PACO CASA

ENERGY STORAGE USER MANUAL

PC65-HS-512314(WiFi)

Aerosol Automatic Fire Suppression Function



Aerosol Fire Suppression System

Quick response, safe and effective fire protection, preventing fire spread and ensuring battery system stability.

Reliable

Support high discharge power. IP65, natural cooling, wide temperature range: -20℃ to 55°C.

Circuit Breaker

Protect the circuit from overload, short circuit and other faults, so as to ensure the safe operation of the circuit system

Safer

Cobalt Free Lithium iron Phosphate (LFP) Battery: Safety and long lifespan, high efficiency and high power density.Intelligent BMS, providing complete protection.

Important Notes

PACO CASA

1.Due to product development, product specifications and functions may change. The latest manual can be obtained via www.pacocasa.co.th. Every effort has been made to make this document complete, accurate and up-to-date. However, individuals reviewing this document, as well as installers or service personnel, should note that the company reserves the right to make changes without notice and shall not be liable for any damages, including indirect, incidental or consequential damages arising from reliance on the provided materials, including but not limited to omissions, typographical errors, arithmetic errors or listing errors in the materials provided in this document.

2.The company shall not be liable for the customer's failure to comply with correct installation instructions, nor shall it be liable for upstream or downstream systems provided by the company's equipment.

3.The customer shall bear full responsibility for any modifications made to the system; therefore, any hardware or software modifications, manipulations or changes not explicitly approved by the manufacturer shall result in the immediate cancellation of the warranty.

4.Considering the numerous possible system configurations and installation environments, the following requirements must be met：

- Sufficient space to accommodate the equipment.
- Keep away from irritating chemicals or vapors.
- Potential flammability hazards.

5.The company shall not be liable for defects or malfunctions caused by the following reasons:

- Improper use of the equipment.
- Deterioration caused by transportation or specific environmental conditions.
- Incorrect or no maintenance at all, and long-term undercharging of the battery.
- Tampering or unsafe repairs.
- Use or installation by unqualified personnel.

Catalogue

PACO CASA

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(**Revision History**)

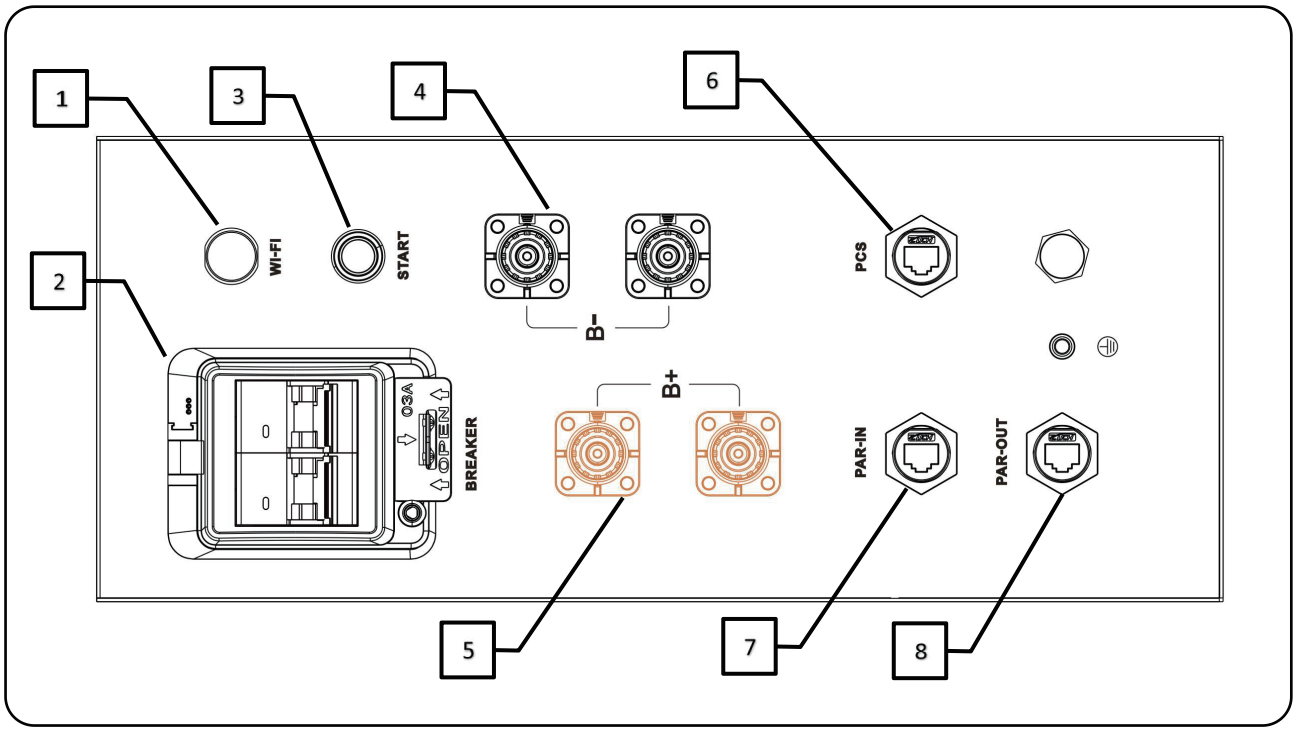
Version No.	Date	Revision Content
A0	2026.5.15	Initial Version

