



LiFe Battery System

102-37

User Manual

Version: 01

Date: 2023-7-10



Thank you for purchasing the lithium battery — PowerWalker LiFe Battery System 102-37. Please read this manual before you install the battery and follow the instructions carefully during the installation process.

Symbol Conventions



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages with this symbol to avoid possible injury or death.








 DANGER	
DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury.	
 WARNING	
WARNING indicates a hazard with a medium level of risk which, if not avoided, could result in a serious injury.	
 CAUTION	
CAUTION indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.	
NOTICE	
NOTICE is used to address practices not related to physical injury. The safety alert symbol shall not be used with this type of safety message.	

Table 1 Safety messages

Product Handling Guide

			
<18 kg <40 lb	18-32 kg 40-70 lb	32-55 kg 70-120 lb	>55 kg >120 lb

Manual Intended Audience

The operation in this document can only be performed by qualified personnel with the following skills:

- Personnel who plan to install or maintain battery equipment and inverter must receive thorough training, understand all necessary safety precautions, and be able to correctly perform all operations.
- Only qualified professionals or trained personnel are allowed to install, operate, maintain the equipment, remove safety facilities, and inspect the equipment, who are specialists according to IEC 60 364 or DIN VDE 0105, and qualified based on proven knowledge of relevant norms, and regulations, accident prevention regulations and operating conditions and have been authorized by the person responsible for the safety of the component/system to carry out the necessary work.
- Personnel who will operate the equipment, including operators, trained personnel, and professionals, should possess the local and national required qualifications in special operations such as high-voltage operations, working at heights, and operations of special equipment.
- Only professionals or authorized personnel are allowed to replace the equipment or components (including software).

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1 Safety Messages and Precautions

1.1 Declaration

Please read this manual carefully before installation, operation, and maintenance. Inappropriate use may lead to injury or even death for the user or third parties. Material damage to the battery and other equipment can also occur. All operations should be performed by a qualified person.

The manufacturer will not be liable for any consequences of the following circumstances:

- Operation beyond the conditions specified in this document.
- The installation and use environment do not comply with relevant international or national and regional standards.
- Failure to follow the operation instructions and safety messages on the batteries and in this document.
- Product damage caused by an unstoppable natural disaster.
- Damage caused during transportation by the customer.
- Damage caused by storage conditions that do not meet the requirements specified in related documents.
- Damage caused by the device due to negligence, improper operation, or intentional damage to the device.

1.2 General Safety Requirements



DANGER

- Ensure the housing of the battery packs is properly grounded before operation.
- Do not dispose of batteries in a fire or harsh chemicals. The batteries may explode.
- The disassembly of batteries may generate internal short circuits, which may cause firing or other problems.
- Do not open or mutilate batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.
- Batteries theoretically do not have flowing electrolytes, but in the event of any leakage and contact with skin, eyes, or other parts of the body, flush the electrolyte with water immediately and seek medical attention.
- The battery may be damaged due to impact or other reasons during transportation or assembly. If the battery is found to have any abnormal characteristics, such as the housing being damaged, the electrolyte gas, the electrolyte leak, etc. The battery shall not be used. Contact the dealer or installer to replace it.
- Do not expose the battery cable externally which may cause a short-circuit to the battery or electric shock to humans.
- Do not touch the output terminals of the battery pack while it is working. The DC cables connected to an inverter may be live. Touching live DC cables may result in death or serious injury due to electric shock.
- When performing high-voltage operations, use dedicated insulation tools.

WARNING

- Wear suitable personal protective equipment for all work on the battery system.
- Before installation, be sure to cut off the power grid and ensure that the battery is in shutdown mode.
- For the equipment that needs to be grounded, install the protective earthing (PE) cable first when installing the equipment and remove the PE cable last when removing the equipment. Do not operate the equipment in the absence of a properly installed grounded conductor.
- Remove metal objects from your body while operating, such as watches, necklaces, and rings.
- Connect all cables according to the instructions and ensure no reverse connection for positive and negative poles. An external short circuit must be prevented at all costs.
- Do not connect the battery to the utility grid or AC source directly.
- Do not mix and match this battery with other batteries.
- If a fire occurs ABC, or carbon dioxide extinguisher can be used.

NOTICE

- Inspect the package contents upon receipt. Notify the dealer if there is any damage.
- Do not operate this battery pack in direct sunlight, in contact with fluids, or where there is excessive dust or high humidity.
- Do not lay tools or metal parts on top of the battery.
- Do not place inflammable items around the equipment.
- Wear ESD gloves when handling the equipment. Do not wear clothes prone to static electricity.
- The battery modules cannot be stored at high temperatures (greater than 60 °C)
- The battery system must only be used as stationary equipment. If the battery system needs to be moved or repaired, the power must be cut off and the battery must be completely shut down.

1.3 Disclaimer

The manufacturer shall not be liable for equipment function abnormality, component damage, personal health or safety, property loss, or other damage caused by the following reasons:

- 1) The batteries are not charged as required during storage, resulting in capacity loss or irreversible damage to the batteries.
- 2) The battery is damaged, falls, or leaks due to improper operations or incorrect connection.
- 3) Battery parameters are incorrectly set.
- 4) After being installed and connected to the system, the batteries are not powered on in time, which causes damage to the batteries due to over-discharge.
- 5) The batteries are overloaded or used with other batteries, including but not limited to batteries of other brands or batteries of different rated capacities.
- 6) The batteries are damaged because the operation is outside the recommended environment or external power parameters do not meet the stated technical specifications.
- 7) Batteries are frequently deep-discharged or have not been fully charged for a long time.
- 8) The warranty period of batteries has expired.

2 Product Introduction

2.1 Overview

The Lithium-Ion Battery Pack System is a high-power DC battery system for use with inverters. It contains two parts, one is the battery module, and the other is the control box.

It can store and release electric energy based on the requirements of the inverter. It has a built-in intelligent battery management system (BMS), which can manage and monitor the battery voltage, temperature, current and other information. The battery pack system can be used individually or in parallel, and the capacity and power can be expanded according to different requirements.

2.2 Battery Capacity Description

The battery supports power and capacity expansion. One power control box supports a maximum of five battery expansion modules. The capacity of each module is 3.8 kWh.

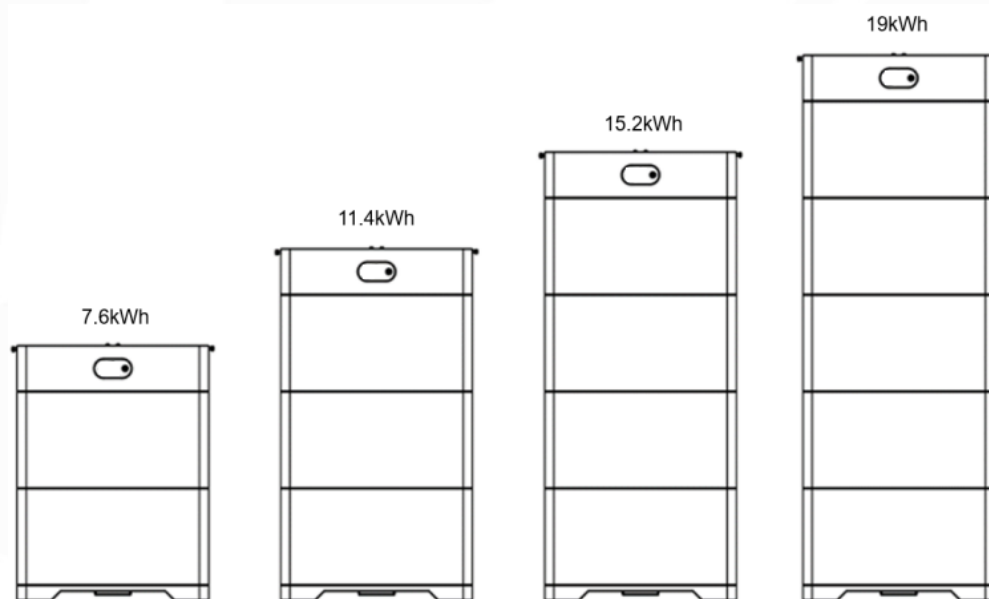


Figure 1 Modules in series for power and capacity expansion

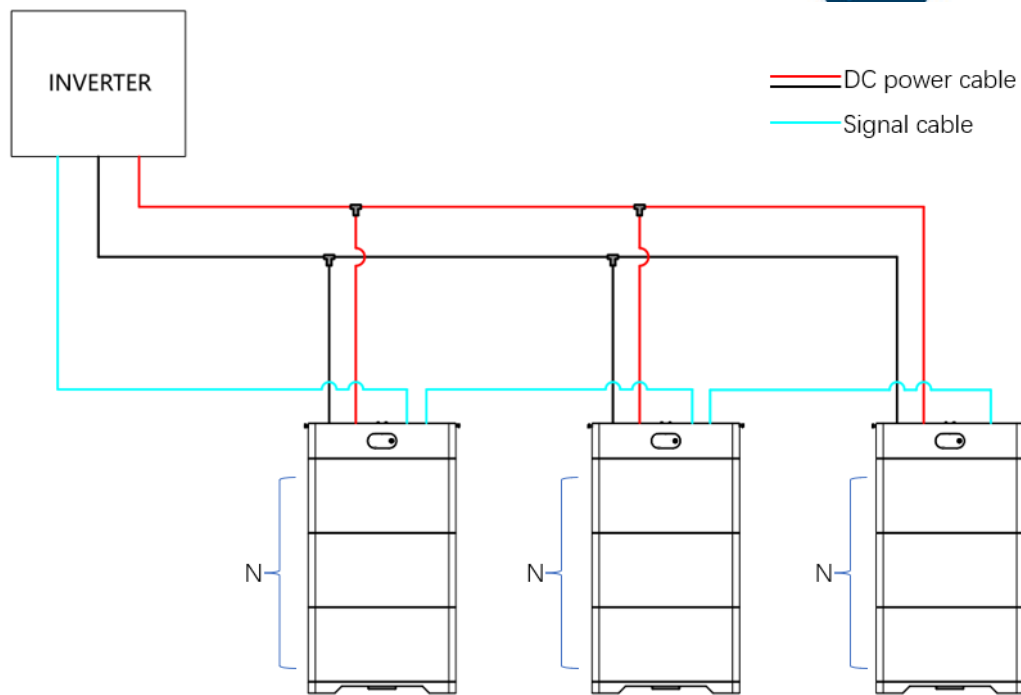


Figure 2 Battery in parallel for capacity expansion

Note: Two batteries in parallel only support capacity expansion, power expansion is not suggested.

The Module quantity of each string of battery should be the same.

2.3 Battery application on the Grid

The battery can be used in the grid-tied systems of residential rooftop PV plants.

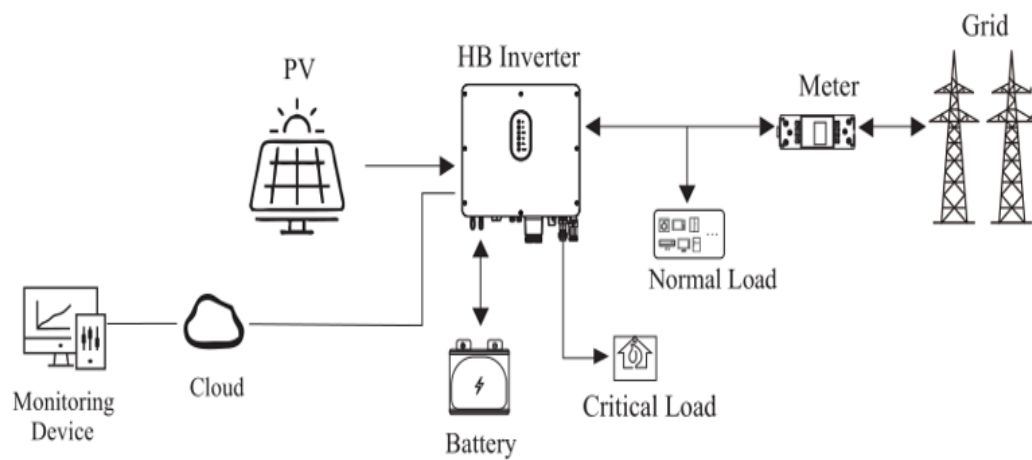


Figure 3 Grid Application

2.4 Battery Pack System Description

2.4.1 Battery Illustration

This topic describes the battery's illustration.

