Y&H MPS-VIII-6.2KW-48V-M120A

Y&H 6.2KW On/Off-Grid Solar Hybrid Inverter User Manual

Model: MPS-VIII-6.2KW-48V-M120A

Brand: Y&H

1. Introduction

This user manual provides essential information for the safe and efficient operation of the Y&H 6.2KW On/Off-Grid Solar Hybrid Inverter. This device integrates the functions of an inverter, solar charger, and battery charger to provide uninterruptible power support. It is designed for various applications, including household, office, camping, RV trips, boat trips, and as a backup power source.

Figure 1: Y&H 6.2KW On/Off-Grid Solar Hybrid Inverter, front view.

2. Safety Information

Please read all instructions and warnings carefully before installation and operation. Failure to follow these instructions may result in electric shock, fire, or serious injury. Keep this manual for future reference.

- Ensure all wiring is performed by qualified personnel.
- Always disconnect power before performing any maintenance or wiring.
- Use appropriate circuit breakers between the battery and the inverter.
- Do not disassemble the inverter. There are no user-serviceable parts inside.
- Ensure proper ventilation around the inverter to prevent overheating.
- This inverter outputs 220V AC. For 110/120V US home appliances, a step-down transformer (not included) is required.

3. Product Features

- **Pure Sine Wave Output:** Provides stable and clean power suitable for sensitive electronics.
- **Integrated MPPT Charge Controller:** Built-in 120A MPPT solar charge controller for efficient solar power harvesting.
- **High Power Capacity:** 6200W continuous power output with a maximum PV array power of 6500W.
- **Wide PV Input Range:** PV array MPPT voltage range of 90~450Vdc, with a maximum open circuit voltage of 500Vdc.
- **Multiple Charging Modes:** Supports Utility first, Solar first, Solar & Utility, and Battery & Solar charging modes.
- **Flexible Output Modes:** Offers PV Priority, Utility Priority, and SBU Priority output modes.
- **Battery Compatibility:** Compatible with Lead-Acid (AGM, GEL, Flooded) and Lithium batteries. User-defined settings available for specific battery types.
- **RBG Light Indicator:** The inverter's logo displays different colors (Purple, Red, Blue) to indicate the current working mode (PV, Battery, Utility).
- **One-Click Restore:** Ability to restore default settings with a single click to prevent damage from incorrect configurations.
- **Cold Start Function:** Supports battery cold start function (46V).
- **Automatic Restart:** Automatically restarts when AC power recovers.
- **Optional WiFi Communication:** Allows monitoring and parameter adjustment via a mobile phone app (WiFi module not included).

Figure 2: Key technical parameters and dimensions of the 6.2KW Solar Inverter.

4. Installation and Setup

4.1 System Overview

The Y&H Hybrid Inverter can integrate solar power, utility power, generator power, and battery storage to supply power to your home appliances.

