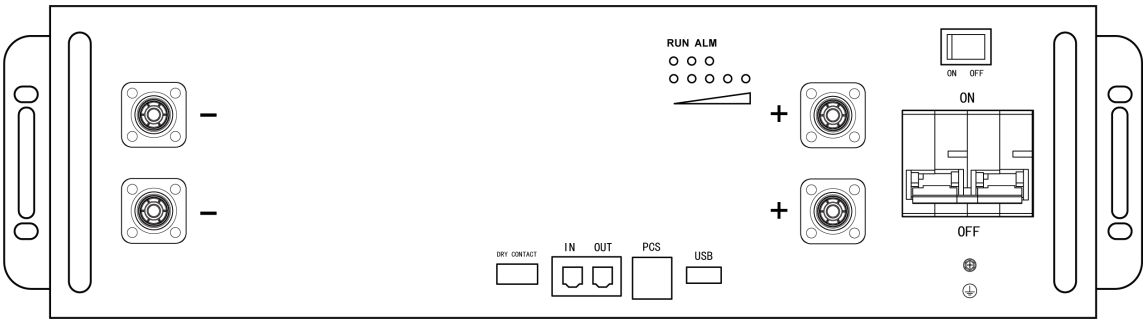
User Manual

Spring series LFP Battery

SE-G5.1 Pro-B



Issue: 01

Date: 20250917

How to Use This Manual

Read the manual and other related documents before performing any operation on the battery. Documents must be stored carefully and be always available.
Contents may be periodically updated or revised due to product development. The information in this manual is subject to change without notice.

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Trademarks and Permissions

Software Licenses

* It is prohibited to use data contained in firmware or software developed by the manufacturer , in part or in full, for commercial purposes by any means.
* It is prohibited to perform reverse engineering, cracking, or any other operations that compromise the original program design of the software developed by the manufacturer.

Disclaimer

The manufacturer shall not be liable for personal injury, property loss, product damage and subsequent losses under the following circumstances:
* Damages caused by force majeure, including earthquake, flood, volcanic eruption, mudslide,, lightning, fire, war, military conflict,typhoon, hurricane, and so on.
* Failure to comply with the provisions of this manual.
* The installation, operation and storage environment does not meet the relevant international, national or regional standards;
* Incorrect use of this product.
* Unauthorized or unqualified personnel repair the product, disassembly the rack and perform other operations.
* Use of unapproved spare parts.
* Unauthorized modifications or technical changes to the product or software.
* Incorrect shipment by yourself or the third party commissioned by you.
* Unsatisfactory materials and tools from you own that do not meet the relevant international, national or regional standards.
* Damage caused by yourself or the third party's negligence, intent, gross negligence, or improper operation.

Contents

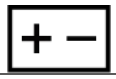
1 Safety Instructions

 **Warning!**

Read and follow carefully all safety warnings and all instructions . Failure to do so may result in electrical shock, fire, serious injury, or death. Save these instructions for future reference.

1.1 Terms and Symbols

Terms /Symbols	Description
 Danger	Indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
 Warning	Indicates a hazard with a medium level of risk which, if not avoided, will result in death or serious injury.
 Caution	Indicates a hazard with a low level of risk which, if not avoided, will result in minor or moderate injury.
 Notice	Indicates a potentially hazardous situation which, if not avoided, could results in equipment damage, data loss, performance deterioration, or unanticipated results. NOTICE is used to address practices not related to personal injury.
 Note	Supplements the important information in the main text. NOTE is used to address information not related to personal injury, equipment damage, and environment deterioration.
	Caution , risk of electric shock symbol indicates important safety instructions , which if not correctly followed , could result in electric shock.
	The DC input terminals of the inverter must not be grounded.
	Surface high temperature. Please do not touch the inverter case .
	CE mark of conformity
	Please read the instructions carefully before use .
	Indicate that this product is recyclable
	Do not place near open fire or incinerate. Do not use near heaters or hot temperature source.

	Attention! The risk of explosion.
	Li-ion battery
	Do not tread
	Do not run and chase
	Do not touch with your palm
	Symbol for the marking of electrical and electronics devices according to Directive 2002/96/ EC. Indicates that the device , accessories and the packaging must not be disposed as unsorted municipal waste and must be collected separately at the end of the usage . Please follow Local Ordinances or Regulations for disposal or contact an authorized representative of the manufacturer for information concerning the decommissioning of equipment.

1.2 Safety Rules

The product provides a safe source of electrical energy when operated as intended and as designed. Potentially hazardous circumstances such as excessive heat or electrolyte mist may occur under improper operating conditions, damage, misuse and/or abuse. The following safety precautions and the warning messages described in this part must be observed.
If any of the following precautions are not fully understood, or if you have any questions, contact us for guidance.

Risks of explosion

- Do not subject the battery to strong impacts.
- Do not crush or puncture the battery.
- Do not dispose of the battery in a fire.

Risks of fire

- Do not expose the battery o temperatures in excess of 60℃.
- Do not place the battery near a heat source such as a fireplace.
- Do not expose the battery to direct sunlight.
- Do not allow the battery connectors to touch conductive objects such as wires.

Risks of electric shock

- Do not disassemble the battery.
- Do not touch the battery with wet hands.
- Do not expose the battery to moisture or liquids.
- Keep the battery away from children and animals.

Risks of damage to the battery

- Do not allow the battery to encounter liquids.
- Do not subject the battery to high pressures.

Installation Precautions

Please be aware that a battery presents a risk of electrical shock including high short-circuit current. Follow all safety precautions while operating the batteries.

- Remove watches, rings, and other metallic accessories.
- Use tools with insulated handles in order to avoid inadvertent short circuits.
- Wear rubber gloves and safety boots.
- Do not put tools or any metal parts on the top of the batteries.
- Disconnect charging source and load before connecting or disconnecting terminals.
- When moving batteries and wear all appropriate safety clothing and equipment.
- Do not open or mutilate the batteries.

 **Caution!**

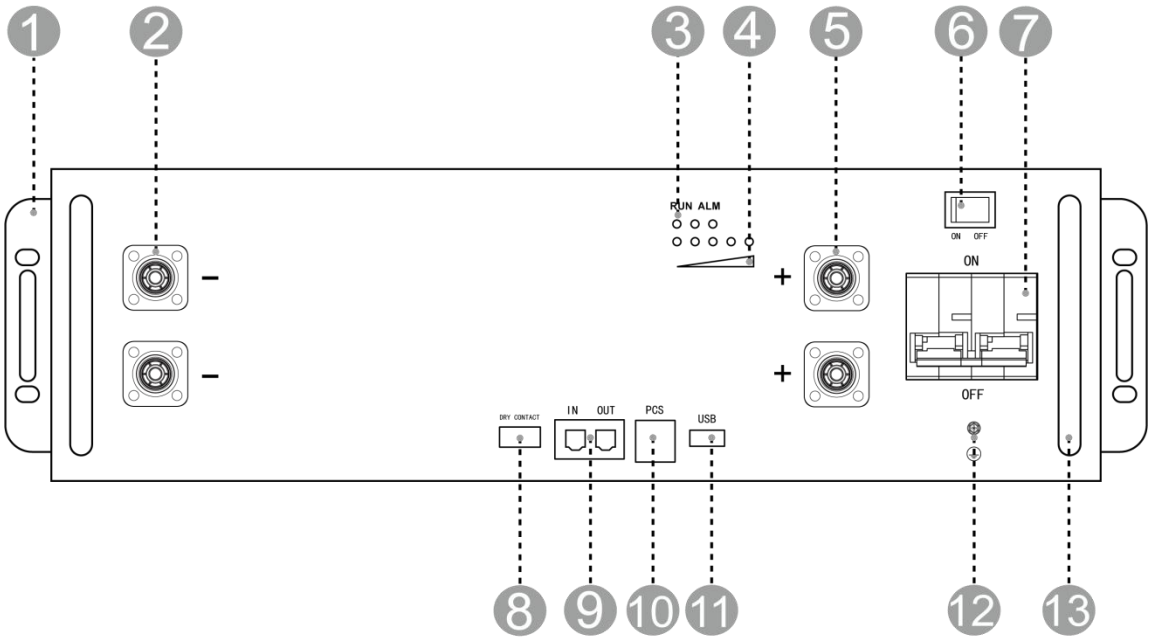
- Verify polarity at all connections before energizing the system. Reverse polarity at the battery terminals will void the Warranty and destroy the batteries. Do not short circuit the batteries.
- Do not combine Lithium Batteries with other brands or chemistries;
- Do not mix Lithium Batteries from different installations, clients, or job sites.
- Do not disassemble or modify the battery. If the battery housing is damaged, do not touch exposed contents.

2 Product Description

2.1 Product Features

51.2V series lithium iron phosphate battery system has been designed to provide power backup for remote or outside telecom plants like Access Terminals, Base Transceiver Stations, and Base Station Controllers. This system has the characteristics of high system integration, well reliability, long service life, and wide operating temperature range.

