

USER'S MANUAL

----- Wall-Mounted Energy Storage Battery -----

5 kWh (SEB Series)



C&I (Small-scale)



All-In-One Intelligent APP



Residential

Preface

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Limitation of liability

The device manufacturer shall not undertake any direct or indirect liability for battery system damage or property loss caused by the following situations.

- The battery system is modified, refitted or replaced by parts without the device manufacturer's authorization.
- Any harm or loss caused by unauthorized technical personnel other than the manufacturer changing the battery parameter configuration shall be borne by the user.
- Device damage caused by failure to comply with the battery system user manual.
- Battery system damage caused by improper use or misuse.
- Device damage caused by insufficient ventilation of the battery system.
- Maintenance procedures related to battery system do not follow acceptable standards.
- Battery system damage caused by force majeure, such as earthquake, storm, lightning, fire, etc.
- Any device damage caused by external factors.

1.Safety Instructions



- Before operating the device, turn off the power to avoid danger, and strictly check all the safety precautions in this manual and the safety labels on the device.
- Only authorized personnel are allowed to operate this device. Professional personnel should be familiar with local regulations, standards and electrical systems, be professionally trained, and be familiar with product information.
- Do not use the battery module if it is defective, damaged, or lacks of accessories.
- Do not remove or modify any part of the battery module without the official authorization of the device manufacturer.
- Battery damage may result in electrolyte leakage. If the electrolyte is leaked, do not touch the leaked electrolyte or volatile gas, and contact the after-sales service center immediately.
- Faulty or end-of-life batteries must be stored in an open, dry area away from personnel.
- If the battery emits smoke or catches fire, cover it with an asbestos blanket, transfer it to an open area away from personnel, and bury it in sand for at least 36 hours.



Danger of electrolyte leakage. If you come into contact with leaked materials, please take the following emergency actions immediately:

- Eye contact: Flush with water for at least 15 minutes and seek medical help immediately.
- If inhaled: Immediately evacuate the area, seek fresh air, and seek medical attention.
- Skin contact: Thoroughly wash the contact area with soap and water and seek medical help immediately.
- Do not move the battery system when connecting an external battery expansion module. If user needs to replace or add a battery, contact the after-sales services.



Transportation:

- Secure the battery systems properly. Route different cable types with a minimum clearance of 30 mm between them. The battery systems shall not sustain damage during transportation and storage.
- Be careful when lifting the battery and consider its weight.
- Do not hit, pull, drag or step on the device, and do not put irrelevant items into any part of the battery system.
- Transportation must be carried out by trained professionals and operations must be documented.
- Ensure that the device is firmly placed and do not tilt the device. Otherwise, device damage or personal injury may occur.
- Please provide necessary fire-fighting facilities for the usage environment.
- An ABC dry powder extinguisher can put out open flames temporarily, but it lacks cooling capacity and may cause re-ignition, so it is not recommended as the primary fire-fighting medium.
- Fire fighters are required to wear protective clothing and self-contained breathing apparatus.
- When installing and maintaining heavy equipment, use proper tools and take protective measures. Improper operation may cause personal injury.
- Cable insulation may degrade or become damaged in high-temperature environments. Keep the cable away from the outside of the heating device or heat source area.
- The cables of the same type must be not twine or cross them.

2.Product Description

This document describes the low-voltage series energy storage battery system (hereinafter referred to as battery system) in terms of product introduction, application scenarios, installation, commissioning, maintenance, and technical parameters.

The battery system can be used with inverters from Growatt/Solis/Goodwe/Pylon/Deye/SMA/Sofar/SRNE/Voltronic etc.

Description
Potential risks exist when the device is running. When operating the device, take protective measures.
Please use the device properly. In extreme cases, the device may be damaged.
The device contains corrosive electrolyte. Avoid contact with the leaked electrolyte.
Read the product instruction carefully before operating the device.
Pay attention to personal protection during installation, operation and maintenance.
Keep the device away from open flames or ignition sources.
Device should be kept away from areas accessible to children.
At the end of service life, do not dispose of it together with household garbage.
Device should be placed in the right place and recycled in accordance with local environmental regulations.

