Y&H ESS PLUS-6.2KW-10.24 kWh

Y&H 6.2kW All-in-One Solar Inverter with 10.24 kWh Battery Storage User Manual

Model: ESS PLUS-6.2KW-10.24 kWh

1. INTRODUCTION

The Y&H ESS Plus Series is an integrated household energy storage system designed for photovoltaic applications. This all-in-one unit combines a solar inverter, Li-ion battery, and MPPT controller into a single, compact system. It supports grid-connected, off-grid, and hybrid operation modes, offering flexibility for various power scenarios. This manual provides essential information for the safe and efficient installation, operation, and maintenance of your Y&H 6.2kW All-in-One Solar Inverter with 10.24 kWh Battery Storage.

2. SAFETY INFORMATION

Please read and understand all safety instructions before installing or operating the system. Failure to follow these instructions may result in electric shock, fire, serious injury, or death.

- **Qualified Personnel:** Installation and maintenance must be performed by qualified personnel with knowledge of electrical systems and battery storage.
- **Electrical Hazard:** This system operates at high voltages and currents. Always disconnect all power sources (PV, AC grid, battery) before performing any work on the unit.
- **Battery Safety:** The integrated Li-ion battery contains hazardous components. Do not open, puncture, or damage the battery. Avoid exposure to fire or extreme temperatures.
- **Ventilation:** Ensure adequate ventilation around the unit to prevent overheating.
- **Environmental Conditions:** Operate the system within the specified temperature and humidity ranges.
- **Grounding:** Ensure the system is properly grounded according to local electrical codes.

3. PRODUCT FEATURES

- **Powerful Output:** 6.2kW stable AC output (PF 1.0) for simultaneous operation of multiple high-power appliances.
- **Efficient Solar Integration:** 120A MPPT solar charger with a wide PV input range (60-500VDC) for optimized

energy harvest.

- **Integrated & Expandable Battery:** BMS-protected lithium battery (10.24 kWh for this model), configurable from 5.12-20.48kWh, with safety features against overcharge/over-discharge. Supports multi-unit clustering for increased capacity.

- **Smart & User-Friendly:** IP65-rated anti-dust kit, universal wheels for mobility, and remote monitoring via iOS/Android app for real-time power analytics.

- **Hybrid Flexibility:** Supports seamless grid-tied energy selling or backup power. Features dual AC output ports for prioritized power distribution.

- **Durability:** Designed for harsh environments, operating in temperatures from -10°C to 50°C with 5-95% non-condensing humidity resistance.

4. SYSTEM OVERVIEW

4.1 Product Variations

The Y&H ESS Plus series is available in various capacities, ranging from 5.12kWh to 20.48kWh, and different power outputs. The image below illustrates the physical size differences between these configurations.

Image: Y&H ESS Plus Series Inverter with Battery Storage units showing different capacities (5.12kWh, 10.24kWh, 15.36kWh, 20.48kWh) and their corresponding physical sizes.

4.2 System Diagram

The system integrates solar modules, the Y&H inverter with battery storage, home appliances, and can interact with a utility grid or a generator. This diagram illustrates the typical energy flow within the system.

Image: A diagram showing the Y&H ESS Plus system connected to solar modules, home appliances, and optionally to a utility grid or generator, illustrating energy flow.