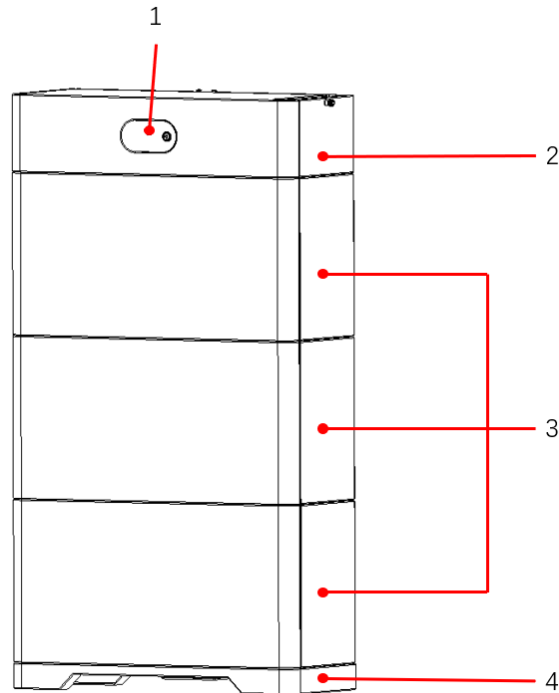


Figure 4 Battery Illustration

- (1) Logo and cold start switch
- (2) Control Box
- (3) Battery modules
- (4) Base

2.4.2 Control Box Description

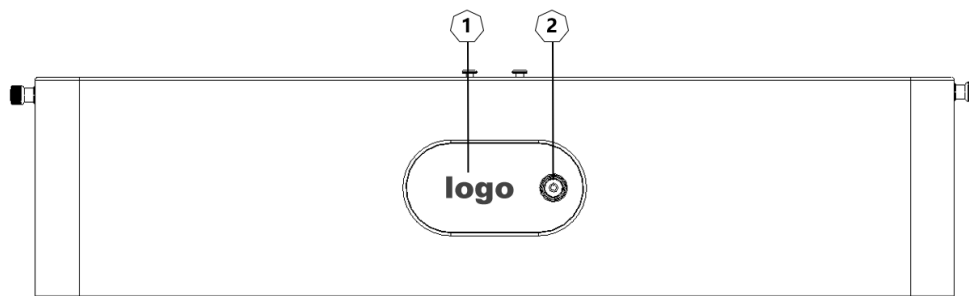


Figure 5 Control Box Front Panel

No	Item	Description
1	Symbol	Logo
2	Power button with status LED	<p>A power button with dual-color LEDs, for switching the battery on / off and displaying working status.</p> <p>For starting up and shutting down the battery pack:</p> <p>Pressing the button for 3 seconds to shut down the battery pack when it is in active status.</p> <p>Pressing the button for 3 seconds to wake up the battery pack when it is in shut down status.</p> <p>For displaying the working status of the battery pack:</p> <p>When the LED is steady green, that means the battery pack is running normally.</p> <p>When the LED is blinking red, that means the battery pack has a minor fault that is recoverable.</p> <p>When the LED is steady red, that means the battery pack has a major fault that is unrecoverable.</p>

Table 1 Control box front description

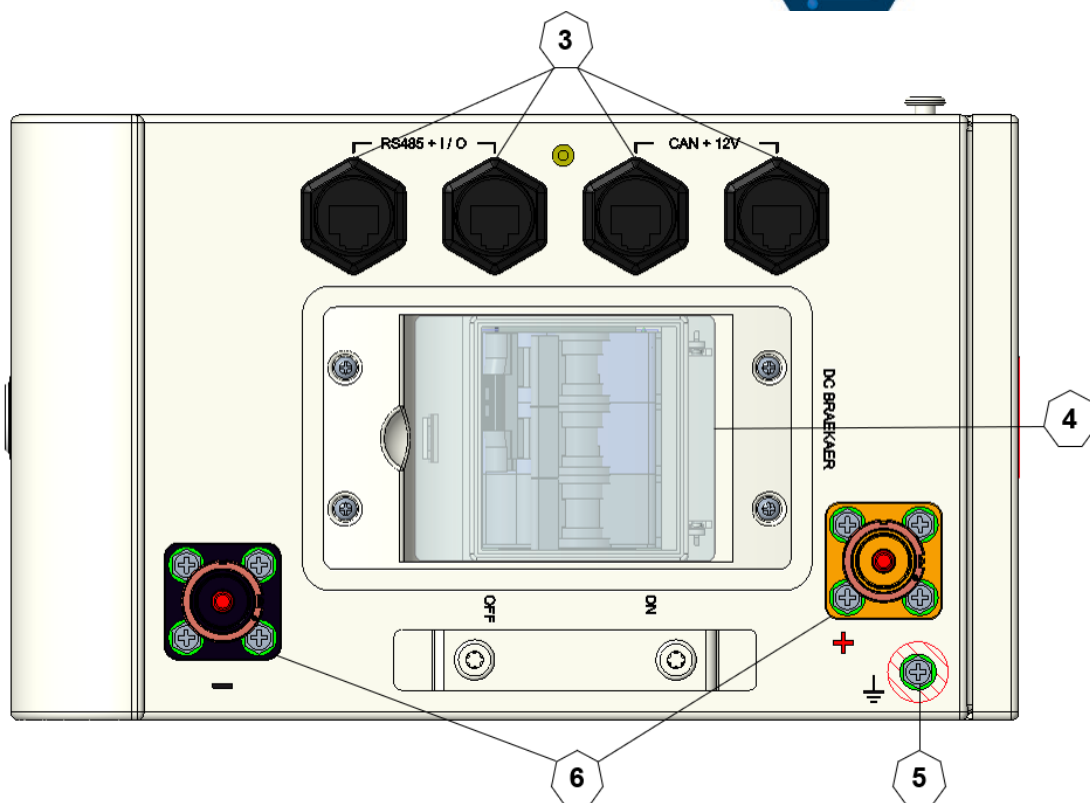
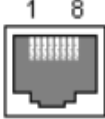


Figure 6 Control Box Side Panel

No	Item	Description
3	Communication port	<p>Four 8 pins RJ45 ports for communication.</p>  <p>RS485 + I/O port : Every single pin of the two RJ45 ports is connected in parallel internally. Connect this port to another control box or compatible ext. device.</p> <p>CAN + 12V port : Every single pin of the two RJ45 ports is connected in parallel internally. Connect this port to another control box or compatible ext. device.</p> <p>Detailed PIN assignment on page 36</p>

4	DC Breaker	This breaker controls the power supply for the battery pack. Left: OFF Right: ON
5	Protective earthing port	To protect people from electric shocks in the event of a fault
6	Battery power ports	“+” is battery power positive port. “-” is battery power negative port.

Table 2 Control box side description

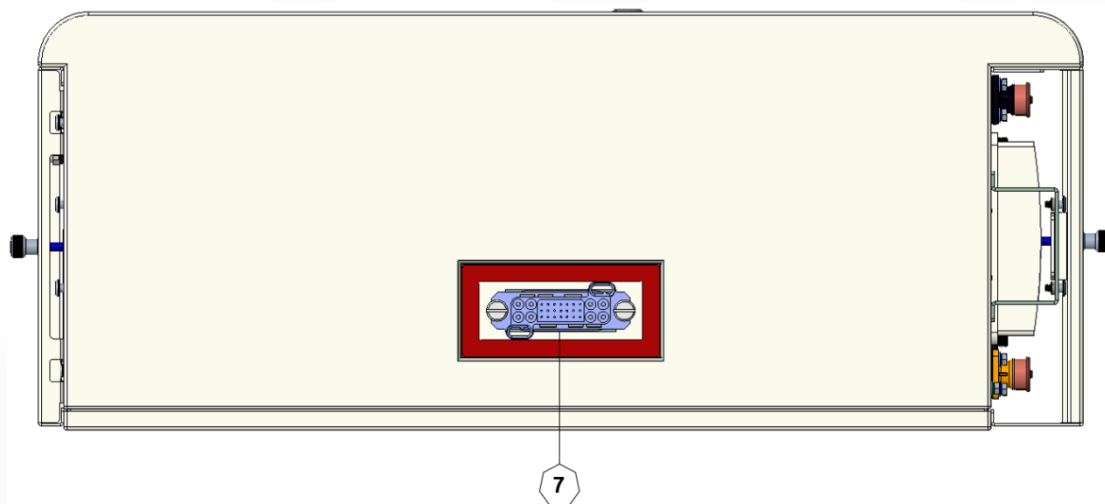


Figure 7 Control Box Bottom Panel

No	Item	Description
7	Bottom Connector	Control box bottom connector that connects to module top connector.

Table 3 Control box connector description

2.4.3 Battery Module Description

The standard capacity of a battery expansion module is 3.8 kWh.

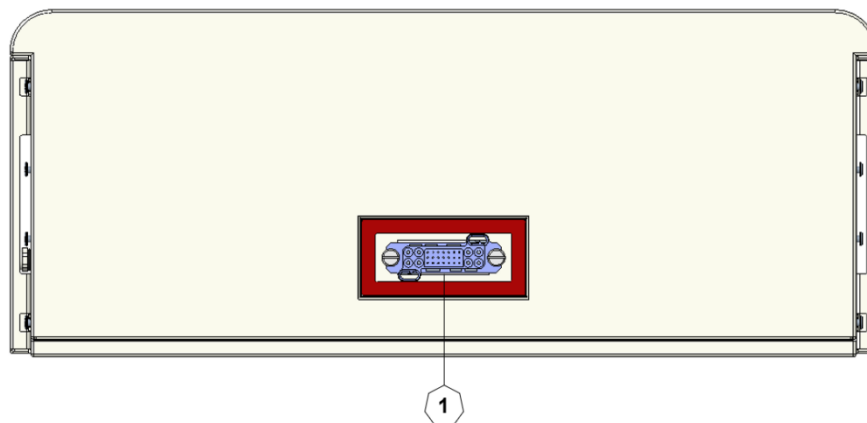


Figure 8 Battery Module Bottom Panel

No	Item	Description
1	Bottom Connector	Module bottom connector that connects to battery module or base top connector.

Table 4 Battery module bottom description

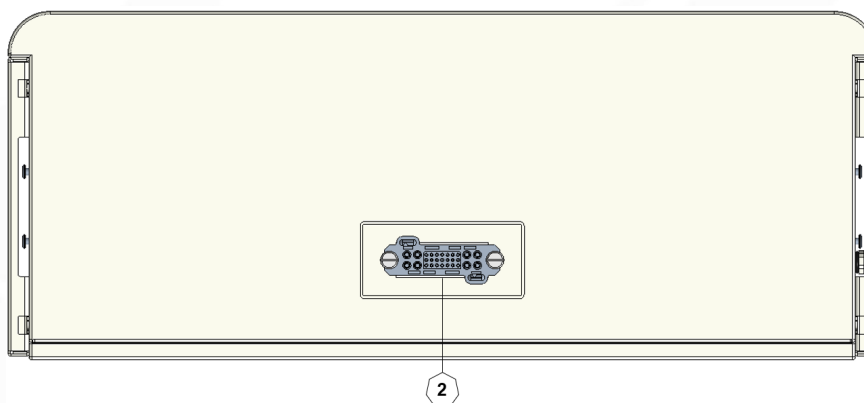


Figure 9 Battery Module Top Panel

No	Item	Description
2	Top Connector	Module top connector that connects to module or control box bottom connector.