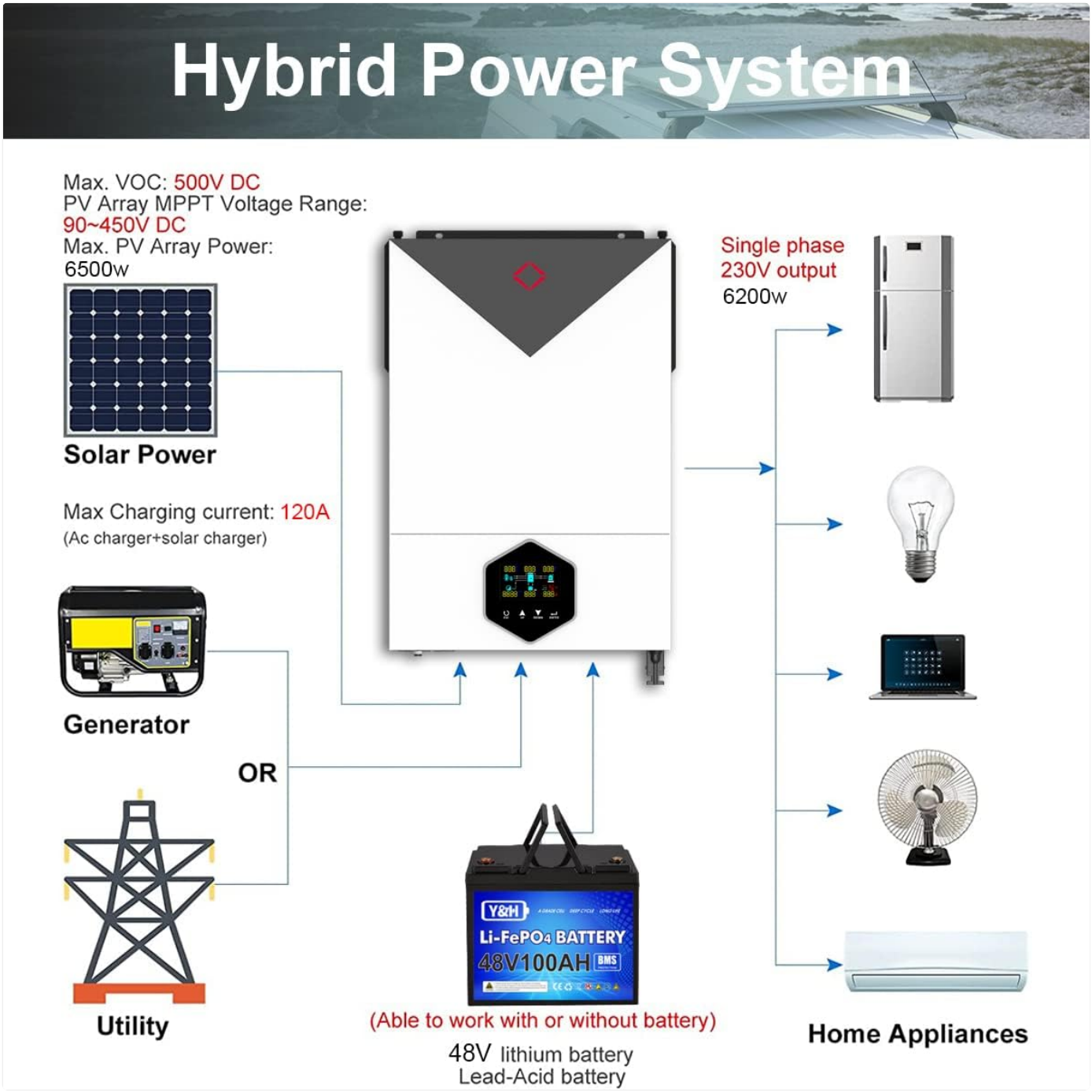


Figure 3: Diagram illustrating the hybrid power system setup with solar, utility, generator, battery, and home appliances connected to the inverter.

4.2 Battery Connection

The inverter is compatible with 48V lithium and lead-acid batteries (AGM, GEL, Flooded). Ensure a circuit breaker is installed between the battery and the inverter for safety.

Figure 4: Inverter compatibility with various battery types and recommended battery cable size.

Recommended battery cable size:

Model	Wire Size	Cable (mm²)	Torque value (max)
3.6KW/4.2KW/6.2KW	1 x 2AWG	25	2 Nm

4.3 PV Array Connection

Connect your solar panels to the inverter's PV input terminals. Ensure the total PV array power does not exceed 6500W and the open circuit voltage is within the 90-450Vdc MPPT range, with a maximum of 500Vdc.

4.4 AC Output Connection

Connect your household and office loads (e.g., refrigerators, lamps, televisions, fans, air conditioning) to the inverter's AC output. This inverter provides a single-phase 220V output. For 110/120V devices, a step-down transformer is necessary.

5. Operating Modes

5.1 Charging Modes

The inverter supports four charging modes:

- **Utility First:** Prioritizes utility power for charging.
- **Solar First:** Prioritizes solar power for charging.
- **Solar & Utility:** Uses both solar and utility power for charging.
- **Battery & Solar:** Charges from both battery and solar sources.

5.2 Output Modes

The inverter offers three output modes:

- **PV Priority:** Solar power is the primary source for loads.
- **Utility Priority:** Utility power is the primary source for loads.
- **SBU Priority (Solar-Battery-Utility):** Solar power is prioritized, then battery, then utility.

