SunESS H

Safe and Reliable

- 8 temperature sensors provide efficient coverage for 16 cells.
- Realtime Voltage and Temperature monitoring & active protection.

Energy Optimization

- Built-in DCDC energy optimizer, active inter-module balancing.
- lifecycle-compatible mixing of old and new modules without accelerated aging.

Flexible Expansion

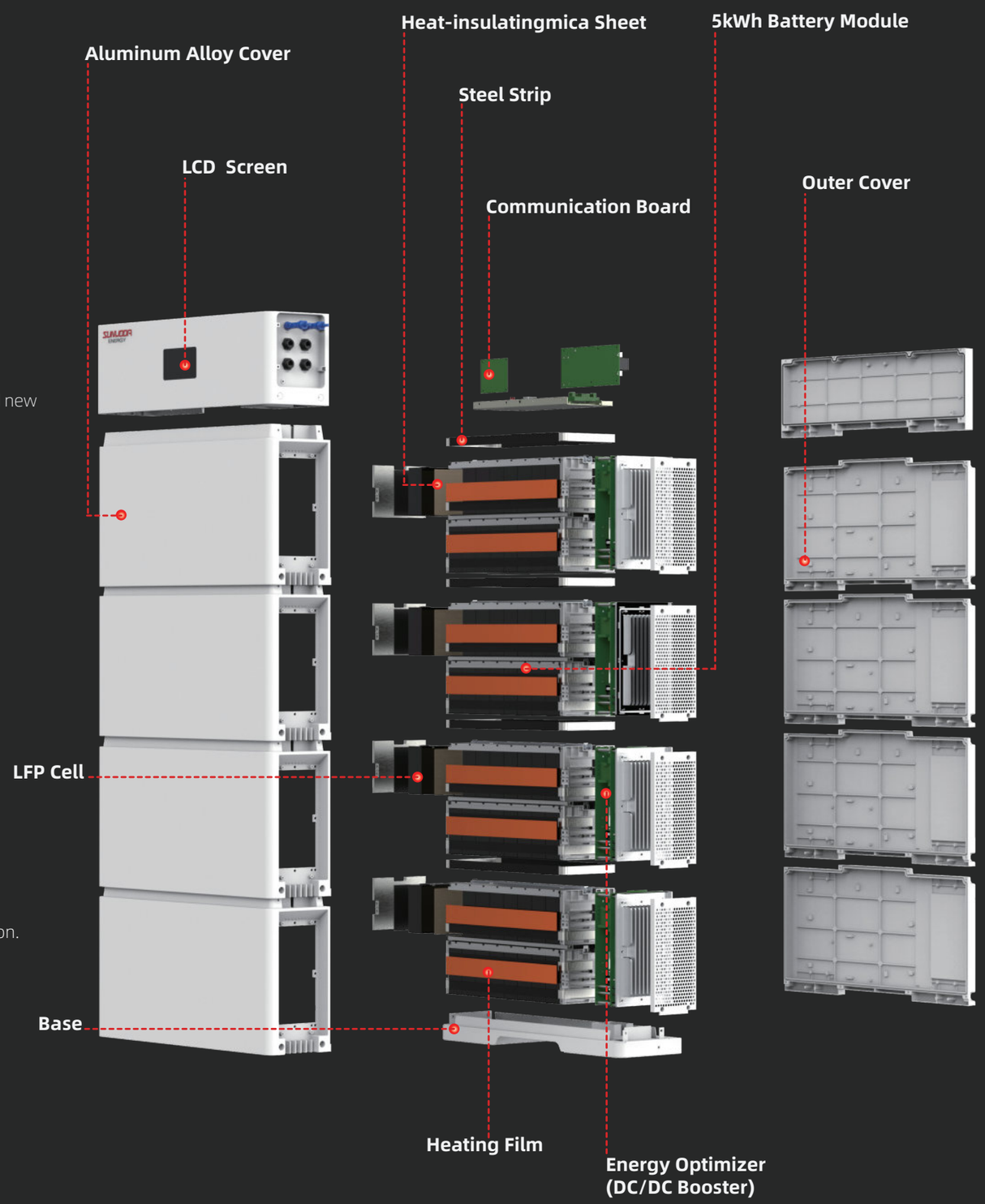
- Different SOCs can be mixed and used directly without reducing capacity.
- Plug-and-play design for quick, wiring-free installation.

Excellent Performance

- Each battery pack has a rated power of 2.5 kW.
- Peak output power reaches 4.2 kW.