Table 5 Battery module description

2.4.4 Battery Base Introduction

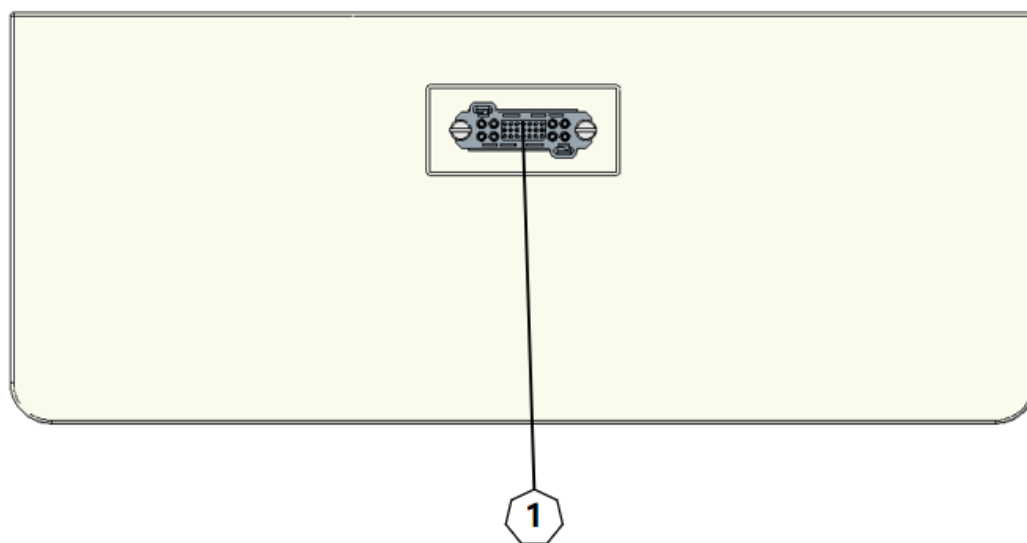


Figure 10 Base Top Panel

No	Item	Description
1	Top Connector	The base top connector connects to the battery module bottom or Control Box connector.

Table 6 Base description

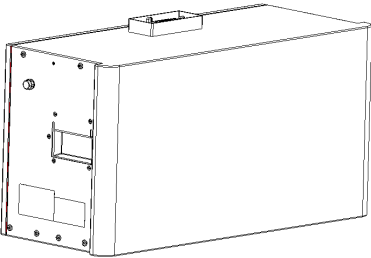
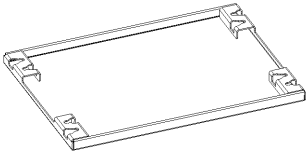
3 Battery Pack System Installation

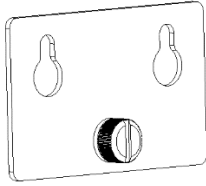
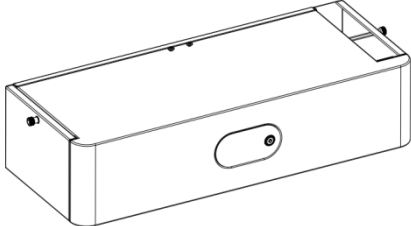
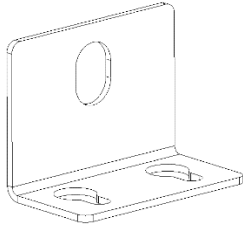
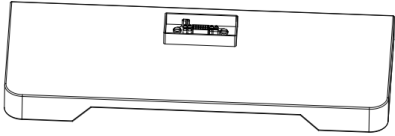
3.1 Inspection of package

When unpacking the package, please check the appearance ahead of installation. If the main body of the product is damaged, please consult the dealer, and do not install the product.

After unpacking the battery, check that the deliverables are intact and complete, and free from any obvious damage. If any item is missing or damaged, please contact your dealer.

3.2 Package Content

Item	Name	Quantity	Figure
Battery module package	Battery Modules	2/3/4/5	 <p>Dimensions (W x D x H): 625 mm x 250 mm x 315 mm Weight: Approx 45.0Kg</p>
	Side Covers	4/6/8/10	 <p>Dimensions (W x D x H): 314.5 mm x 214.5 mm x 15.0 mm</p>

	Connection mounting pieces	4/6/8/10	 <p>Dimensions (W x D x H): 81 mm x 50 mm x 2.0 mm</p>
Control box package	Control Box	1	 <p>Dimensions (W x D x H) : 625 mm x 250 mm x 150 mm Weight: Approx 12.5Kg</p>
	Wall mounting piece	1	 <p>Dimensions (W x D x H) : 60 mm x 45 mm x 32 mm</p>
	Base	1	 <p>Dimensions (W x D x H) : 625 mm x 250 mm x 50 mm Weight: Approx 4.5Kg</p>


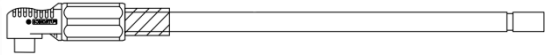
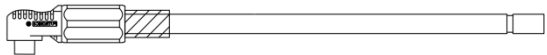



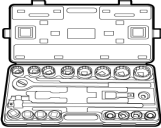
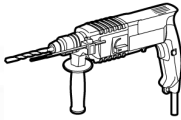
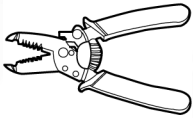

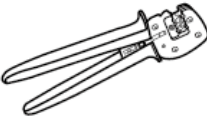
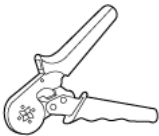
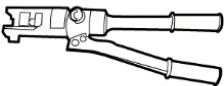
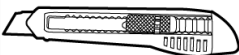
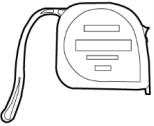


	Expansion bolt	1	 <p>M10x60mm</p>
	Positive Wire	1	 <p>Red wire, Length 2000mm, 10mm² (8AWG)</p>
	Negative Wire	1	 <p>Black wire, Length 2000mm, 10mm² (8AWG)</p>
	Communication cable	1	 <p>RJ45 wire, Length 2000mm, Black</p>
Terminal	PE Terminal	2	 <p>PE Terminal Mate with 6 mm² (10AWG) wire, Yellow/Green</p>

Table 7 Package Content List

3.3 Required Tools (not included)

These Tools are not delivered with the battery. They are not included in package.

Category	Tools		
Installation	 Torque wrench	 Torque socket wrench	 Hammer drill (with a the drill bit of 13 mm)
	 Wire strippers	 Cable cutter	 Crimping tool
	 Cord end terminal crimping tool	 Hydraulic pliers	 Utility knife
	 Steel measuring tape	 Marker	 Multimeter (DC voltage measurement range ≥ 600 V DC)


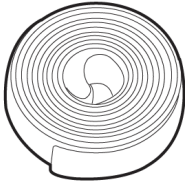
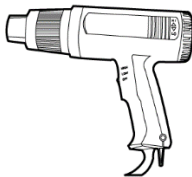
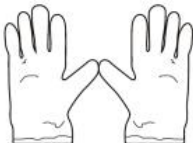


	 <p>Level</p>	 <p>Heat-shrink tubing (Diameter Ø7MM)</p>	 <p>Heat gun</p>
Personal protective equipment (PPE)	 <p>Safety gloves</p>	 <p>Safety goggles</p>	 <p>Safety shoes</p>

Table 8 Recommended tool list for the installation

3.4 Installation environment

- Choose a dry, clean, well-ventilated, and convenient location for installation, and use environment must meet relevant international, national, and local standards for lithium batteries, and are in accordance with the local laws and regulations.
- Installation ambient temperature: 0 °C ~ 40 °C, Relative humidity: 5 - 95 % (non-condensing)
- There are no inflammable or explosive objects near the installation position of the battery.
- Install the battery on a solid brick-concrete structure and flat floor.

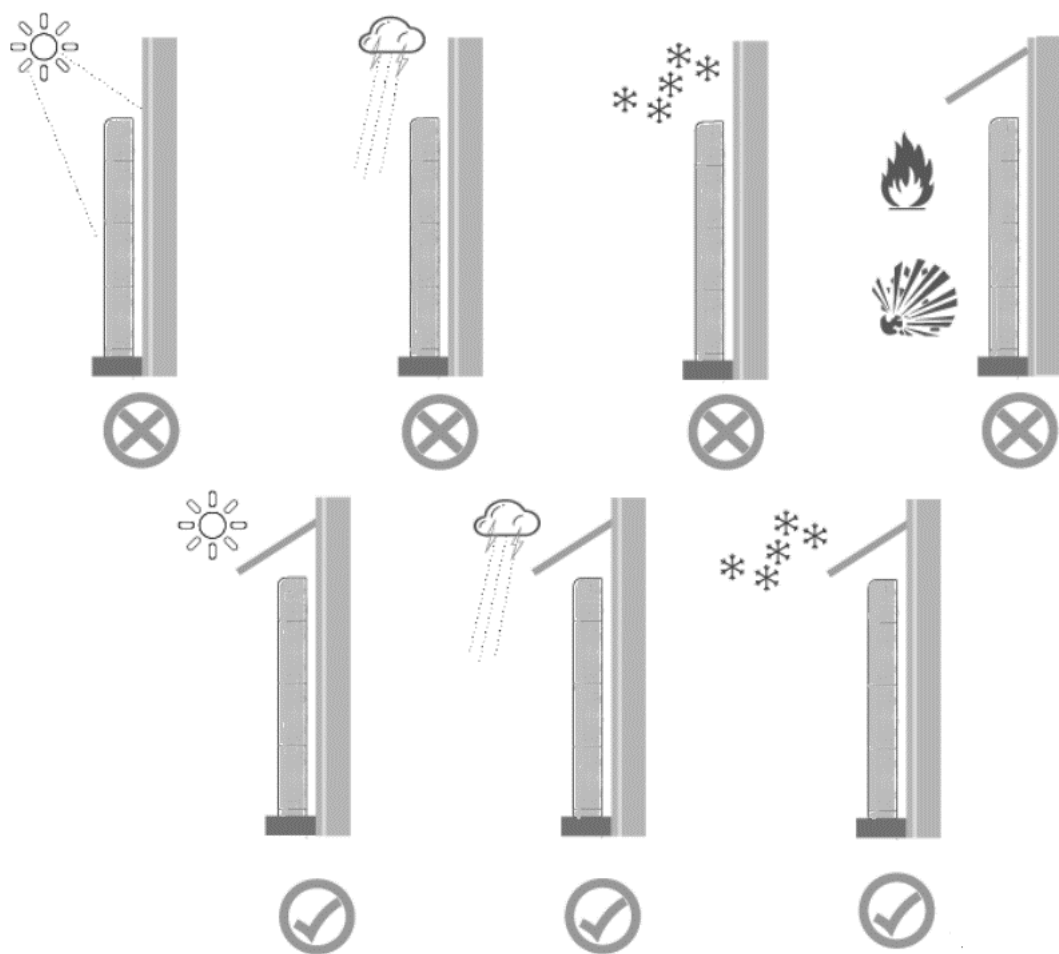


Figure 11 Installation environment

3.5 Determination of the Location and Position

3.5.1 Installation Angle Requirement

The battery can be floor-mounted and wall-mounted. The installation angles requirement is as follows:

- Do not install the battery at forward-tilted, back-tilted, side-tilted, horizontal, or upside-down positions.

3.5.2 Installation Position Requirements

Install the battery on a solid concrete structure or concrete wall or floor. If other types of walls and floors are used, they must be made of fire-retardant materials and meet the load-bearing requirements of the equipment.

3.5.3 Installation Space Requirements

- During installation, ensure that there are no other devices or flammable or explosive materials around the batteries. Reserve adequate space for heat dissipation and safety isolation.
- When the battery is mounted on a wall, do not place any objects under the battery.

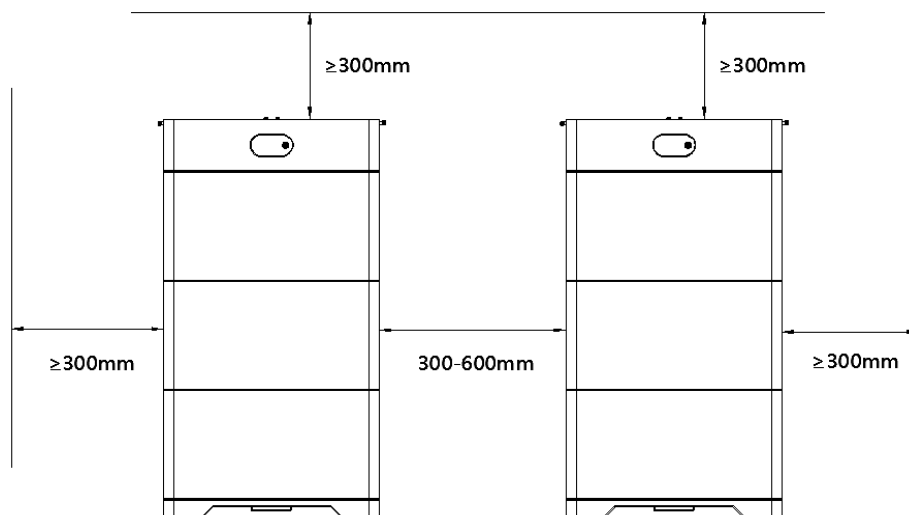


Figure 12 Installation space

Note: Flammable or explosive materials or devices should be far from the battery packs.

