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> Y&H 7200W Solar Hybrid Inverter User Manual

## Y&H GES-7.2KW-U

# Y&H 7200W Solar Hybrid Inverter User Manual

Model: GES-7.2KW-U

## 1. INTRODUCTION

The Y&H 7200W Solar Hybrid Inverter is a versatile power solution designed for various applications, including home backup, RVs, cabins, and off-grid systems. This inverter converts 48V DC power to AC120V/240V split-phase pure sine wave output, ensuring stable and clean power for sensitive electronics. It integrates a 150A MPPT (Maximum Power Point Tracking) charge controller for efficient solar energy harvesting and is UL1741 certified for safety and grid integration. The inverter supports battery-free operation, Wi-Fi remote monitoring, and is compatible with BMS-enabled lithium batteries.

# 7200W SINGLE / SPLIT PHASE SOLAR INVERTER

- ◆ Pure Sine Wave Hybrid Inverter built-in Dual MPPT
- ◆ Support Split-Phase and Single-Phase Output 120V/240V AC
- ◆ Compatible with Lead-acid, Lithium batteries and Batteryless
- ◆ Supports Solar, Utility, or Generator Power to Charge the Battery

7200W

AC Output Power

150A

Max Hybrid Charging Current

120(L1/N, L2/N)  
240Vac(L1/L2)

input voltage

500Vdc

Max PV open circuit voltage

50Hz/60Hz  
(Auto detection)

Frequency

UL STD.1741

Certification

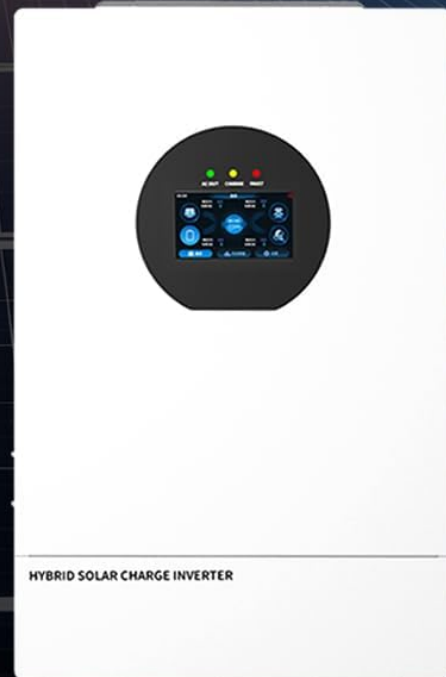


Figure 1: Front view of the Y&H 7200W Solar Hybrid Inverter.

## 2. PRODUCT FEATURES

- **7200W Continuous AC Output:** Provides reliable power for a wide range of appliances.
- **48V DC to AC120V/240V Split-Phase Pure Sine Wave:** Ensures compatibility with standard household loads and protects sensitive electronics.
- **Dual MPPT 150A Charge Controller:** Maximizes solar power harvesting efficiency with a wide PV input range (90-450 Vdc, 500Voc).
- **UL1741 Certified:** Meets stringent safety and performance standards for grid-tied and off-grid applications.
- **Battery-Free Operation:** Can power loads directly from PV when solar input is sufficient.
- **BMS Lithium Compatible:** Supports 48V LiFePO4 batteries via RS485/CAN communication.
- **Wi-Fi Remote Monitoring:** Allows for remote monitoring and control via a dedicated app.
- **Peak-Shift Functionality:** Optimizes energy usage by charging batteries during low-tariff periods and discharging during high-tariff periods.

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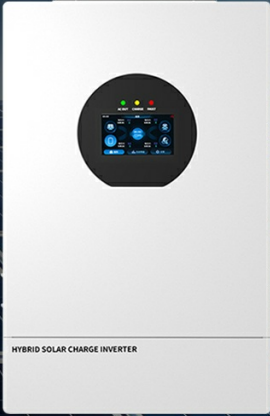


Figure 2: Key features and specifications of the inverter.

### 3. SETUP AND INSTALLATION

The Y&H 7200W Solar Hybrid Inverter is designed for straightforward installation. It comes with pre-wired terminals and a mounting kit. Ensure all connections are secure and follow local electrical codes.

#### 3.1 Unboxing and Components

Upon unboxing, verify all components are present as listed in the 'What's in the Box' section. Inspect the inverter for any physical damage before proceeding with installation.

Your browser does not support the video tag.

Video 1: An overview of the inverter's physical appearance and connection points, demonstrating the unboxing and initial inspection.