4.3 Back Panel Description

The back panel of the Y&H ESS Plus unit contains all necessary connection ports and switches for PV input, AC input/output, battery connections, and communication. Understanding these ports is crucial for proper installation.
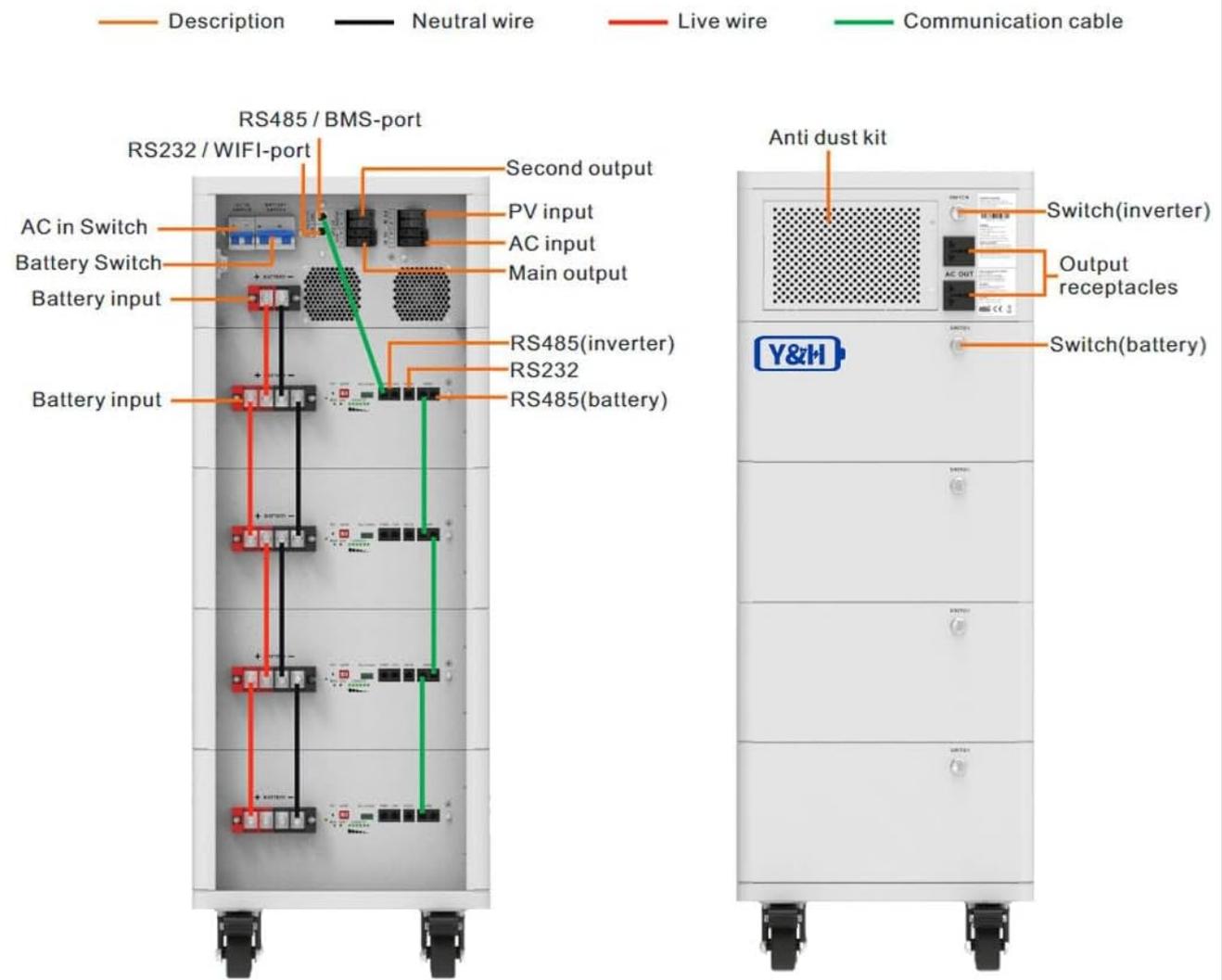

Image: Detailed view of the Y&H ESS Plus back panel, labeling AC In Switch, Battery Switch, Battery Input, RS232/WIFI-port, RS485/BMS-port, Second Output, PV Input, AC Input, Main Output, RS485 (inverter), RS232,

