Y&H PLUS-4.2KW-10.24kWh

Y&H Stackable All-In-One Energy Storage Power Station

MODEL: PLUS-4.2KW-10.24KWH USER MANUAL

1. Introduction and Overview

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, offering versatile operation modes including grid-connected, off-grid, and hybrid to suit various power requirements. This manual provides essential information for the safe and efficient installation, operation, and maintenance of your Y&H Energy Storage Power Station.

This system is an ideal solution for users seeking a stable, efficient, and intelligent home energy storage system, supporting green energy initiatives.

2. Safety Information

Please read all safety instructions carefully before installation and operation. Failure to follow these instructions may result in electric shock, fire, serious injury, or property damage.

- Installation must be performed by qualified personnel in accordance with local electrical codes and regulations.
- Do not attempt to open, disassemble, or repair the unit. Refer all servicing to authorized service personnel.
- Ensure proper ventilation around the unit to prevent overheating. Do not block ventilation openings.
- Keep the unit away from flammable materials, moisture, and direct sunlight.
- Always disconnect all power sources (solar, grid, battery) before performing any maintenance or wiring.
- The lithium battery contains high voltage. Handle with extreme care and avoid short circuits.
- Use only specified cables and connectors.

3. Product Features

- **Scalable Power Hub:** Features a 4.2KW hybrid inverter supporting 5.12kWh to 15.36kWh lithium battery expansion in 5.12kWh increments. Provides 4200W stable AC output for various household appliances.
- **Smart Solar Integration:** Equipped with a 120A MPPT solar charger, supporting PV input from 60-500VDC for efficient energy harvest. Adapts to diverse solar configurations and includes auto-restart during AC recovery.

- **Advanced Safety & Control:** Integrated Battery Management System (BMS) protects the lithium battery with safeguards against overcharge and over-discharge. Features a one-key factory reset for simplified troubleshooting and remote monitoring via iOS/Android apps.
- **Industrial-Grade Durability:** Designed with an IP65-rated anti-dust kit, universal wheels for mobility, and RGB ambient lights. Compact dimensions (441x231x701mm) with a built-in handle. Expandable stackable design allows for multi-unit clustering.
- **Dual-Functionality & Efficiency:** Delivers pure sine wave output (PF 1.0) suitable for sensitive electronics. Dual output ports enable prioritization of critical loads while managing general power distribution. Supports hybrid operation for seamless grid-tied energy management.
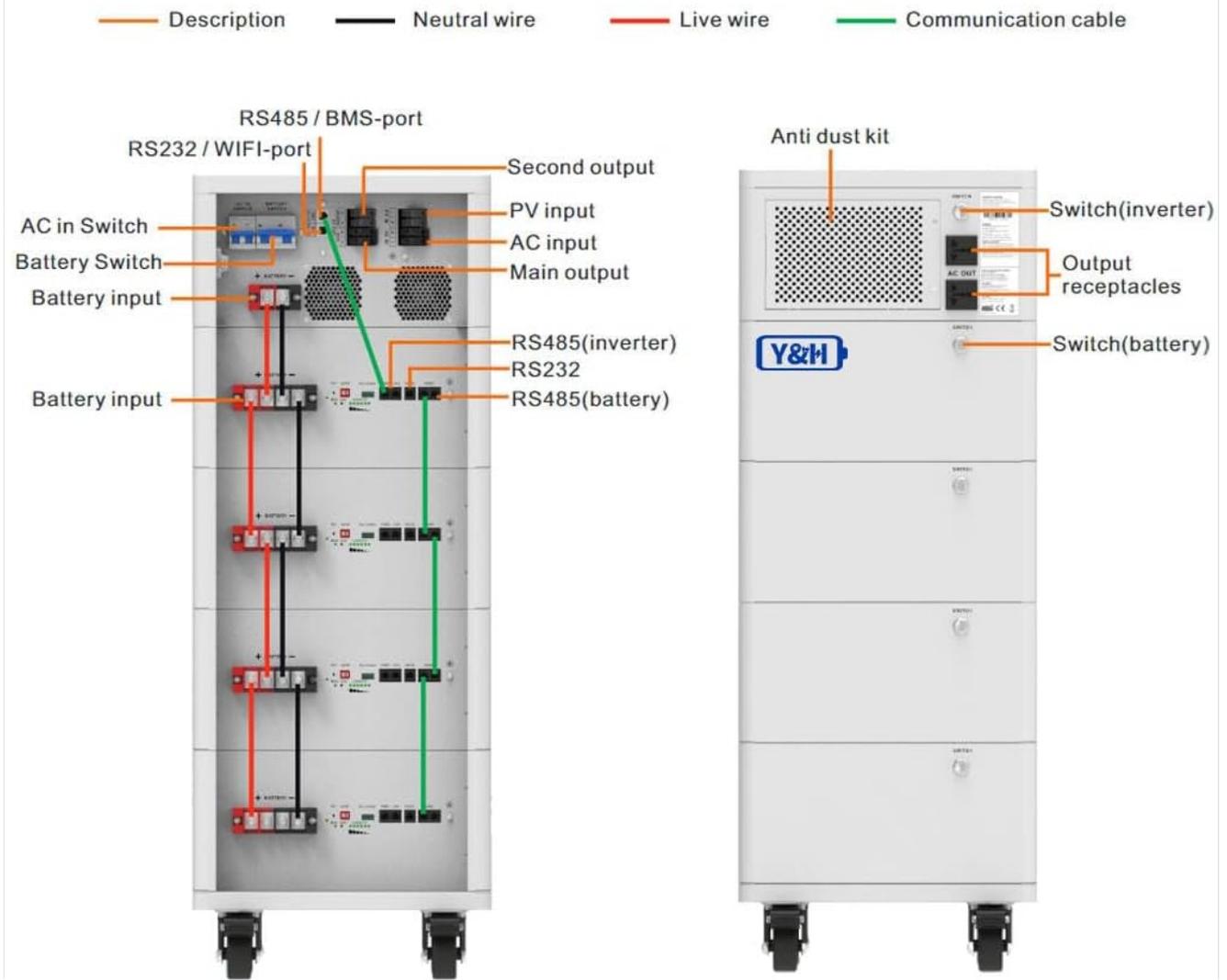
4. System Components and Diagrams

