit and an instruction manual. Additional components such as WiFi modules, batteries, adapters, plugs, wires, and cables are not included and must be purchased separately.

### Component Identification




| | | | | | |
|---|---|---|---|---|---|
| 1 | LCD Buttons | 6 | Dry Contact Port | 11 | Cooling Fans |
| 2 | Mounting Holes | 7 | RS485 Communication Port | 12 | PV Input Terminal |
| 3 | LCD Screen | 8 | USB Debugging Port (Internal Use) | 13 | Main On/Off Power Switch |
| 4 | LED Indicators | 9 | AC Input Terminal | 14 | Battery Input Terminal |
| 5 | AC Input Breaker | 10 | AC Output Terminal | 15 | Grounding Lug |

Figure 3: Detailed diagram identifying the various ports and components of the PowMr Solar Inverter, including LCD buttons, mounting holes, LCD screen, LED indicators, AC input breaker, dry contact port, RS485 communication port, USB debugging port, AC input terminal, AC output terminal, cooling fans, PV input terminal, main On/Off power switch, battery input terminal, and grounding lug.

## Wiring Diagram

The following diagram illustrates the typical wiring connections for the inverter. Always ensure the PE protective conductor (ground) is connected first for safety.

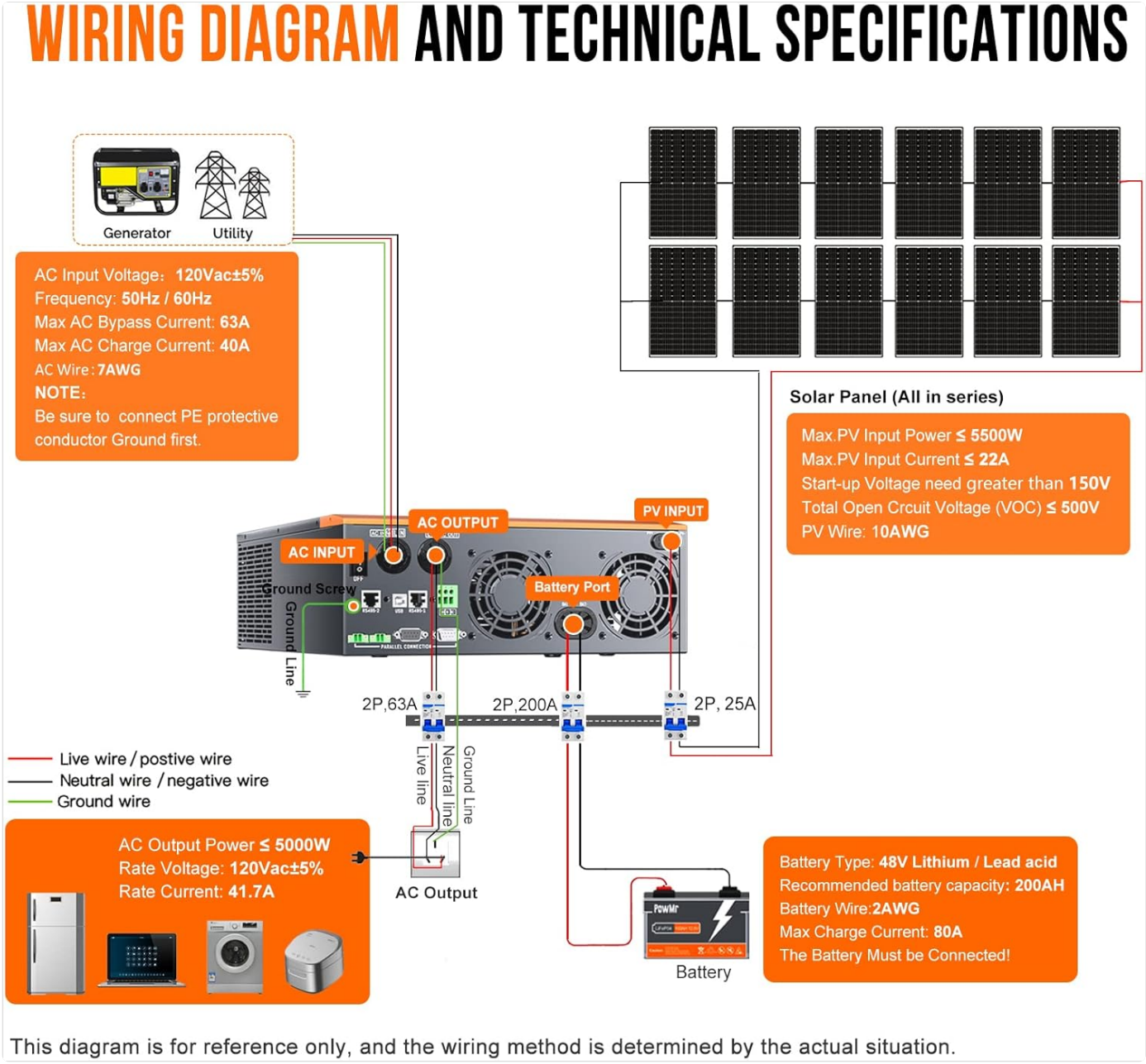



Figure 4: Comprehensive wiring diagram for the PowMr Solar Inverter, showing connections for solar panels (PV input), battery, AC input (from utility or generator), and AC output to household loads. It also details wire gauges and maximum current ratings.

- **AC Input:** Connect to utility grid or generator. Voltage range: 90-140V.
- **PV Input:** Connect to solar panel array. Max input power: 5500W, voltage range: 120-500Vdc. Starting voltage >150V.
- **Battery Connection:** Connect to 48V lead-acid (Seal, AGM, Gel, Flooded) or lithium batteries. Recommended battery capacity: 200AH.
- **AC Output:** Connect to household and office loads (refrigerators, lamps, televisions, fans, air conditioning, etc.). Max output power: 5000W.

## Operating Modes

The inverter offers flexible charging and load output modes to optimize energy usage based on your preferences and available power sources.

### Charging Modes

There are four selectable battery charging modes:

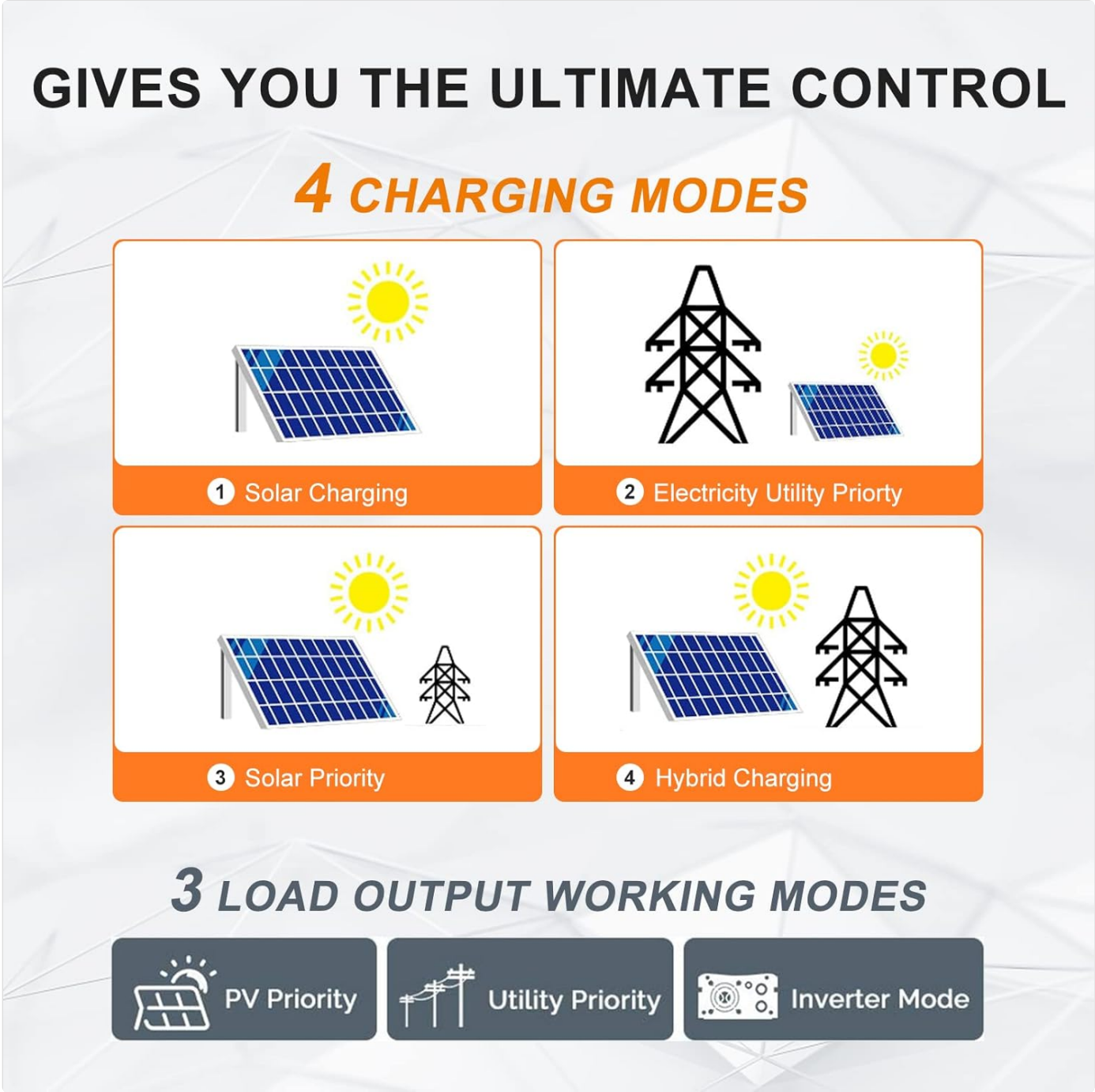



Figure 5: Visual representation of the four battery charging modes: Solar Charging, Electricity Utility Priority, Solar Priority, and Hybrid Charging.

1. **Only Solar:** Battery is charged exclusively by solar power.
2. **Utility Priority:** Utility power is prioritized for charging; solar charges only when utility is unavailable.
3. **Solar Priority:** Solar power is prioritized for charging; utility charges only when solar is insufficient.
4. **Utility & Solar Hybrid Charging:** Both utility and solar power are used for charging.

## Load Output Working Modes

Three load output working modes are available:

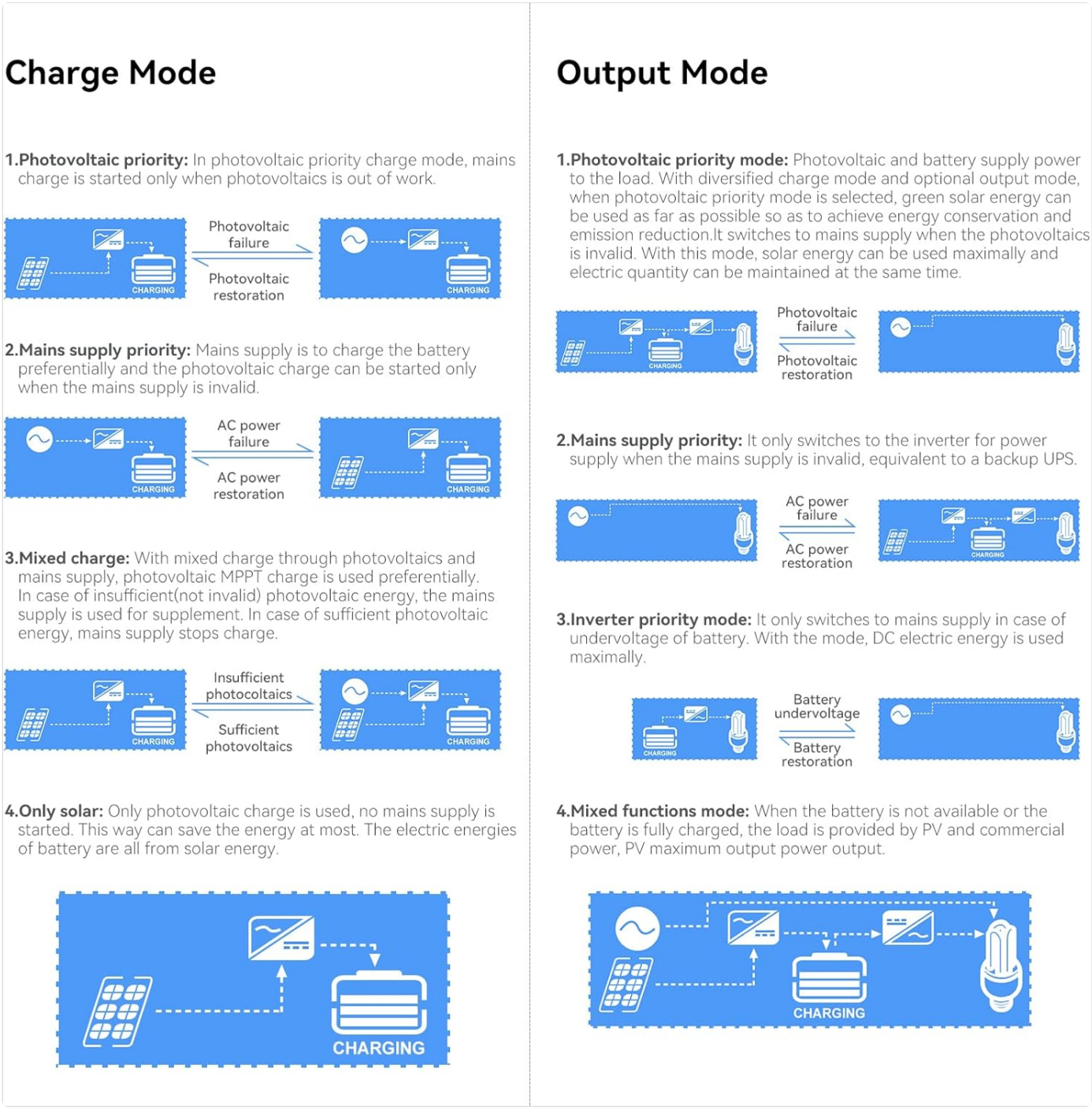



Figure 6: Detailed diagrams illustrating both charge modes (Photovoltaic priority, Mains supply priority, Mixed charge, Only solar) and output modes (Photovoltaic and battery supply, Mains supply priority, Inverter priority, Mixed functions mode).

1. **PV Priority:** Solar power is prioritized to supply the load.
2. **Utility Priority:** Utility power is prioritized to supply the load.
3. **Inverter Mode:** The inverter supplies power from the battery.

## LCD Display and Indicators

The LCD display and LED indicators provide real-time system data and operational status. Users can access and modify over 20 programmable parameters, including input/output voltage range, battery charging current, battery type, and charging/discharging priority.

