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## **About This Manual**

The manual primarily encompasses product information, along with installation, operation, and maintenance guidelines.

It will refer to the device as the "inverter" unless otherwise specified.

- **Target Audience**

This manual is intended for professional technicians who have responsibilities for the installation, operation, and maintenance of inverters, as well as users who need to check inverter parameters.

**Installation Requirements:**

The installation of the inverter should only be carried out by professional technicians who meet the following requirements

- Possess knowledge of electronics, electrical wiring, and mechanical expertise, and be familiar with electrical and mechanical schematics.
- Have received professional training related to the installation and commissioning of electrical equipment.
- Capable of promptly responding to hazards or emergencies that may arise during the installation and commissioning process.
- Familiar with local standards and relevant safety regulations pertaining to electrical systems.
- Thoroughly read this manual and understand the safety instructions associated with the operations.

- **How to Use This Manual**

- Please carefully read this manual before utilizing the product and store it in a readily accessible location.
- All content, images, trademarks, and symbols in this manual are the property of Swatten. No part of this document may be reproduced by individuals not employed by Swatten without written authorization.
- The contents of this manual may be periodically updated or revised, and the specifications of the actual product purchased should take precedence.

- **Symbols**

This manual incorporates crucial safety instructions that are emphasized using specific symbols. These symbols are employed to ensure the safety of individuals and property during product usage or to assist in maximizing product performance efficiently..

It is essential to thoroughly comprehend the significance of the warning symbols to enhance your utilization of the manual.

**DANGER**

Indicates the presence of high-risk potential hazards that, if not avoided, could result in severe injury or even death.

**WARNING**

Indicates the presence of moderate-risk potential hazards that, if not avoided, could result in serious injury or even death.

**CAUTION**

Indicates the presence of low-risk potential hazards that, if not avoided, may lead to minor or moderate injury.

**NOTICE**

Indicates potential risks that, if not avoided, may result in device malfunctions or financial losses.

The "NOTE" designation is used to indicate supplementary information, emphasized content, or helpful tips that can assist you, such as problem-solving techniques or time-saving suggestions.

## Change History

Changes between document issues are cumulative, meaning that each subsequent document issue includes all the changes made in earlier issues.

### Issue 1 (2023-11-17)

This issue is the first official release.

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# 1 Safety Instruction

## DANGER

- Before operating the equipment, please turn off the power to prevent any danger and strictly adhere to all safety precautions and signs in this manual.
- Only allow professionals to operate the equipment. Professionals should be familiar with local regulations, standards, electrical systems, undergo professional training, and have knowledge related to this specific product.
- Do not use if the battery module is defective, damaged, or missing.
- Without official authorization from the manufacturer, do not dismantle or modify any part of the battery module.
- Battery damage may result in electrolyte leakage. If electrolyte leakage occurs, do not come into contact with the leaked electrolyte and evaporating gas. Immediately contact the after-sales service center for assistance.

## WARNING

Before connecting:

- After unpacking, please first inspect the product and packaging list. If the product is damaged or has missing components, contact the after-sales personnel.
- Before installation, ensure that the power is turned off, and the battery is in the closed state.
- Wiring must be done correctly, avoiding connecting the positive and negative terminals incorrectly. Ensure there is no short circuit with external devices.
- Do not directly connect the battery to AC power.
- Ensure proper grounding of the battery system.
- Please make sure that the electrical performance parameters of the battery system meet the product requirements.

## CAUTION

Unboxing Inspection	<ul style="list-style-type: none"><li>• If the product is found damaged or missing components, do not proceed with the installation, otherwise, malfunctions may occur.</li><li>• Do not install if the contents of the unpacking list do not match the actual items. And contact the supplier immediately.</li></ul>
Installation	<ul style="list-style-type: none"><li>• Wiring must be performed by qualified electrical personnel to avoid the risk of electric shock or system damage.</li><li>• Before connecting, ensure that the battery pack is in the disconnected state to prevent the risk of electrical shock or fire.</li><li>• Installation must strictly follow the steps outlined in the following sections; failure to install may result in product damage.</li><li>• Exercise caution during transportation and installation to avoid foot injuries or product damage.</li><li>• Keep this system away from flammable materials and heat sources.</li><li>• If the battery needs to be moved or serviced, ensure that the power is disconnected and the battery is turned off:</li></ul>