Figure 4.1: System Diagram. This diagram illustrates the overall connection of the Y&H Energy Storage Power Station within a home environment, showing connections to solar modules, home appliances, the utility grid, and an optional generator.

Back Panel Description

Figure 4.2: Back Panel Description. This image details the various ports and switches on the back panel of the energy storage system, including AC input/output, PV input, battery input, communication ports (RS232, RS485, WiFi), and the anti-dust kit. Color-coded lines indicate neutral wire (black), live wire (red), and communication cable (green).

5.12KWH-20.48KWH OPTIONAL

Figure 4.3: Optional Battery Capacities. This image displays the stackable design of the Y&H Energy Storage Power Station, illustrating different configurations ranging from 5.12kWh to 20.48kWh, highlighting the modular and expandable nature of the system.
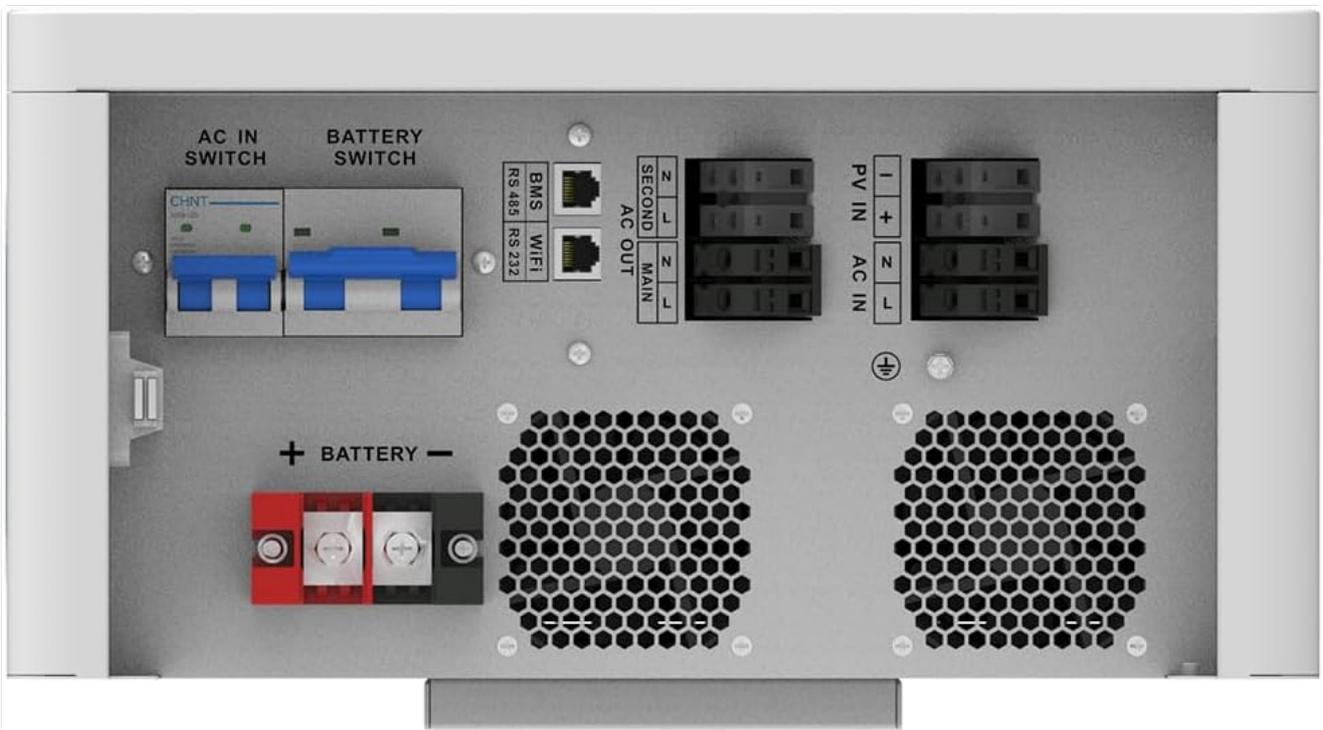
Figure 4.4: Inverter Section Connections. A detailed view of the upper back panel, showing the AC In Switch, Battery Switch, PV Input terminals, AC Input terminals, Main AC Output, Second AC Output, and communication ports (BMS, RS485, WiFi, RS232).

Figure 4.5: Battery Section Connections. A detailed view of the lower back panel, showing the positive and negative battery input terminals, along with additional communication ports (RST, ADDR, Dry Contact, RS485, CAN, RS232) and status indicators (RUN, ALM, CAPACITY).

5. Setup and Installation

Before beginning installation, ensure all components are present and undamaged. Refer to Figure 4.1 and 4.2 for connection points.

1. **Unpacking and Inspection:** Carefully unpack the unit and inspect for any shipping damage. Report any damage to your supplier immediately.

2. **Placement:** Choose a well-ventilated, dry, and cool location, away from direct sunlight, heat sources, and flammable materials. Ensure sufficient clearance around the unit for airflow. The unit is equipped with universal

wheels for easier positioning.

3. **Mounting (if applicable):** While the unit is stackable and mobile, ensure it is placed on a stable, level surface.

4. **Battery Connection:** Connect the battery modules to the designated battery input terminals (+ and -) on the back panel (Figure 4.5). Ensure correct polarity. For multiple battery modules, follow the stacking and connection instructions provided with the battery expansion kits.

5. **Solar Panel (PV) Input:** Connect your solar panel array to the PV Input terminals on the inverter section (Figure 4.4). Observe correct polarity and ensure the PV voltage is within the specified range (60-500VDC).