#### 3.2 Wiring Diagrams

The inverter supports both split-phase and single-phase configurations. Refer to the diagrams below for correct wiring. Always ensure proper polarity and secure connections to prevent damage or hazards.

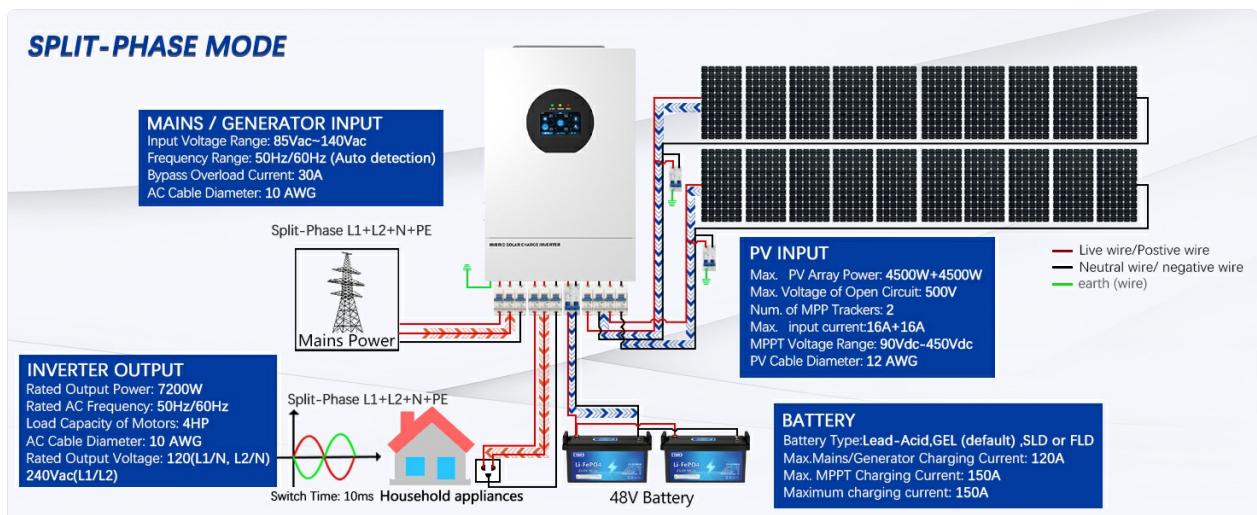


Figure 3: Split-Phase Mode Wiring Diagram.

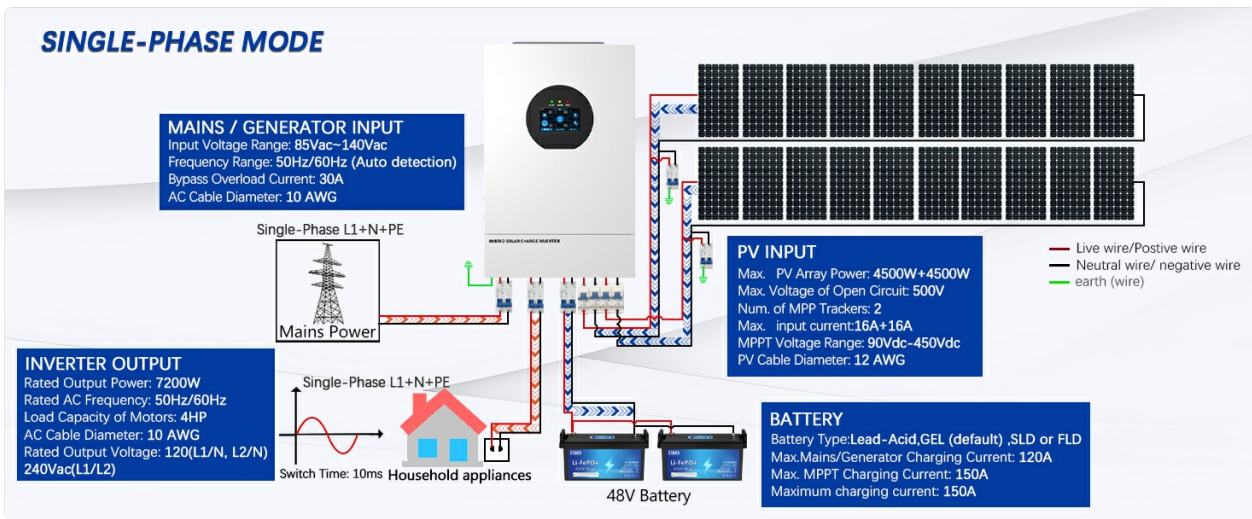


Figure 4: Single-Phase Mode Wiring Diagram.