4.3.1 Top Panel Connections

A closer look at the top section of the back panel reveals the AC and battery switches, AC and PV input/output terminals, and communication ports.
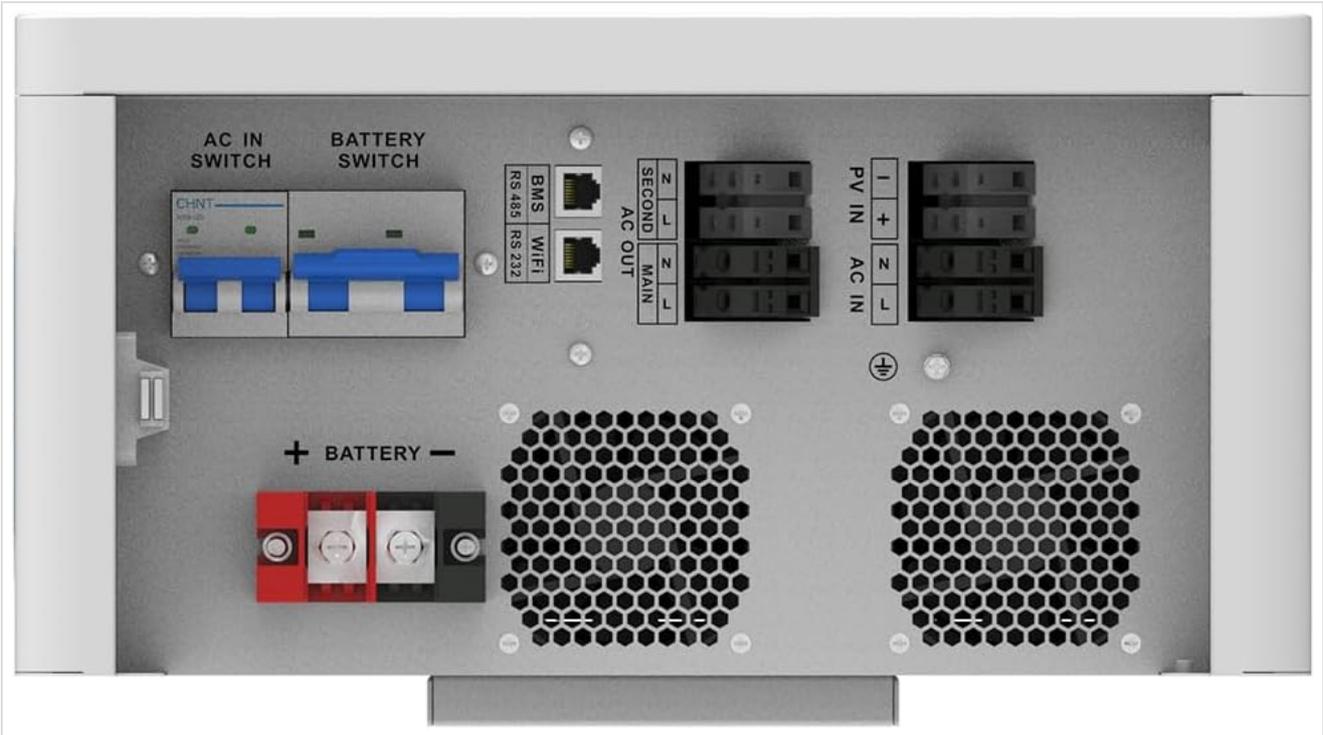

Image: Close-up of the top section of the Y&H ESS Plus back panel, showing the AC In Switch, Battery Switch, Battery Input terminals, RS485/BMS/WIFI ports, Second Output, PV Input, AC Input, Main Output terminals, and grounding point.

4.3.2 Battery Communication and Status Indicators

The lower section of the back panel provides battery connection terminals and indicators for system status and communication interfaces.

Image: Close-up of the lower section of the Y&H ESS Plus back panel, detailing the battery positive and negative terminals, RST (Reset) button, ADDR (Address) switches, Dry Contact, RS485, CAN, RS232 communication ports,

5. Setup and Installation

5.1 Unpacking and Inspection

- Carefully unpack the unit and inspect for any shipping damage. Report any damage to your supplier immediately.

- Verify that all components listed in the packing list are present.

5.2 Site Selection and Mounting

- Install the unit in a clean, dry, and well-ventilated area, away from direct sunlight, heat sources, and flammable materials.

- Ensure the ambient temperature is within the operating range of -10°C to 50°C.

- Maintain adequate clearance around the unit for proper airflow and heat dissipation.

- The unit is equipped with universal wheels for easy positioning. Ensure it is placed on a stable, level surface.

5.3 Electrical Connections

All electrical connections must comply with local and national electrical codes.