Intelligent Application

- APP & Web smart monitoring and remote maintenance.
- Features an upgrade reminders function.



Highlights

-20°C
Battery heating technology, -20°C extreme environment operation.

IP65
Rated for indoor and outdoor use.

4.2kW
Peak output power reaches 4.2 kW for 20s.

5~60kWh
Supports parallel capacity expansion.

10 Years
10-year warranty.

Mixed use
Mixed use of new and old batteries throughout their entire lifecycle.



www.sunwodaenergy.com

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SunESS H

Case Sharing



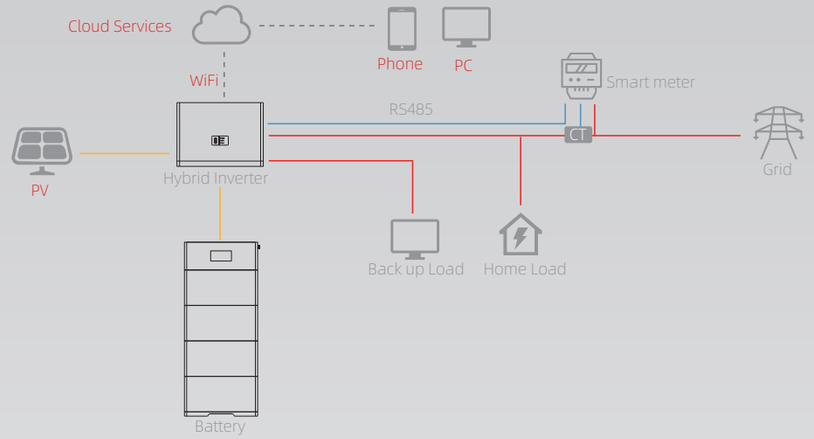
Sweden
SunESS H & Solinteg
10kw/15kwh
RESS Stackable SunESS H system
RESS for Residential Building



Sweden
SunESS H & Solinteg
10kw/15kwh
RESS Stackable SunESS H system
RESS for Residential Building



Portugal
SunESS H
30kW/40kWh
RESS Stackable SunESS H system
RESS for energy consumption



SunESS H

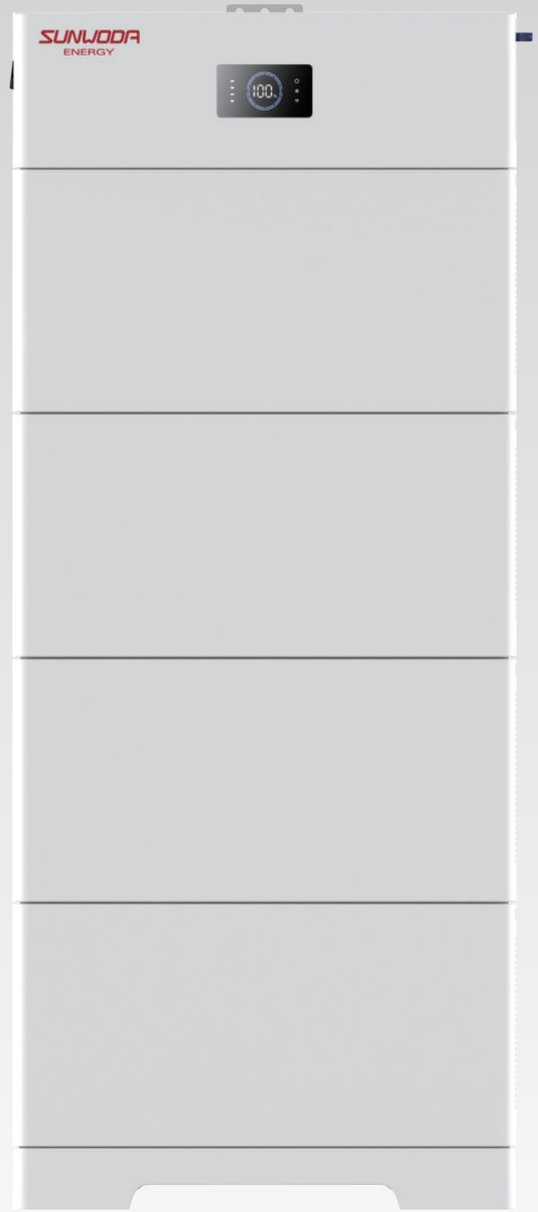
Model	SunESS-5H	SunESS-10H	SunESS-15H	SunESS-20H
Nominal energy	5kWh	10kWh	15kWh	20kWh
Usable energy (90% DOD) [1]	4.5kWh	9kWh	13.5kWh	18kWh
Rated voltage	400V	400V	400V	400V
Operating voltage range	350V~450V	350V~450V	350V~450V	350V~450V
Rated charge/discharge power [2]	2.5kW	5kW	7.5kW	10kW
Peak output power	4.2kW/20s	8.4kW/20s	12.6kW/20s	16.8kW/20s
Communication interface	CAN 2.0/RS485			
DC disconnect	Circuit breaker, 50A, 1000V rating			
Scalability [3]	Max. 3 in parallel, Max. 60 kWh			