**Important Caution:** Ensure AC wires are connected with correct polarity. If L (Live) and N (Neutral) wires are reversed, it may cause utility short-circuit when inverters are operated in parallel. For appliances like air conditioners, allow 2-3 minutes for restart to balance refrigerant gas. A power shortage and quick recovery can damage connected appliances. Check for time-delay functions on appliances before installation.

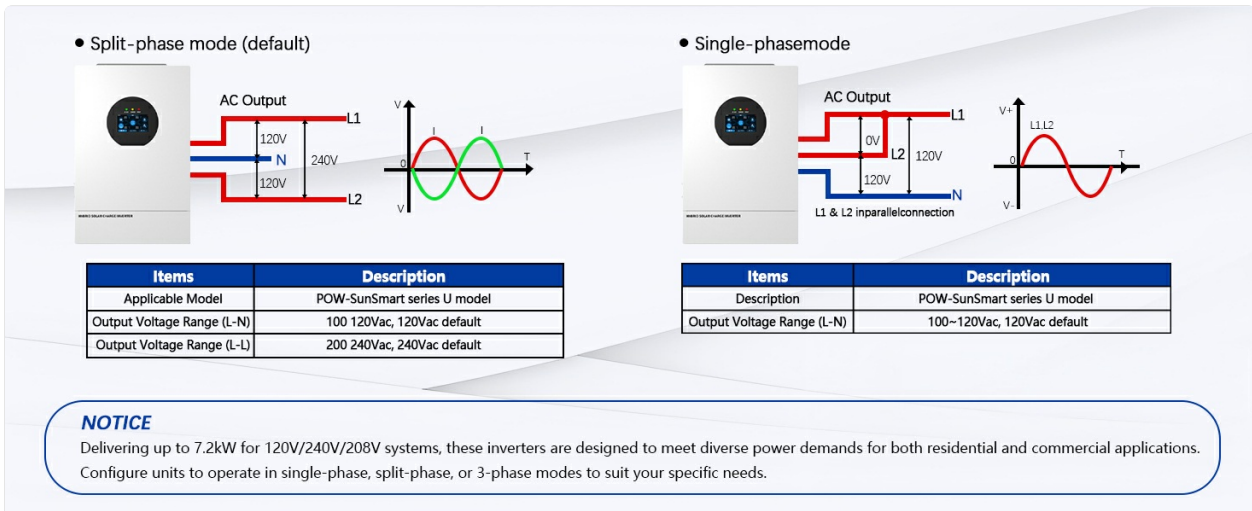


Figure 5: Secure Wiring Connections.

## 4. OPERATING INSTRUCTIONS

The inverter features an LCD HD display screen for real-time monitoring and configuration. Use the control buttons (ESC, UP, DOWN, ENTER) to navigate through the menus and adjust settings.

### 4.1 LCD Display and Navigation

The LCD screen provides information on photovoltaic (PV) parameters, system information, AC input/output, battery parameters, and historical data. To enter the setting mode, long press the ENTER key for more than 10 seconds. Use the UP and DOWN keys to navigate options and ENTER to modify parameters.

# MONITOR AND CONTROL VIA SMARTAPP

Paired with Wi-Fi APP/Software, the built-in Wi-Fi transmitter allows you to monitor your hybrid inverter from anywhere via Wi-Fi. (Registration required, and Wi-Fi module needs to be purchased separately)



Figure 6: LCD HD Display Screen Overview.

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Video 2: Demonstration on how to enter the setting mode and navigate through options on the inverter's display.

## 4.2 Charging and Load Output Modes

The inverter offers flexible charging and load output modes to optimize energy usage and reduce electricity costs.

- **Charging Modes:** Solar Priority, Utility Priority, Solar and Utility, Only Solar.
- **Load Output Working Modes:** Solar Priority, Utility Priority, Solar and Utility, Inverter Priority Output.