	<ul style="list-style-type: none"><li>• Do not connect with batteries from other brands.</li><li>• Do not operate with faulty or incompatible inverters.</li><li>• Do not dismantle the battery.</li></ul>
Operation	<ul style="list-style-type: none"><li>• Before operation, ensure that the product is used within the allowed working range to prevent damage.</li><li>• If not in use for an extended period, charge the battery to 50% SOC for storage, disconnect the battery switch, and recharge the battery every 3-6 months to avoid self-discharge.</li></ul>
Other	<ul style="list-style-type: none"><li>• Prohibit self-modification of this system to prevent serious accidents.</li><li>• In case of abnormal battery behavior, immediately disconnect the battery and power output cables.</li><li>• In the event of a battery fire, use a dry powder fire extinguisher and immediately turn off all power switches.</li></ul>

## 2 Product Introduction

### 2.1 Product Description

This document primarily introduces the product overview, application scenarios, installation, commissioning, maintenance, and technical parameters of the household energy storage low-voltage battery system series product SieB-L-M (hereinafter referred to as the "battery system"). The battery system supports a maximum of 15 batteries in parallel.

### 2.2 Product Model Description

SieB-L-M	
Code	Description
SieB	Company Code
L	Low Voltage
M	Rack mounting

### 2.3 Product Features

The positive electrode of the battery is made of Lithium Iron Phosphate (LiFePO<sub>4</sub>) material, ensuring good safety performance and a long cycle life. It utilizes a high-performance Battery Management System (BMS) module with protective functions such as current, voltage, and temperature monitoring.

The monitoring unit automatically measures the battery's charge/discharge current, charge/discharge voltage, individual cell surface temperature, and ambient temperature. The BMS automatically identifies coding for safe and efficient debugging.

The system adopts standard MODBUS and CAN communication protocols, making it compatible with various mainstream inverters on the market.

It is flexible in configuration, supporting the parallel expansion of up to 15 battery packs.

## 3 Battery Introduction

### 3.1 Terminals Introduction

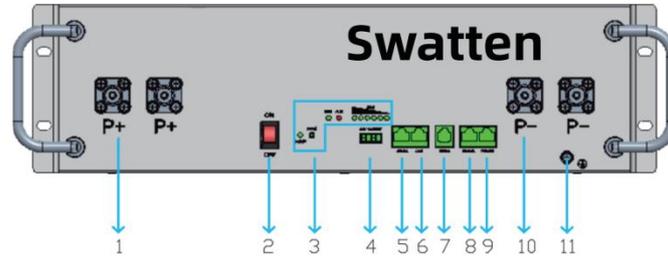


Table 3.1 Terminals and Ports definition

No.	Silk Screen	Terminal	Description
1	P+	Battery Positive	Battery positive power transmission
2	ON/OFF	Power Button	Battery power on/off
	RUN		Running indicator light, Charging always on
	ALM		Alarm indicator light, activates during battery alarm protection
3	SOC	Indicator Light	6 green LED lights indicating SOC. SOC stands for State of Charge, each SOC LED represents 16.6% of the rated capacity, from right to left: L1, L2, L3, L4, L5, and L6
	ON/OFF		BMS power-on indicator light, lights up when the battery is powered on or the master has communication input
	RESET		Battery Reset Switch
4	DRY CONTACT	Reset Button	Outputs a passive signal. Dry contact 1 closes for battery faults or protection, and dry contact 2 closes for low battery level warnings
5	RS 485	Dry Contact Port	Communication Transmission: Battery Module External Communication
6	CAN	Communication Port	Communication Transmission: Battery Module External Communication (CAN)
7	RS232	RS232 Communication Port	Communication via PACE RS232 TY V1.0 Protocol with Upper Computer
8	RS485A	RS 485 Communication Port	Multiple Units connection, Data

			Transmission via RS485 Communication
9	RS485B	RS 485 Communication Port	Multiple Units connection, Data Transmission via RS485 Communication
10	P-	Battery Negative	The negative pole of the battery
11		Grounding	Grounding Protection

## 4 Storage and Packaging

### 4.1 Storage Environment

If the battery is not immediately installed for use, please ensure that the storage environment meets the following conditions:

- The battery should be packaged in a box, and a desiccant should be placed inside the packaging box before sealing.
- If not installed within 3 days after unpacking, it is recommended to store the battery in the packaging box.
- Storage SOC: 25~50% SOC, refer to the table below for charging cycles during storage.
- Storage temperature range: Store for no more than 1 month at conditions between -20°C and 40°C, and no more than 1 year at conditions between 0°C and 35°C.
- Humidity range:  $\leq 70\%$  (condensationless). Do not install the battery if there is moisture or condensation at the battery interface.
- Altitude:  $\leq 3000\text{m}$
- Locations without conductive dust and corrosive gases.
- The battery should be stored in a cool place, avoiding direct sunlight.
- Battery storage should be away from flammable, explosive, and corrosive items.
- Rain exposure is prohibited.