Operating conditions	
Installation location	Outdoor or indoor
Ambient Temperature [4]	-4°F to 122°F (-20°C to 50°C)
Humidity	5% to 95% (no condensation)
Dimensions (W*H*D, mm)	653*(553/868/1183/1498)*189
Weight	65kg/117kg/169kg/221kg
Enclosure protection rating	IP65
Altitude	< 4000m
Cooling	Natural convection
Noise emission	< 29dB
Warranty	10 year [5]
Certifications	IEC62619/CE/UN38.3/VDE 2510-50/CEI 0-21/FCC/UL1973

1.Test conditions: 90% DOD, 0.2C charge & discharge at 25°C.
2.The power is affected by temperature and SOC.
3.Optional Data box supports three-cluster parallel operation,refer to the user manual for details.
4.Low-temperature operation reauires the inverter to respond battery's heating requests.
5.For warranty instructions, please refer to the warranty terms.

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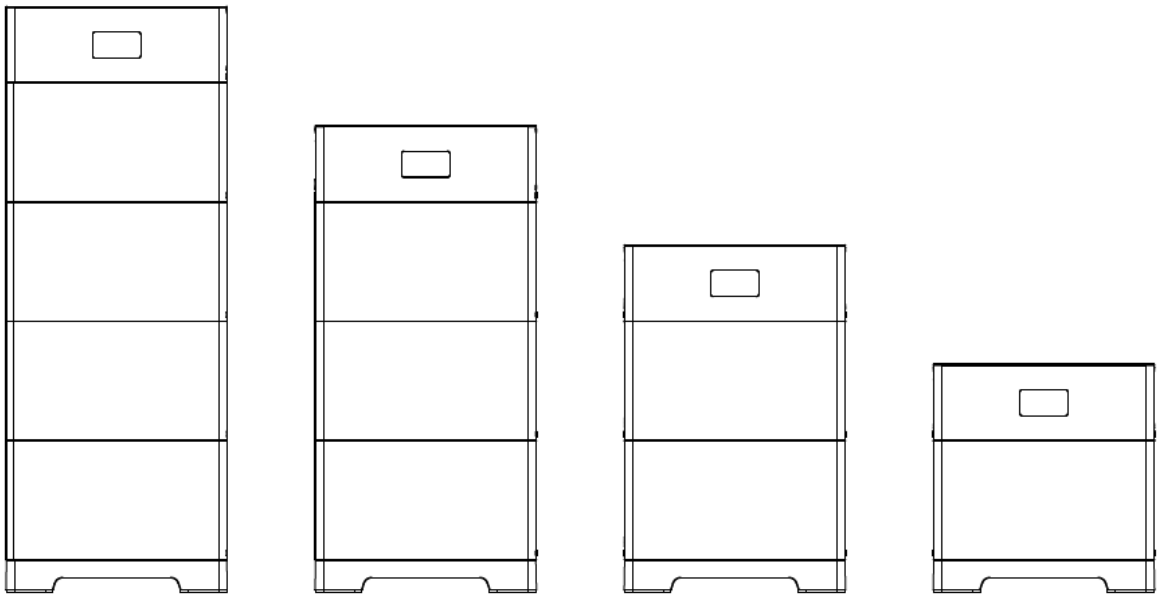
SunESS H