3.6 Installation Process

3.6.1 Installation Precautions

Step 1: Use the steel measuring tape to determine the drilling hole positions on the wall for securing the power control module and mark the positions using a marker.

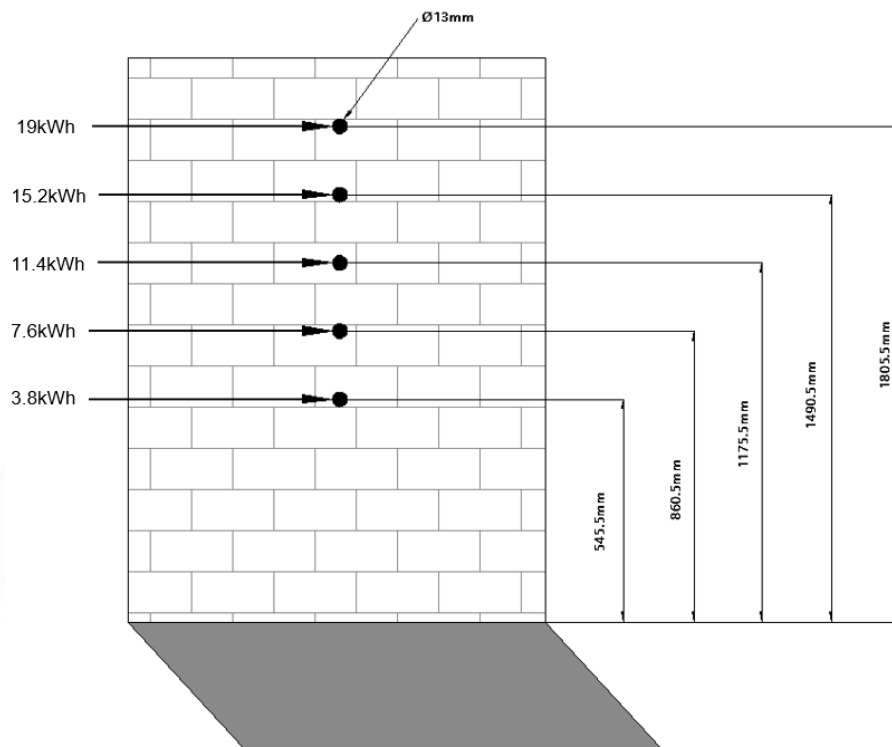


Figure 13 Dimensions of mounting holes for the system on the wall

Step 2: Use a Hammer drill to drill a Ø13mm hole in the wall and insert the M10 expansion bolt into the hole.

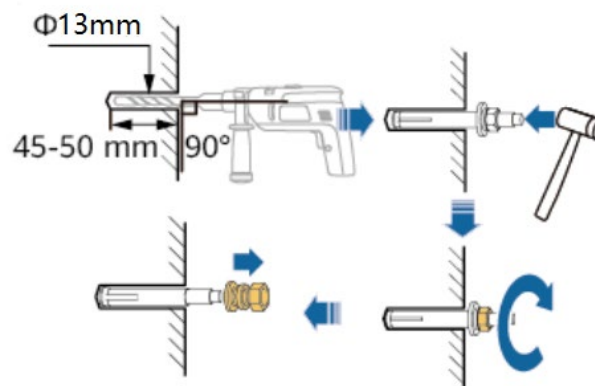


Figure 14 Installing expansion bolts.

⚠ DANGER

When drilling holes, avoid the water pipes and power cables buried in the wall.

NOTICE

To prevent dust inhalation or contact with the eyes, wear safety goggles and a dust mask when drilling holes.

- Wipe away any dust in or around the holes and measure the hole distances. If the holes are inaccurately positioned, drill holes again.
- Level the head of the expansion sleeve with the concrete wall or floor after removing the nut, spring washer, and flat washer. Otherwise, the mounting kit will not be securely installed on the wall or ground.
- Loosen the nut, spring washer, and flat washer of the expansion bolt at the bottom.

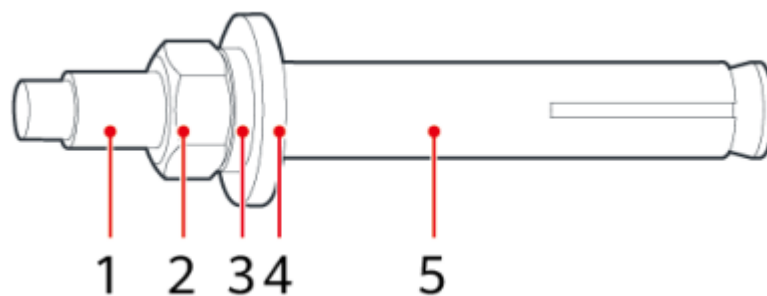


Figure 14 Expansion bolt structure diagram

1 Bolt 2 Nut 3 Spring washer 4 Flat washer 5 Expansion sleeve

3.6.2 Installation of battery modules and control box

Step 1: Use Level to make sure the floor is flat. If not, please make it flat before installation.

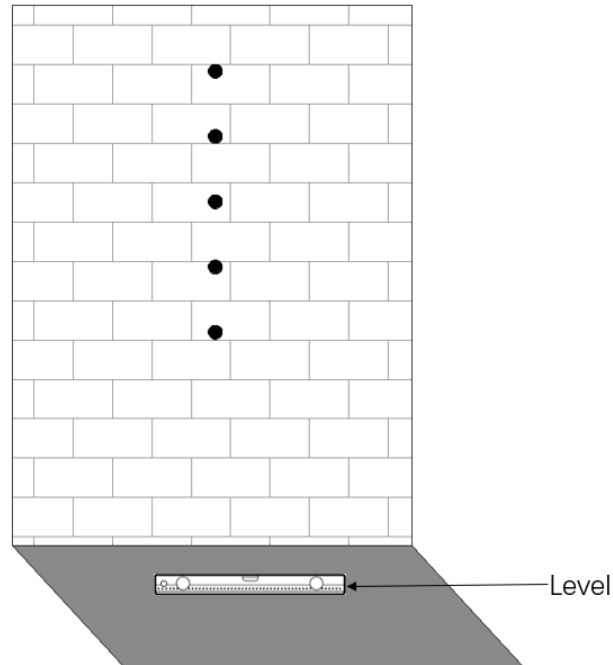


Figure 15 Use level to check the floor

Step 2: Place the base on the floor next to the wall.

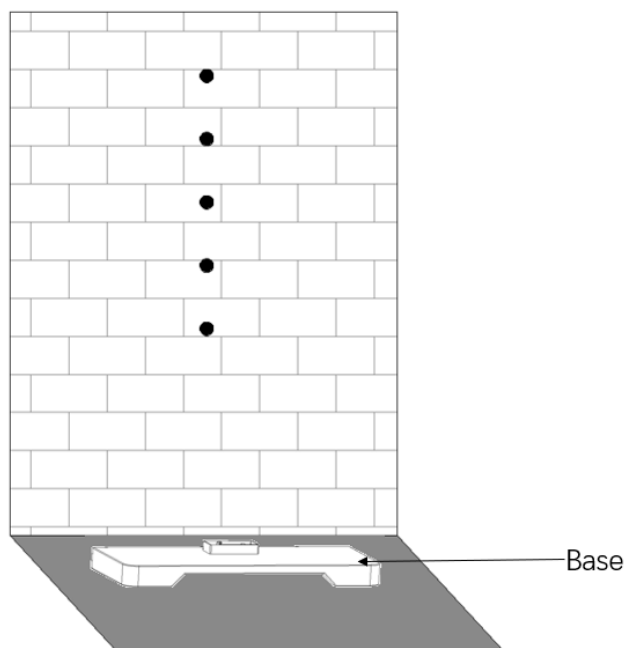


Figure 16 Install the base on the floor.

Step 3: Install the 1st battery module on the base as follow.

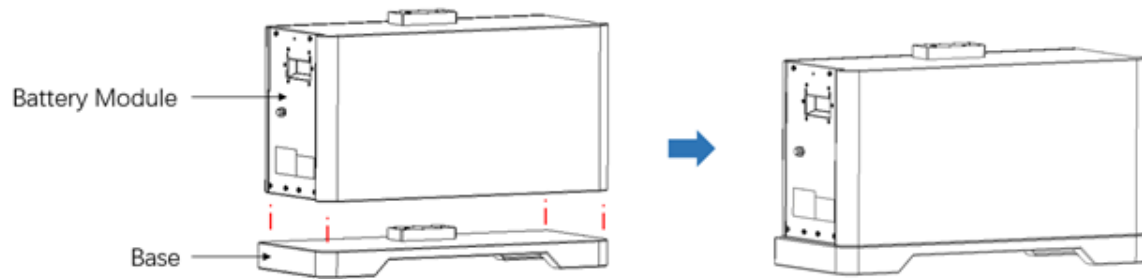


Figure 17 Install the 1st battery module.

⚠ CAUTION

For safety, the battery module needs to be moved by 2-3 persons

Step 4: Install the 2nd battery module as follow and fix it with the connection mounting pieces

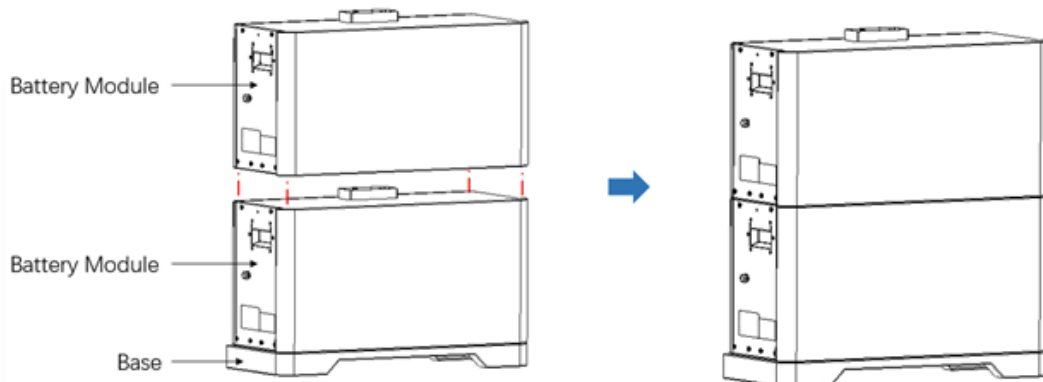


Figure 18 Install the 2nd battery module

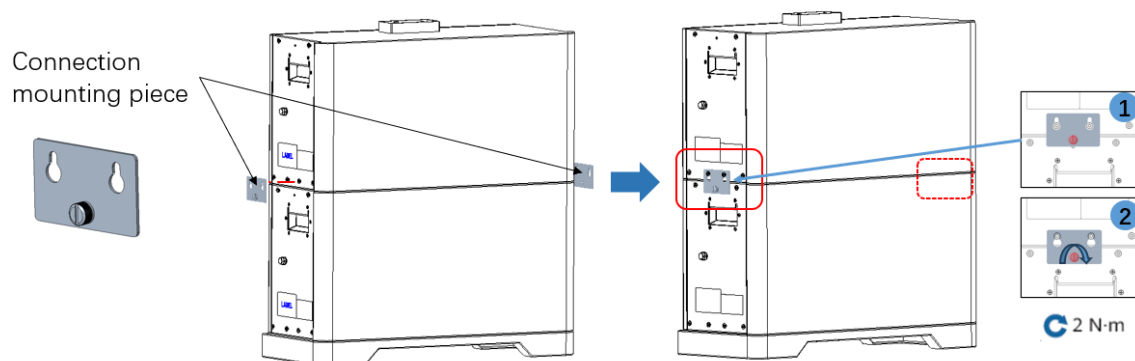


Figure 19 Fix connection mounting piece

Step 5: Install the 3rd battery module and fix it with the connection mounting pieces, then repeat the operation until all battery modules have been installed.

