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Y&H SUN-6.2KW-HV

Y&H 6.2KW 48VDC Solar Hybrid Inverter User Manual

MODEL: SUN-6.2KW-HV

1. Introduction

This manual provides essential information for the safe and efficient operation of your Y&H 6.2KW 48VDC Solar Hybrid Inverter. This multi-function inverter/charger integrates an inverter, solar charger, and battery charger to provide uninterrupted power. It features a comprehensive LCD display and user-configurable button operations for various settings.



Image 1: Front view of the Y&H 6.2KW 48VDC Solar Hybrid Inverter, showing the display and branding.

2. Important Safety Notes

Please read and understand all safety instructions before installation and operation to prevent injury or damage to the equipment.

- **Utility Bypass Mode:** Do not connect the device to two-phase 220V AC (L1-L2) in utility bypass mode. Connections must be L-N.
- **Inverter Mode:** If connected to two-phase 220V, do not select utility priority for output to avoid safety hazards.
- **Autotransformer:** Do not connect the AC output to an autotransformer, as this may affect the device's service life.
- **Output Voltage:** This inverter provides a single-phase/A Hot Leg 230V output. It does not output 110V AC.
- **Parallel Operation:** This inverter does not support parallel operation or phase separation.
- **Battery Capacity:** Ensure the battery capacity matches the load and application requirements. Refer to the manual's recommendations or consult customer service for proper sizing.

3. Product Features

- Pure sine wave solar inverter (on/off Grid functionality).
- Output power factor of 1.0.
- WIFI & GPRS communication available for iOS and Android platforms.
- Capable of running without a battery.
- One-key restoration to factory settings.
- Built-in Lithium battery automatic activation.
- Dual communication ports for Battery Management System (BMS) and Wi-Fi.
- Built-in 120A MPPT Solar charge controller, supporting up to 6500W PV array power.
- High PV input voltage range (60~500VDC).
- Integrated anti-dust kit for harsh environments.
- Smart battery charge design to optimize battery life.
- Dual output functionality, with the second load output power configurable from 20% to 70%.

4. Setup

4.1 Physical Installation

Mount the inverter in a well-ventilated area, away from direct sunlight, moisture, and flammable materials. Ensure adequate clearance around the unit for proper airflow.

4.2 Wiring Connections

The inverter features built-in protection mechanisms for simplified and safer wiring.

- **AC Input:** Equipped with a built-in air switch and surge protector to prevent over-voltage impact from the grid and facilitate wiring.
- **Battery Input:** Includes an air switch for safety and ease of maintenance.
- **PV Input:** Features a built-in lightning protection device to mitigate lightning-induced overvoltage and improve system stability.

Power All Your Daily Needs



Image 2: Rear view of the inverter, highlighting the various connection ports for AC input, battery, and PV.

4.3 Battery Compatibility

The inverter supports seamless connection with multiple battery types, including AGM, GEL, FLD, LI (Lithium), and SLD. For Lithium batteries, the Battery Management System (BMS) must be PylonTech for communication.

Seamless connection of multiple batteries



AGM, GEL, FLD
LI and SLD



Lithium Battery BMS Communication. Battery BMS must be PylonTech

Image 3: Illustration demonstrating the inverter's compatibility with various battery types (AGM, GEL, FLD, LI, SLD) and the requirement for PylonTech BMS for Lithium batteries.

5. Operating Instructions

5.1 LCD Display and Controls

The inverter features a comprehensive LCD display that allows users to configure various parameters and monitor system status. User-accessible buttons enable adjustments for battery charging current, AC/solar charger priority, and acceptable input voltage ranges.

5.2 Charging Modes

The inverter supports four distinct charging modes:

- **Solar First:** Prioritizes solar power for charging.
- **Solar & Utility:** Uses both solar and utility power for charging.
- **Only Solar:** Charges exclusively from solar power.
- **Utility First:** Prioritizes utility power for charging.