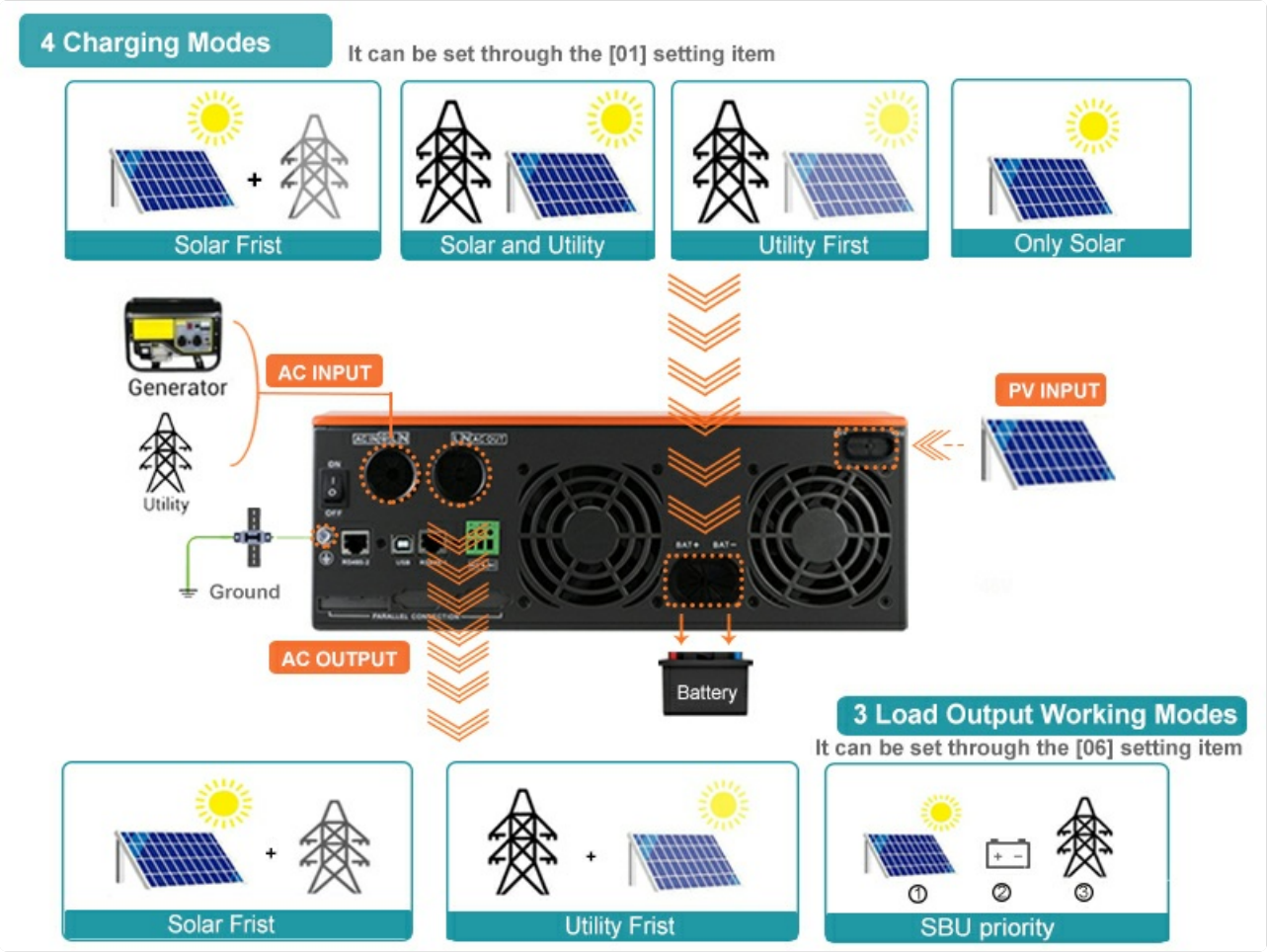



Figure 7: Close-up view of the inverter's LCD display, showing various operational parameters and system status indicators.