Storage Temperature	Recharge Interval
Temperature < 35°C	Recharge every 6 months
35° C $\leq$ Temperature < 45° C	Recharge every 4 months
Temperature $\geq$ 45° C	Recharge every 3 months

### 4.2 Packaging Inventory

- Before opening the outer packaging of the battery, please inspect for any damage to the outer packaging and verify the battery model. If there are any abnormalities, do not open the packaging box and try to contact our after-sales personnel as soon as possible.
- After opening the outer packaging of the battery, please verify the completeness of the delivered product according to the packaging information. If there are any abnormalities, please promptly contact our after-sales personnel. The packaging inventory, **using 5 units SieB-L-M as an example**, is provided in the table below:

Note: If your order is only one battery module, there is no need any cable for parallel.

No.	Material Name	Material Specifications	Quantity	Attached Diagram
1	Battery	SieB-L-M	5 units	
2	Positive and Negative Parallel Cable	L=155mm UL1015 4AWG	4 pairs	Positive: Red Negative: Black
3	Communication Parallel cable	L=190mm, with RJ45 connectors at both ends, Cat5e	4 pieces	For Battery Parallel Communication
4	Battery Positive Connector	120A ESC-HP-120-025-PY	1	For power cable between battery and inverter
5	Battery Negative Connector	120A ESC-HP-120-025-PB	1	For power cable between battery and inverter
6	RJ45 Connector	RJ45 Connector	1	For Communication cable between battery and inverter
7	Internal Cross External Hexagon Head Screw	M6x12	20	Used for securing battery modules.
8	Grounding Terminal	RNBS8-5	5	Battery Pack Grounding
9	Grounding Screw	M5x10 SUS	5	Battery Pack Grounding

## 5 System Installation

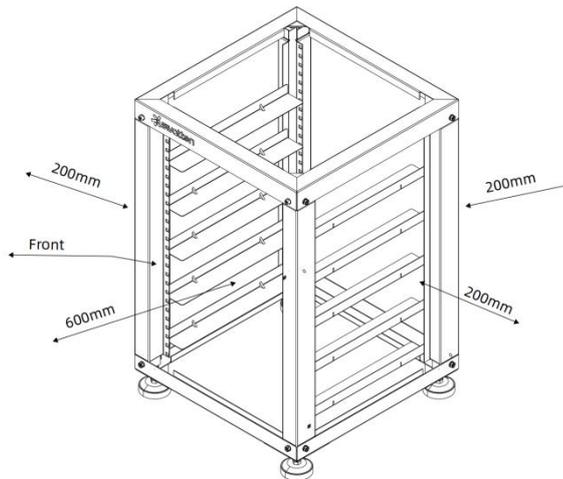
### 5.1 Installation Environment

- The battery system must be installed on a ground surface with sufficient load-bearing capacity and levelness. If the ground lacks adequate support and levelness, additional measures should be taken to ensure the battery's stability.
- For optimal operational conditions, it is recommended to install the battery system in an environment with a temperature range of 20~40°C.
- Avoid installation in areas exposed to direct sunlight, rainforest conditions, proximity to high-temperature sources, or low-temperature environments.
- Avoid installation in areas with extreme temperature fluctuations and places accessible to children. Installation in areas prone to water accumulation should also be avoided.
- Do not place flammable or explosive items around the battery.

### 5.2 Installation Space Requirements

➤ Floor Installation Space Requirements

**Note:** The recommended distance between batteries is provided for reference, and, whenever feasible, minimize the distance on an operational basis.



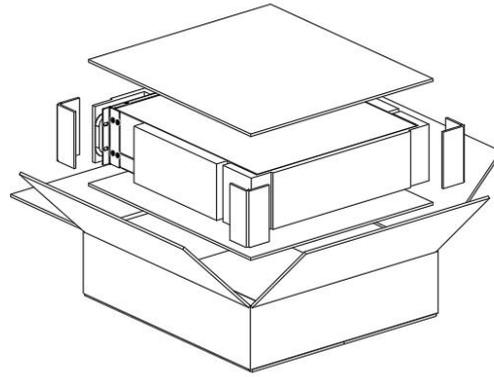
**Note:** There should be no obstacles within 600mm in front of the cabinet installation location and within 200mm on the other three sides.

### 5.3 System Installation

**Note:** If parallel operation is required, it is advisable to use batteries with close production dates and identical gear numbers together.