6. **AC Input (Grid/Generator):** Connect the utility grid or a generator to the AC Input terminals (Figure 4.4). Ensure the AC input switch is in the OFF position during connection.

7. **AC Output (Load):** Connect your household appliances to the Main AC Output and Second AC Output receptacles (Figure 4.4). The dual output ports allow for load prioritization.

8. **Communication Connections:** Connect necessary communication cables (RS232, RS485, WiFi) for monitoring and control as required (Figure 4.4 and 4.5).

9. **Grounding:** Ensure the unit is properly grounded according to local electrical codes.

10. **Final Check:** Before powering on, double-check all connections for tightness and correct polarity.

6. Operating Instructions

1. **Powering On:**

   - Ensure all connections are secure.
   - Turn on the Battery Switch (Figure 4.4).
   - Turn on the AC In Switch (Figure 4.4) if connecting to grid/generator.
   - Turn on the Inverter Switch (Figure 4.2). The system will initiate and the display will light up.

2. **Operating Modes:** The system supports grid-connected, off-grid, and hybrid modes. Configuration of these modes is typically done via the system's display interface or the remote monitoring application. Refer to the on-screen menu for specific settings.

3. **Monitoring:** Utilize the integrated display on the unit or download the dedicated mobile application (iOS/Android) for remote monitoring of power stats, battery status, and system performance in real-time.

4. **Powering Off:**

   - Turn off the Inverter Switch.
   - Turn off the AC In Switch.
   - Turn off the Battery Switch.

7. Maintenance

Regular maintenance ensures optimal performance and longevity of your energy storage system.

- **Cleaning:** Periodically clean the exterior of the unit with a soft, dry cloth. Ensure ventilation openings are free from dust and debris. The IP65-rated anti-dust kit helps protect internal components.

- **Connection Checks:** Annually, inspect all electrical connections (PV, AC, battery) for tightness and signs of corrosion. Tighten any loose connections.

- **Battery Health:** The integrated BMS manages battery health. Monitor battery performance via the display or app. Avoid prolonged storage in extreme temperatures.

- **Software Updates:** Check the manufacturer's website or app for any available firmware updates to ensure your system has the latest features and optimizations.

8. Troubleshooting

This section provides solutions to common issues. For problems not listed here, contact customer support.

Problem	Possible Cause	Solution
System does not power on.	Battery switch off, inverter switch off, loose connections, low battery voltage.	Ensure all switches are ON. Check battery and AC connections. Allow solar panels to charge the battery if voltage is low.
No AC output.	Overload, inverter fault, output circuit breaker tripped.	Reduce connected load. Check for error codes on display. Reset output circuit breaker.
Battery not charging from solar.	PV input voltage too low/high, solar panels disconnected, MPPT fault.	Verify solar panel connections and voltage. Ensure sufficient sunlight. Check for PV-related error codes.
System displays an error code.	Internal fault, specific operational issue.	Refer to the system's display for the specific error code and consult the full manual (if available) or contact customer support. A one-key factory reset option is available for certain issues.

9. Specifications

Feature	Detail
Model	PLUS-4.2KW-10.24kWh
Inverter Power	4.2KW (4200W)
Battery Capacity	10.24kWh (expandable 5.12kWh-15.36kWh)
Battery Type	Lithium-ion
AC Output Voltage	AC220V (Pure Sine Wave)
MPPT Solar Charger Current	120A
PV Input Voltage Range	60-500VDC
Power Factor	1.0
Operating Temperature	Cold-starts at -10°C
Protection Rating	IP65 (with anti-dust kit)
Dimensions (L x W x H)	441 x 231 x 701mm (approx. 17.36 x 9.09 x 27.6 inches)
Item Weight	Approx. 35.2 pounds (for base unit, varies with battery modules)
UPC	704334434592

10. Warranty and Support

For warranty information, technical support, or service inquiries, please contact Y&H customer service through their official website or the retailer where the product was purchased. Keep your purchase receipt and product serial number handy for faster service.

Regularly check the Y&H official website for updated manuals, FAQs, and software/firmware downloads.