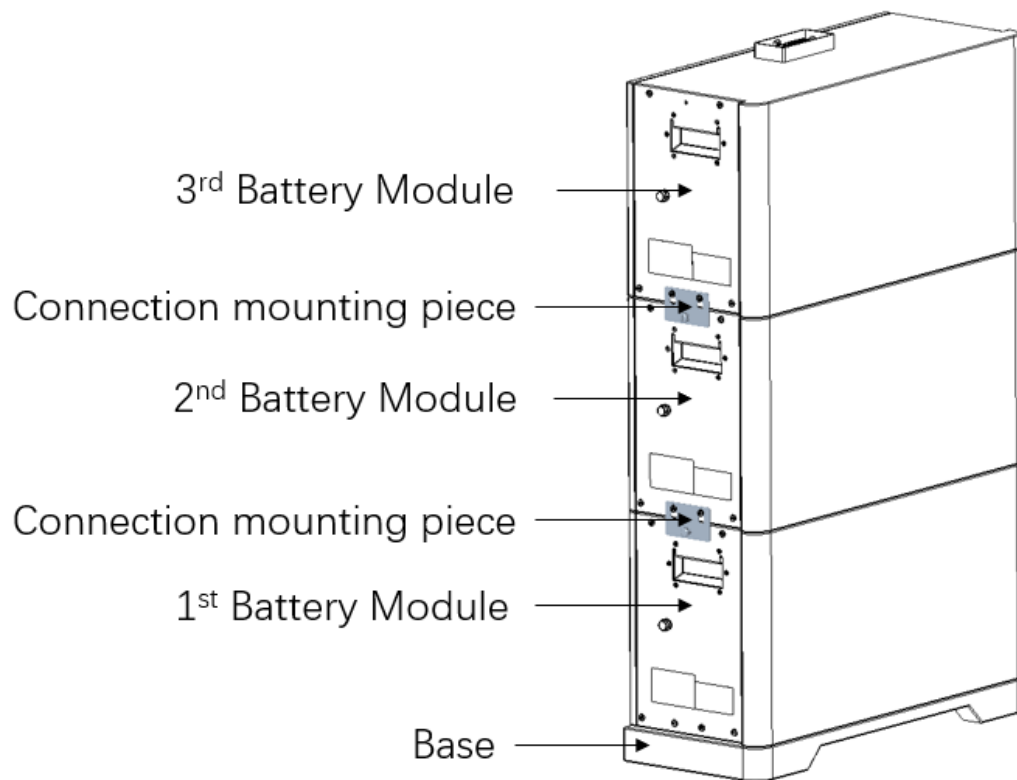


Figure 20 Install the rest battery modules.

Step 6: Remove the side cover from the control box.

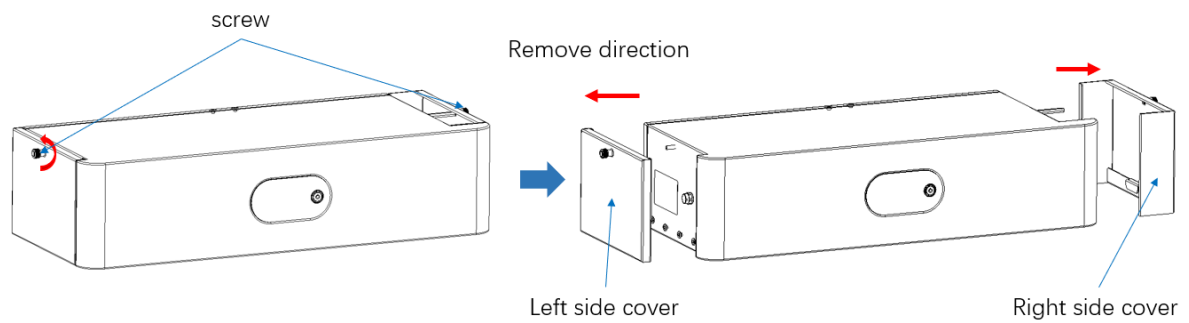


Figure 21 Remove the side cover from the control box

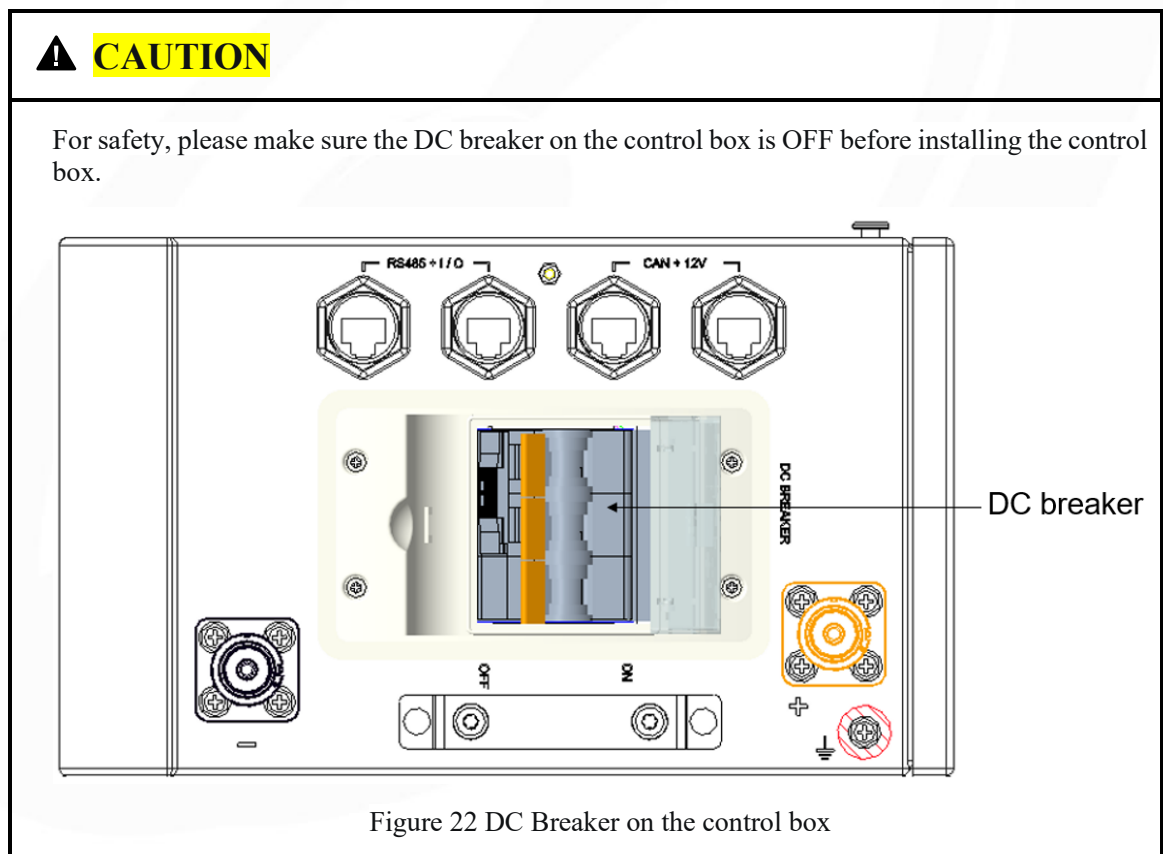


Figure 22 DC Breaker on the control box

Step 7: Install the control box on the top as follows, then fix it with the connection mounting piece as well.

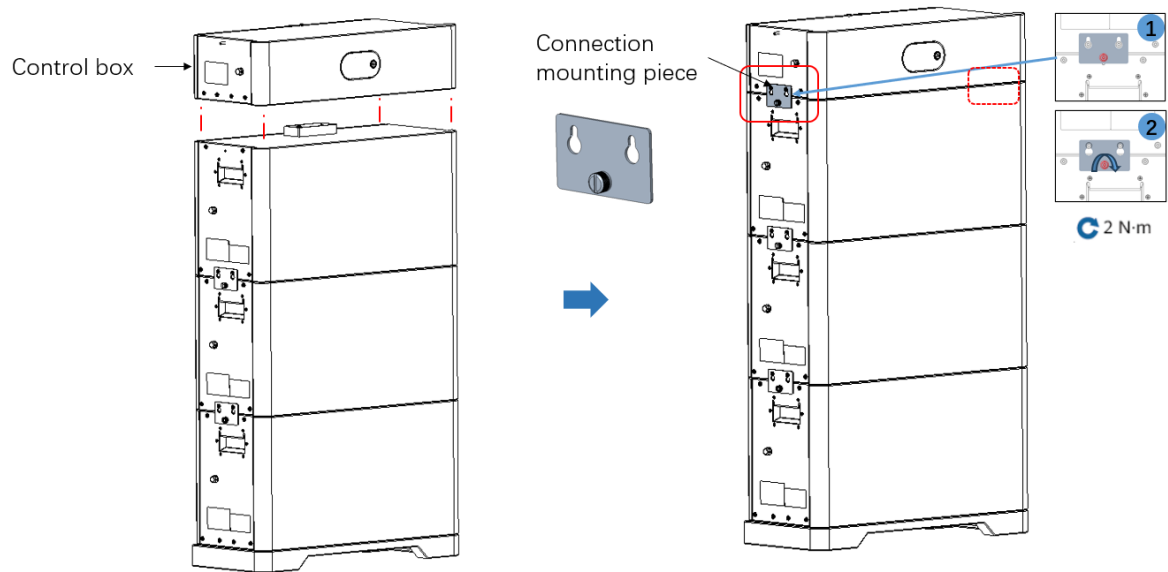


Figure 23 Install the control box

Step 8: Install the wall mounting pieces to the top of the control box, and lock it to the wall with an expansion bolt.

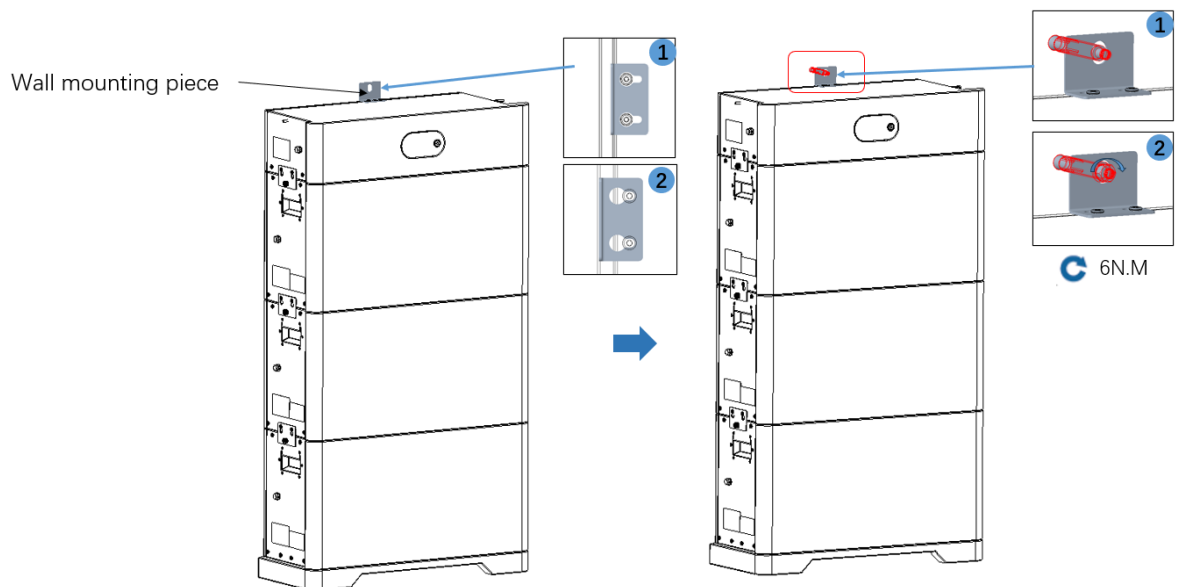


Figure 24 Install wall mounting piece

3.6.3 Crimping the cables

Insert the positive and negative battery connectors into the corresponding DC input terminals (“+” and “-”) if the original negative and positive cable doesn’t fit.

Step 1: Crimping the wire for the connector plugs.