1 Introduction

1.1 Product Features

This product is a floor-standing household energy storage lithium battery independently developed by our company. Equipped with a self-developed BMS protection system with long cycle life and high safety standards, it features a sturdy enclosure and easy installation. It can be widely adapted to off-grid, grid-connected and hybrid inverter energy storage systems.

1.2 Battery Interfaces



No.	Name	Description
1	Wi-Fi	Remotely monitor and upgrade batteries through an application
2	BREAKER	Control circuit output,Turn the switch to ON when in use
3	START	System start switch, Press the button to start the BMS
4	B-	Battery negative output
5	B+	Battery positive output
6	PCS	Battery communication with PCS by RJ45 8P8C
7	PAR-IN	Battery parallel communication
8	PAR-OUT	Battery parallel communication

1.3 Product Features

Advantages

- The module is non-toxic, pollution-free and environmentally friendly.
- The positive electrode material is made of LiFePO4, featuring safety performance and long cycle life.
- Built-in soft start function to reduce the impact of current surges.
- When multiple modules are connected in series, the module addresses are set automatically.
- Supports module upgrading from a computer via CAN or 485 communication.
- The built-in management system has protection functions such as over-discharge, over-charge, over-current and high/low temperature protection.
- The system can automatically manage the charging and discharging status of each battery and has a voltage balancing function.
- Flexible configuration; multiple battery modules can be connected to expand capacity.
- Suitable for load design of household appliances, communication base stations, solar energy storage and charging equipment, etc., easy to install and operate.
- The module has low self-discharge, no memory effect and good shallow charge-discharge performance.

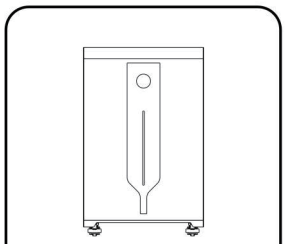
Functions

Protection and Alarm	Management and Monitoring
Charge/Discharge stop	Automatic Balancing
Overvoltage and Overcharge Protection	Intelligent Charging Mode
Undervoltage and OverDischarge Protection	Charging/Discharging Current Limitation
Charging/Discharging Overcurrent Protection	Accurate Capacity Calculation
High/Low Temperature Protection	Soft Start
Short Circuit Protection	History Records

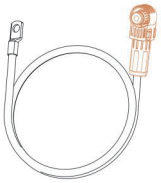
1 Introduction

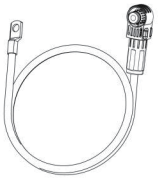
1.4 Packaging

Please ensure that your machine package contains the following items:


Main unit×1

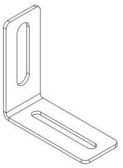

Network cable
(2 meters)×1


Positive cable
(2 meters)×1


Negative cable
(2 meters)×1


Grounding cable
(1.5 meters)×1


Cable lug
(35-6)×2


Wall fixture×2


Positive plug×1


Negative plug×1


Expansion bolts×2

If anything is missing, please contact your local distributor.

1.5 Installation Tools

Note:

Use insulated tools correctly to prevent accidental electric shock or short circuit. If the tools are not insulated, cover the entire exposed metal surface of the available tools (except the tip) with electrical tape.



Screwdriver



Wire stripper



Copper terminal crimping tool



Impact drill



Network cable crimping tool



Multimeter



Insulated gloves



Insulated shoes

2 Safety and Warnings

2.1 Symbol Explanations

	Keep away from open flames or flammable materials.
	Potential hazards exist when the equipment is working. Personal protective equipment should be worn during operation.
	Electric shock warning. Before performing any operation or maintenance, please turn off the equipment power supply.
	Maintenance personnel must wait 5 minutes after turning off the power before starting work.
	Grounding: Indicates the connection position of the PE cable.
	Do not place in areas accessible to children.
	Keep the battery away from open flames or ignition sources.
	Before operating the battery system, please read the product's operation and use manual.
	The product shall not be disposed of as household waste.
	The product components are recyclable.