#### 5.3.1 Unpacking

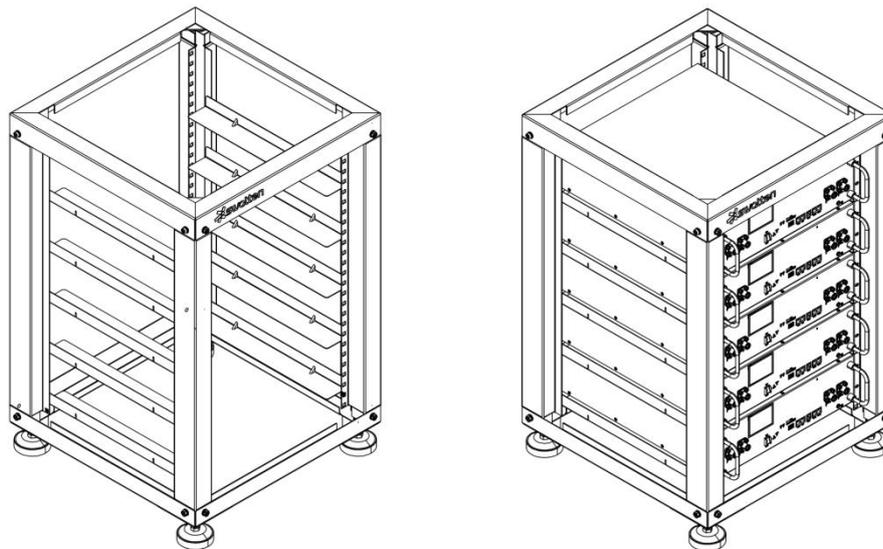
Open the cardboard box, take out the accessory pack, and the batteries.



### 5.3.2 Floor Installation

**Note:** Check that the ground is level and without any tilt.

1. Place the cabinet on the ground and open the front door.
2. Insert the rear end of the battery pack through the front door of the cabinet and install according to the desired number of battery packs (number of battery packs  $\leq 5$ ).
3. Secure the battery packs to the cabinet using M6\*10-U-shaped nuts and bolts.



### 5.3.3 Cable Connection

#### PE Cable Connection

**Note:**

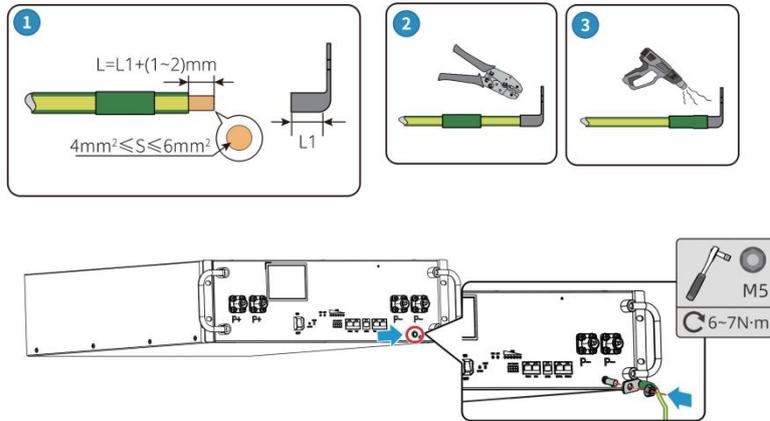
- During installation, it is essential to install the PE cable first. When dismantling the equipment, the PE cable must be the last to be removed.
- The conductor cross-sectional area of the battery PE cable:  $4\text{mm}^2 \leq S \leq 6\text{mm}^2$

Step1: Connect the ground cable on the battery. As well as connect the ground cable to the cabinet.

#### NOTICE

- Connect the PE cable first before installing the equipment. Disconnect the PE cable before dismantling the equipment.
- The pulling force of the cable after crimping should be at least 400N.

- Connect the PE cable to the battery or to the base in the same way.
- The PE cable should be prepared by the customer. Recommended specifications:
- Type: Single-core outdoor copper cable



### Power Cable Connection

**Note:**

- The red power cable corresponds to the red sheathed harness the positive pole harness of the battery. The black power line corresponds to the black sheathed harness, the negative pole harness of the battery. Use harness model: UL1015 4AWG.
- There are two types of power cable connection:
  - ① One type is the power output cable for external use: power output cable, with one end as a quick-insert terminal and the other end crimped with an OT terminal.
  - ② The other type is the power parallel operation cable: power parallel operation cable, crimped with quick-insert terminals at both ends.
- The harness withstands a voltage level of DC1500V and can endure temperatures from -40°C to 125°C.
- When used individually, connect the power output line for power output. Connect the quick-insert terminal of the power output cable to either output terminal of the battery (red for positive, black for negative). The other end of the terminal interface should be protected.
- In a multi-unit parallel operation, Connect the positive terminal between two batteries in parallel with a power cable, as well as the negative terminal. The system outputs power externally from the first battery or the last battery through the power cable.
- In compliance with the installation connection conditions, the parallel power cables between batteries should be as short as possible.

