

## 5000W Hybrid Solar Inverter

# Generic 5000W Hybrid Pure Sine Wave Solar Inverter User Manual

Model: 5000W Hybrid Solar Inverter

## 1. INTRODUCTION

---

This manual provides essential information for the safe and efficient operation of your 5000W Hybrid Pure Sine Wave Solar Inverter. This inverter is designed to convert DC power from batteries into stable AC power, suitable for various applications including home energy storage, vehicle power supply, and off-grid systems. Please read this manual thoroughly before installation and use.

## 2. KEY FEATURES

---

- **Pure Sine Wave Output:** Delivers high-quality AC power with Total Harmonic Distortion (THD)  $\leq 3\%$ , ensuring compatibility with sensitive electronic devices.
- **Continuous and Surge Power:** Provides 2500W continuous output and 5000W peak surge power to handle various loads, including those with high inrush currents.
- **Wide Input Voltage Range:** Compatible with 12V, 24V, 48V, 60V, and 72V DC battery systems.
- **High Efficiency:** Achieves up to 94% power conversion efficiency, minimizing energy loss.
- **Dual Digital Display:** Monitors battery input voltage and inverter output parameters for easy status checks.
- **Multiple Safety Protections:** Includes overvoltage, undervoltage, overload, over-temperature, reverse polarity, and short circuit protection.
- **Durable Construction:** Features an aluminum-magnesium alloy cooling shell for enhanced durability and heat dissipation.
- **Smart Cooling Fan:** Automatically activates when the internal temperature reaches 45°C/113°F to maintain optimal operating temperature.

## 3. PRODUCT OVERVIEW AND COMPONENTS

---



**Figure 3.1: Inverter Front and Rear Panels**

This image displays the inverter's front and rear panels, highlighting the positive and negative DC input terminals, cooling fans, inverter switch, and two AC output sockets. The smart cooling fan automatically operates to dissipate heat, while the AC outlets provide power for various devices.



**Figure 3.2: Intelligent Digital Display**

The intelligent digital display provides real-time information including input DC voltage, output power, output AC voltage, frequency, and temperature. This allows for easy monitoring of the inverter's operational status.

## 4. SPECIFICATIONS

## PRODUCT SIZE AND PARAMETERS



Rated Power: 2500W

Peak Power: 5000W

Product Size: 34\*19\*9cm

Net Weight: 2.8KG

Output Frequency: 50/60HZ

Conversion Efficiency: >95%

Input Voltage: 12V/24V/48V/60V/72V optional

Output Voltage: 110V~120V / 220V~240V

Output Interface: international universal socket

Note: The input voltage must be consistent with the battery voltage output

**Figure 4.1: Product Size and Parameters**

This diagram illustrates the physical dimensions of the inverter (34cm x 19cm x 9cm) and key electrical parameters. It also highlights the advantages of pure sine wave output for stable and reliable power.

**Table 4.1: Technical Specifications**

Parameter	Value
Rated Power	2500W
Peak Power	5000W
Net Weight	2.8 kg
Product Size (L x W x H)	34cm x 19cm x 9cm (13in x 7.5in x 3.5in)
Output Frequency	50/60Hz (selectable)
Conversion Efficiency	≥ 95%
Input DC Voltage	12V/24V/48V/60V/72V (optional)
Output AC Voltage	110V~120V / 220V~240V (selectable)
Output Interface	International universal socket
Output Waveform	Pure Sine Wave

## 5. SETUP AND INSTALLATION

Proper installation is crucial for the safe and efficient operation of your inverter. Follow these steps carefully:

### 5.1 System Diagram

# WORKING PRINCIPLE OF SOLAR LNK INVERTER

One machine with multiple functions

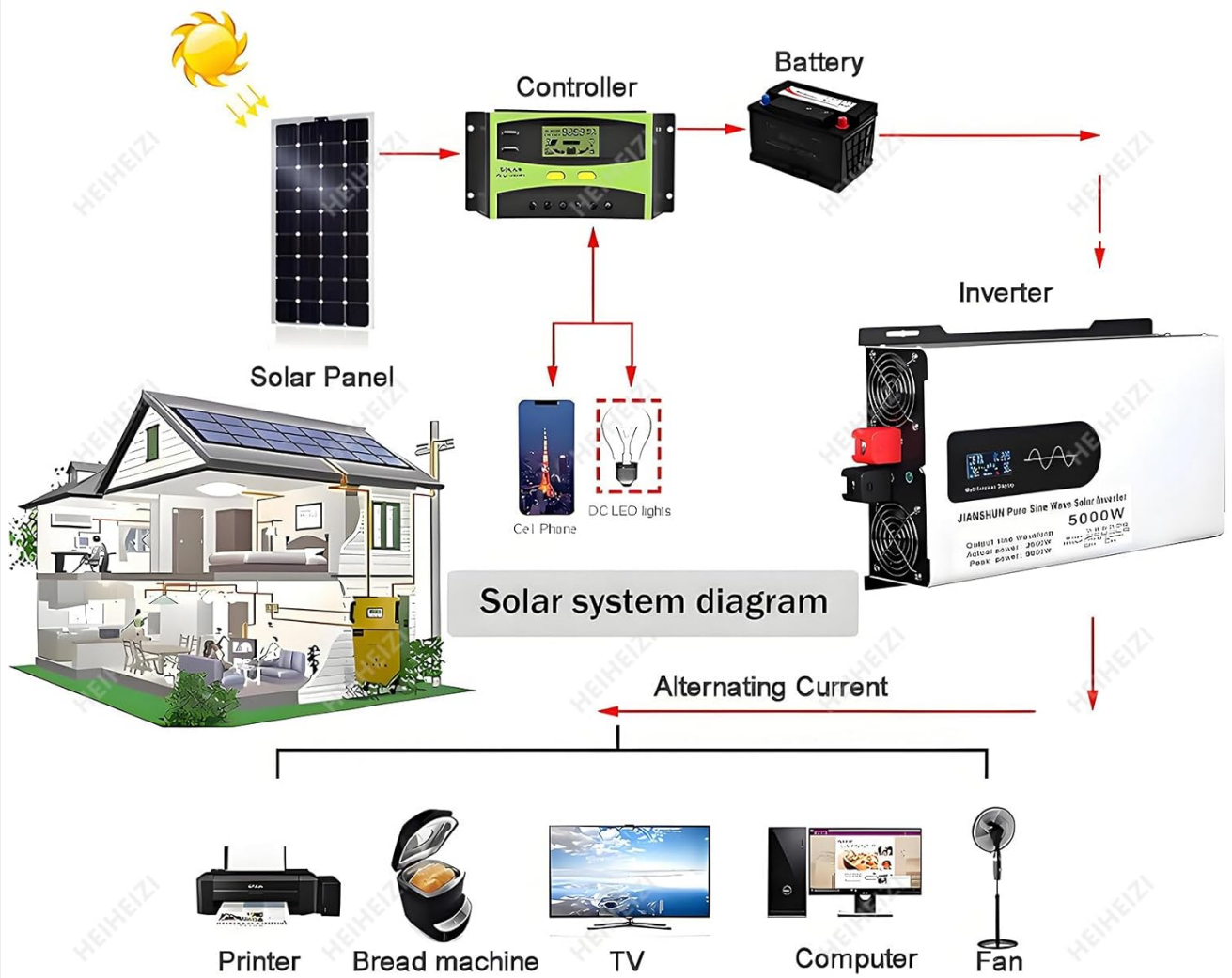


Figure 5.1: Solar System Diagram

This diagram illustrates how the inverter integrates into a typical solar power system, connecting solar panels, a charge controller, a battery bank, and providing AC power to various household appliances.

## 5.2 Connection Steps

# USAGE DIAGRAM

**Note:** The inverter voltage must be consistent with the battery voltage. If the inverter voltage is DC12V, then your battery voltage must also be 12V correspondingly, otherwise the inverter will not work or will be damaged.

## Connect the battery:



Figure 5.2: Inverter Usage Diagram

This diagram provides a visual guide for connecting the inverter. It emphasizes the importance of matching inverter voltage to battery voltage and ensuring secure connections.

- 1. Verify Voltage Compatibility:** Ensure the inverter's input voltage (e.g., 12V, 24V) matches your battery bank's voltage. Mismatched voltages will prevent operation or cause damage.
- 2. Turn Off Inverter:** Before making any connections, ensure the inverter switch is in the OFF position.
- 3. Connect DC Cables:** Connect the positive (+) and negative (-) terminals of the ring line (provided cables) to the corresponding positive and negative poles on the inverter. Ensure these connections are secure and tight to prevent overheating.
- 4. Connect to Battery:** Connect the other end of the DC cables to the positive and negative terminals of your battery bank. Double-check polarity.
- 5. Connect Equipment:** Plug your AC appliances into the inverter's output sockets.
- 6. Power On:** Once all connections are secure and verified, turn on the inverter switch.