2.2 Usage Notices

Lithium batteries are manufactured in accordance with applicable safety and technical guidelines and shall only be used in installations that comply with the following specifications:

1. This battery should not be moved during use.
2. Electrical installation operations must strictly comply with the regulations and standards of the local country where it is located.
3. Lithium batteries must be installed in accordance with the instructions and technical specifications in this manual.
4. Only connect to specified matching inverters for use.
5. It is strictly prohibited to directly connect the battery to photovoltaic solar panel lines.
6. It is prohibited to connect the battery with batteries of different types or batches.
7. All power supplies must be disconnected during maintenance.
8. If an abnormality occurs, please contact the supplier within 24 hours.
9. Except for company personnel or other authorized personnel, no one shall open, repair or disassemble the battery.
10. On-site installation shall be equipped with fire-fighting facilities that meet relevant requirements, such as fire sand, dry powder fire extinguishers, etc.

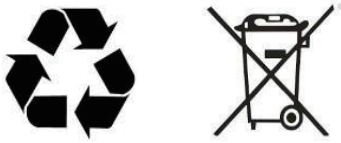
2.3 Disposal Notices



1. This product shall not be disposed of as household waste.
2. If the product leaks electrolyte, avoid contact with the leaked liquid or gas. If exposed to the leaked substance, immediately perform the following operations:

- Inhalation: Evacuate the contaminated area and seek medical attention.
- Eye contact: Rinse eyes with running water for 15 minutes and immediately seek medical attention.
- Skin contact: Thoroughly clean the affected area with soapy water and seek medical attention.
- Ingestion: Seek immediate medical attention. Do not induce vomiting unless instructed by medical personnel.

3. If a fire accidentally occurs, Do not use water unless appropriate for lithium battery fires; only use dry powder fire extinguishers or carbon dioxide fire extinguishers.
4. If the battery module is wet or submerged in water, do not allow anyone to approach it and cut off all power switches on the inverter side.
5. If the battery needs to be disposed of or recycled, it must be isolated and local waste management regulations must be followed and respected.It is recommended to use the European Union (EU) Regulation 2023/1542 for disposal and adopt the best available technology to achieve relevant recycling.



3 Installation

3.1 Installation Location

When selecting an installation location, the following criteria should be considered:

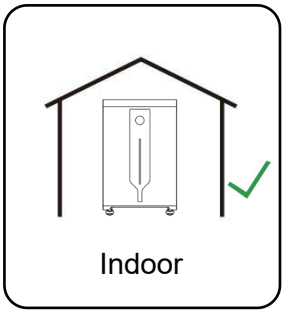
- Exposure to direct sunlight may cause alarms due to overheating, and ultraviolet rays will accelerate product aging. The ideal location is a place with an ambient temperature of 0~40°C.
- It is recommended to install the lithium battery in a place where it will not be directly exposed to rain and snow. The ideal installation location is a north-facing wall indoors.
- If multiple lithium batteries are installed on-site, a gap of at least 500mm should be maintained between each lithium battery and all other installed equipment.
- The LED status indicators or display screen on the front panel of the lithium battery should not be blocked.
- If the lithium battery is to be installed in an enclosed space, there must be sufficient ventilation to prevent overheating.

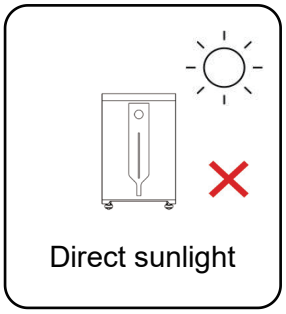


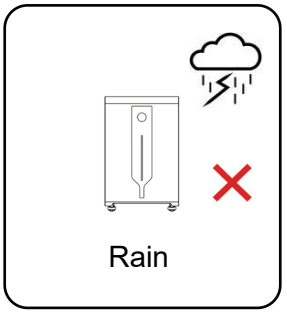
Fire prevention warning:

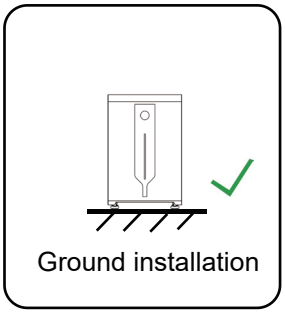
Despite careful construction, lithium batteries may still cause fires. Do not install lithium batteries in areas containing highly flammable materials or gases. Do not install lithium batteries in potentially explosive environments, and the distance from heat sources should be greater than 3 meters.

The wall structure where the lithium battery is installed must be fire-resistant.