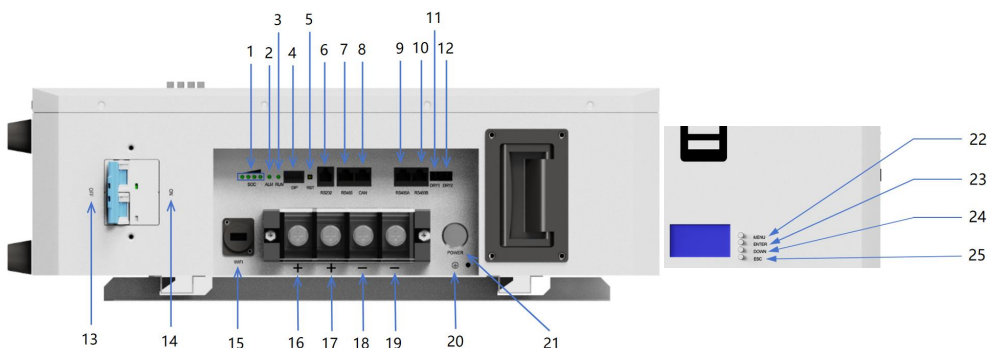
3.Battery Description

3.1 Components



Dimensions: 540*425*170mm

3.2 Battery port definition



Item	Printed symbols	Description
1	SOC	Indicate SOC level
2	ALM	Indicate if there is a malfunction
3	RUN	Indicate the operating status of the battery
4	DIP	DIP Switch
5	RST	Reset Switch
6	RS232	RS232 Communication
7	RS485	Single-Machine Communication
8	CAN	Single-Machine Communication
9	RS485A	Parallel Communication
10	RS485B	
11	DRY1	Dry Contact
12	DRY2	
13	OFF	Circuit Breaker
14	ON	
15	WIFI	WIFI
16	+	Battery Positive Terminal
17	+	
18	-	Battery Negative Terminal
19	-	
20		Battery pack grounding
21	POWER	ON/OFF Switch
22	MENU	Control display
23	ENTER	
24	DOWN	
25	ESC	

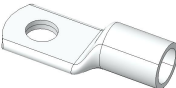
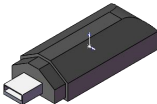
4.Storage and Packing

4.1 Storage conditions

- If the device is not installed and used immediately, ensure that the storage environment meets the following conditions.
- The device must be packed in a packing case, and then sealed with a desiccant.
- Storage SOC:40~60%. Perform one full charge and discharge cycle at a current of less than 0.5C every 3 months.
- Humidity range: 0~85% No condensation. Do not install the battery when there is moisture condensation at connection port.
- The device should be stored in a cool place away from direct sunlight radiation.
- Keep the device away from flammable, explosive, and corrosive objects.
- No rain on the device.

4.2 Packing list

- Before unpacking the battery, check whether the package is damaged and the battery model is correct. If there is any exception, please do not open the packing case and contact the after-sales service as soon as possible.
- After installation, check whether the product delivery is complete according to the packing information. If there is any exception, please contact the after-sales service as soon as possible.

Item	Name	Quantity	Pictures	Remark
1	Battery	1		Subject To Actual Products
2	Positive Plug Power Cable	1		
3	Negative Plug Power Cable	1		
4	Hanging Frames	1		
5	Network Cable	1		
6	Terminals	2		
7	WiFi Module	1		

8	Expansion bolt	8		
9	User Manual	1		

5.System installation

5.1 Installation condition

- The battery system should be installed on the wall with sufficient bearing capacity and flatness.
- The battery operates best at a temperature of 10~35°C.
- Avoid installation in direct heat and rain environment.
- Do not install battery near a high-temperature heat source or low - temperature cold source.
- Avoid installation in areas with extreme changes in ambient temperature.
- Avoid installation in a strong interference environment.
- Do not install in areas accessible to children.
- Avoid installation in areas prone to water accumulation.
- Do not place inflammable or explosive objects around the device.

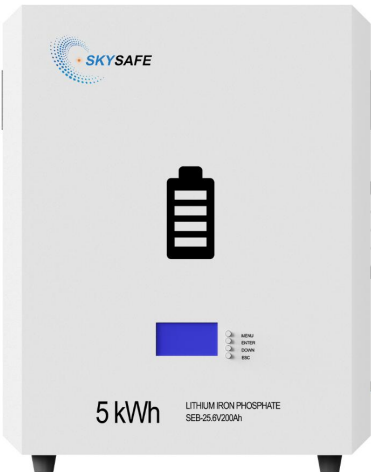


Maintain the recommended gap between batteries.