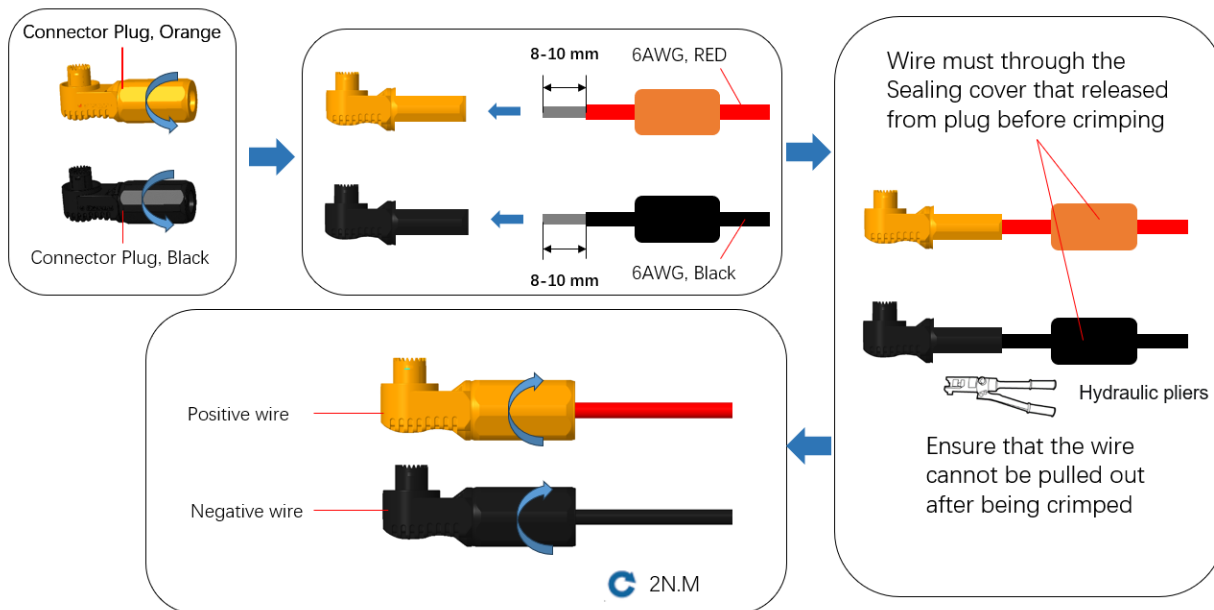


Figure 25 Crimping the DC wire

NOTICE

- It is advised to use 10mm² (8AWG) wire for the DC connector.
- For the length of the wire, you should be decided by the actual distance between the control box and the inverter.

Step 2: Installing wire to RJ45 Crystal Head as communication cable if the original communication cable doesn't fit.

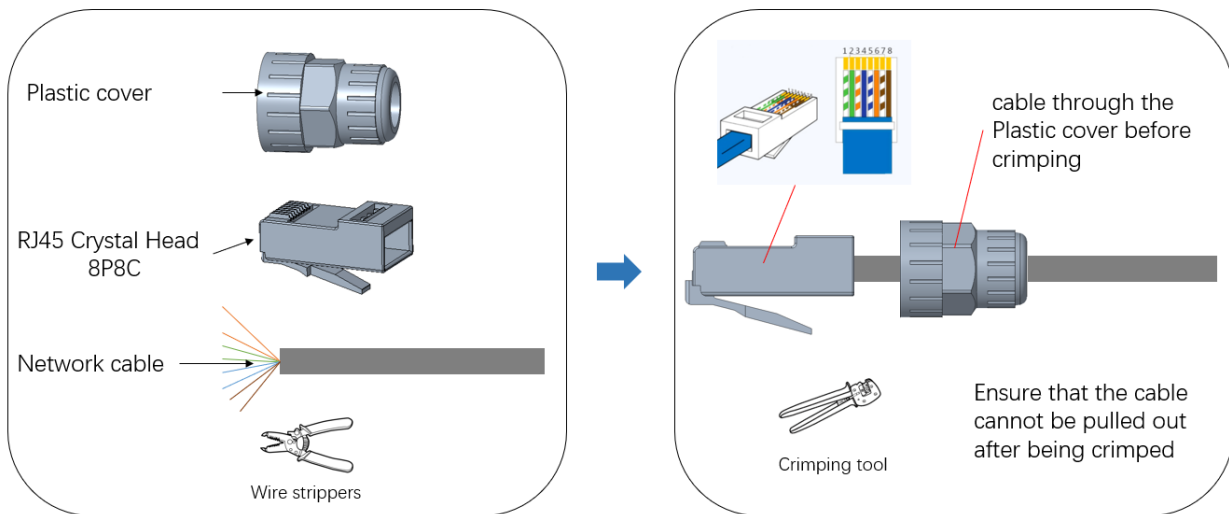
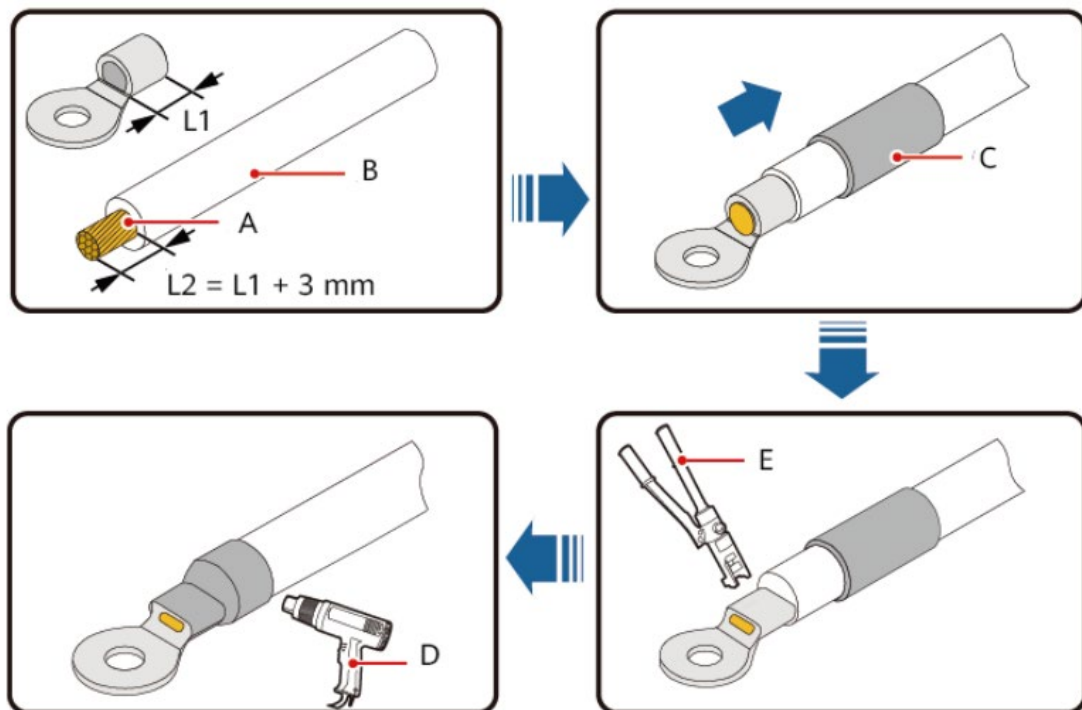


Figure 26 Crimping the communication cable

Step 3: Crimping the PE wire.



(A) Core wire (B) Insulation layer (C) Heat shrink tubing (D) Heat gun (E) Hydraulic pliers

Figure 27 Crimping the PE wire.

3.6.4 Installing the cables to the control box

Step 1: Install the positive wire and the negative wire to the control box.

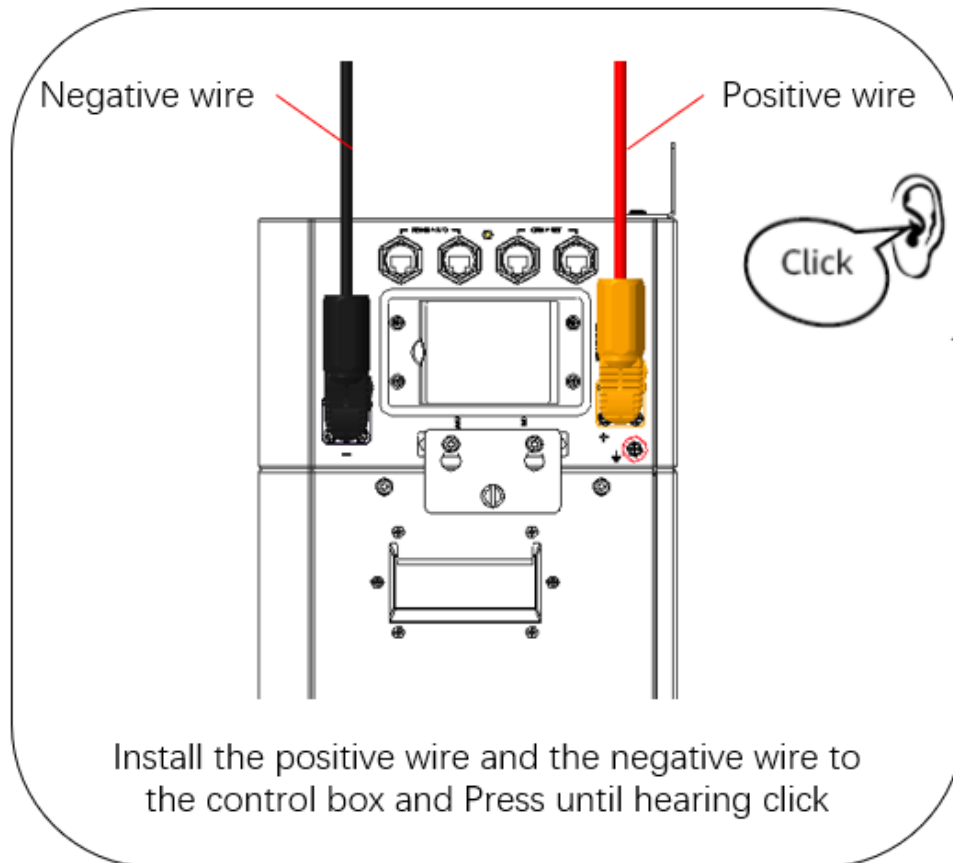


Figure 28 Install the positive wire and the negative wire.

Step 2: Install the PE wire to the control box.

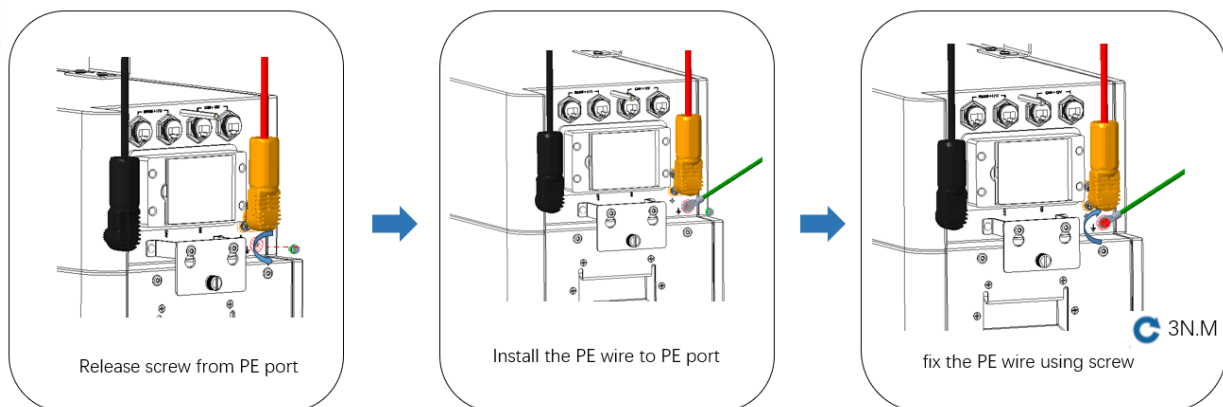


Figure 29 Install the PE wire.

Step 3: Install the communication cable to the control box.