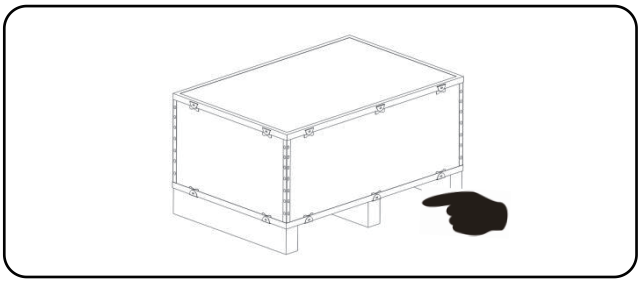


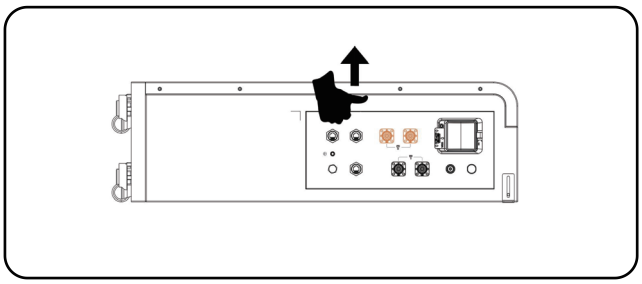
3 Installation

3.2 Handling

Please refer to the following instructions for handling the lithium battery:

1. A hand pallet truck can be used to move the lithium battery box.
2. Two people are required to take the product out of the shipping box. The product is equipped with handle positions on the sides.
3. When placing the product, do so slowly and gently. This ensures that internal components and the external chassis are not damaged.



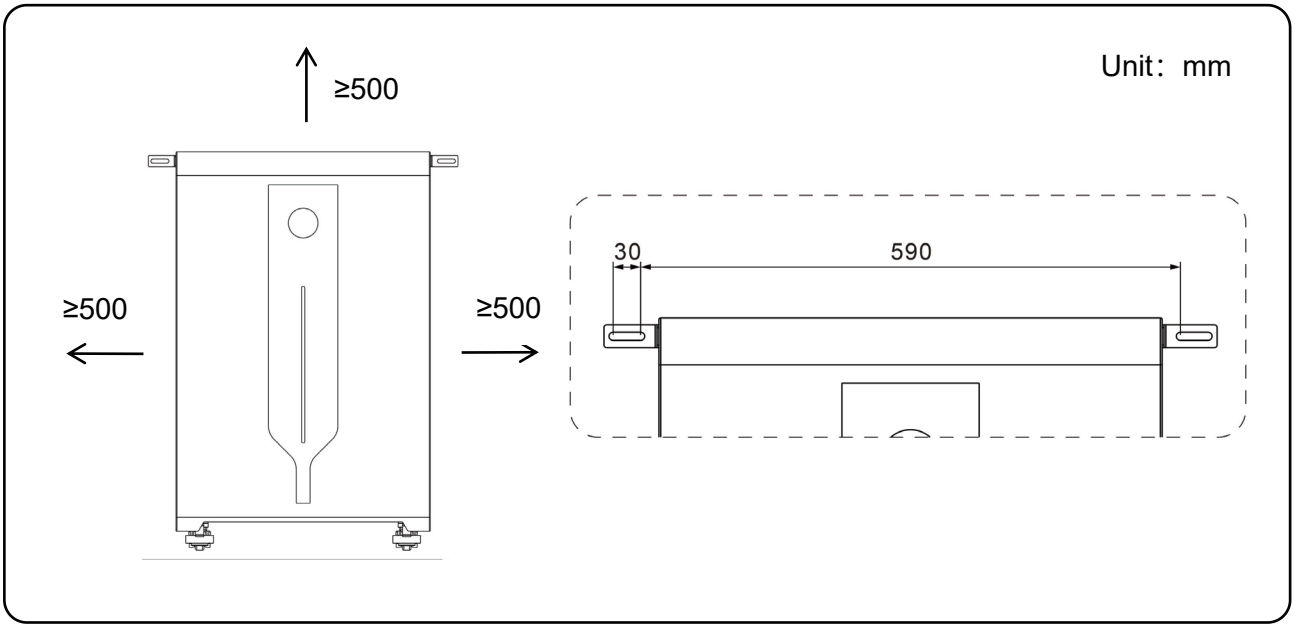


3.3 Installing the Battery

- The lithium battery must be installed vertically with a maximum inclination of ±5 degrees.
- Install the lithium battery on a structure capable of supporting the product's weight.
- To avoid overheating, always ensure unobstructed air circulation around the lithium battery. A gap of at least 500mm should be maintained between products.

1. Move to a flat surface, preferably near a wall.
2. Determine the installation distance and location.
3. Rotate and secure the foot pad at the bottom to make it immovable.

3 Installation



3.4 Installing Cables

- Before connecting to the inverter, ensure that the battery voltage is within the matching range of the inverter.
- Select the appropriate DC cable, please refer to the following table for specific specifications.
- This product contains dangerous voltages and should be installed by qualified electrical or service personnel with experience in handling dangerous voltages.