## Important Notice:

- Always turn off the inverter switch before connecting or disconnecting any cables.
- Securely tighten all positive and negative terminals to prevent loose connections, which can lead to overheating and potential damage.

- When powering inductive loads (e.g., motors, refrigerators, air conditioners), select an inverter with a continuous output power that is 3 to 7 times the device's rated power to account for high starting currents.

## 6. OPERATING INSTRUCTIONS

---

After successful installation, operating the inverter is straightforward:

1. **Power On:** Flip the inverter switch to the 'ON' position. The digital display will illuminate, showing the input DC voltage, output AC voltage, and other parameters.
2. **Connect Loads:** Plug your AC appliances into the inverter's output sockets. Ensure the total power consumption of connected devices does not exceed the inverter's continuous rated power (2500W).
3. **Monitor Display:** Regularly check the digital display for input voltage, output power, and temperature. This helps in understanding the system's performance and preventing overload.
4. **Power Off:** When finished using the inverter, first turn off all connected appliances, then switch the inverter to the 'OFF' position.

## 7. SAFETY PRECAUTIONS

---

Adhering to safety guidelines is paramount to prevent injury and damage to the inverter or connected equipment.

### 7.1 General Safety

- Do not open the inverter casing. There are no user-serviceable parts inside.
- Keep the inverter away from water, moisture, and flammable materials.
- Ensure adequate ventilation around the inverter to prevent overheating. Do not block the cooling fans.
- Store the inverter in a dry environment, away from direct sunlight and extreme temperatures.
- Keep out of reach of children.

### 7.2 Built-in Protections



# MULTIPLE PROTECTIONS

Reliably protect your safety



<p>Overvoltage Protection</p>	<p>Under Voltage Protection</p>	<p>Overload Protection</p>	<p>Over Temperature Protection</p>	<p>Reverse Polarity Protection</p>	<p>Short Circuit Protection</p>
-------------------------------	---------------------------------	----------------------------	------------------------------------	------------------------------------	---------------------------------

**Figure 7.1: Multiple Protection Features**

The inverter is equipped with several protection mechanisms to ensure safe operation and prevent damage to itself and connected devices. These include safeguards against overvoltage, undervoltage, overload, over-temperature, reverse polarity, and short circuits.

- **Overvoltage Protection:** Shuts down if input DC voltage exceeds safe limits.
- **Undervoltage Protection:** Shuts down if input DC voltage drops below safe limits, protecting the battery from deep discharge.
- **Overload Protection:** Shuts down if connected load exceeds the inverter's capacity.
- **Over-temperature Protection:** Shuts down if internal temperature becomes too high.
- **Reverse Polarity Protection:** Prevents damage if DC input cables are connected incorrectly.
- **Short Circuit Protection:** Protects against short circuits on the AC output.

## 8. MAINTENANCE

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

- **Cleaning:** Periodically clean the exterior of the inverter with a dry, soft cloth. Ensure the cooling fan vents are free from dust and debris to maintain proper airflow.
- **Connection Checks:** Regularly inspect all DC and AC connections to ensure they are tight and free from corrosion. Loose connections can lead to power loss or overheating.
- **Storage:** If storing the inverter for an extended period, ensure it is kept in a cool, dry place, away from direct sunlight. Disconnect it completely from all power sources.

## 9. TROUBLESHOOTING

---

This section addresses common issues you might encounter with your inverter.

Problem	Possible Cause	Solution
Inverter does not turn on	No DC input power; Loose battery connections; Incorrect battery voltage; Inverter switch off.	Check battery charge; Tighten all DC connections; Ensure battery voltage matches inverter; Turn inverter switch ON.
No AC output	Overload protection activated; Over-temperature protection activated; Low battery voltage; Faulty AC appliance.	Reduce connected load; Allow inverter to cool down; Recharge battery; Test AC appliance with another power source.
Inverter beeps continuously	Low battery voltage warning; Overload warning; Over-temperature warning.	Recharge battery; Reduce connected load; Ensure proper ventilation.
Output voltage is incorrect	Inverter malfunction.	Contact customer support.

## 10. WARRANTY AND SUPPORT

---

For warranty information and technical support, please refer to the documentation provided at the time of purchase or contact your retailer. Keep your purchase receipt as proof of purchase for any warranty claims.