2.2 Product Overview



1	Used for fixing with cabinet.
2	Negative output terminal.
3	RUN light: green LED lighting to show the battery running status. Alarm light: yellow LED lighting to show the battery has been alarmed. Error: red LED lighting to show the battery has been protected.
4	SOC: used to display the state of remaining charge by 5 LEDs. The lightning of these LEDs indicates the SOC of 20%, 40%, 60%,80% and 100%.
5	Positive output terminal.
6	BMS switch: to turn on/off the whole battery
7	Circuit breaker: to control manually the connection between the battery and external devices.
8	DRY CONTACT output.
9	IN: parallel Communication Terminal: (RJ45 port)

	Connect "OUT" terminal of previous battery, for communication between multiple parallel batteries. OUT: parallel Communication Terminal: (RJ45 port) Connect "IN" terminal of next battery, for communication between multiple parallel batteries.
10	PCS：inverter communication terminal (RJ45 port) follow the CAN protocol (baud rate: 500kbps), and RS-485(baud rate: 9600bps), used to output battery information to the inverter.
11	USB port: used to insert USB flash drive for battery upgrade.
12	Protective earthing
13	Handle: used to carry/move the battery.

2.3 State Indicator

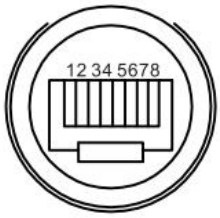
<table>
<tr><th>Condition</th><th>RUN</th><th>ALM</th><th>ERROR</th><th>SOC1</th><th>SOC2</th><th>SOC3</th><th>SOC4</th><th>SOC5</th></tr>
<tr><td>Power Off</td><td colspan="8">Off</td></tr>
<tr><td rowspan="2">Discharge or Idle</td><td rowspan="5">Blink</td><td rowspan="3">Blink if Alarm Exists</td><td rowspan="2">Off</td><td colspan="5">e.g., Soc67%:</td></tr>
<tr><td>Off</td><td>On</td><td>On</td><td>On</td><td>On</td></tr>
<tr><td rowspan="2">Charge</td><td rowspan="2">Off</td><td colspan="5">e.g., Soc47%:</td></tr>
<tr><td>Off</td><td>Off</td><td>Blink</td><td>On</td><td>On</td></tr>
<tr><td>Alarm</td><td rowspan="3">Blink</td><td>Off</td><td colspan="5" rowspan="3">Same as 'Discharge or Idle'</td></tr>
<tr><td>System Error/Protection</td><td>On</td></tr>
<tr><td>Upgrade</td><td colspan="8">Blink quickly</td></tr>
<tr><td>Critical Error</td><td colspan="8">Blink slowly</td></tr>
</table>

2.4 Terminal definition

(1) PCS Port definition

Definition of PCS Port Pin

No.	PCS Port Pin
1	485-B
2	485-A
3	–
4	CANH
5	CANL
6	–
7	485-A
8	485-B



(2) IN Port definition

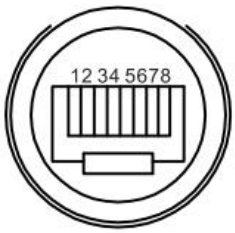
Definition of IN Port Pin

No.	PCS Port Pin
1	CANL
2	CANH
3	DI+
4	DI-
5	DI-
6	DI+
7	CANH
8	CANL

(3) OUT Port definition

Definition of Out Port Pin

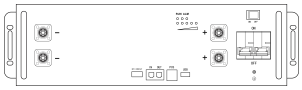
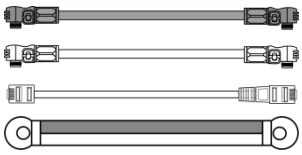
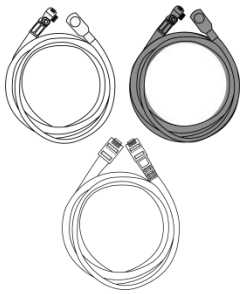
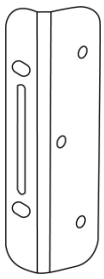
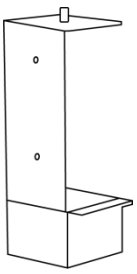
No.	Out Port Pin
1	CANL
2	CANH
3	DO+
4	DO-
5	DO-
6	DO+
7	CANH
8	CANL

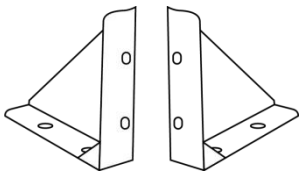
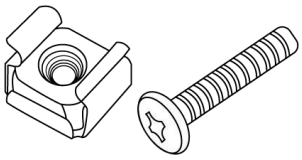
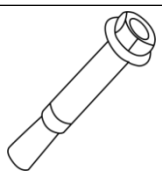


3 Preparation for Installation

After unpacking, check that packing contents are intact and complete, and free from any damage. If any item listed in the Unpacking List is missing or damaged, contact your vendor.

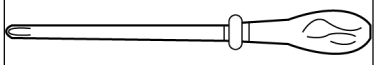
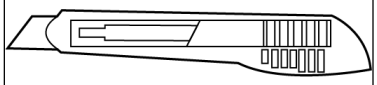
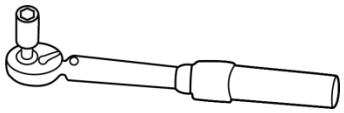
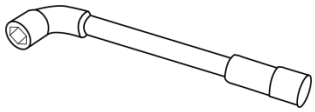
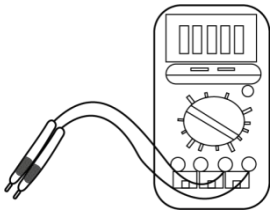
3.1 Unpacking List

No.	Items	Appearance	Usage	Qty.
1	Battery		Provide power	1
2	BCable		150mm 4AWG negative battery power cable; 150mm 4AWG positive battery power cable; 250mm RJ45 communication cable ; 300mm 10AWG yellow-green ground cable.	1
3	PCable		Pair of 4AWG and RJ45 communication cable to connect with hybrid inverter. The cable length can be customized based on customer requirements. Default length is 1500mm.	1
4	Hanging ears		Pair of hanging ears used for battery fixing with rack or cabinet, including 6 bolts of M4*8.	Hanging ears: 2 Bolts: 6 pcs
5	3U-Bracket-B		Simple stacking bracket, with height of 180mm. 1 set includes 4 brackets and 8 screws of M4. The number of batteries stacked is 4 at most.	4pcs

6	Battery Wall-Mounted Brackets		Pair of simple wall hanging support, including 4 sets of M6 expansion screws.	2
7	M6*16 bolt and nut		Fix the battery on the rack or cabinet	4 sets
8	M6 Expansion bolt		Fixed wall bracket	4
9	User Manual		/	1

3.2 Required Tools

These tools are required to install the battery.

No.	Items	Usage	Appearance
1	Phillips Screwdriver or Bit	To fasten battery and assemblies	
2	Box Cutter	Opening boxes	
3	Insulated Torque Wrench	Installing cables and busbars	
4	Insulated Sockets	Installing cables and busbars	
5	Battery Tester	Measure battery module’ s voltage	

Note:

Use properly insulated tools to prevent accident tale electric shock or short circuits. If insulated tools are not available, cover the entire exposed metal surfaces of the available tools, except their tips, with electrical tape.

3.3 Safety Gear

It is recommended to wear the following safety gear when dealing with the battery pack.

		
Insulated gloves	Safety shoes	Safety goggles

4 Installation Instructions

4.1 Installation Personnel

• Only qualified professionals or trained personnel are allowed to install the equipment.
-Professionals:personnel who are familiar with the working principles and structure of the equipment, trained or experienced in equipment operations and are clear of the sources and degree of various potential hazards in equipment installation.
-Trained personnel:personnel who are trained in technology and safety have required experience,are aware of possible hazards on themselves in certain operations and are able to take protective measures to minimize the hazards on themselves and other people.
• Personnel who plan to install the equipment must receive all necessary safety precautions and local relevant standards.
•Only qualified professionals are allowed to remove safety facilities and inspect the equipment.
•Knowledge of electronic, electrical wiring and mechanical expertise, and be familiar with electrical and mechanical schematics.
• Understanding and complying with this document and other applicable documents.

4.2 Installation Environment

Danger!

Do not expose the equipment to flammable or explosive gas or smoke. Do not perform any operation on the equipment in such environments.

Danger!

Do not store any flammable or explosive materials in equipment area.Do not cover or wrap the battery.

Danger!

Maintain a minimum distance of 300mm from heat sources heat sources or fire sources, such as smoke, candles, heaters, or other heating devices. Overheat may damage the equipment or cause a fire.

Warning!