Wiring Position	Cable Copper Terminal	Cable Specification Range	Torque Value
B+ and B-	SC35-6/SC35-8	2AWG/35mm²	6-8 N·m
Grounding	OT4-5	12AWG	3-4 N·m

Danger:

Before installing the battery cables, ensure that the battery switch is turned off.

Before installation, use a multimeter to confirm that the voltage at the battery terminals is 0Vdc.



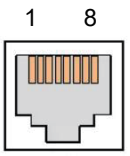
3.5 PCS Communication

- RS485: The default baud rate is 9600 bps, used for communication with the inverter. When this battery is the master, it can summarize slave data and communicate with the inverter.
- CAN: The default baud rate is 500Kbps, this interface is used for communication with the inverter. When this battery is the master, it can summarize slave data and communicate with the inverter.

Note:

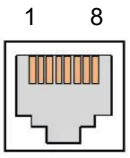
Before connecting the communication cable to the inverter, check that the communication pin sequence of the inverter and the battery matches;
if not, you need to cut off one end of the RJ45 connector and adjust the pin sequence according to the following pin definitions. The pin definition of the battery BMS port is as shown above.

Pin	Definition
1、8	RS485-B
2、7	RS485-A
3、6	GND
4	CAN-H
5	CAN-L



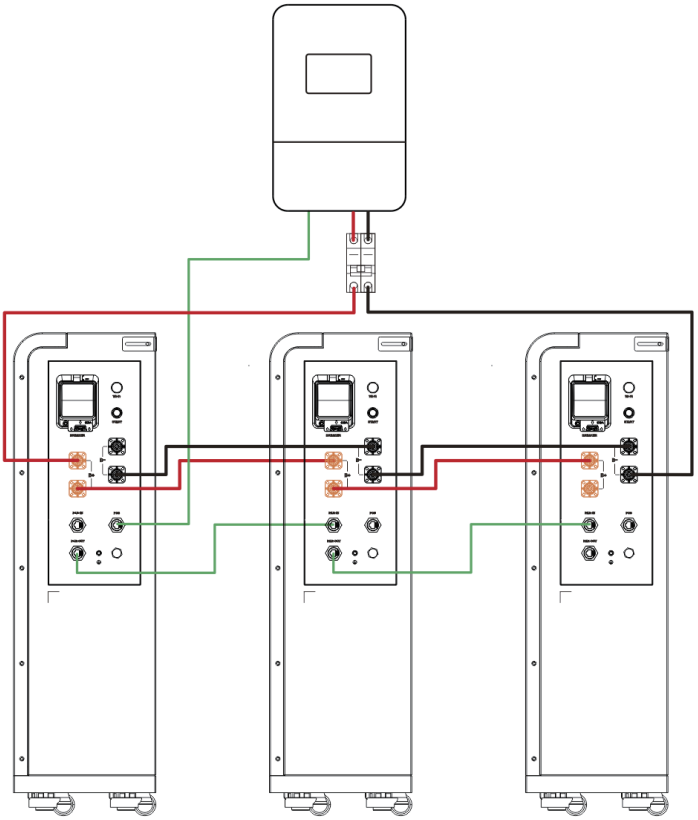
3.6 OUT/IN Parallel Communication

- The battery information can be viewed by connecting to the host computer software with a baud rate of 9600 bps.
- By communicating with the host computer software via the RS485 upper computer cable, all battery packs except the master can be viewed, and the address range of 1 to 15 can be set according to the address polling data.



Pin	OUT Definition	Pin	IN Definition
1、8	RS485-B	1、8	RS485-B
2、7	RS485-A	2、7	RS485-A
3、6	GND	3、6	GND
4	ADR-E	4	G
5	ADR-T	5	ADR-R

- A maximum of 16 batteries can be connected in parallel. Please use positive and negative cables to connect the parallel batteries. Standard network cables can be used to connect the communication interface OUT/IN.



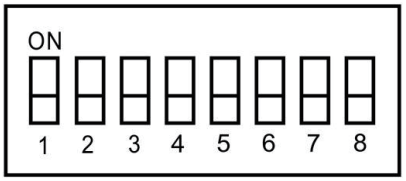
Suitable for maximum 200A charging
and discharging system requirements.

3.7 ADDR DIP Switch(Optional)

When battery packs are connected in parallel, the DIP switch of each battery can be used to distinguish different battery pack addresses. The hardware address can be set through the DIP switch on the board. Please refer to the following table for the definition of the DIP switch.

Note:

All batteries are factory-set with automatic DIP switches. Parallel communication connection can be achieved without manual DIP switching.



3.8 WIFI Monitoring Connection

The lithium battery can be remotely monitored via WIFI.