5.2 System installation



If parallel use is required, check and select batteries with similar production date and same model and specifications to use.



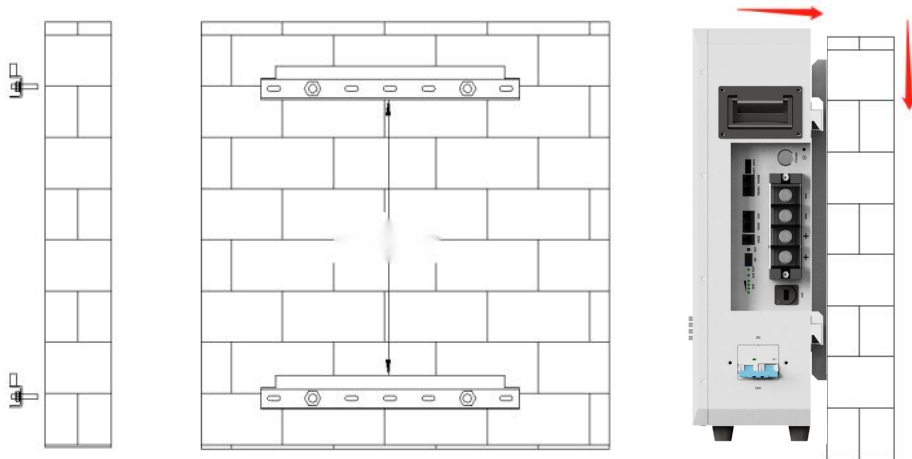
Open the carton box and take out the accessory bag and battery.



Wall mounting requires at least two installation persons.

- Position the wall mounted hanger panel as a template and use a leveler to make the wall panel parallel to the ground.
- Keep the wall mounted hanger panel close to the wall. Make sure to place firmly, mark the holes with a marker and remove the panel.
- Use a hammer drill to drill holes in the wall (Aperture diameter:10mm, Depth:50~55mm) .

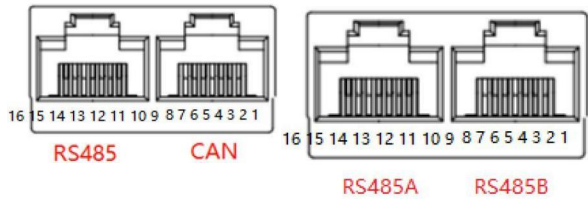
Tighten the M8 expansion bolt, with torque of 10N·m.



NOTE

- The red power cable corresponds to the red skin cable bundle, and the black power cable corresponds to the black skin cable bundle. The cross-sectional area of the cable bundle is $\geq 25\text{mm}^2$. The wire should meet the standards for outdoor use.
- Dielectric withstand voltage: DC600V, temperature resistance: 200°C.
- Check whether there is any gap. If there is no gap, the installation is completed.
- The parallel power cables between batteries should be as short as possible under the condition of meeting installation connection requirements.

RJ45 Communication Port



CAN Communication Port

RS485 interface (communication with host computer or inverter) Support for SRNE、Voltronic and Geowatt inverter protocol--Select different addresses using DIP switches		CAN communication interface (only inverter communication) Support for Victron、Pylon and Geowatt inverter protocol--Use DIP switches to select different protocols	
RS485—Use 8P8C vertical RJ45 socket		CAN—Use 8P8C vertical RJ45 socket	
RJ45 pin	Defined declaration	RJ45 pin	Defined declaration
9、16	RS485A-B	4	CANH
10、15	RS485A-A	5	CANL
11、14	GND	3、6	GND
12、13	NC	1、2、7、8	NC

Parallel communication port (for parallel only)			
RS485-A—Use 8P8C vertical RJ45 socket		RS485-B—Use 8P8C vertical RJ45 socket	
RJ45 pin	Defined declaration	RJ45 pin	Defined declaration
9、16	RS485B-B	1、8	RS485B-B
10、15	RS485B-A	2、7	RS485B-A
11、14	GND	3、6	GND
12、13	NC	4、5	NC