Install the equipment in an area far away liquids. Do not install it under areas prone to condensation, such as under water pipe and air exhaust vent, or area prone to water leakage, such as air conditioner vents, ventilation vents, or feeder windows of the equipment room. Ensure that no liquid enters the equipment to prevent faults or short circuits.

Warning!

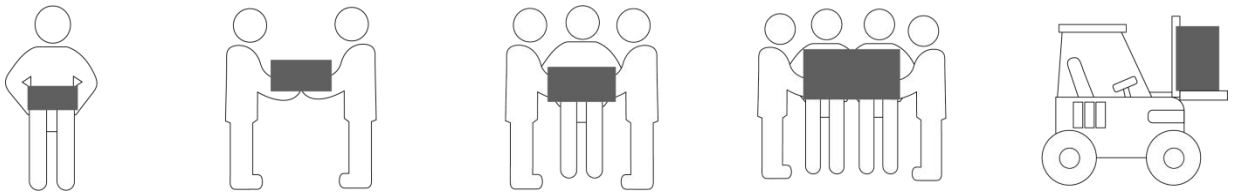
To prevent damage or fire due to high temperature, ensure that the ventilation vents or heat dissipation systems are not obstructed or covered by other objects while the equipment is running.

• The installation and usage environment must meet relevant international,the local laws and regulations.The user is obliged to protect the equipment against fire or other hazards.
• Keep the equipment out of the reach of children and away from daily working or living area, including but not limited to the following areas:studio, bedroom, lounge, living room, music room, kitchen,game room, room theater, sunroom,toilet,bathroom,laundry,and attic.
• Do not install the equipment in places that are enclosed, poorly-ventilated without proper fire fighting facilities, or difficult for firefighters to access.
• Do not install the equipment in an easily accessible position because the temperature of the enclosure and heat sink is high when the equipment is running.
• Do not install the equipment on a moving object, such as ship, train, or car.
• Ensure that the equipment is installed in a clean, dry and well ventilated area with proper temperature, humidity and altitude range. Check for more data in the "Technical Specifications" section.
• Do not install the equipment in an environment with magnetic dust, volatile or corrosive gases, infrared and other radiations, organic solvents, conductive metal,or salty air.
• Do not install the equipment in an area conducive to growth of microorganism such as fungus or mildew.
• Do not install the equipment in an area with strong vibration, noise, or electromagnetic interference.
• Do not install the equipment in an position that may be submerged in water.
• Keep away from the air outlet of PCS to prevent personal injury..
• The floor and walls are completely water proof.
• The wall and floor is flat and level.
• Before installing and powering up the system, dust and iron filings must be removed to keep the environment clean. The system cannot be installed in desert areas without a shell to protect against sand.
•The equipment is designed for indoor use. Please avoid direct sunlight, rain exposure, snow laying up during installation and operation.

Caution!

Moving heavy objects.

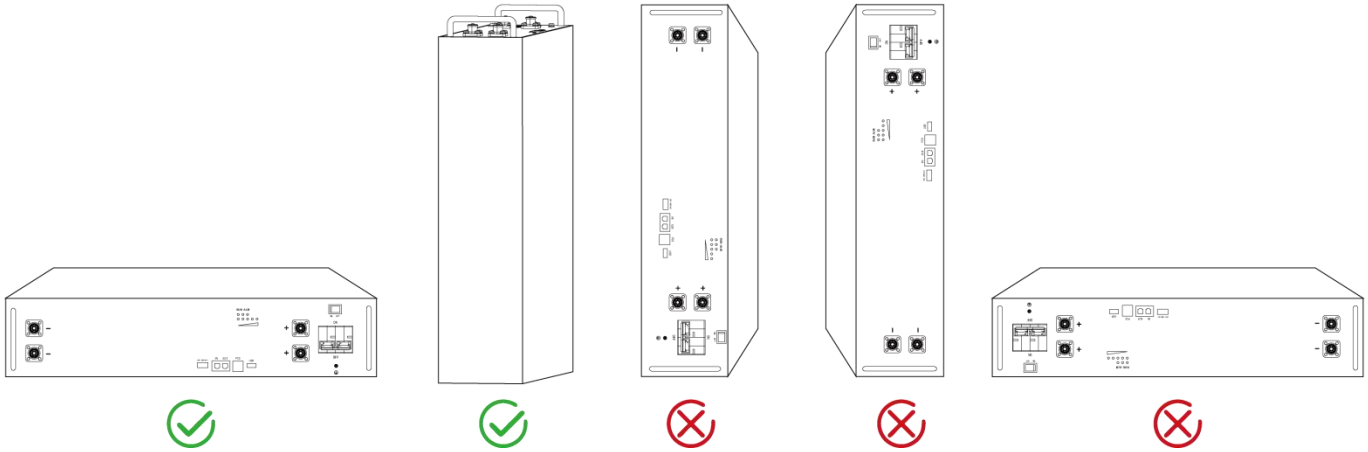
Be careful to prevent injury when moving heavy objects. Select an suitable way to moving heavy objects according to product weight.



Weight	Method	Recommendation
<18 kg (40lbs)	Manual handling	1 person
18~32 kg (40~70lbs)	Manual handling	2 persons
32~55 kg (40~70lbs)	Manual handling	3 persons
55~68 kg (121~150lbs)	Manual handling	4 persons
> 68 kg (150lbs)	Moving device	Forklift

4.3 Installing the Battery

Note！



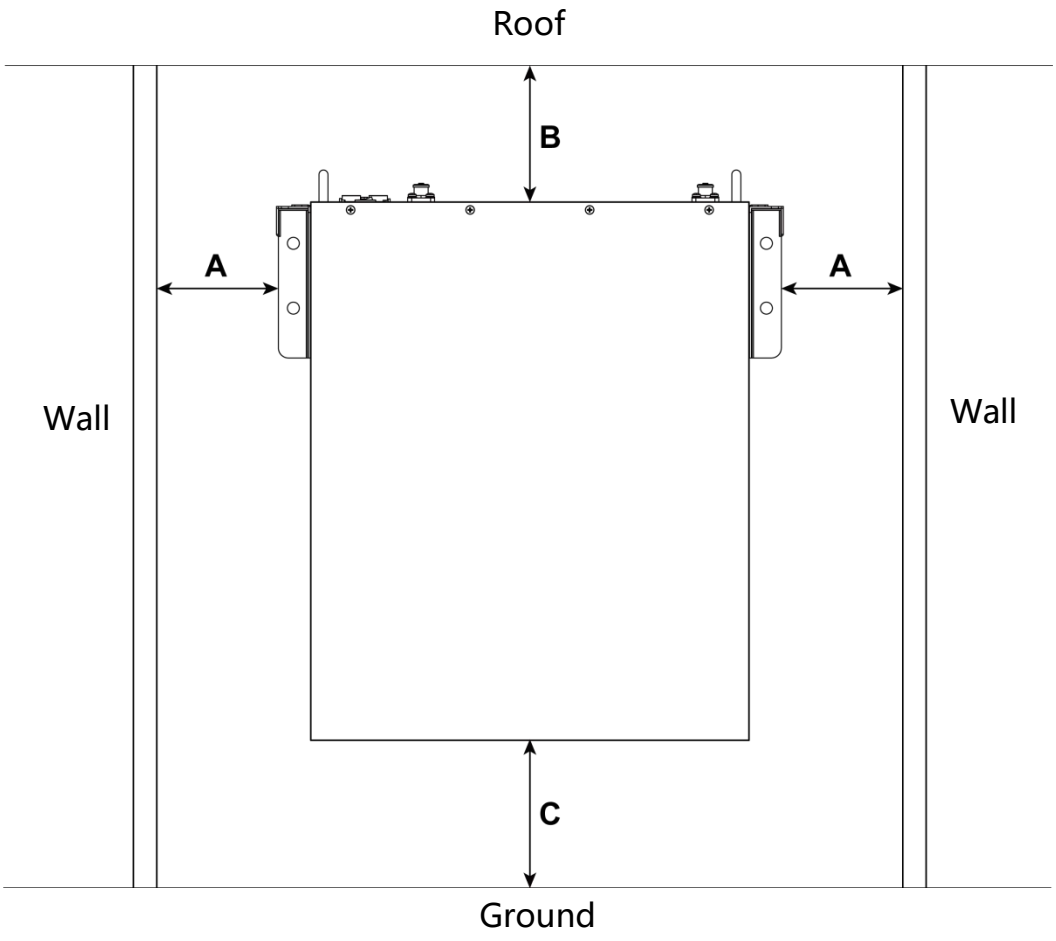
4.3.1 Wall-mounted

1. Choose appropriate locations on the wall and then drill 4 assembly holes on the wall prior to battery installation.

Note!