1. iPhone: Download the Paco Energy app from the App Store (for iOS devices) and install it.
2. Android : Download the Paco Energy application from Google Play (for Android) or via an APK package to install.

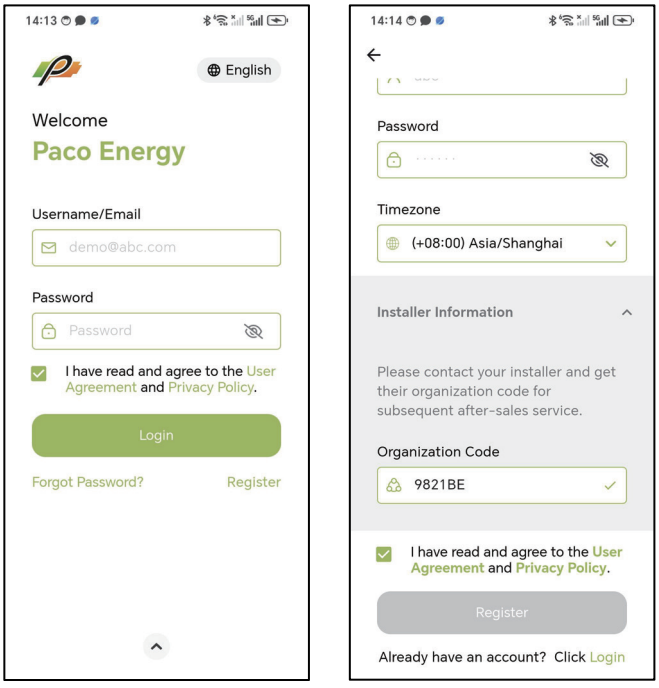
Note:

On the cloud platform homepage, go to APP Download and scan the QR code to install.

Paco Energy

- User Login

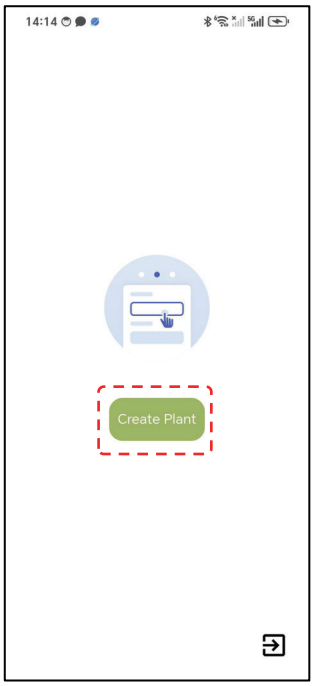
- Click to enter the registration page.
- Complete verification with your email account.
- Fill in account information as required.
- Enter organization code: 9821BE.
- Return to login after successful registration.

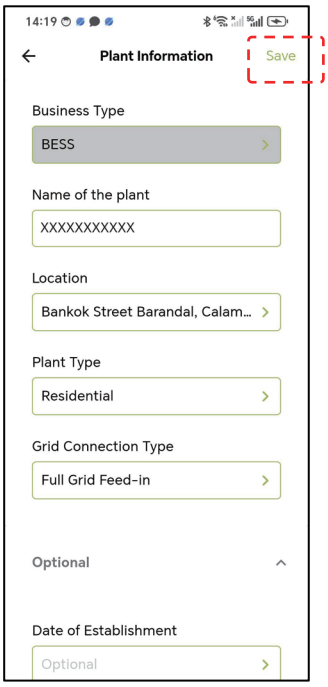


3 Installation

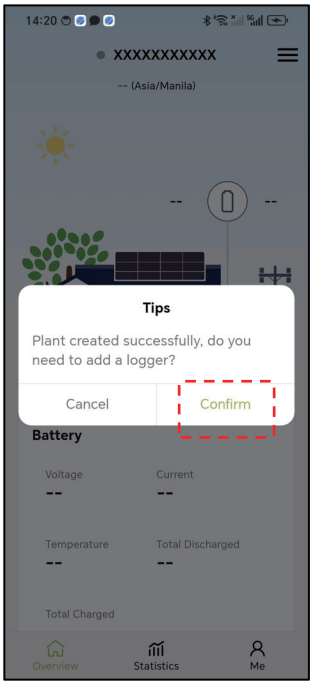
- Create a power station

- First login: end users need to create a power station first, click Create Power Station.
- Recommended business type: Battery System;
  Power station type: Residential;
  Grid connected mode: Full Grid Connection.
- Set your preferred power station name. Pin the station location on the map and click Done.
- Finally, tap Save at the upper right corner to finish creation.