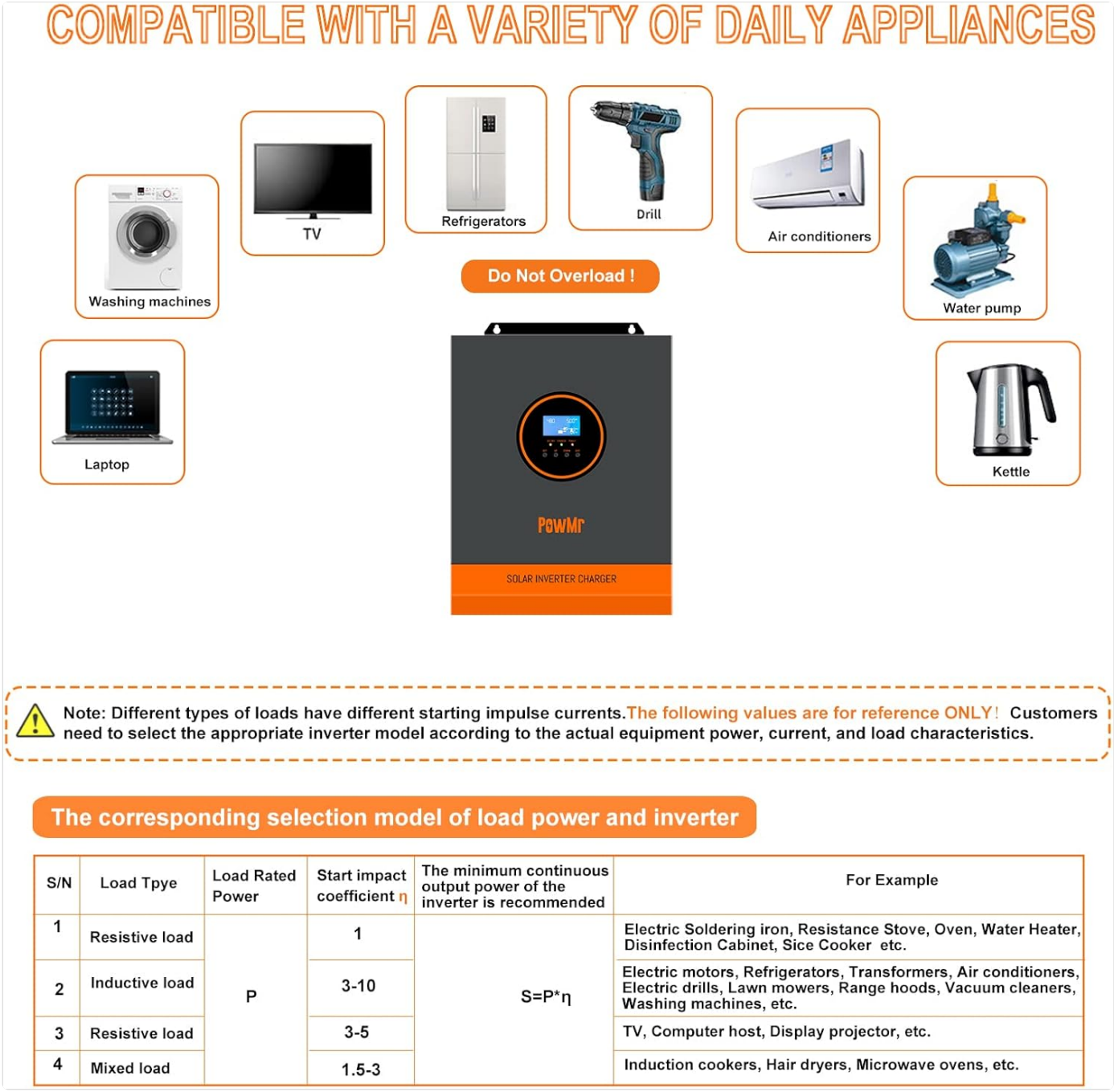
## Smart App Monitoring (Optional)

For enhanced monitoring and control, an optional Wi-Fi/GPRS data acquisition module can be purchased separately. This module allows you to monitor the inverter's performance via a smartphone application available on the App Store and Google Play.


Figure 8: Illustration of the optional SmartESS app connectivity for monitoring and controlling the inverter, showing a smartphone displaying energy data and the Wi-Fi module connection point.

## Load Compatibility

The inverter is compatible with a variety of household and office loads, including refrigerators, lamps, televisions, fans, and air conditioning units. Always ensure the total power consumption of connected devices does not exceed the inverter's rated output.




| S/N | Load Tpye | 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*η | Electric Soldering iron, Resistance Stove, Oven, Water Heater, Disinfection Cabinet, Sice 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 9: Examples of daily appliances compatible with the PowMr Solar Inverter, such as washing machines, TVs, refrigerators, drills, air conditioners, water pumps, laptops, and kettles.

## Maintenance

Regular maintenance ensures the longevity and optimal performance of your PowMr Solar Inverter. Perform the following checks periodically:

- **Cleaning:** Keep the inverter's ventilation openings clear of dust and debris to ensure proper airflow and cooling. Use a soft, dry cloth for cleaning the exterior.
- **Connection Checks:** Periodically inspect all electrical connections (PV input, battery, AC input/output) for tightness and signs of corrosion. Loose connections can lead to overheating and performance issues.
- **Environmental Conditions:** Ensure the inverter is installed in a well-ventilated area, away from direct sunlight, moisture, and flammable materials. Maintain the recommended operating temperature range.
- **Firmware Updates:** Check the manufacturer's website for any available firmware updates that may improve performance or address known issues.