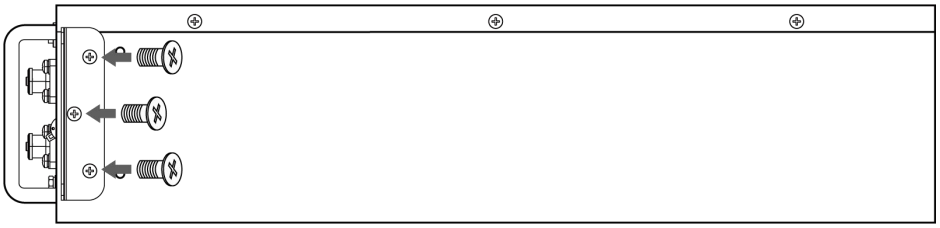
1) When drilling holes, pay attention to prevent dust from entering the battery, which may affect the battery performance and function.

2) After drilling, never forget to clean up the floor.

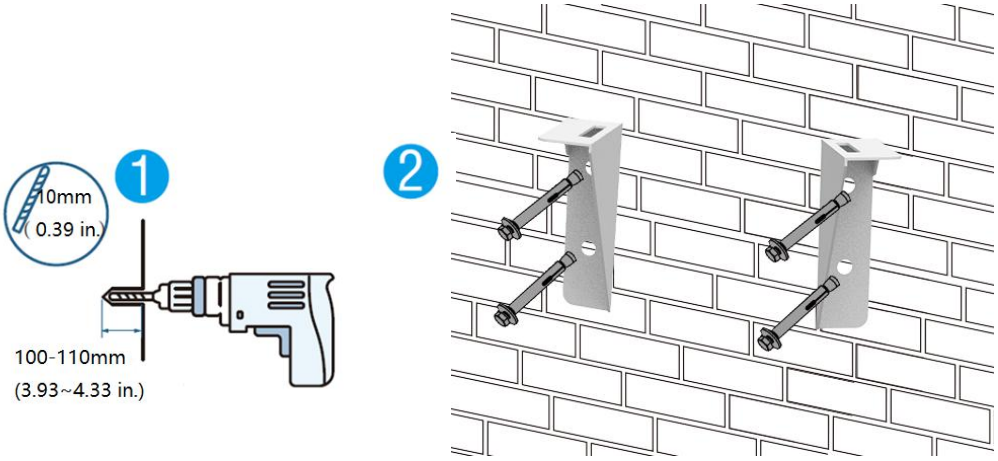


Item	Distance (mm)
A	≥200
B	≥300
C	≥400

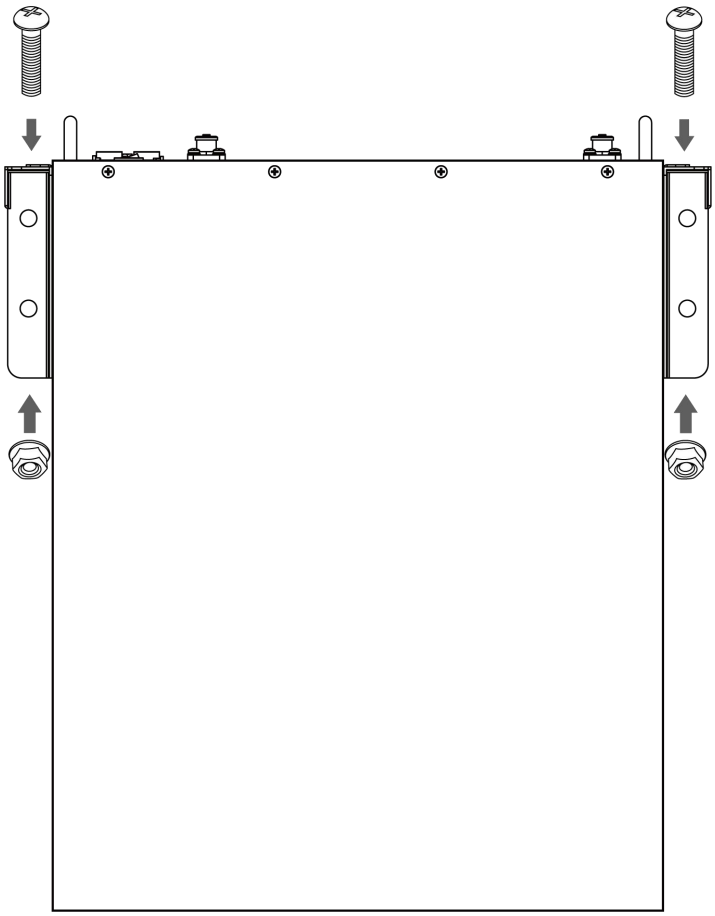
2. Use the 6 screws of M4*8 to fix two hanging ears onto two sides of the battery.



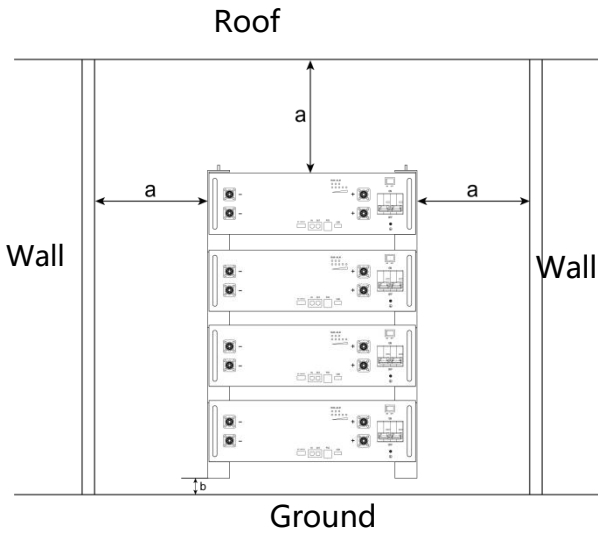
3. Fix two wall-mounted brackets onto the wall with 4 expansion bolts (M6*100).