DIP Switch



When packs are used in parallel, you can use the DIP switch on the BMS to set addresses to distinguish different packs. Do not set the same addresses. For the definition of the DIP switch on the BMS, see the following table:

address	Dip switch position				reserved	host	declaration
	#1	#2	#3	#4	#5	#6	
0	OFF	OFF	OFF	OFF	OFF	OFF	Pack1
1	ON	OFF	OFF	OFF	OFF	OFF	Pack2
2	OFF	ON	OFF	OFF	OFF	OFF	Pack3
3	ON	ON	OFF	OFF	OFF	OFF	Pack4
4	OFF	OFF	ON	OFF	OFF	OFF	Pack5
5	ON	OFF	ON	OFF	OFF	OFF	Pack6
6	OFF	ON	ON	OFF	OFF	OFF	Pack7
7	ON	ON	ON	OFF	OFF	OFF	Pack8
8	OFF	OFF	OFF	ON	OFF	OFF	Pack9
9	ON	OFF	OFF	ON	OFF	OFF	Pack10
10	OFF	ON	OFF	ON	OFF	OFF	Pack11
11	ON	ON	OFF	ON	OFF	OFF	Pack12
12	OFF	OFF	ON	ON	OFF	OFF	Pack13

13	ON	OFF	ON	ON	OFF	OFF	Pack14
14	OFF	ON	ON	ON	OFF	OFF	Pack15
15	ON	ON	ON	ON	OFF	OFF	Pack16

6.System operation

6.1 Check before switching on

Before switching on the battery system, check the following items to prevent system damage.

Item No.	Check content
1	The device is firmly installed, the installation position is convenient for operation and maintenance, the installation space is convenient for ventilation and heat dissipation, and the installation environment is clean and tidy.
2	PGND cables, power cables, communications cables, and terminal resistors are properly and firmly connected.
3	Cable bundling meets cable routing requirements, properly distributed, and not damaged

6.2 Switch on

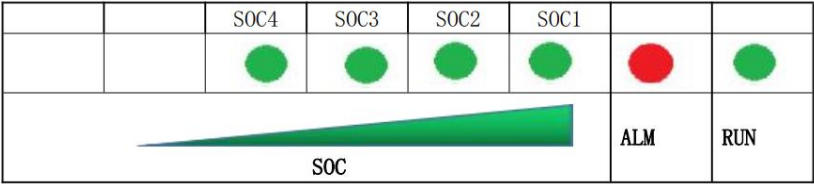
- Confirm the inverter and loads are powered off.
- Connect the power cables and communication wiring harness between the battery pack and the inverter.
- Engage the battery pack POWER switch.

6.3 Operating status indicator

System state	Abnormal event	SOC LED				ALM RUN		description
								
Shut down	Shut down/sleep mode	All shut down						
standby	normal	Indicator by SOC				off	blink 1	Standby only normal and alarm, protection and fault reported according to the charge and discharge status: Alarms include the following types: large pressure difference alarm, low capacity alarm high and low voltage of a single unit, high and low overall voltage, all temperature alarms (high and low cell temperature, high and low ambient temperature, high and low MOS temperature)
	alarm					blink2	blink 1	
charge	normal	Indicator by SOC Highest indication with blink				off	on	Alarms are classified into the following types: large pressure difference alarm, low capacity alarm, low voltage of a single unit, low voltage of the whole unit, and all temperature alarms (high and low cell temperature, high and low ambient temperature, high and low MOS temperature; Overcurrent alarm)
	normal					blink2	on	
	Unit \ overall overvoltage protection \ full charge protection	Indicator by SOC				off	on	
	Overcurrent protection (Enter current limiting charge)	Indicator by power(When there is charging current, the LED with the highest power indicator flashes 2)				off	on	After charging over current protection, it enters current limiting charging and the charging current is displayed in normal state; After overcurrent protection, it enters current limiting charging and no charging current is displayed according to fault state, ALM steady on and all others are off
	Temperature	off				on	off	Cell, MOS, environment

	protection				
discharge	normal	Indicator by SOC	off	blink 3	
	alarm	Indicator by SOC	blink2	blink 3	Alarms include the following types: large pressure difference alarm, low capacity alarm, high and low voltage of a single unit, high and low voltage of the whole system, and all temperature alarms (high and low cell temperature, high and low ambient temperature, high and low MOS temperature; Overcurrent alarm)
	Monomer/whole Under voltage protection	Indicator by SOC	blink2	off	
	Overcurrent, short circuit protection	off	on	off	
	Temperature protection	off	on	off	Cell, MOS, environment
failure	NTC fault, MOS fault, reverse connection, differential pressure protection, ultra-low voltage protection	off	on	off	