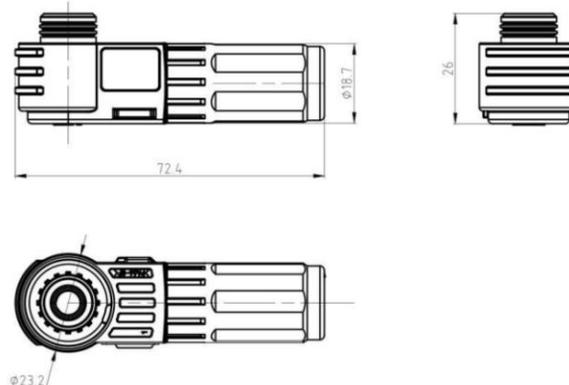
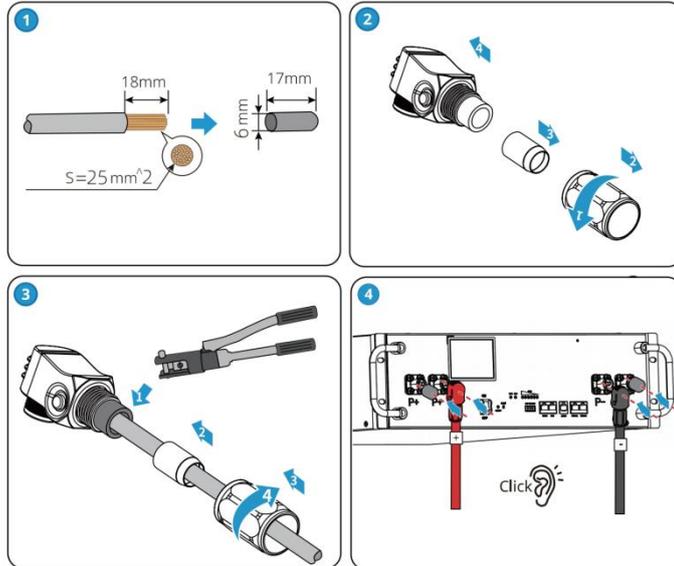


Figure 5.1 Battery Terminal Diagram

**NOTICE**

Recommended tool: Manual hydraulic crimping pliers. Crimping height: 7mm; Molding: 25mm<sup>2</sup> (4AWG)

- The pulling force of the cable after crimping should be at least 1200N.
- Customers should prepare the copper tube. Copper tube length: 17mm, copper tube inner diameter: 6.00mm.



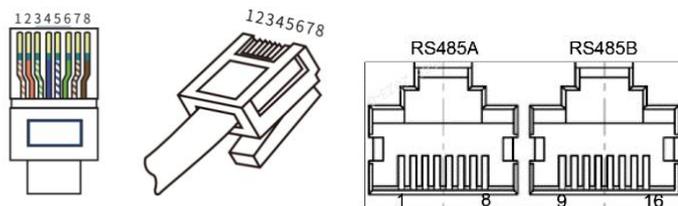
**Communication Cable Connection**

The Function of Battery Communication Cable :

- Avoid using RJ45 crystal head cables with protective sheaths.
- When used individually, connect one end to the RJ45 crystal head, and leave the other end unconnected.
- When used in parallel with multiple units, connect the communication cables between batteries in series using Ethernet cables. The one end of the communication cable of the last battery should be left unconnected.

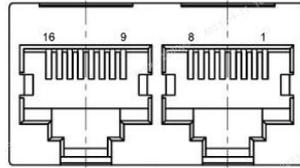
Communication between Single Pack and Inverter (CAN):

1. Use a dedicated CAN communication network cable, connect one end to the inverter, and connect the other end to the CAN communication port of the battery.
2. For battery parallel operation, use the battery parallel communication structure to connect according to the RS485 cascade communication schematic diagram, completing the communication and parallel operation of the batteries.

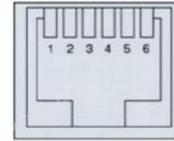


RS485 Crystal Head

RS485 Communication Interface Diagram



CAN/RS485 Communication  
connection to inverter



Connection with Upper computer  
RS232 Communication Interface Diagram

Table 5.1 RS232 Description

**RS232 - Using a 6P6C Vertical RJ11**  
**Socket Explanation**

RJ11 Pin	Definition
2	GND (Ground)
3	TX (Transmit)
4	RX (Receive)

Table 5.2 CAN/RS485 Description

**CAN/RS485 Connection to the Inverter Communication Port**

RS485		CAN	
RJ45 Pin	Definition	RJ45 Pin	Definition
1, 8	RS485-B1	9, 10, 11, 14, 16	NC
2, 7	RS485-A1	12	CANL
3, 6	GND	13	CANH
4, 5	NC	15	GND