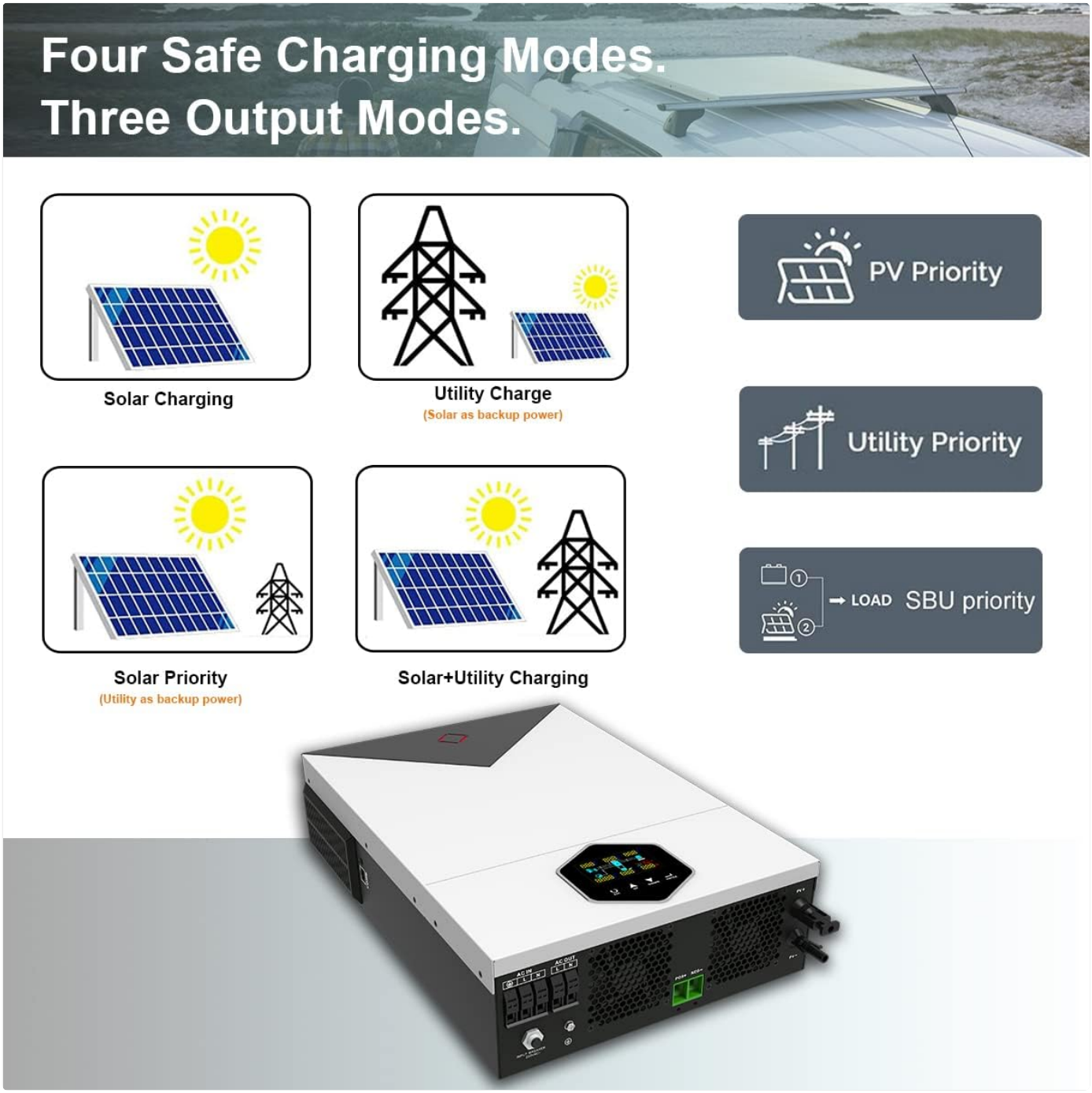


Figure 5: Visual representation of the various charging and output priority modes.