1. **Grounding:** Connect the system to a reliable earth ground using the designated grounding terminal.
2. **Battery Connection:** Connect the battery terminals (positive to positive, negative to negative) to the designated battery input ports on the back panel. Ensure correct polarity.
3. **PV Input Connection:** Connect the solar panel array to the PV input terminals. Ensure the PV input voltage (60-500VDC) and current are within the specified limits.
4. **AC Input Connection:** Connect the AC grid supply to the AC input terminals.
5. **AC Output Connection:** Connect your home appliances or load distribution panel to the Main Output and Second Output terminals. The dual output ports allow for load prioritization.
6. **Communication Connections:** Connect RS232, RS485, CAN, or Wi-Fi modules as required for monitoring and control.

5.4 Initial Power-Up

1. Before powering on, double-check all electrical connections for correctness and tightness.
2. Turn on the Battery Switch.
3. Turn on the AC In Switch.
4. Turn on the Inverter Switch.
5. Observe the system indicators for normal operation. Refer to the troubleshooting section if any errors occur.

6. Operating Modes

The Y&H ESS Plus system supports various operating modes to suit different energy needs.

- **Grid-Tied Mode:** The system can feed excess solar energy back into the utility grid, potentially earning credits or reducing electricity bills.

- **Off-Grid Mode:** The system operates independently of the utility grid, providing power to connected loads

using solar energy and battery storage.

- **Hybrid Mode:** Combines grid-tied and off-grid functionalities. The system can use solar power, battery power, and grid power as needed, providing backup during outages and optimizing energy usage.

6.1 Remote Monitoring

The system supports remote monitoring via a dedicated mobile application (iOS/Android). This allows users to view real-time power analytics, system status, and adjust settings from a smartphone or tablet. Refer to the app's user guide for detailed instructions on setup and usage.

7. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your Y&H ESS Plus system.

- **Cleaning:** Periodically clean the exterior of the unit with a dry, soft cloth. Do not use liquid cleaners.
- **Anti-Dust Kit:** The integrated IP65-rated anti-dust kit helps protect internal components. Inspect and clean the air filters (if applicable) as per the manufacturer's recommendations.
- **Connection Checks:** Annually, inspect all electrical connections for tightness and signs of corrosion. Tighten any loose connections.
- **Battery Health:** The Battery Management System (BMS) protects the Li-ion battery. Monitor battery health via the remote monitoring app.
- **Environmental Conditions:** Ensure the operating environment remains within specified temperature and humidity ranges.

8. TROUBLESHOOTING

This section provides guidance for common issues. For complex problems, contact technical support.

- **No Power Output:** Check all switches (AC In, Battery, Inverter) are in the ON position. Verify PV input and battery charge level. Check AC input from the grid.
- **Alarm Indicators:** Refer to the system's display or monitoring app for specific alarm codes. Common alarms include over-voltage, under-voltage, over-temperature, or battery faults.
- **System Not Charging:** Ensure solar panels are clean and unobstructed. Verify PV input connections and voltage. Check MPPT controller status via the app.
- **One-Key Factory Reset:** If the system experiences persistent issues or requires a complete configuration reset, a one-key factory reset function is available. Consult the detailed product manual or technical support before performing a factory reset, as this will erase all custom settings.

9. SPECIFICATIONS

Feature	Specification
Model Name	ESS PLUS-6.2KW-10.24 kWh
Power Output (Wattage)	6200 watts
Battery Capacity	10.24 kWh (Configurable 5.12-20.48kWh)
AC Output Voltage	AC220V (Pure Sine Wave)

Feature	Specification
MPPT Solar Charger Current	120A
Max PV Input Voltage	500VDC
Operating Temperature	-10°C to 50°C
Humidity Resistance	5-95% (non-condensing)
Protection Rating	IP65 (with anti-dust kit)
Item Weight	37.2 pounds (approx. 16.87 kg)
Package Dimensions	20.8 x 15.7 x 8.07 inches (approx. 52.8 x 39.9 x 20.5 cm)
UPC	704334434622

10. WARRANTY AND SUPPORT

For warranty information, technical support, or service inquiries, please contact Y&H customer service or your authorized dealer. Keep your purchase receipt and model number handy for faster service.
Manufacturer: Y&H