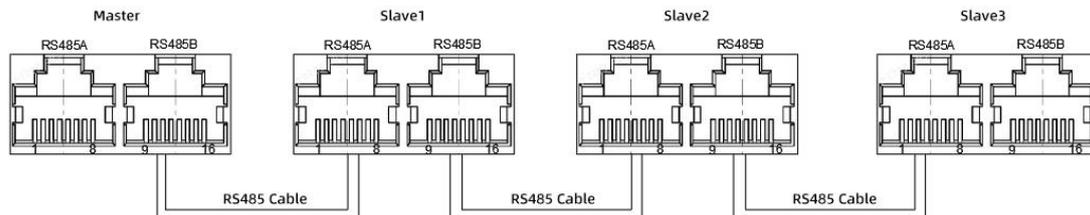


Figure 5.2 RS485 Parallel Communication Schematic Diagram

RS485A RJ45 Outlet			RS485B RJ45 Outlet		
RJ45 Pin	Definition	Function	RJ45 Pin	Definition	Function1
1	RS485-B	RS485 connection between batteries	9	RS485-B	Internal RS485 connection
2	RS485-A		10	RS485-A	
3	GND	Grounding	11	GND	Grounding
4	UP IN + Connect with slave	Automatic coding for the upper level +	12	DN OP +	Automatic coding for the lower level +
5	UP IN - Connect with slave	Automatic coding for the upper level -	13	DN OP -	Automatic coding for the lower level -
6	GND	Grounding	14	GND	Grounding
7	RS485-A	RS485 connection between batteries	15	RS485-A	Internal RS485 connection
8	RS485-B		16	RS485-B	

### 5.3.4 System Installation

The system allows a maximum charge and discharge current of 100A (requires more than 2 battery packs). If the actual current exceeds 100A, it is necessary to change the parallel operation method, and it is recommended to use a busbar for parallel operation.

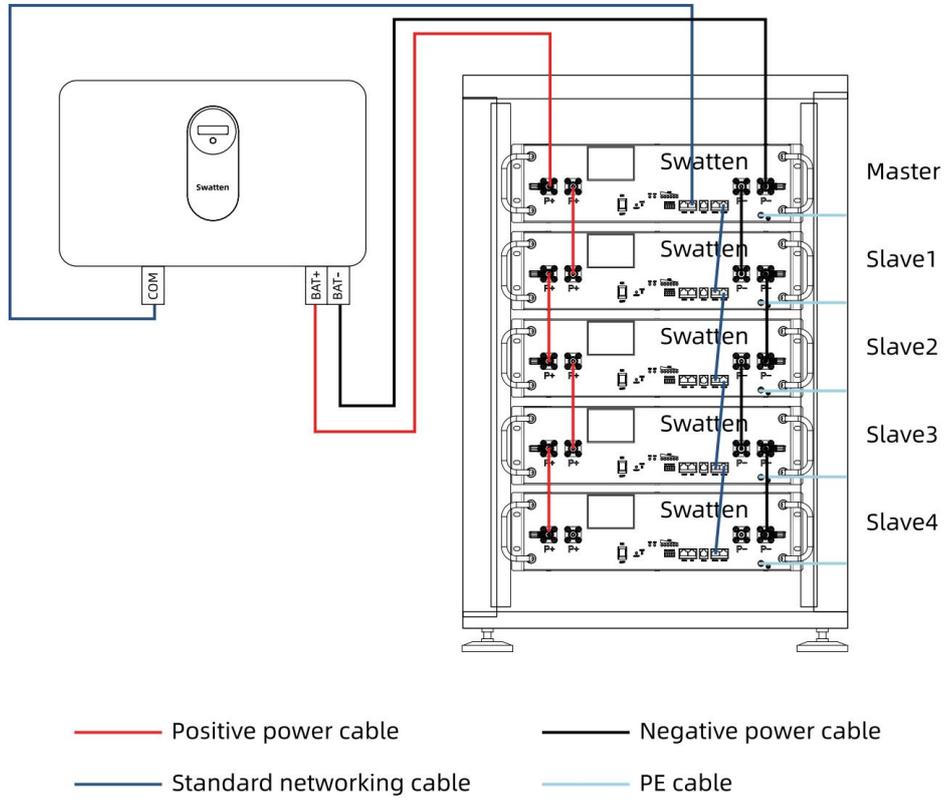


Figure 5.1 Battery Wiring Overview Diagram

## 6 System Operation

### 6.1 Pre-Power Check

Before powering on the battery system, please perform the following checks to prevent damage to the system:

No.	Check Item
1	Equipment is securely installed, the installation location is convenient for operation and maintenance, the installation space allows for ventilation and heat dissipation, and the installation environment is clean and tidy.
2	Protective ground wire, power line, and communication line terminal resistances are correctly connected and securely fastened.
3	Cables follow the routing requirements, are distributed reasonably, and are free of damage.
4	Unused ports are properly sealed.