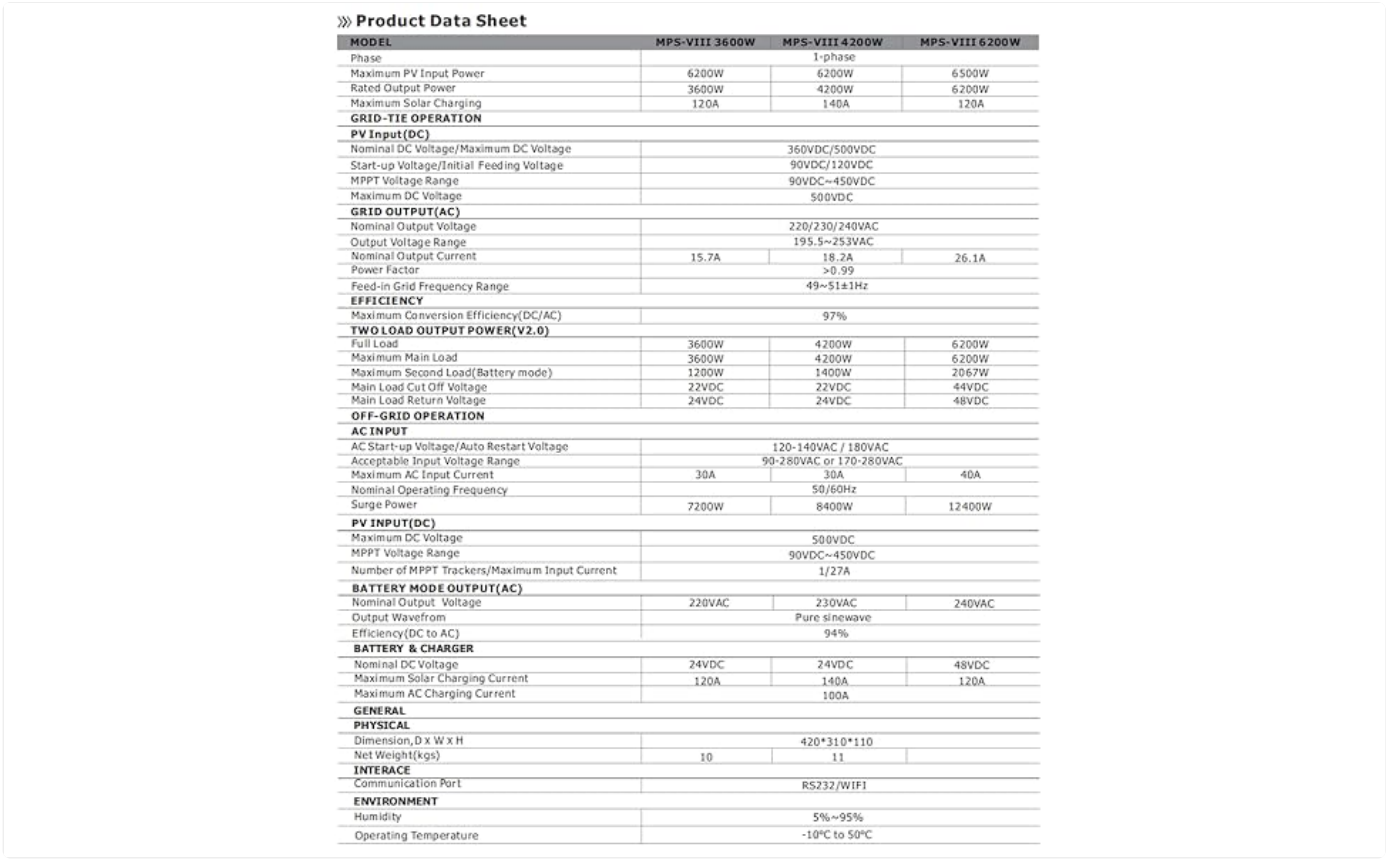
5.3 RGB Light Indicators

The Y&H Hybrid Inverter's logo changes color to indicate its current working mode:

- **Purple Light:** PV Mode (Solar power is active).
- **Red Light:** Battery Mode (Operating from battery power).
- **Blue Light:** Utility Mode (Operating from utility grid power).

Figure 6: Explanation of RGB light indicators for different inverter working modes.

The inverter supports Off-grid, Hybrid, and On-grid operation. Note that if item 37 is set to "hyd" (Hybrid), item 01 will revert to SUB mode instead of SBU mode.