SUNWODA ENERGY

User manual

SunESS-5H/10H/15H/20H series



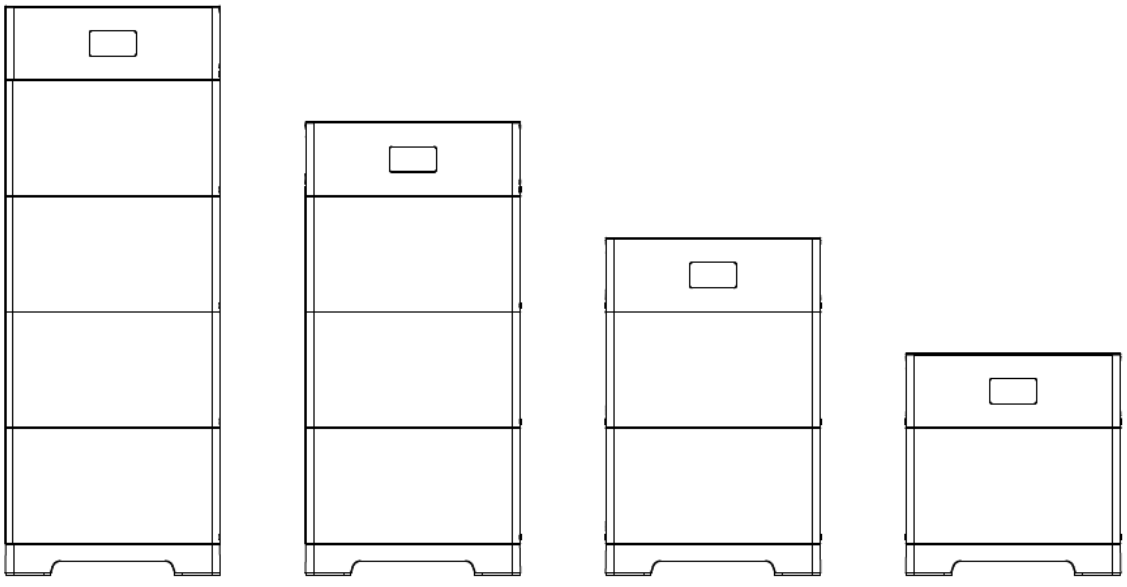
Version： V1.0

2 Product description

SunESS-H is a plug-in energy storage system. The battery module can convert high voltage direct current (HVDC) into low voltage direct current (LVDC) through DC to DC conversion inside the battery and stores the power in batteries, it can also convert LVDC into HVDC and send the power to the grid through the inverter.

2.1 Product introduction

- Residential energy storage system with lithium iron phosphate (LFP) technology
- Modular design, single battery system with 5 to 20kWh (1 – 4 pcs battery)
- Single battery module is equipped with DC to DC conversion, which increases the output voltage to 350~450V
- Supports power expansion, and the single battery system with power 2.5 to 10kW
- Expandable to 60kWh (3 SunESS-H connected in parallel)
- Support the mixing of new and old batteries.
- Indoor or outdoor installation (IP65)
- PCS communication interface: CAN or RS485
- Bluetooth and WiFi for Mobile APP (PowerLite)
- Advanced battery management system (BMS) provides data acquisition, status monitoring and control to ensure the safe and reliable operation of the system.