### 6.2 Power On/Off the Battery System

1. When starting the battery system, follow these steps to prevent damage:

- Single Unit Usage: Check the battery and inverter wiring harness connection for correctness. Press the rocker switch on the front panel and set it to "ON" after confirming the correct connection. Once the LED indicator lights sequentially, the startup is complete.
- Parallel Operation with Multiple Units: Connect the battery parallel operation power cable and parallel communication cable. Ensure the main unit is connected to the inverter for power and communication. Set the main unit's rocker switch to "ON." After all LEDs on the panel are normal, set the rocker switches on slave units, slave1 slave2 slave3 and so on, to "ON" one by one. The LED indicators on each battery pack will light sequentially, indicating the system startup is complete.
- Confirm that the battery status indicators are normal.  
Note: After powering on, the system typically stabilizes output within 5 seconds.

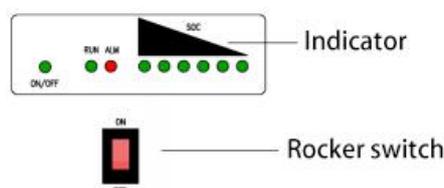
2. When shutting down the battery system, follow these steps to prevent damage:

- Single Unit Usage: Disconnect the external power/communication connections. Set the rocker switch on the front panel to "OFF," and the LED indicators will go out, completing the shutdown.
- Parallel Operation with Multiple Units: Disconnect the external power/communication connections. Set the rocker switches on the main unit and slave units, slave1 slave2 slave3, to "OFF." The LED indicators on each battery pack will go out sequentially, indicating the system shutdown is complete.
- Confirm that all battery status indicators are off.

### 6.3 Set Battery Parameters

The battery parameters are factory-set. If users need to adjust battery parameter settings, please contact the local dealer. Do not adjust battery parameters independently.

### 6.4 Indicator Light Status (Normal, Alarm, Fault)



Indicator	Statement
RUN Green	Normal operation
ALM Red	Battery Alarm
SOC Green	State of Charge
ON/OFF Green	BMS Power-On Indicator

**6.4.1 LED Working Status Indication**

Status:	Normal/Alarm/Protection	ON/OFF	RUN	ALM	Battery Level Indication LED:				Description
Power Off	Sleep	Off	Off	Off	Off	Off	Off	Off	All Off 
Standby	Normal	Steady	Blink 1	Off	According to the battery level: 0 ~ 16.6% 16.6 ~ 33.2% 33.2 ~ 49.8% 49.8 ~ 66.4% 66.4 ~ 83.0% 83.0 ~ 100%				
	Alarm	Steady	Blink 1	Blink 3					
Charging	Normal	Steady	Steady	OFF	According to the battery level (Battery level indication highest LED 2)				Overcharge Alarm, ALM steady (no blinking) 
	Alarm	Steady	Steady	Blink 3					
	Overcharge Protection	Steady	Steady	Off	Steady	Steady	Steady	Steady	If no charging, overcharge recovery indicator changes to standby state 
	Temperature, Overcurrent, Failure Protection	Steady	Off	Steady	Off	Off	Off	Off	Stop Charging 

Discharging	Normal	Steady	Blink 3	OFF	According to the battery level: 0 ~ 16.6% 16.6 ~ 33.2% 33.2 ~ 49.8% 49.8 ~ 66.4% 66.4 ~ 83.0% 83.0 ~ 100%				
	Alarm	Steady	Blink 3	Blink 3					
	Under Voltage Protection	Steady	Off	Off	Off	Off	Off	Off	Stop Discharging 
	Temperature, Overcurrent, Short Circuit, Reverse Connection, Failure Protection	Steady	Off	Steady	Off	Off	Off	Off	Stop Discharging 
Failure	Off	Off	Steady	Off	Off	Off	Off	Stop Charging and Discharging 	

### 6.4.2 Indicator Light Flashing Patterns

Blink type	ON	OFF
Blink 1	0.25s	3.75s
Blink 2	0.5s	0.5s
Blink 3	0.5s	1.5s

### 6.5 Common Fault Handling

No.	Fault Phenomenon	Fault Analysis	Solutions
1	Communication failure with PCS	RS485/CAN communication failure,	1.Check the communication cable. 2.Restart the battery and PCS. If the issue persists, shut down the battery and contact the dealer for assistance.
2	Protection fault	overvoltage protection, undervoltage protection overcurrent, short circuit, reverse connection, failure protection	Wait for protection recovery; or restart the battery and PCS. If the issue persists, shut down the battery and contact the dealer for assistance.