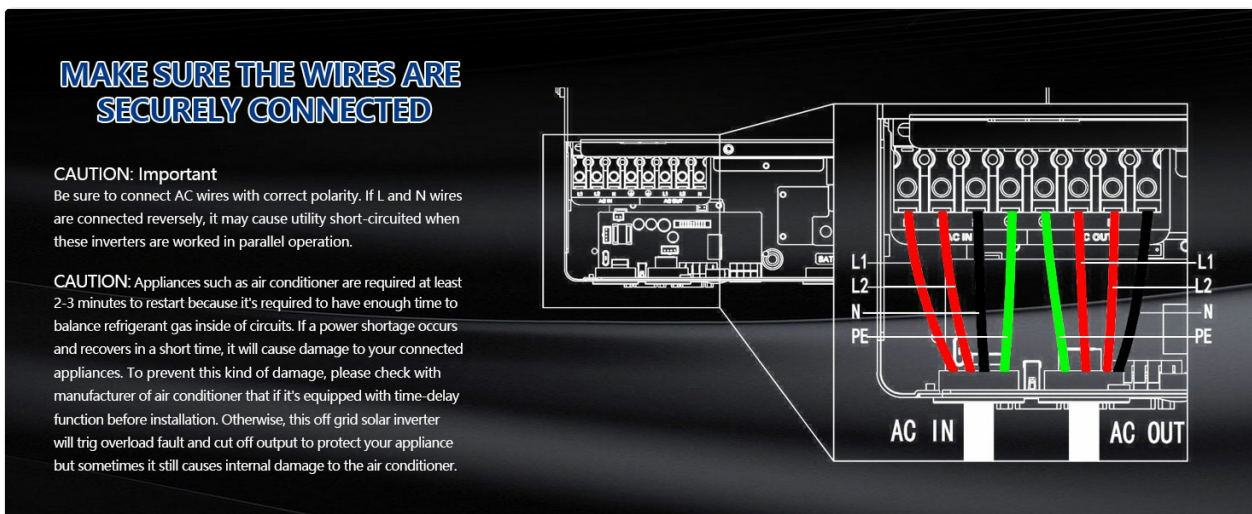



Figure 7: Charging and Load Output Working Modes.

## 4.3 Time-Slot Charging/Discharging

The inverter includes a time-slot charging and discharging function, allowing users to set different charging and discharging periods based on local peak and valley electricity tariffs. This feature helps optimize utility and PV energy usage, reducing monthly bills.

## 7200W SPLIT-PHASE PURE SINE WAVE SOLAR INVERTER




**Y&H INVERTER**

- ✔ Supports 120V/208V/240V AC in Split-Phase/Three-Phase/Single-Phase pure sine wave output
- ✔ DUAL MPPT PV Input, Efficiency up to 99.9%
- ✔ Max. MPPT Charging Current up to 150A
- ✔ Only need 1 unit can output 110V/240V at same time
- ✔ Can work without batteries
- ✔ Temperature probe can be connected
- ✔ Equipped with 4 cooling fans
- ✔ Support CAN, USB, RS485 W-I FI communication

### VS

- ✘ off-grid Solar Inverter
- ✘ DUAL MPPT PV Input
- ✘ Max. MPPT Charging Current up to 80-120A
- ✘ At least two units can output 220Vac
- ✘ Battery must be connected
- ✘ Temperature probe cannot be connected
- ✘ Equipped with 2 cooling fans
- ✘ Fixed insect screen



**OTHER INVERTER**

Figure 8: Time-Slot Charging/Discharging Function.

## 4.4 Remote Monitoring

Monitor and control your hybrid inverter from anywhere via Wi-Fi using the SmartESS app. A Wi-Fi module may need to be purchased separately, and registration is required.



### 4 CHARGING MODES

- Solar Priority
- Solar and Utility
- Utility Priority
- Only Solar

### 4 LOAD OUTPUT WORKING MODES

- Solar Priority
- Solar and Utility
- Utility Priority
- Inverter Priority Output

Figure 9: Monitor and Control via SmartESS App.

## 5. SAFETY FEATURES

The Y&H 7200W Solar Hybrid Inverter incorporates multiple safety features to protect users, appliances, and the battery system, complying with UL1741 standards.

- **Anti-Islanding Protection:** Prevents the inverter from feeding power into the grid during an outage.
- **Overload Protection:** Shuts down the inverter if the load exceeds its capacity.
- **Short-Circuit Protection:** Protects against short circuits in the output.
- **Over-Temperature Protection:** Prevents damage from excessive heat.
- **PV Battery Reverse Polarity Protection:** Safeguards against incorrect PV or battery connections.
- **Low-Voltage Recovery (51.2V) and Deep-Discharge Cutoff (42V):** Protects batteries from over-discharge.
- **Pure Sine Wave Output (<3% THD):** Ensures clean power for sensitive electronics like medical equipment, refrigerators, TVs, and routers.