20kWh 15kWh 10kWh 5kWh

Figure 2-1-1 SunESS-H configurations

PCS/INVERTER

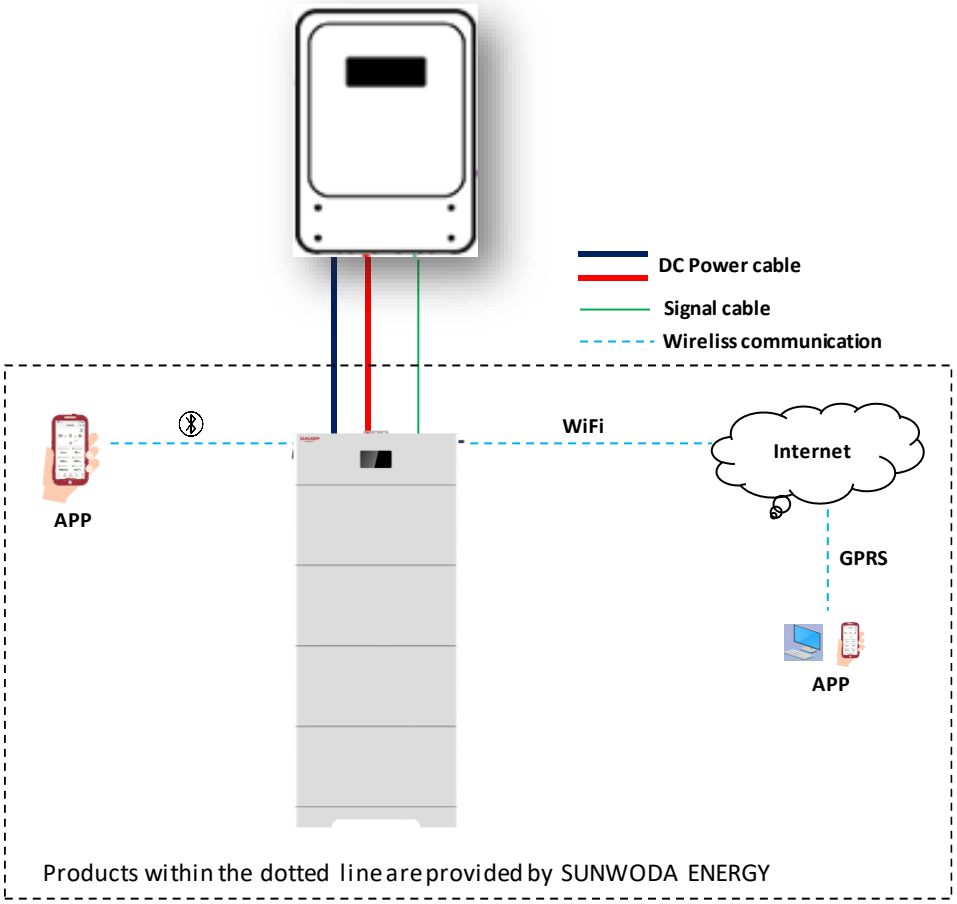


Figure 2-1-2 System topology

2.2 Appearance description

- Appearance of the whole system

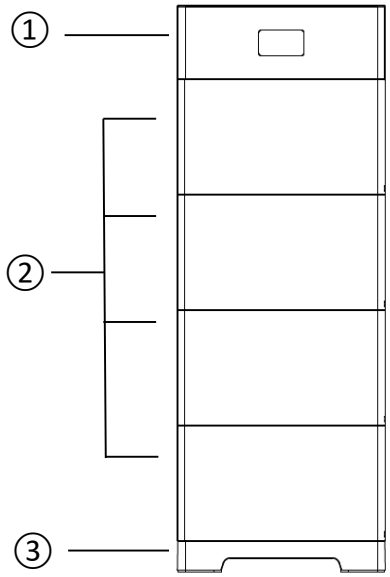


Figure 2-2-1 Appearance of the whole machine

① Control module ② Battery module ③ Mounting the base

- Control module

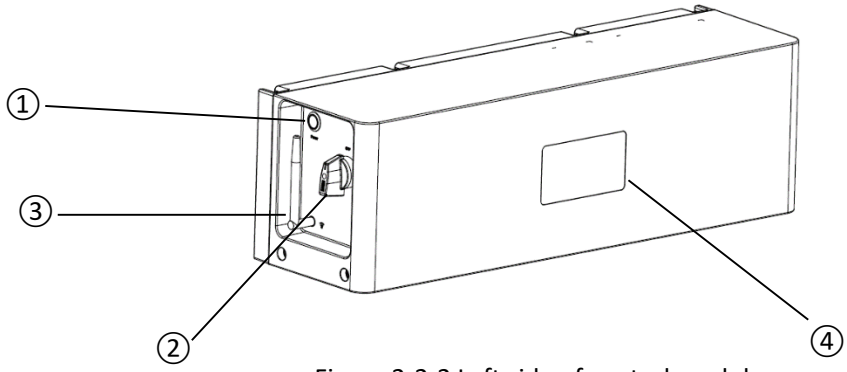


Figure 2-2-2 Left side of control module

①Power button ② DC breaker ③ Wi-Fi antenna ④ display

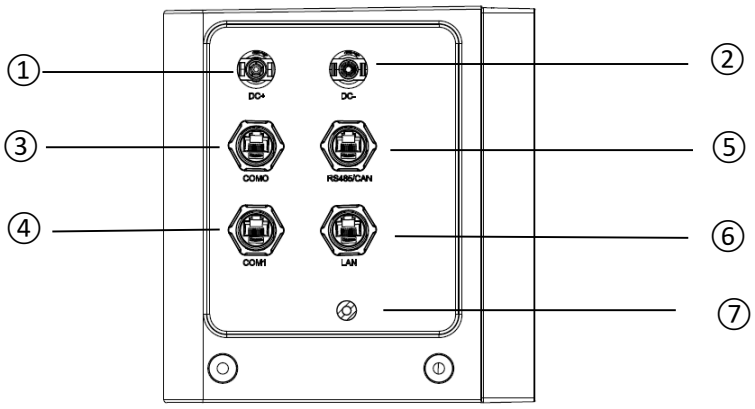


Figure 2-2-3 Right side of the control module

① Output Positive (DC+)　② Output Negative (DC-)

③ Parallel communication 0 (COM0)　④ Parallel communication 1 (COM1)

⑤ PCS communication (RS485/CAN)　⑥ Maintenance (LAN)