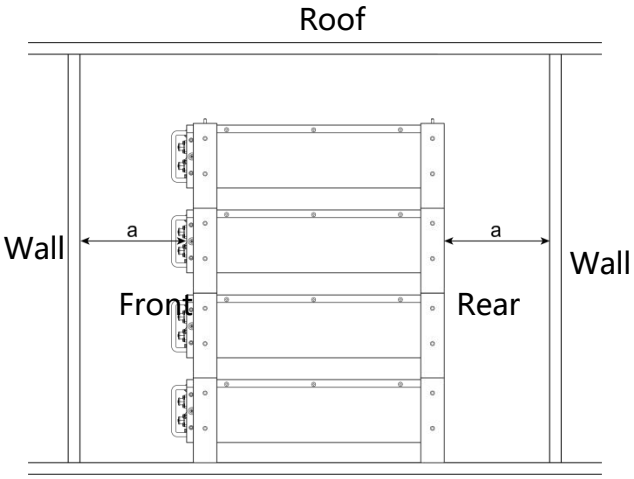


4. Carry the battery and secure the battery to the wall-mounted brackets using 4 sets of M6 screws and buckle nuts.

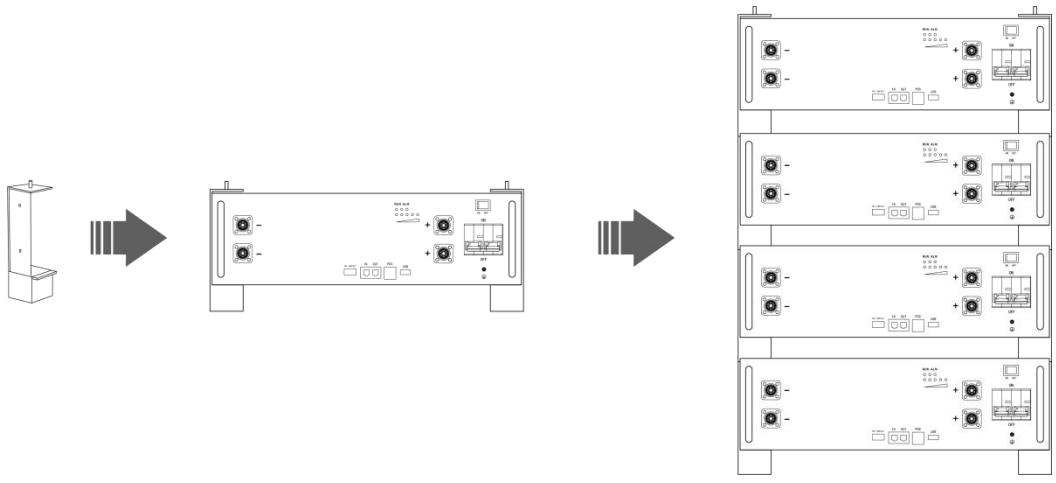


4.3.2 Floor-mounted



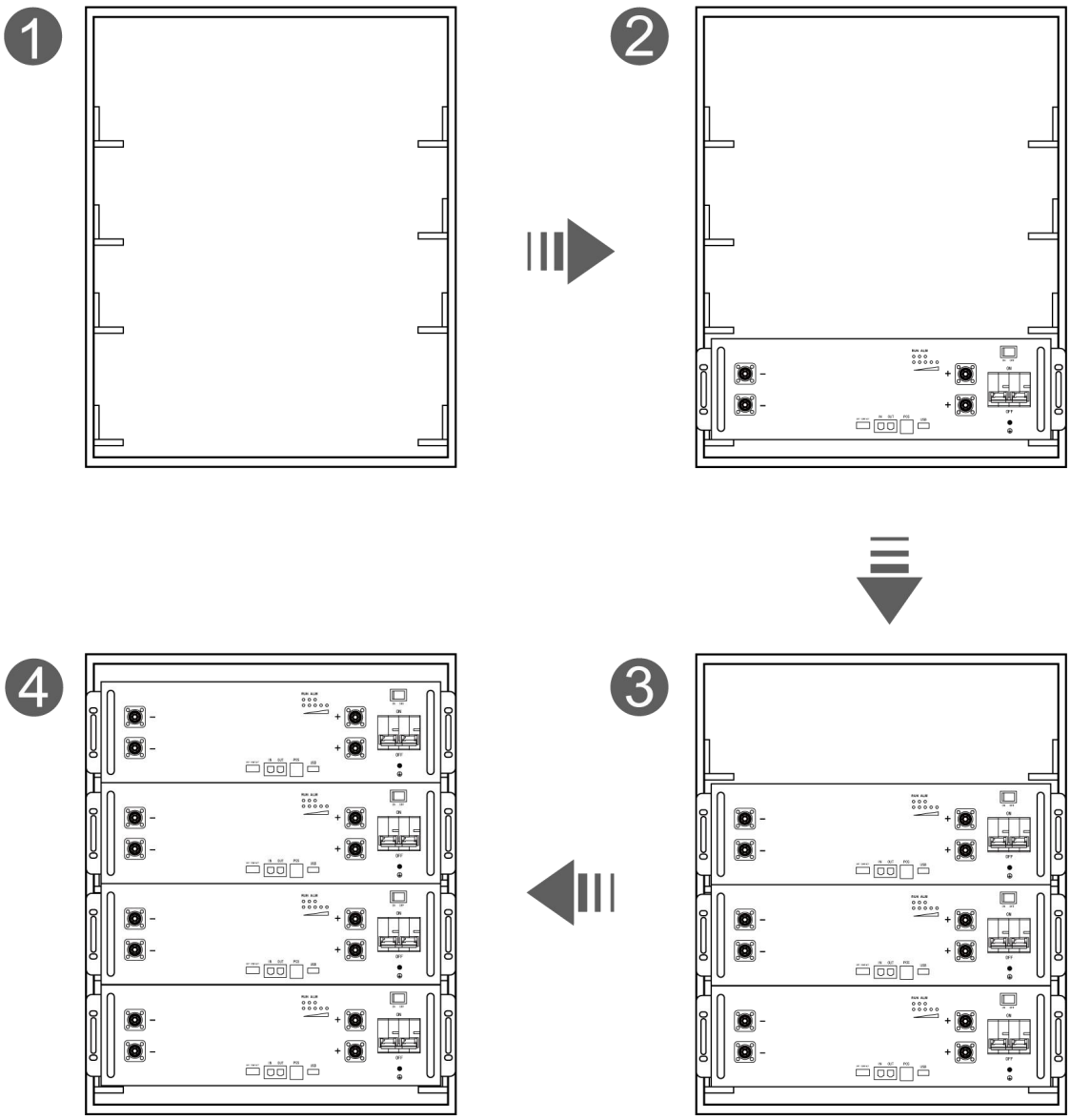


Item	Distance (mm)
a	≥200
b	0



4.3.3 Rack-mounted

It is recommended to put your batteries in place with a standard 19-inches cabinet.

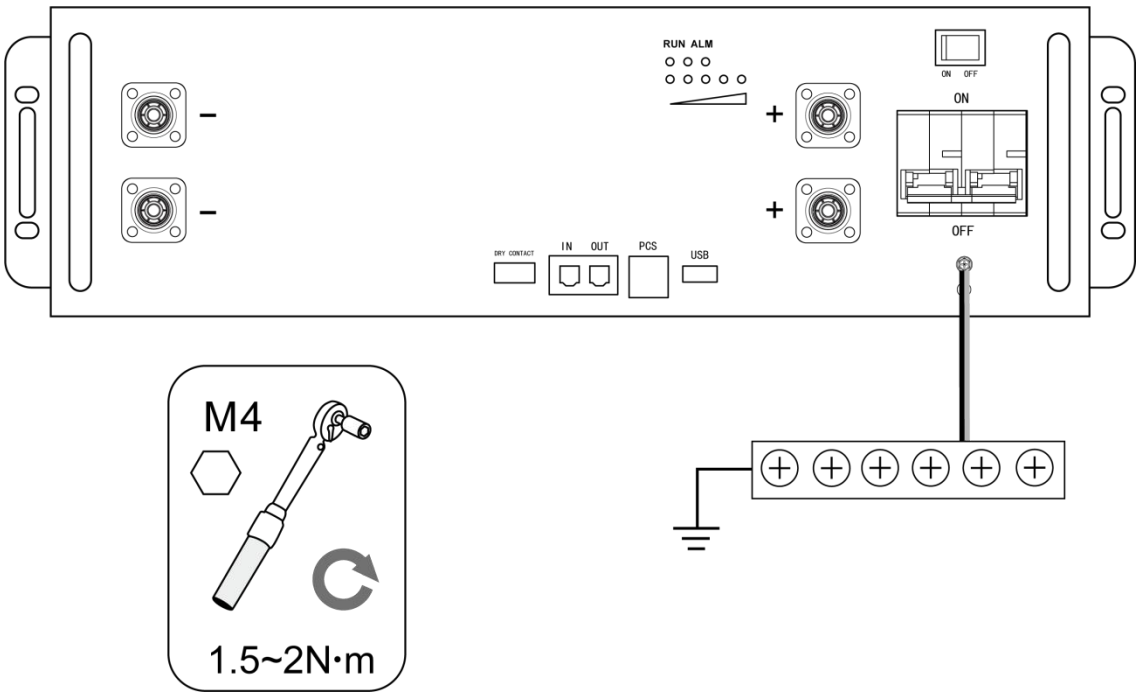


5. Electrical Connection

Note!

- It is noted to distinguish the positive and negative ends of cables.
- Be careful to avoid misuse of lines used for communication between PCS and battery, battery and battery.
- Try to avoid cross-connection.
- Before connect the cable with the PCS, the worker must confirm the output switch of the PCS has been turn off, to prevent the risk of fire or electric shock.
- Exercise extreme caution to prevent the terminals from contacting anything except their intended mounting points.
- When tightening the screws, make sure they are at a straight angle from the battery module terminals to avoid damage to the nuts inside.
- The power terminals, such as "+," "-," of the module are covered with the protecting cover to guard against a short circuit.
- You must remove the insulation cover prior to connecting and reattach the insulation cover immediately after connecting.

5.1 Grounding and DC connection



Step 1: Wear the protective gloves.

Step 2: Remove the ground screw using a socket wrench, and then install the ground cable and the screw. Install the another end according to local regulations.

Step 3:

When using the product in parallel,use the 150mm BCables described in the Chapter 3. 1.

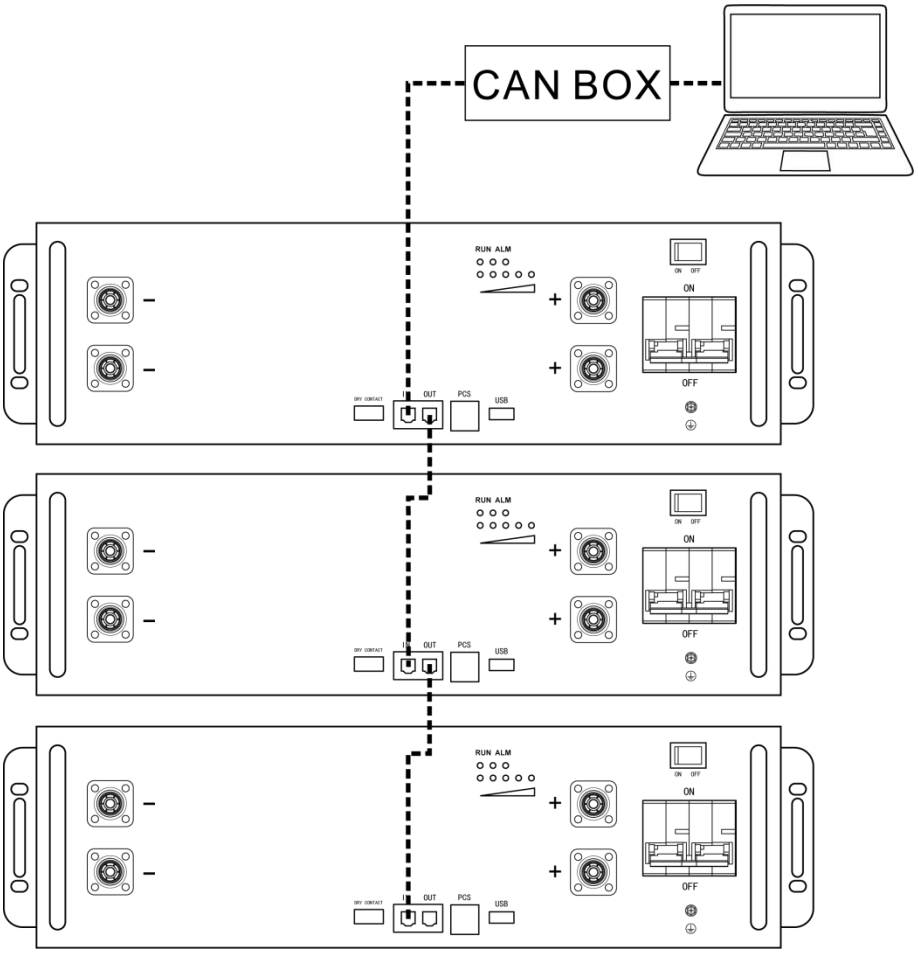
Connect the B+ port between battery packs with red cables, connect the B- port with black cables, and connect the OUT port of the first battery pack to the IN port of the next battery pack with black communication cable.