6.4 LED indicator definition



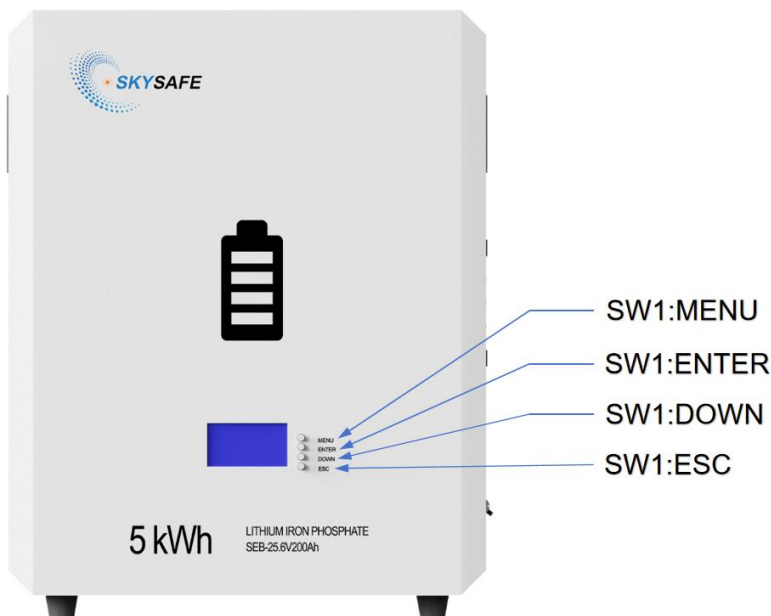
Status		Charge				Discharge			
Capacity indicator		L4	L3	L2	L1	L4	L3	L2	L1
Capacity (%)	0 ~ 25%	Blink2	Off	Off	Off	On	Off	Off	Off
	26 ~ 50%	On	Blink2	Off	Off	On	On	Off	Off
	51 ~ 75%	On	On	Blink2	Off	On	On	On	Off
	75 ~ 100%	On	On	On	Blink2	On	On	On	On
Running Indicator 		Stady light				Blink 3 tims			

6.5 Blink Indication

Blink Indication	On	Off
Blink 1	0.25S	3.75S
Blink 2	0.5S	0.5S
Blink 3	0.5S	1.5S

7. LCD Display Board Description

Equipped with a backup power motherboard, it can display battery pack sampling information and working status through an LCD screen. Blue background and white text display, default to English.



7.1 Button Description

This product is equipped with 4 buttons, and the functional order of the buttons from top to bottom is: MENU 、 ENTER、 ▼、 ESC

》 : Indicates that there is a submenu, press the Enter key to enter the submenu

Key Function Description

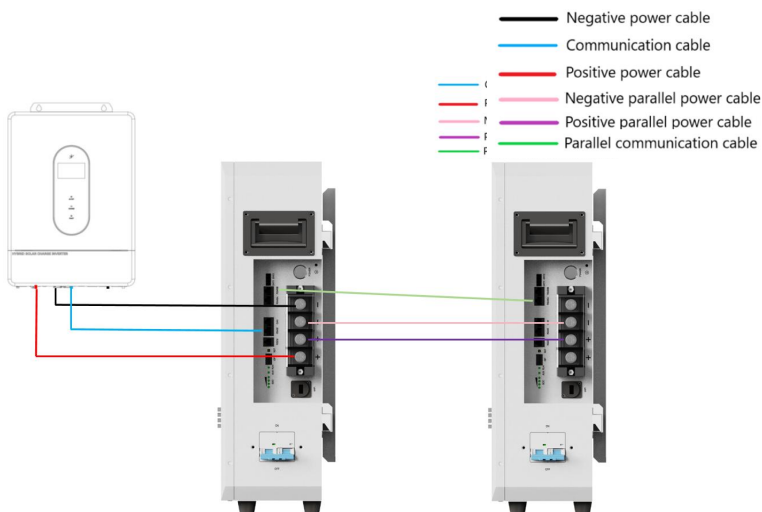
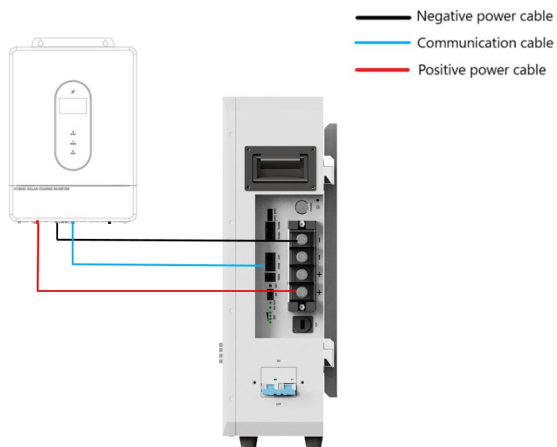
MENU: Press this key to enter the management system