Product Data Sheet

MODEL	MPS-VIII 3600W	MPS-VIII 4200W	MPS-VIII 6200W
Phase		1-phase	
Maximum PV Input Power	6200W	6200W	6500W
Rated Output Power	3600W	4200W	6200W
Maximum Solar Charging	120A	140A	120A
GRID-TIE OPERATION			
PV Input(DC)			
Nominal DC Voltage/Maximum DC Voltage		360VDC/500VDC	
Start-up Voltage/Initial Feeding Voltage		90VDC/120VDC	
MPPT Voltage Range		90VDC~450VDC	
Maximum DC Voltage		500VDC	
GRID OUTPUT(AC)			
Nominal Output Voltage		220/230/240VAC	
Output Voltage Range		195.5~253VAC	
Nominal Output Current	15.7A	18.2A	26.1A
Power Factor		>0.99	
Feed-in Grid Frequency Range		49~51±1Hz	
EFFICIENCY			
Maximum Conversion Efficiency(DC/AC)		97%	
TWO LOAD OUTPUT POWER(V2.0)			
Full Load	3600W	4200W	6200W
Maximum Main Load	3600W	4200W	6200W
Maximum Second Load(Battery mode)	1200W	1400W	2067W
Main Load Cut Off Voltage	22VDC	22VDC	44VDC
Main Load Return Voltage	24VDC	24VDC	48VDC
OFF-GRID OPERATION			
AC INPUT			
AC Start-up Voltage/Auto Restart Voltage		120-140VAC / 180VAC	
Acceptable Input Voltage Range		90-280VAC or 170-280VAC	
Maximum AC Input Current	30A	30A	40A
Nominal Operating Frequency		50/60Hz	
Surge Power	7200W	8400W	12400W
PV INPUT(DC)			
Maximum DC Voltage		500VDC	
MPPT Voltage Range		90VDC~450VDC	
Number of MPPT Trackers/Maximum Input Current		1/27A	
BATTERY MODE OUTPUT(AC)			
Nominal Output Voltage	220VAC	230VAC	240VAC
Output Wavefrom		Pure sinewave	
Efficiency(DC to AC)		94%	
BATTERY & CHARGER			
Nominal DC Voltage	24VDC	24VDC	48VDC
Maximum Solar Charging Current	120A	140A	120A
Maximum AC Charging Current		100A	
GENERAL			
PHYSICAL			
Dimension, D x W x H		420*310*110	
Net Weight(kgs)	10	11	
INTERACE			
Communication Port		RS232/WIFI	
ENVIRONMENT			
Humidity		5%~95%	
Operating Temperature		-10℃ to 50℃	

Figure 7: Detail on grid-tie operation settings, including Off-grid and Hybrid modes.

6. Monitoring and Communication

The inverter features an optional WiFi communication function, allowing you to monitor its working status and adjust parameters remotely using a mobile phone application. The WiFi module is not included in the standard package.

Figure 8: Illustration of the optional WiFi communication module for remote monitoring and control.

For more information on the WiFi module and app setup, please refer to the separate documentation provided with the WiFi module or contact customer support.

Relevant link: Q2721100111238

7. Specifications

Detailed technical specifications for the Y&H 6.2KW Solar Hybrid Inverter (Model: MPS-VIII-6.2KW-48V-M120A).

Category	Specification
General	
Product Dimensions	17.32 x 11.81 x 3.94 inches
Item Weight	24.1 pounds
Model Name	MPS-VIII-6.2KW-48V-M120A

Category	Specification
Color	Purple, Red
Manufacturer	Y&H
Date First Available	November 15, 2022
Recommended Uses	Household appliances, Office, Camping, RV trips, Boat trips, Backup power source
Power Source	Battery Powered
Inverter Output	
Output Waveform	Pure Sine Wave
AC Output Voltage	220V AC (Single-phase)
Rated Output Power	6200W
Solar Charger (MPPT)	
Max PV Array Power	6500W
Max PV Open Circuit Voltage	500Vdc
PV Array MPPT Voltage Range	90~450Vdc
Starting Voltage	>150V
Max Charging Current	120A

Figure 9: Various views of the Y&H 6.2KW Solar Hybrid Inverter.

8. Troubleshooting

- **Setting Errors:** If you encounter issues due to incorrect settings, use the "One Click Restore Default Settings" function to revert to factory defaults. This can prevent machine damage.
- **AC Recovery:** The inverter is designed to automatically restart when AC power is restored, ensuring continuous operation.
- **110/120V Appliances:** If your appliances require 110/120V AC, ensure you have a suitable step-down transformer connected, as this inverter outputs 220V AC.
- **"hyd" vs "SBU" Mode:** Note that if item 37 is set to "hyd", item 01 will jump back to SUB mode instead of SBU mode. Adjust settings accordingly if SBU priority is desired.

9. Maintenance

To ensure optimal performance and longevity of your Y&H Solar Hybrid Inverter, follow these general maintenance guidelines:

- **Regular Cleaning:** Keep the inverter clean and free from dust and debris. Use a soft, dry cloth for cleaning.
- **Ventilation:** Ensure that the ventilation openings are not blocked to allow for proper airflow and prevent overheating.
- **Connections:** Periodically check all electrical connections (battery, PV, AC output) to ensure they are secure and free from corrosion.
- **Environmental Conditions:** Operate the inverter within its specified environmental conditions (temperature, humidity) to prevent damage.
- **Firmware Updates:** Check the manufacturer's website for any available firmware updates that may improve performance or add features.

10. Warranty and Support

For warranty information, technical support, or service inquiries, please contact Y&H customer service. Refer to your purchase documentation for specific warranty terms and contact details.
Y&H has over 9 years of experience in inverter production and sales, with a professional technical team dedicated to customer satisfaction.
Visit the Y&H Store: Y&H Store on Amazon