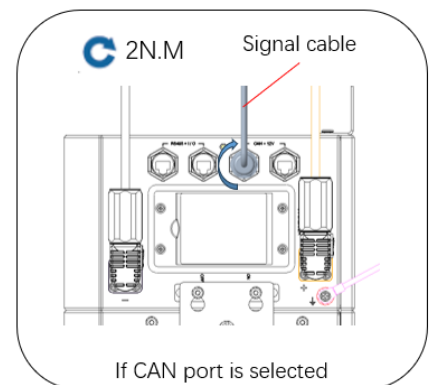
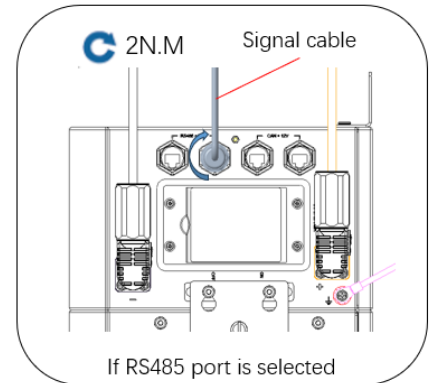
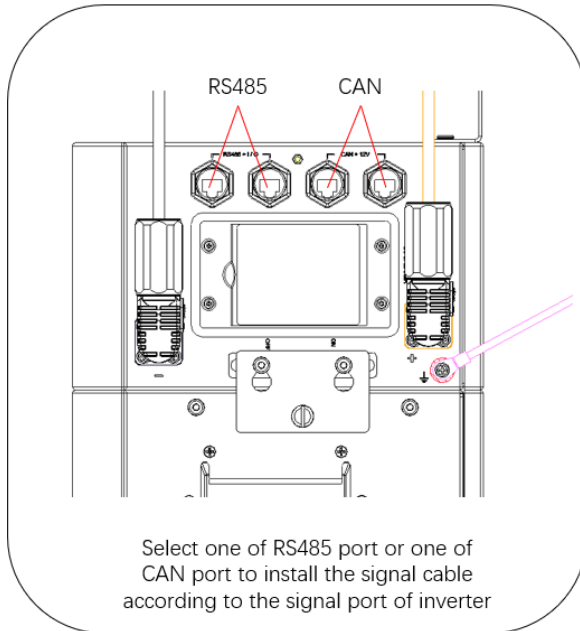


Figure 30 Install the communication cable.

Definition of RS485 + I/O port and CAN + 12V port

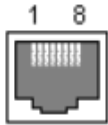
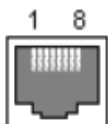
<p>RS485 + I/O port:</p> 	<p>PIN1: RS485_A1: Noninverting Driver Output/Receiver Input.</p> <p>PIN2: RS485_B1: Inverting Driver Output/Receiver Input.</p> <p>PIN3: GND of RS-485</p> <p>PIN4: Inactive pin of Dry contact signal.</p> <p>PIN5: Active pin of Dry contact signal.</p> <p>PIN6: Common pin of dry contact</p> <p>PIN7: RS485_A2: Noninverting Driver Output/Receiver Input.</p> <p>PIN8: RS485_B2: Inverting Driver Output/Receiver Input.</p>
<p>CAN + 12V port</p> 	<p>PIN1 & PIN2: System12V positive input.</p> <p>PIN3: GND of CAN for communication among control boxes and system.</p> <p>PIN4: CAN_H for communication among control box and system.</p> <p>PIN5: CAN_L for communication among control box and system.</p> <p>PIN6: NC</p> <p>PIN7 & PIN8: System 12V negative input.</p>

Table 9 Pins definition of communication port

NOTICE

- The communication cable inserted into the RS485 port or CAN port should be decided by the compatible communication port of the inverter. Just select one of them to install the communication cable. **Please use CAN port when connecting to PowerWalker Solar Inverter SAN 5k/ 6k/8k/10k 3/3.**
- See the above definition to check each pin output.

⚠ CAUTION

Risk of injury due to short circuit of battery module:

Injuries may result if the battery module is short-circuited due to the use of power cables or conductors to short between output ports B+ and B- of the battery module, need to take careful during connection.

Risk of injury due to electric shock during connecting cables;

Wear suitable personal protective equipment for all work on the battery system.

3.6.5 Installing the side cover to the battery module and the control box

Step 1: Open the breaker cover and turn the breaker from OFF to ON.

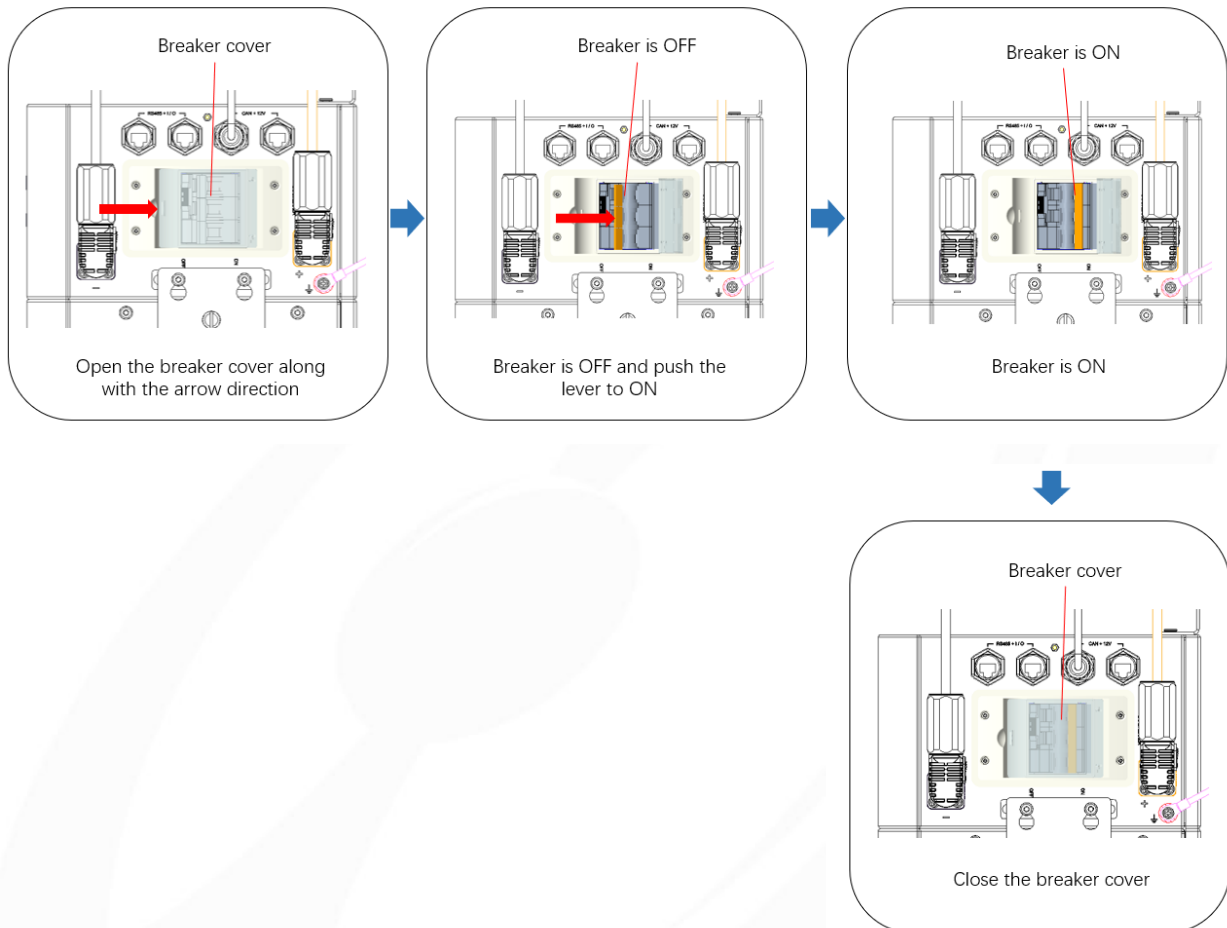


Figure 31 Breaker

Step 2: Install the side covers of the battery modules. The side cover must be installed from the bottom battery modules until all battery modules have been installed.

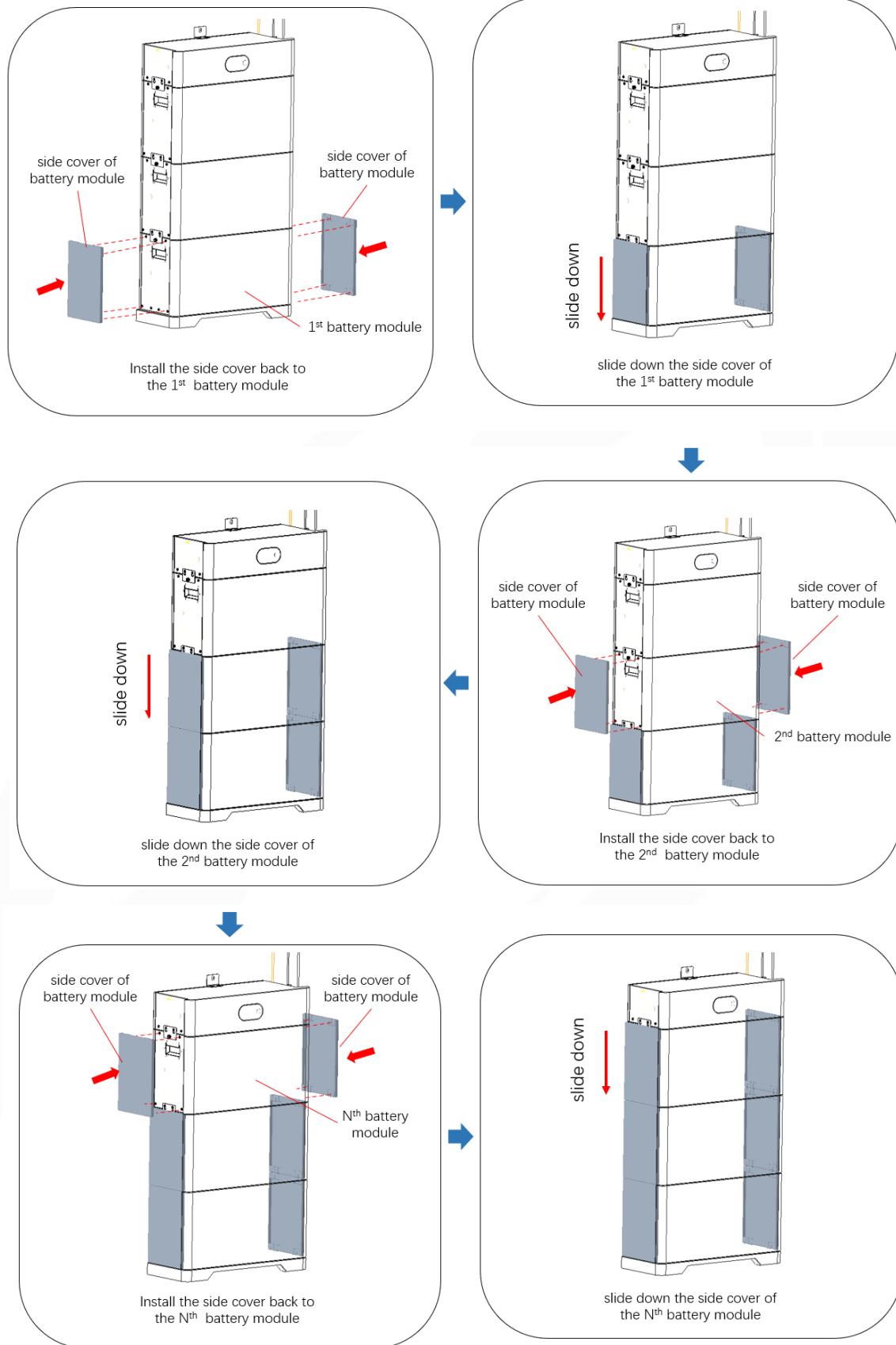


Figure 32 Install the side cover of the battery module.

Step 3: Install the side covers to the control box.