⑦ Protection earth (PE)

- Battery module

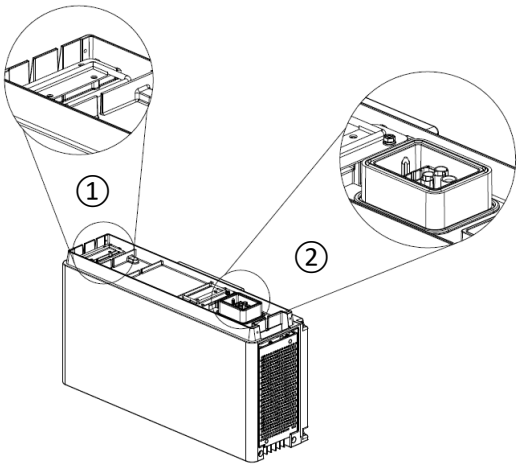


Figure 2-2-4 Structure diagram of battery module

① Handle ② Power/communication connector

3 Installation guide

3.1 Environmental requirements

a. Ambient temperature: -10℃~+50℃ (recommended: 10℃～35℃ or 50℉~95℉).

b. Ambient humidity: 10-95%.

c. Altitude < 4000m.

d. For outdoor installation

- Avoid direct sunlight
- Avoid rain and snow
- Avoid location susceptible to flooding
- Install under shed if possible

e. For indoor installation

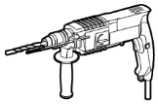
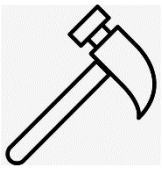
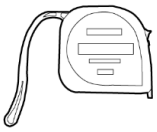
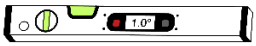
- 3 feet clearance from doors, windows, driveway or other batteries
- Keep away from heating device.
- Prevent from corrosive chemicals
- Prevent from water spillage
- Consider location equipped with ventilation fans, smoke, heat, or flammable gas detector

e. Prepare the wall-mounting surface before drilling

Avoid electricity wire, metal conduit or pipe inside the wall; consider using wall scanner (wall detector)

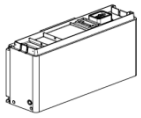
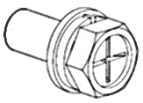
3.3 Installation

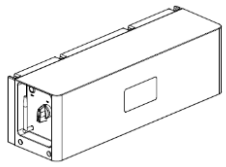
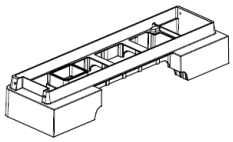
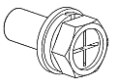
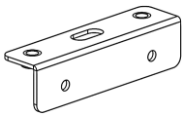
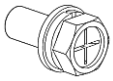
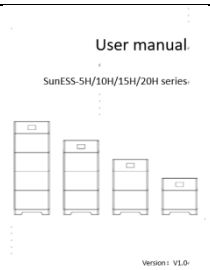
3.3.1 Installation tools

 Impact drill (3/8 & 13/64 drill)	 Torque wrench (7/16 & 9/16 hexagonal socket)	 Marker pen	 Electric batch
 Hammer	 Detector	 Steel tape	 Level ruler

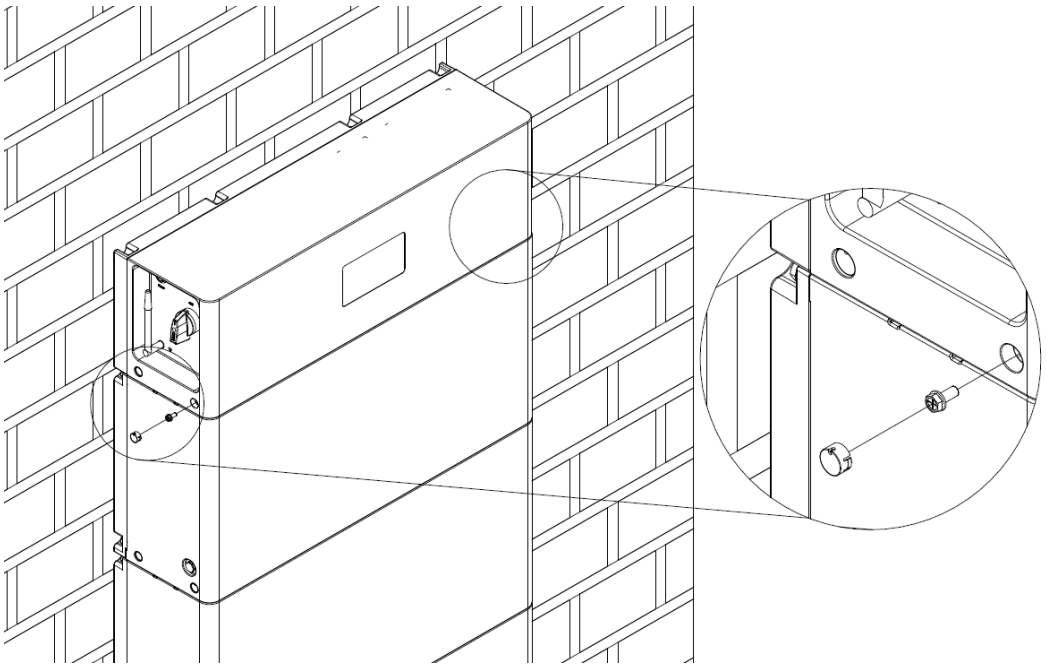
Personal Protective Equipment (PPE)			
 Safety gloves	 Safety goggles	 Dust mask	 Safety shoes