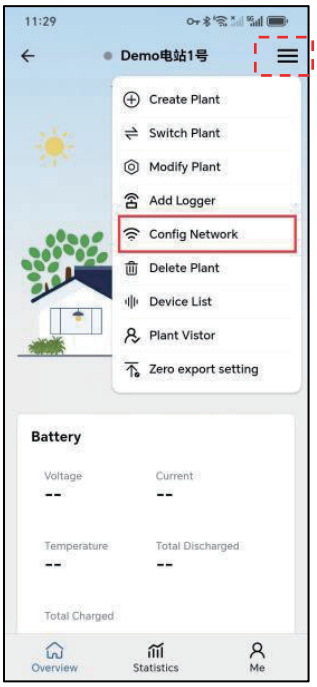
- ADD Collector

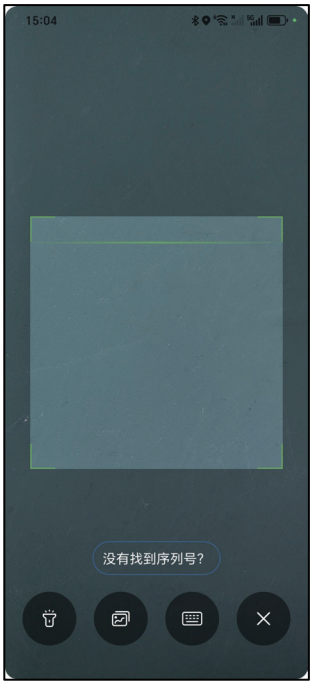


- To add a collector, click Confirm in the prompt box, then scan the device QR code or enter the serial number to finish adding.
- After entering the serial number, the system will prompt that the collector is added successfully.
- Note: Directly click Confirm to jump to the network distribution page.
- Refer to the WiFi Network Distribution section below for details.

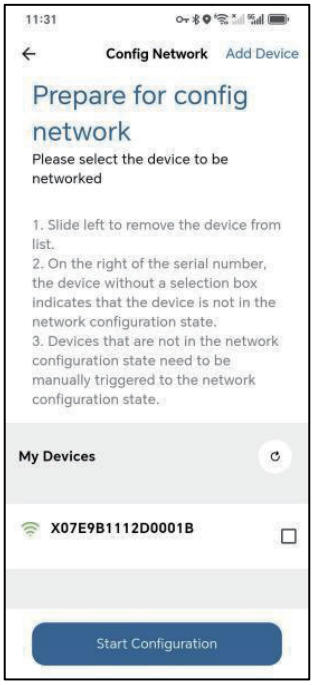
3 Installation

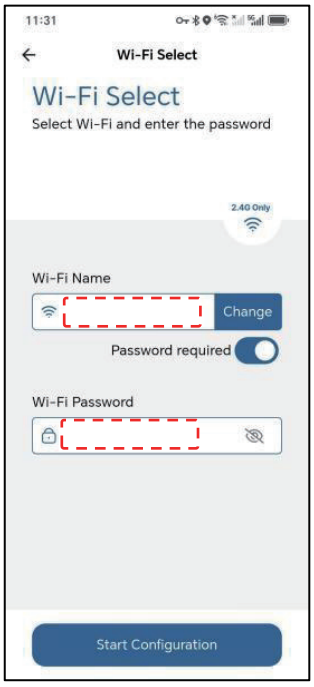
- Network configuration





- Click on the menu bar in the upper right corner and select "Configure Network".
- Scan the QR code of the device to add, or enter the SN serial number to complete the addition.