5.3 Dual Output Function

The inverter offers a dual output feature. The setting range for the main output cutoff is from 40.0V to 46.0V for the 6.2KW model, with increments of 0.1V. If the battery voltage drops below this set range, the Main OUT port will cease operation, and only the Second Out port will remain active. This allows for reserving battery capacity for critical loads during power outages. If the battery voltage is higher than the set threshold, the Main OUT port will continue to function.

5.4 Wi-Fi Communication

The inverter supports Wi-Fi and GPRS communication, allowing remote monitoring of its operation via iOS and Android applications. A Wi-Fi/GPRS data acquisition module is required and must be purchased separately. This module connects to the inverter's communication ports.

The diagram is titled "Wi-Fi Communication" and features the text: "No matter how far away you are, you can check the work of the inverter anytime, anywhere." It includes two app store download buttons: "Download on the APP Store" and "Get it on Google Play". A smartphone on the right displays a monitoring app interface. A callout box with a warning icon states: "Optional The Wi-Fi/GPRS data acquisition module needs to be purchased separately." The diagram shows a black data acquisition module with a "WIFI" antenna and a label with a QR code and the ID "Q272110011238". A circular callout highlights the module's connection points: "RS 232", "RS 485", "WIFI", and "BMS". Another circular callout highlights the corresponding ports on the inverter's rear panel, which are labeled "RS 232", "RS 485", "WIFI", and "BMS". The inverter panel also shows "AC IN (L N)", "BATTERY", and "HYBRID SOLAR" branding.

Image 4: Diagram showing the optional Wi-Fi/GPRS data acquisition module connecting to the inverter's communication ports (RS232, RS485, WIFI, BMS). The image also displays a QR code for the module: Q272110011238.

6. Comprehensive Protection Features

The Y&H Hybrid Solar Inverter is designed with multiple protection mechanisms to ensure safe and reliable

operation:

- Over-Temperature Protection
- Under Voltage Protection
- Over Voltage Protection
- Over Current Protection
- Short Circuit Protection
- Over Charge Protection
- Over-Load Protection
- Backfill Protection

Comprehensive 360° protection



Over-Temperature Protection



Under Voltage Protection



Over Voltage Protection



Over Current Protection



Short Circuit Protection



Over Charge Protection



Over-Load Protection



Backfill Protection



Image 5: Visual representation of the inverter's comprehensive protection features, including over-temperature, under/over voltage, over current, short circuit, over charge, over-load, and backfill protection.

7. Maintenance

Regular maintenance ensures the longevity and optimal performance of your inverter. Keep the unit clean and free

from dust. Periodically check all connections for tightness and inspect for any signs of wear or damage. Ensure proper ventilation is maintained around the inverter.

8. Troubleshooting

If the inverter is not functioning as expected, refer to the following general troubleshooting steps:

- **No Power:** Check all power connections, including AC input, battery, and PV. Verify that the built-in air switches are in the 'ON' position.
- **Error Codes:** Consult the LCD display for any error codes and refer to the full product manual (if available) for specific interpretations.
- **Low Output:** Ensure PV panels are clean and receiving adequate sunlight. Check battery voltage and capacity.
- **Overload:** Reduce the connected load. The inverter has over-load protection which may temporarily shut down output.

For persistent issues, contact Y&H customer support.

9. Specifications

Feature	Specification
Model Name	SUN-6.2KW-HV
Output Power	6200 Watts
Peak Output Power	6500 Watts
Electrical Output Waveform	Pure Sine Wave
MPPT Solar Charge Controller	120A
Max. PV Array Power	6500W
Max. PV Open Circuit Voltage	450Vdc
PV Array MPPT Voltage Range	60~450Vdc
Starting Voltage	>90V
Cold Start Function	46V
Item Weight	14.5 Kilograms
Package Dimensions	66.5 x 41.5 x 21.5 cm
Power Source	Solar Powered
Specification Met	CE
UPC	704334808607

10. Warranty and Support

For warranty information, technical support, or service inquiries, please contact your authorized Y&H dealer or customer service representative. Keep your purchase receipt and product model number readily available for assistance.