3.3.2 Packaging components

Battery Module Packaging Components		
 Battery module X1	 Screw cover X4	 Fixing screws (M5*12) X4

Control Module Packaging Components			
 Control module X1	 Base X1	 L-bracket X4(max)	 Fixing screws (M5*12) X12(max)
 Expansion screw M8*80 X4(max)	 Self-tapping screws M6*60 X4(max)	 M6*18*2large flat pad X4 (max)	 Grounding Terminals X1
 Angle bracket X4(max)	 Screw cover X4	 Fixing screws (M6*14) X8(max)	 M8 flange nuts X4(max)
 User manual X1			

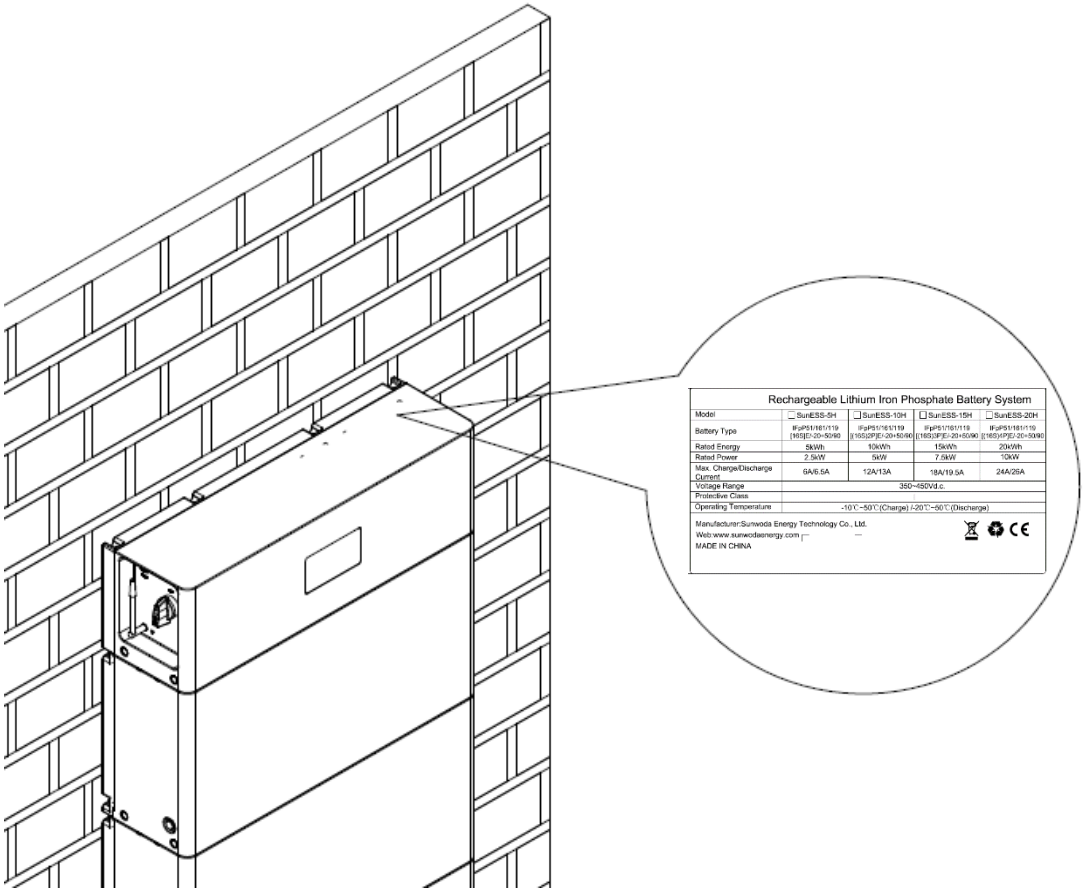
Cable kit Packaging Components			
 Positive wire harness X1	 Negative wire harness X1	 PCS-RS485/CAN communication cable X1	 120ohm resistance