		Abnormal temperature (high or low)	Shutdown and wait for 2 hours, allowing the temperature to stabilize. Afterward, restart the battery. If the issue persists, shut down the battery and contact the dealer for assistance.
3	Protection Failure	Emergency power cutoff is needed due to protection failure or other reasons.	Shut down the battery. If the problem persists, contact the dealer.
4	Battery system current temperature sharply rises	Overcurrent, overcharge, or a short circuit in the battery	Disconnect the switches of the battery system and other associated devices. If the malfunction persists, and ensuring personal safety, wear insulated gloves and swiftly disconnect all power line connections.
5	If the system experiences smoke or catches fire	Short circuit in the battery	Disconnect the switches of the battery system and other associated devices. In the event of smoke or a small fire, utilize a fire extinguisher for suppression. If the fire becomes significant, evacuate personnel immediately.
6	Insulation Fault	System Leakage	For insulation resistance testing of the energy storage system, please contact the dealer for assistance.
7	When the battery system is in parallel operation, the LED indicator on the startup panel consistently flashes.	Battery Parallel Operation Failure	<ol style="list-style-type: none"> <li>1. Locate the main battery unit (RS485A port without communication line connected).</li> <li>2. Set the main unit's panel switch to "OFF," wait for 5 seconds, then switch it back to "ON."</li> <li>3. If the issue persists, please contact the dealer for assistance.</li> </ol>

## 6.6 System Lock Function Explanation

1. Upon triggering the system lock, all operational interfaces become ineffective, and charging/discharging cannot be performed. The charge/discharge MOS is disconnected, entering a protected state. The upper computer (or external screen) enters a password lock state, rendering external system operation functions ineffective. Various parameter display functions remain unchanged.
2. Shutdown reset functionality becomes ineffective. The battery pack can be shut down, but the shutdown reset function cannot lift the system lock.
3. After triggering the system lock, the system can only be restored through two unlocking methods:
  - Unlocking via the upper computer (or external screen) by entering the password.
  - Disassembly of the battery pack by after-sales/professionals for power-off reboot.
4. The protection logic/function of the system is not affected after triggering the system lock. Normal protection actions can still be performed after unlocking.

## 7 Maintenance

### Maintenance Items

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If the battery is not in use, perform a charging operation.

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Check all connection harnesses of the system to ensure proper functioning.

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Check if the indicator lights on various devices are displaying normally.

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Check the system's fastening to ensure there are no loose parts. If found, tighten them at the corresponding positions.

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Check the casing for any damage. If damage is present, either touch up with paint or contact the after-sales service center.

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When the battery level is low, promptly charge the battery to avoid high current discharge operation at low battery levels.

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Check for wear on exposed wires. If found, replace the corresponding cables or contact the after-sales service center.

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Check the insulation resistance of the system to ensure proper insulation performance.

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Check if there is any debris accumulation around the battery. If found, clean it to prevent interference with battery heat dissipation.

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Check for the presence of water or pests to prevent prolonged intrusion into the battery.

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## 8 Appendix

### 8.1 Technical Data

Manufacturer		SieB-L5120-M Battery Energy Storage System-Home (LV)	
Model Type		SieB-L5120-M	
Nominal Energy (kWh)*1		5.12	
Usable Energy (kWh)*2		4.61	
Cell Type		LFP (LFePO4)	
Nominal Capacity (Ah)		100	
Cell Configuration		1P16S	
Nominal Voltage (V)		51.2	
Operating Voltage Range (V)		48~56	
Max. Continuous Current (A)*3		50 (1 in Parallel)	100 (>2 in Parallel)
Max. Continuous Power (kw) <sup>3</sup>		2.40 (1 in Parallel)	4.8 (>2 in Parallel)
Communication		CAN	RS485
Parallel Connect		A maximum of 15 Pack with RS485 communication	
Weight (kg)		42	
Dimensions (W*D*H)(mm)		446*500*731	
Operating Temperature (°C)		Charge: 0~50 / Discharge: -20~50	
Storage Temperature (°C)		-20~45 (s1 Months) / 0~35 (s1 Year)	
Humidity		0%~95%	
Altitude (m)*3		≦2000	
Enclosure Type		IP20 (Indoor )	
Cooling		Natural convection	
Installation Location		Floor-standing (In Cabinet)	
Display		SOC indicator,Status indicator	
Standard and Certification	Safety	IEC62619	
	EMC	IEC61000-6-1/3	
	Transportation	UN38.3	
	Environment	RoHS	
Warranty*4		10 Years	
1. Test conditions: 2.5V~3.65V, 0.2 Charge (CC-CV) and Discharge at 25±3°C;			
2. Test conditions: 3.0V~3.5V, 0.2C Charge (CC-CV) and Discharge at 25±3°C;			
3. Max. Continuous Current/Power derating will occur related to Temperature / SOC / Humidity;			
4. Refer to Swatten SieB-L-M Limited warranty Letter;			