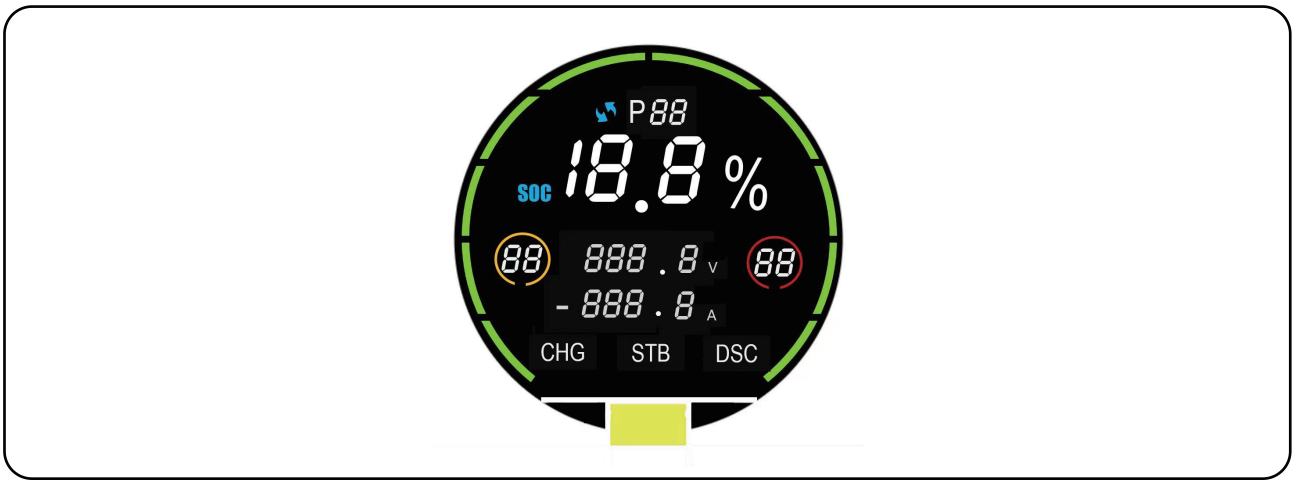




- After connecting to WiFi as required, click the "Start Configuration" button and wait for network configuration.

4 Overview

4.1 LCD Display



- Instruction Description:

Function	Description
P88	Protocol display, can be changed via Bluetooth
CHG	Charging status
STB	Standby mode
DSC	Discharge state
88	Display the number of alarms
88	Display protection quantity

4.2 LED Indicators

- The current power consumption and operating status of the product are displayed through LED indicators (see the following table for details) for working status indication.

- Status Indication:

Systemstate	SOC	Note
Shutdown	All the light strips have gone out	
Protection	Red light flashing	
System update	Pink lights light up by progress	
Standby	SOC < 10%: Yellow ON SOC > 10%: White ON	Normal state
	SOC < 10%: Yellow ON SOC > 10%: Bottom Yellow ON, others White ON	Alarm status
Charge	SOC < 10%: Yellow ON & flashing SOC > 10%: Green ON & flashing	Normal state
	SOC < 10%: Yellow ON & flashing SOC > 10%: Bottom Yellow ON, others Green & flashing	Alarm status
Discharge	SOC < 1%:Red light on when 1% ≤ SOC ≤ 10%:Yellow light on when SOC > 10%:White light on when	Normal state
	SOC < 1%: Red & Yellow flashing 1% ≤ SOC ≤ 10%: Yellow ON SOC > 10%: Bottom Yellow ON, others White ON	Alarm status

4.3 Battery System Parameters

Item		Parameter
Power Consumption	Low power consumption mode	≤100μA
Over charge Protection	Overcharge detection voltage	3.65V
	Overcharge release voltage	3.38V
Over discharge protection	Overdischarge detection voltage	2.7V
	Overdischarge release voltage	2.95V
Over current protection	Charge Overcurrent Alarm	200A
	Charging Overcurrent Protection	210A/0~10S
	Discharge Overcurrent Warning	-205A
	Discharge Overcurrent protection	-210A/0~10S
Temp Protection	Overtemp Protection	55℃
	Undertemperature Protection	-15℃
Balance	Balance voltage	3.4V

5 Maintenance

- Regularly check the installation environment, such as dust, water, insects, etc. Ensure it is suitable for the IP65 battery system.
- Check the connection of power connectors, grounding points, power cables and screws annually.
- For long-term storage, charge the battery every 6 months, and the SOC should not be less than 50%.
- After the battery module is discharged, it must be recharged within 12 hours.



Note:

When checking connectors and cables, ensure that the system has been completely powered off for 5 minutes before performing maintenance.

- If the screen and LED status indicators are too dirty to read, they can be cleaned with a cloth.



Note:

Do not use any solvents, abrasives or corrosive materials to clean the battery.

6 Specifications

PACO CASA

Electrical	
Model	PC65-HS-512314
Battery Type	LiFePO4
Rated Voltage	51.2VDC
Voltage Range	43.2～57.6VDC
Nominal Capacity	314Ah
Rated Capacity	16.07kWh
Charging /Discharging Current	100A
Max Charging /Discharging Current	200A
Expandable Parallel Connection	1～16pcs
Depth of Discharge	90%
Cycle Life[1]	≥8000 Cycles
Environmental	
Ambient Humidity	≤80%RH（No Condensation）
Operating Temperature	Charge：0～55℃ Discharge：-20～55℃
Storage Temperature	-20～55℃
Altitude	≤2000m
Fire Protection System	Aerosol Fire Suppression
Communications	
Display	LCD Display/LED Indicator Light
Communication	CAN/RS485/WIFI
Mechanical	
Size	550*254*860mm
Weight	125kg
Installation Method	Floor-Mounted
Protection Level	IP65
Certification Standard	
Safety Regulations	IEC62619
EMC	EN IEC 61000-6-1/2/3/4
Transportation	UN 38.3

[1] Test conditions: 0.2C charge and discharge, maintain an ambient temperature of 25±2°C, 80% DOD