②Check model

Tick the nameplate model according to the number of installed battery modules:

5kWh：SunESS-5H	10kWh：SunESS-10H
15kWh：SunESS-15H	20kWh：SunESS-20H



		inverter 3. If the ventilation and ambient temperature are normal， please contact the supplier for more information
Battery module charging low temperature protection	1. The product installation environment is too low 2. The heating film of the battery module works abnormally	1. Check whether the ambient temperature exceeds the minimum allowable charging temperature range. If the ambient temperature is too low, please improve the environment 2.Please contact the supplier for more information
Automatic shutdown at low battery voltage	The battery is over-discharged and not recharged in time	1. The inverter is set with charging mode, which can charge the battery through the grid or PV 2. Restart the battery and charge it through the inverter 3.Please contact the supplier for more information
Battery module failure	Internal failure of battery module	Log in to the PowerLite APP to view the fault information and contact the supplier
Short discharge time	battery SOC is low	Keep the product charged continuously and keep the energy storage battery system fully charged
	low ambient temperature	Guarantee the product to work within the recommended suitable temperature range
	Product overload	Check load status and remove non-essential loads
	Batteries age and capacity decreases	To replace the battery, please contact the supplier for the battery and its components
Unable to charge and discharge	Internal failure	Log in to the PowerLite APP to view the fault information and contact the supplier
	Battery report charging or discharging protection failure	Log in to the PowerLite APP to view the fault information and contact the supplier
	After the battery is discharged to the SOC protection value, it needs to be charged for a period of time before it is allowed to discharge.	The battery is charged to the SOC value set by the restart
	battery over temperature	Stand at room temperature for more than 3 hours
After the system is powered on, the display cannot be lit or the displayed content is abnormal	1.Display failure 2.Control module fault	1.Please try restarting the battery 2.Log in to the PowerLite APP to view the fault information and contact the supplier 3.Please contact the supplier to repair or replace the control module
The display cannot wake up and light up during system operation	1. If the POWER button light is off, the POWER button is faulty or the button wiring is loose 2. If the display still does not light up after restarting, the display is faulty	1. Log in to the PowerLite APP to view the fault information 2. Please try restarting the battery 3.Please contact the supplier to repair or replace the control module
The number of battery icons displayed on the display screen is	Communication disconnection	1.Check whether the battery stack is installed reliably, and confirm

- Do expose the battery to high temperatures or direct sunlight.
- Do not expose batteries to high humidity or corrosive environments.

Contact supplier or original manufacturer for disposal options.

9 Detailed specifications

Item	**Parameter**			
Control module model	H0K6050P03			
Operating voltage	250~550V			
Max. current	50A			
Battery module model	B40012DP03			
Cell Type	LFP			
Rated Voltage	400V, with DC-DC power module built-in			
Rated energy	5kWh			
Group method	16S1P			
System model	SunESS-5H	SunESS-10H	SunESS-15H	SunESS-20H
No. of batt. module	1	2	3	4
Rated energy	5kWh	10kWh	15kWh	20kWh
Rated power	2.5kW	5kW	7.5kW	10kW
Max. charge current	6A	12A	18A	24A
Max. discharge current	6.5A	13A	19.5A	26A
Dimensions W*H*D, mm	653*597*189	653*912*189	653*1227*189	653*1542*189
Net weight	67kg	119kg	171kg	223kg
Rated voltage	400V			
Operating voltage	350V~450V			
External communication	CAN/RS485/WiFi/LAN/Bluetooth			
WiFi Frequency range	2412-2472MHz			
WiFi Max. Transmission power range	＜20dBi			
Bluetooth Frequency range	2402-2480MHz			
Bluetooth Max. Transmission power range	＜8dBi			
Warranty/Cycle life	10 years/6000 times (25°C, 0.5C/0.5C, 90%DOD, 70% EOL）			
Scalable	Up to 3 cabinets in parallel			

Protection class	IP65
Operating temperature	Charging [-10,50] °C; Discharging [-20,50] °C
Working humidity	10%~95%RH
Working altitude	<4000m
Certification	IEC62619,CE,UN38.3