ENTER: Press this key to enter the submenu

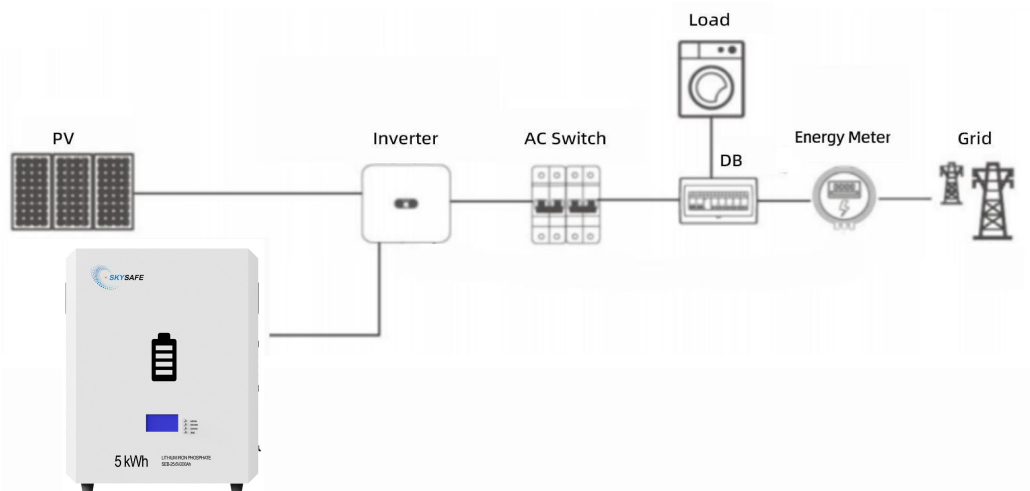
▼ : Press this key to move the cursor down or page down

ESC: Press this key to return to the previous menu level

8.Schematic diagram of battery parallel operation



9. System operating diagram



10.Maintenance

Maintenance content	Period
If the battery is not in use, fully charge the battery, then discharge to 40-60% SOC.	Every 3 months
Check that the wall-mount bracket is secure. Tighten if necessary	Every 3 months
Check the enclosure for damage. If damaged, repaint or contact after-sales service.	Every 3 months
Check whether the exposed wire is worn. If so, please replace the corresponding cable or contact the after-sales service.	Every 1 months
Check whether there is debris around the battery. If so, clear it to avoid affecting battery heat dissipation.	Every 1 months
Check for water ingress or pest intrusion, which may cause long-term damage.	Every 3 months



- If the user finds any problems that may affect the battery or the battery and energy storage inverter system, please contact after-sales service. It is forbidden to disassemble it privately.
- If a user finds that the copper wire inside the conductive line is exposed, it's forbidden to touch it as there is a high voltage risk. Please contact after-sales service and do not disassemble it privately.

GUARANTEECERTIFICATE

Serial No.: _____

Customer's Name				Contact Person	
Address				Telephone No.	
Product/Model:		Post Code		Fax No.	
Date of purchase			Expire Date		
Dealer Signature			Customer Signature		

GUARANTEECERTIFICATE

Serial No.: _____

Customer's Name				Contact Person	
Address				Telephone No.	
Product/Model:		Post Code		Fax No.	
Date of purchase			Expire Date		
Dealer Signature			Customer Signature		