## Troubleshooting

This section provides guidance on common issues you might encounter with your solar inverter. For complex problems, contact technical support.

| Problem | Possible Cause | Solution |
|---|---|---|
| Inverter not turning on / No display | No DC input from battery or PV; loose battery connections; AC input breaker tripped. | Check battery voltage and connections. Ensure PV input is sufficient. Reset AC input breaker. |
| No AC output | Overload; short circuit; low battery voltage; inverter in fault mode. | Reduce load. Check for short circuits. Charge battery. Check LCD for fault codes and refer to manual. |
| Battery not charging | PV input too low; AC input unavailable (if utility charging); incorrect charging mode setting. | Ensure sufficient solar irradiance. Verify AC input. Check and adjust charging mode settings (e.g., "Only Solar", "Utility Priority"). |
| Fan noise / Fan error | Normal operation under load; obstructed fan; internal wiring issue. | Fan noise is normal during high load or high temperature. Check for obstructions. If persistent error, contact support. |
| Inverter frequently switches between modes | Incorrect battery voltage setpoints for mode switching. | Review and adjust "Battery Power to Utility Setpoint" ([04]) and "Utility to Battery Power Setpoint" ([05]) in the inverter settings. Ensure "Battery Undervoltage Alarm" ([14]) is set appropriately. |

## Technical Specifications

Below are the detailed technical specifications for the PowMr 5000W Solar Inverter.

### Technical Specifications

| | |
|---|---|
| AC Input Voltage Range | 90-140Vac |
| AC Input/Output Frequency | 50Hz/ 60Hz |
| Load Capacity of Motors | 4HP |
| Waveform | Pure Sine Wave |
| Rated Output Power | 5000W |
| Rated Output Voltage | 120V |
| Battery Type | 48V Li-ion / Lead-Acid / User Defined |
| Max.AC Charging Current | 40A |
| Safety | CE(IEC62109)/CETL(UL 1741 C22.2 NO.107.1) /FCC/SAA |
| Noise | ≤60dB |
| Battery Voltage Range | 40-60Vdc |
| Weight | 25.3 lbs /11.5kg |

| | |
|---|---|
| Max.PV Input Power | 5500W |
| Maximum Output Power | 5000W |
| Max.PV Input Current | 22A |
| Max. MPPT Charging Current | 80A |
| Max.PV Open Circuit Voltage | 500V |
| MPPT Voltage Range | 125-425 Vdc |
| Hybrid Charger Max Current | 80A --AC Charger+PV Charger |
| Operating Temperature Range | 14~131℉ |
| EMC authentication grade | EN61000 |
| PV/AC Wire Diameter | PV: 10 ; AC: 7 AWG |
| Battery Wire Diameter | 2 AWG |
| Size (L*W*D) | 426mm*322mm*126mm（16.77*12.684.96 in） |

Figure 10: A table summarizing the technical specifications of the inverter, including AC input/output, PV input, battery parameters, and physical dimensions.

| Parameter | Value |
|---|---|

| Parameter | Value |
|---|---|
| Model Name | POWLVM |
| Rated Output Power | 5000W |
| Rated Output Voltage | 120V |
| Waveform | Pure Sine Wave |
| Max. PV Input Power | 5500W |
| Max. PV Input Current | 22A |
| Max. MPPT Charging Current | 80A |
| Max. PV Open Circuit Voltage | 500V |
| Battery Type | 48V Li-ion / Lead-Acid / User Defined |
| AC Input Voltage Range | 90-140Vac |
| AC Input/Output Frequency | 50Hz/60Hz |
| Item Weight | 28.5 pounds (12.9 kg) |
| Dimensions (L*W*D) | 16.77 x 12.68 x 4.88 inches (426mm*322mm*124mm) |

## Warranty and Support

For information regarding product warranty, please refer to the documentation included with your purchase or visit the official Temank website. For technical support, troubleshooting assistance beyond this manual, or to inquire about replacement parts, please contact Temank customer service.

An official user manual in PDF format is available for download:Download User Manual (PDF).



### Related Documents - POWLVM

| | |
|---|---|
|  | Temank PVSC-70A/30A Solar Charge Controller User Manual<br>User manual for Temank PVSC-70A and PVSC-30A PWM solar charge controllers, covering features, system connection, operation, specifications, and troubleshooting for solar power systems. |