When connecting to PCS, use the 1500mm PCables described in the Chapter 3. 1. PCSB+ port is connected to B+ port of battery pack with red cables, PCSB- port is connected to B- port of battery pack with black cables, and the PCS port of the battery pack is connected to the BMS communication port of the PCS.

Note!

Make sure all fasteners are secured and all cables are connected firmly.

When monitoring batteries by the computer, carry out the wiring as shown in the following picture.



5.2 Parallel Mode

When batteries need to be used together in parallel, you can select different parallel modes to meet your demands.

⚠ Note!

As shown in the following pictures, connect the communication cables (a standard RJ45 network cable) between the adjacent batteries.

The **PCS port** of the first battery must be connected to the inverter's battery communication interface, otherwise the inverter cannot communicate with the batteries.

The **OUT port** of the first battery is connected to the **IN port** of the next battery, and so on, connecting the communication of multiple batteries together,otherwise multiple batteries will not be able to communicate correctly.

5.2.1 Mode 1

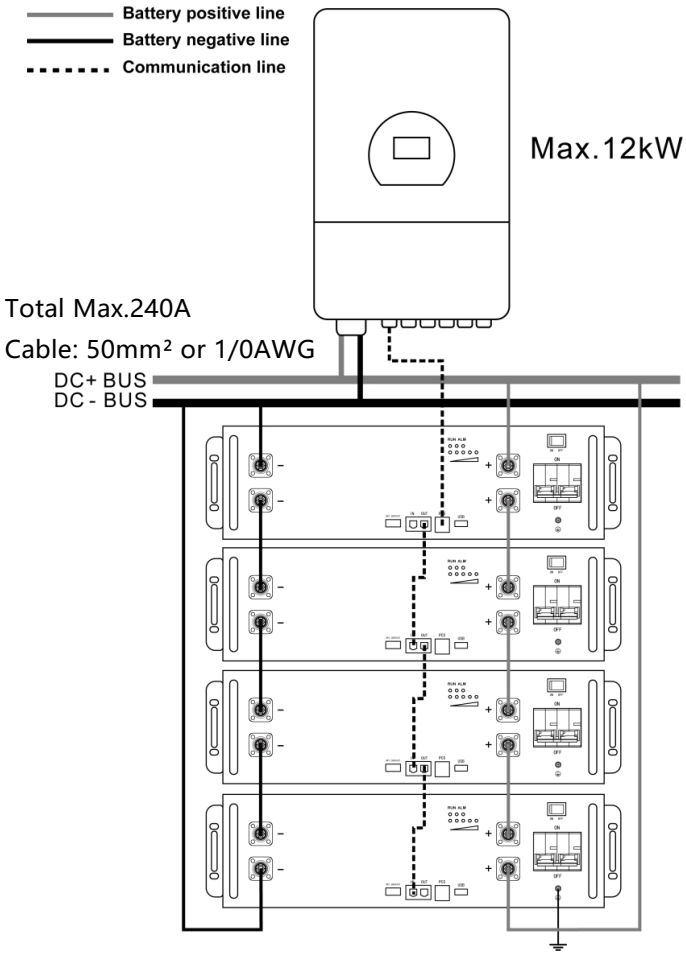
⚠ Caution!

When multiple battery packs are connected in parallel and linked to the inverter via busbars, the cables between the busbars and the inverter must be matched according to the inverter's maximum output power. Taking a 12kW inverter as an example, with a battery pack voltage of 51.2V, the minimum continuous current-carrying capacity required for the cables is 240A. You must select high-quality cables with a current-carrying capacity ≥240A (recommended specifications: 50mm² or 1/0 AWG and above).

⚠ Caution!

Using cables that are too thin can lead to severe overheating, fire hazards, and equipment damage.

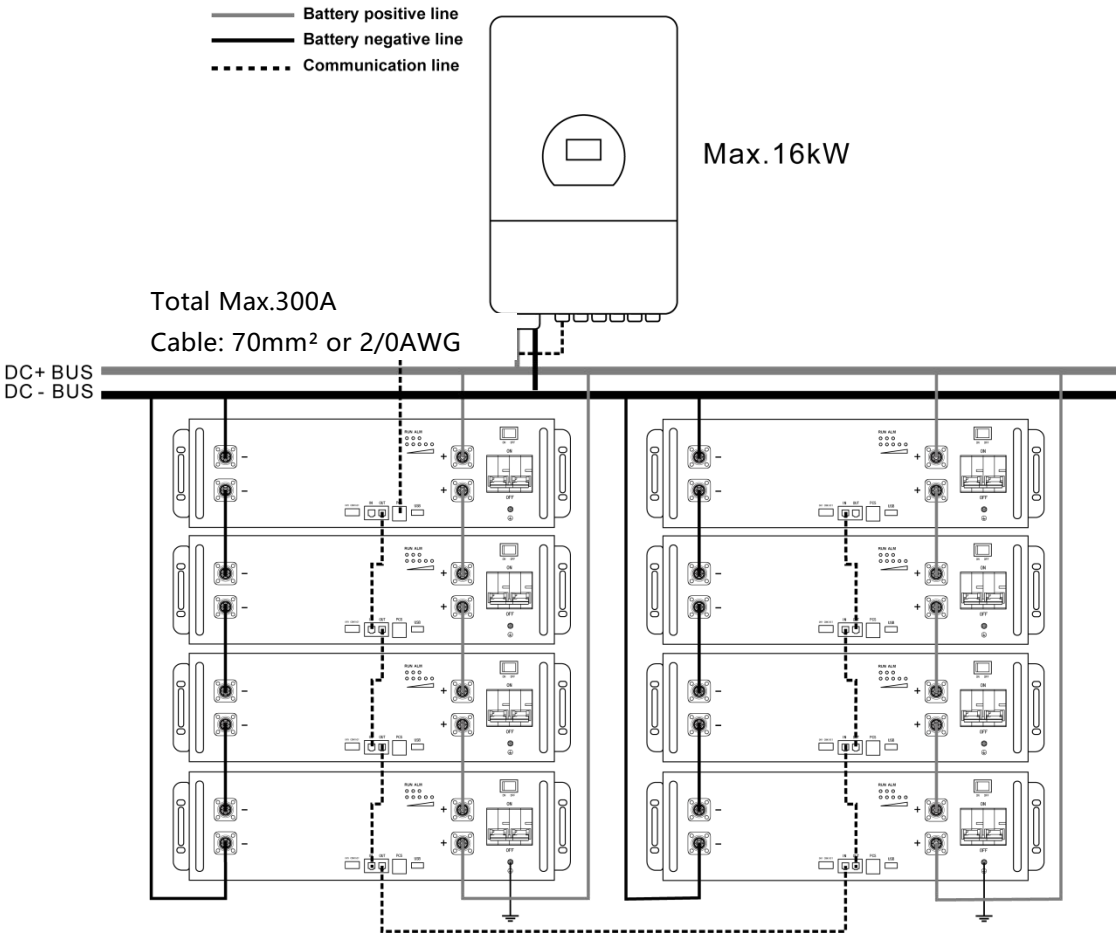
Schematic diagram of connection of single battery system:



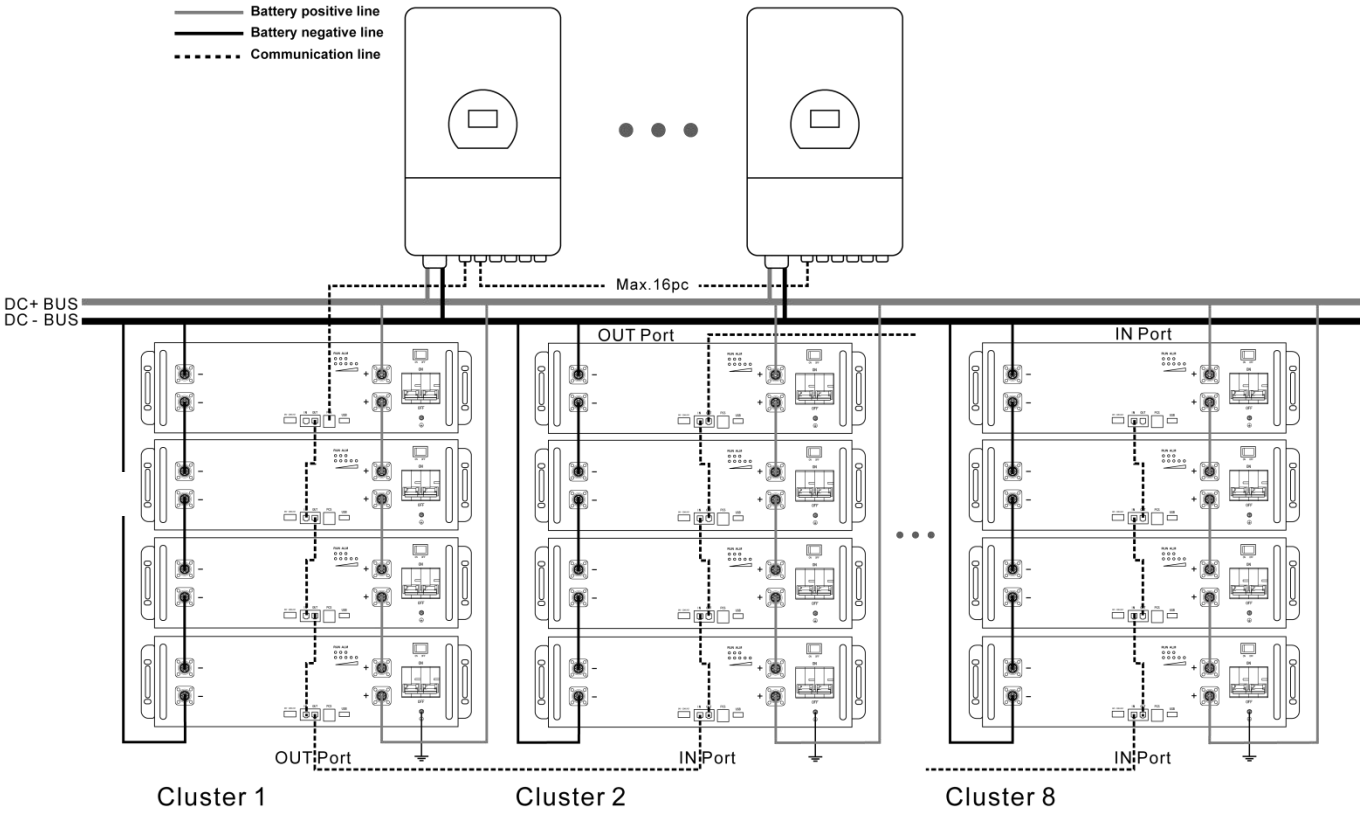
If the inverter power exceeds 12kW, the parallel mode must be used mode 2!

5.2.2 Mode 2 (It is suitable for scenarios where the inverter power > 12kW)

Schematic diagram of parallel connection of high-power system batteries:



Or larger capacity systems:



5.3 Visual Inspection of the Connection

After connecting the battery, check for:

- Usage of positive and negative cables.
- Connection of the positive and negative terminals.
- All the bolts are tightened.
- Cables fixation and the appearance.
- The communication cable is connected correctly.
- The installation of the protecting cover.

6 Activate the Product

6.1 Start the Product

- Hang the battery on the wall as shown on 4.3.
- Connect the wires according to the picture on 5.2.
- Close the air switch first, and then turn on the power button to prevent battery short-circuit protection failure caused by the precharge function.

Start the Battery:

After installation, wiring, and configuration are completed, you must check all the connection. When the connections are correctly, and then press power button to activate the battery. The green working light on of the battery flashes, indicating that the battery system is normal.

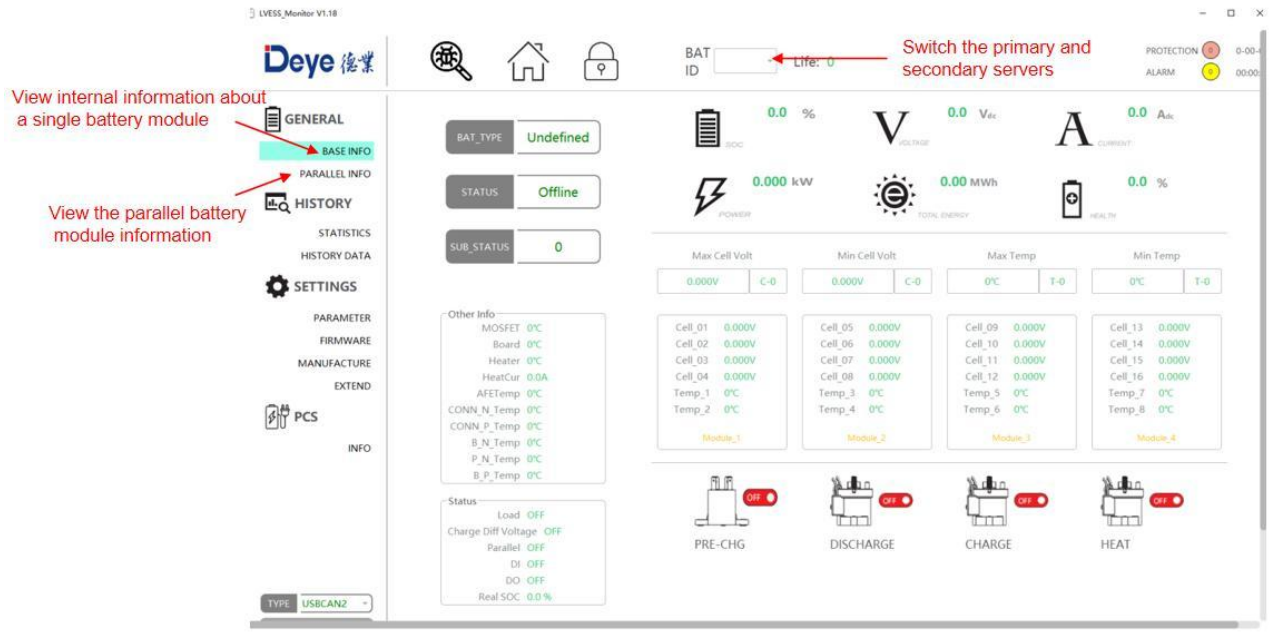
6.2 Monitoring your unit

Monitoring parallel units:

The first method is to use connect the upper computer to the communication port of any battery pack and view the status of all packs.

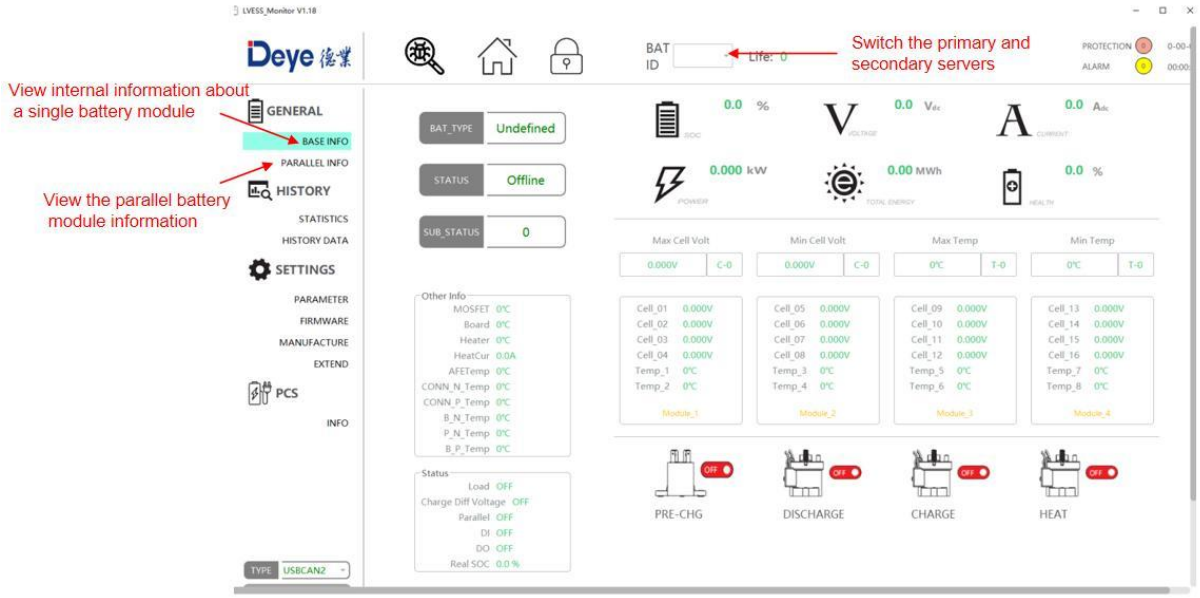
The second method is to connect the PCS communication port of the first battery pack with a communication cable,and the other end is connected to the 485 communication port of the inverter.Then,

connect the positive pole to the positive pole and the negative pole to the negative pole. Switch the Inverter to lithium mode and check the condition of several packs through the inverter display screen.