Figure 10: Comprehensive Protection Features.

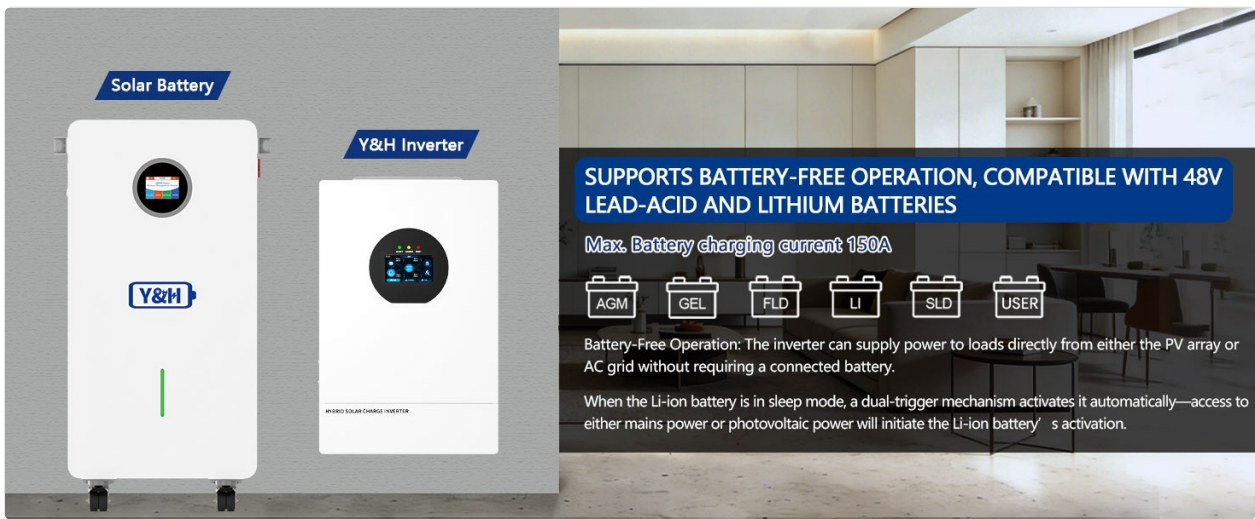


Figure 11: Certifications for Safety and Grid Integration.

## 6. TECHNICAL SPECIFICATIONS

Specification	Value
Product Dimensions	22.8 x 14.13 x 5 inches
Item Weight	33 pounds
Item Model Number	GES-7.2KW-U
Power Source	Solar and Battery Powered
Wattage	7500 watts (Peak)
Color	White
Max Hybrid Charging Current	150A
Max PV Open Circuit Voltage	500Vdc

Specification	Value
MPPT Voltage Range	90-450 Vdc
Output Voltage	120V/240V AC Split Phase

## 7. TROUBLESHOOTING

If the inverter encounters an issue, a fault code will be displayed on the screen, accompanied by an audible buzzer and a lit fault indicator. Refer to the product manual for a comprehensive list of fault codes and their corresponding solutions.

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Video 3: Explanation of how fault codes are displayed on the inverter screen and how to identify them.

### Common Issues and Solutions:

- **No Power Output:** Check battery connections, PV input, and AC input. Ensure the inverter is turned on and not in a fault state.
- **Overload Warning:** Reduce the connected load. The inverter may automatically restart after a cool-down period.
- **Battery Not Charging:** Verify PV panel connections, MPPT settings, and battery health. Check for sufficient sunlight.
- **Inverter Not Communicating:** Check Wi-Fi module connection, network settings, and app configuration.

## 8. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your Y&H Solar Hybrid Inverter.

- **Keep Clean:** Periodically clean the inverter's exterior and ventilation openings to prevent dust buildup, which can hinder cooling.
- **Check Connections:** Regularly inspect all electrical connections (PV, battery, AC input/output) for tightness and corrosion.
- **Monitor Performance:** Use the LCD display or the SmartESS app to monitor system performance and identify any anomalies early.
- **Battery Health:** If using batteries, follow the manufacturer's guidelines for battery maintenance and replacement.

## 9. WHAT'S IN THE BOX

The Y&H 7200W Solar Hybrid Inverter package includes:

- Solar Hybrid Inverter
- Instruction Manual

## **10. WARRANTY AND SUPPORT**

For warranty information, technical support, or service inquiries, please refer to the contact details provided in the included instruction manual or visit the official Y&H website. Keep your purchase receipt as proof of purchase for warranty claims.