Monitoring single unit:

The first method is to use the upper computer to connect to the communication port of any battery pack and view the status of a single battery module.
The second method is to connect the PCS communication port of the first battery pack with a communication cable,and the other end is connected to the 485 communication port of the inverter.Then, connect the positive pole to the positive pole and the negative pole to the negative pole. Switch the Inverter to lithium mode and check the condition of several packs through the inverter display screen.



7 Inspection, Cleaning and Maintenance

7.1 General Information

- The battery product is not fully charged. It is recommended that the installation be completed within 3 months after arrival;
- During the maintenance process, do not re-install the battery in the battery product. Otherwise, the performance of the battery will be reduced;
- It is forbidden to dismantle any battery in the battery product, and it is forbidden to dis- sect the battery;
- After the battery product is over-discharged, it is recommended to charge the battery within 48 hours. The battery product can also be charged in parallel. After the battery product is connected in parallel, the charger only needs to connect the output port of any product battery.
- Never attempt to open or dismantle the battery! The inside of the battery does not contain serviceable parts.
- Disconnect the Li-Ion battery from all loads and charging devices before performing cleaning and maintenance activities.
- Place the enclosed protective caps over the terminals before cleaning and maintenance activities to avoid the risk of contacting the terminals.
- All the battery terminals must be disconnected for maintenance.
- Please contact the supplier within 24 hours if there is something abnormal.
- Do not use cleaning solvents to clean battery.

7.2 Inspection

- Inspect for loose and/or damaged wiring and contacts, cracks, deformations, leakage, or damage of any other kind. If damage to the battery is found, it must be replaced. Do not attempt to charge or use a damaged battery. Do not touch the liquid from a ruptured battery.
- Regularly check the battery’ s state of charge. Lithium Iron Phosphate batteries will slowly self-discharge when not in use or whilst in storage.
- Consider replacing the battery with a new one if you note either of the following conditions:

-The battery run time drops below 70% of the original run time.
-The battery charge time increases significantly.

7.3 Cleaning

If necessary, clean the Li-Ion battery with a soft, dry cloth. Never use liquids, solvents, or abrasives to clean the Li-Ion battery.

7.4 Maintenance

The Li-Ion battery is maintenance-free. Charge the battery to approximately > 80% of its capacity at least once every year to preserve the battery capacity.

8 Storage

- The battery product should be stored in a dry, cool, and cool environment;
- If the battery is stored for long time, it is required to charge them every six months, and the SOC should be no less than 50%.
- Generally, the maximum storage period at room temperature is 6 months. When the battery is stored over 6 months, it is recommended to check the battery voltage. If the volt- age is higher than 51.2V, it can continue to store the battery. In addition, it is needed to check the voltage at least once a month until the voltage is lower than 51.2V. When the voltage of the battery is lower than 51.2V, it must to be charged according to the charging strategy.
- The charging strategy is as follows: discharge the battery to the cutoff voltage with 0.2C(20A) current, and then charge with 0.2C(20A) current for about 3 hours. Keep the SOC of the battery at 40%～60% when stored;
- When the battery product is stored, the source of ignition or high temperature should be avoided and it should be kept away from explosive and flammable areas.

9 Troubleshooting

To determine the status of the battery system, users must use additional battery status monitoring software to examine the protection mode. Refer to the installation manual about using the monitoring software. Once the user knows the protection mode, refer to the fol- lowing sections for solutions.

Fault Type	Phenomenons	Possible Causes	Solutions
BMS fault	The cell voltage sampling circuit is faulty. The cell temperature sampling circuit is faulty	The welding point for cell voltage sampling is loose or disconnected. The voltage sampling terminal is disconnected. The fuse in the voltage sampling circuit is blown. The cell temperature sensor has failed.	Replace the battery.
Electrochemical cell fault	The voltage of the cell is low or unbalanced.	Due to large self- discharge, the cell over discharges to below 2.0V after long term storage. The cell is damaged by external factors, and short circuits, pinpricks, or crushing occur.	Replace the battery.
Over-voltage protection fails	The cell voltage is greater than 3.65V in charging state. The battery voltage is greater than 58.4 V.	The busbar input voltage exceeds the normal value. Cells are not consistent. The capacity of some cells deteriorates too fast or the internal resistance of some cells is too high.	If the battery cannot be recovered due to protection against abnormality contact local engineers to rectify the fault.
Under voltage protection fails	The battery voltage is less than 40V. The minimum cell voltage is less than 2.5V	The mains power failure has lasted for a long time. Cells are not consistent. The capacity of some cells deteriorates too fast or the internal resistance of some cells is too high.	Same as above.
Charge or dis-	The maximum cell	The battery ambient	Same as above.

charge high temperature protection fails	temperature is greater than 60℃	temperature is too high. There are abnormal heat sources around	
Charge low temperature protection fails	The minimum cell temperature is less than 0℃	The battery ambient temperature is too low.	Same as above.
Discharge low temperature protection fails	The minimum cell temperature is less than -20℃	The battery ambient temperature is too low.	Same as above.

10 Technical Specifications

Main Parameter		SE-G5.1 Pro-B
Battery Chemistry		$LiFePO_4$
Nominal Capacity (Ah)		100
Nominal Voltage (V)		51.2
Operating Voltage(V)		43.2~57.6
Nominal Energy (kWh)		5.12
Usable Energy (kWh)[1]		5.12
Scalability ²		Max. 64 pcs pack (327kWh) in parallel (Max. 32 pcs no external setup)
Charge/Discharge Current (A)³	Recommend [2]	50
	Max. [2]	100
	Peak(2mins,25℃)	150
Other Parameter		
Recommend Depth of Discharge		100% DoD
Dimension (W/H/D, mm)		440×133×540
Weight Approximate(kg)		45
Master LED indicator		5LED(SOC:20%~100%)
		3LED (working, alarming, protecting)
IP Rating of enclosure		IP20
Working Temperature		Charge:0℃~55℃ Discharge:-20℃~55℃
Storage Temperature		0℃~35℃
Humidity		5%~95%
Altitude		≤2000m
Cycle Life		≥6000(25°C±2°C,0.5C/0.5C,70%EOL)
Installation		Wall-Mounted, Floor-Mounted, Rack-Mounted (19-inch standard cabinet, cabinet depth ≥600mm
Communication Port		CAN2.0, RS485
Certification		UN38.3, IEC62619, CE,UKCA, VDE2510-50, FCC, UL1973, UL9540A, REACH, ROHS

[1] DC Usable Energy, test conditions: 100% DoD, 0.5C charge & discharge at 25°C. System usable energy may vary due to system configuration parameters.

[2] The current is affected by temperature and SOC.

[3] Conditions apply, refer to Deye Warranty Letter.

11 Environmental Disposal

Used batteries can not be disposed of as household waste. You are obliged to handle waste batteries, such as removal of privacy on product, and return them to designated or authorized recovery point according to applicable regulations and standards on waste battery disposal.

Attention:

1. Do not dispose of batteries and rechargeable batteries as domestic waste!
You are legally obliged to return used batteries and rechargeable batteries.
2. Waste batteries may contain pollutants that can damage the environment or your health if improperly stored or handled.
3. Batteries also contain iron, lithium and other important raw materials, which can be recycled.

For more information, please visit http://www.deyeess.com. Do not dispose of batteries as household waste!

12 Transportation Requirements

1. The battery products should be transported after packaging and during the transportation process. Severe vibration, impact, or extrusion should be prevented to prevent sun and rain. It can be transported using vehicles such as cars, trains, and ships.
2. Always check all applicable local, national, and international regulations before transporting a Lithium Iron Phosphate battery.
3. Transporting an end-of-life, damaged, or recalled battery may, in certain cases, be specially limited or prohibited.
4. The transport of the Li-Ion battery falls under hazard class UN3480, class 9. For transport over water, air and land, the battery falls within packaging group PI965 Section I. Use Class 9 Miscellaneous Dangerous Goods and UN Identification labels for transportation of lithium-ion batteries which are assigned Class 9. Refer to relevant transportation documents.

Class 9 Miscellaneous Dangerous Goods and UN Identification Label