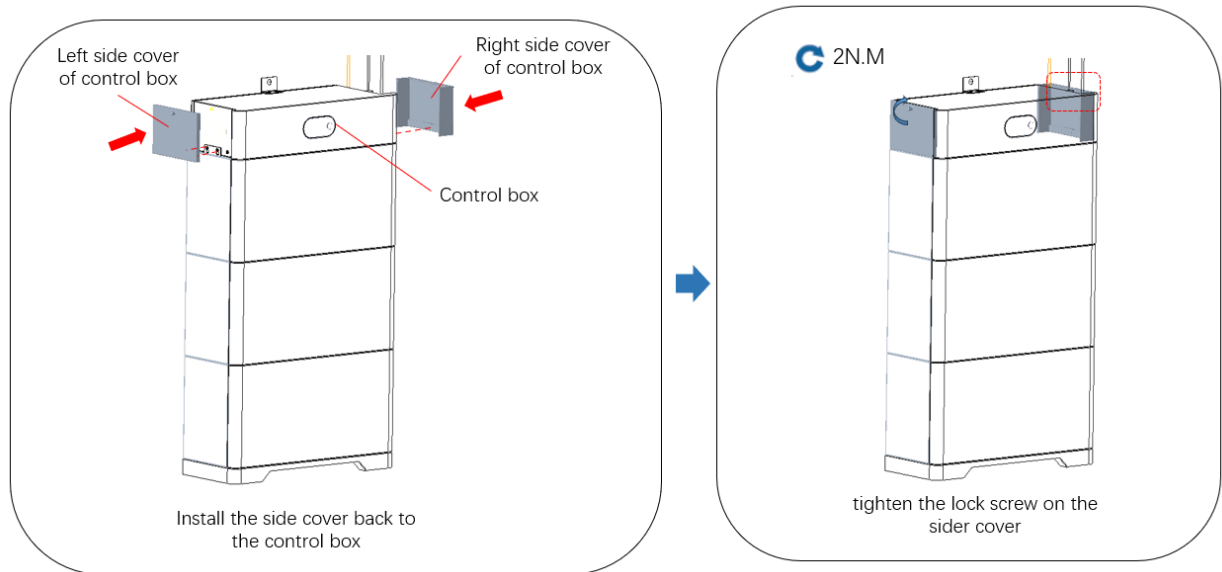


Figure 33 Install the side cover of the control box

3.7 Connecting battery packs in parallel

The battery pack supports a maximum of eight parallel strings. The connection among all paralleled battery packs can refer to the below diagram.

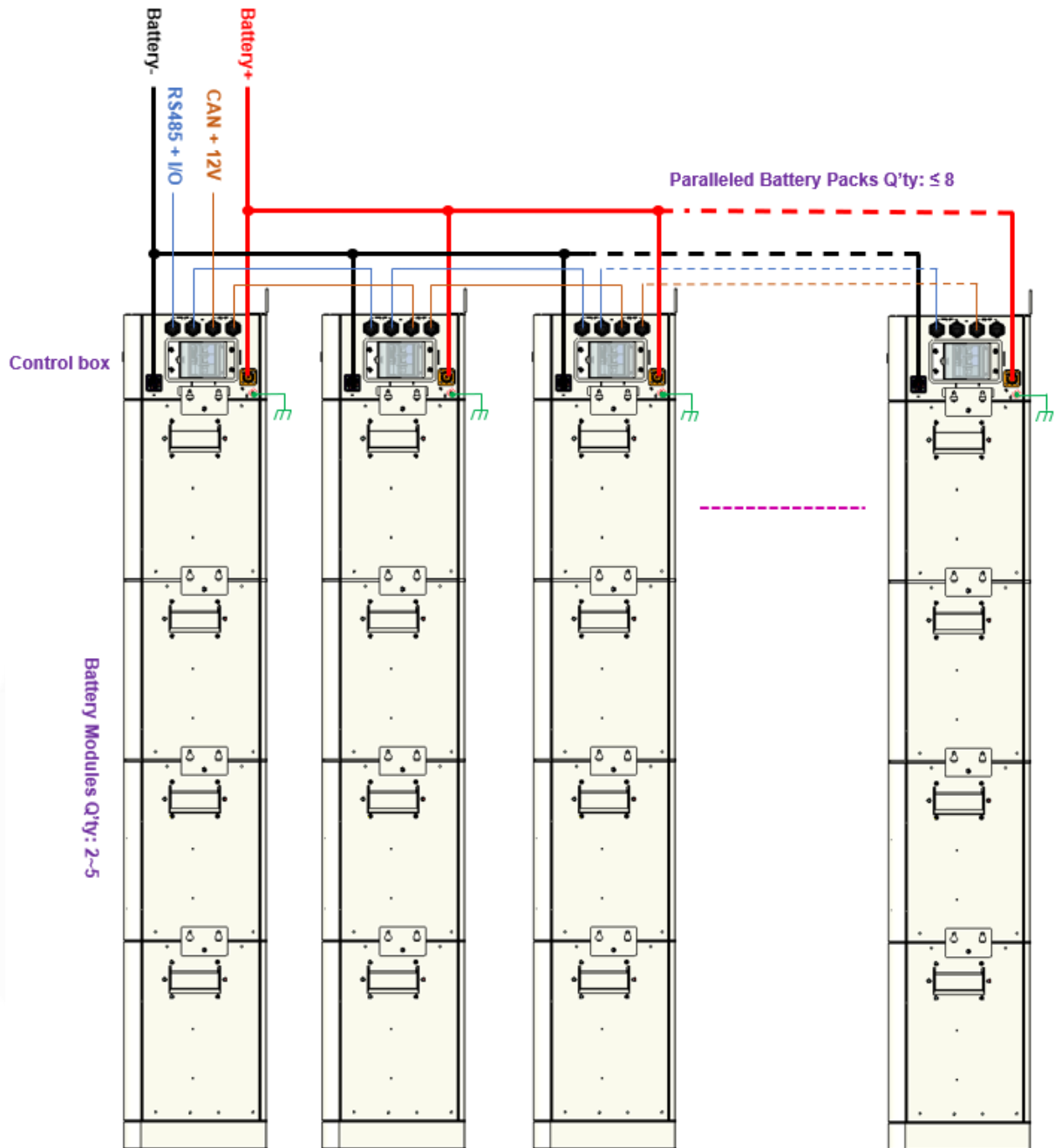


Figure 34 Battery parallel connection block diagram

4 Powering the System

4.1 Preparation before running:

- 1) Confirm the battery system is securely installed.
- 2) The location should have good ventilation.
- 3) No external objects or parts are placed on top of the battery system.
- 4) Cables are properly distributed, tight, and well-protected from mechanical damage.
- 5) Ensure that all terminals are properly and securely connected, and that the battery cabinet is properly grounded.

4.2 Run the battery system (test drive):

Step 1: Switch the DC breaker of all paralleled battery packs to the “ON” position, press the power button in the control box for 3 seconds to wake up all the paralleled battery packs from shutdown status (To connect the system 12V supply can also wake up battery pack).

Step 2: Check the LED condition of the power button in the control boxes. If the LEDs of the power button in the control boxes are all steady green, the paralleled battery packs are in normal working condition. If the LEDs of the power button are blinking or steady red, it means there is a fault in the battery packs, check the fault information through communication.

Step 3: Starting up the inverter, set the inverter according to its manual to charge and discharge the parallel battery pack for one cycle. Check whether the battery pack can operate normally with the inverter. If after a complete charge and discharge cycle the battery side has no protection and fault information is transmitted to the inverter, and no fault is triggered at the inverter side, it means the battery packs can be matched to the inverter.

4.3 Powering off the battery system

If the battery is not in use or needs maintenance, please follow the below steps to let the battery pack power off.

Step 1: Set the inverter to stop charging and discharging the battery packs.

Step 2: Turn off the switch between the inverter and battery packs.

Step 3: Press the power button on any of the battery packs connected in parallel for 3 seconds. Wait until all the LEDs inside the power button of all the paralleled battery packs are off.

Step 4: Switch all the DC breakers of the paralleled battery pack to the “OFF” position.

⚠ CAUTION

For safety, please make sure the DC breaker on the control box is OFF before maintenance.

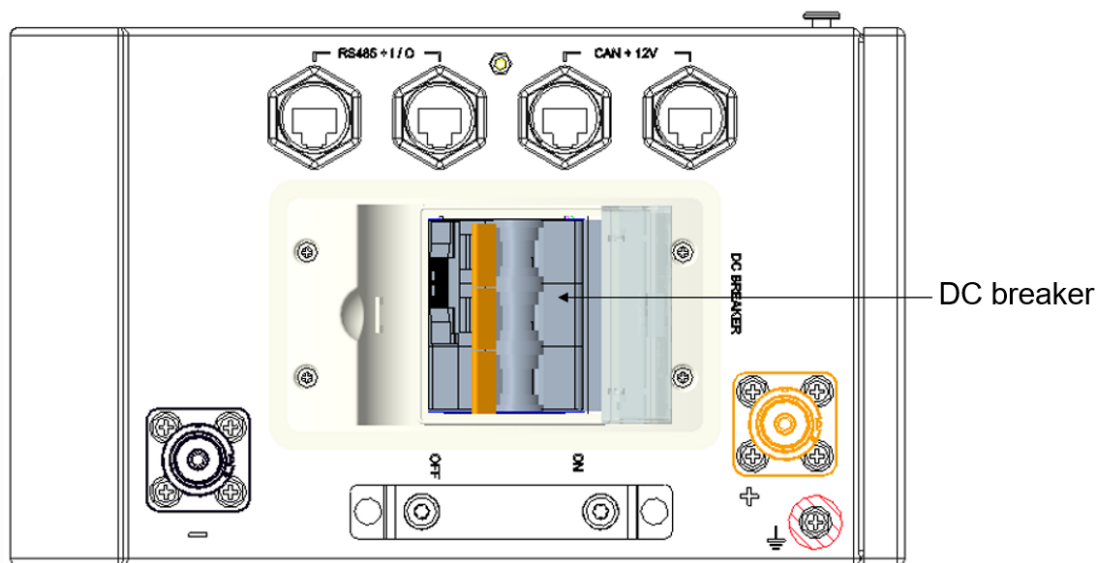


Figure 35 DC Breaker on the control box

5 Battery Pack Parameters

5.1 Battery pack specification

Items	Standard	Remarks
Nominal Voltage	102.4V*N	N is the Battery module quantity
Standard Charge Voltage	112V*N	N is the Battery module quantity
Max charge voltage	115.2V*N	N is the Battery module quantity
Standard Charge Current	25A	
Maximum Charge Current	30A	
Charge method	CC-CV	
Discharge cut-off Voltage(V)	2.4V / Cell	For battery pack
Typical Capacity	37Ah	Under 25A discharge after standard charge at 25°C.
Net Weight	12KG	For the main control box
	45KG±1KG	For battery module
	4.5KG	For base
Rated Continuous Discharge Power/Current	25A average	
Maximum Continuous Discharge Power /Current	37A	Detrimental to the battery's life cycle
Maximum Instant	50 A for 5s	

Discharge Current		
Standard Charge Method	112V *N, 25A CC (constant current) charge to 112V*N, then CV 112V*N charge till charge current decline to 1.8A.	N is the Battery module quantity
AC Internal Resistance	Control box: $\leq 20\text{m}\Omega$ Battery module: $\leq 50\text{m}\Omega$	Between positive and negative poles of the output port at 1kHz
Operating Environment Temperature range	Charge: $0^{\circ}\text{C} \sim 40^{\circ}\text{C}$ Discharge: $-10^{\circ}\text{C} \sim 50^{\circ}\text{C}$	Optimum temperature for charge & discharge: $20^{\circ}\text{C} \sim 30^{\circ}\text{C}$ for best life cycles
Storage Temperature Range	-20 °C ~25 °C for 12 months 25 °C ~35 °C for 3 months 35°C ~ 45°C for 1 month	Storage Temperature Range: $-20^{\circ}\text{C} \sim 45^{\circ}\text{C}$ Note : For more long-term storage of batteries, it is recommended to control temperature between $-20^{\circ}\text{C} \sim 25^{\circ}\text{C}$, and humidity is below 90 %RH, and then if it is allowed, please maintain the battery with one charging and discharging cycle every six months, if not allowed, please charge and discharge the battery once per year.
Environment humidity Range	<90%RH	

Table 10 Battery pack parameters

5.2 Modular guide

Module Quantity	2 Modules	3 Modules	4 Modules	5 Modules
System				
Battery System Capacity(kWh)	7.6	11.4	15.2	19
Usable Capacity (kWh)	7.6	11.4	15.2	19
Number of Battery Modules	2	3	4	5
Rated Battery Voltage (V)	204.8	307.2	409.6	512
Operating Battery Voltage Range (V)	160~230	240~345	320~460	400~576
Rated Power (kW)	5	7.5	10	12.5
Rated Discharging Current(A)	25	25	25	25
Max Discharging Current(A)	37	37	37	37
Rated Charging current(A)	25	25	25	25
Max Charging current(A)	30	30	30	30
Peak Discharging / Charging current(A)	50/45@5S	50/45@5S	50/45@5S	50/45@5S
System Dimension (W x H x D) (mm)	625*830*250	625*1145*250	625*1460*250	625*1775*250
System Net Weight (kg)	106.5	151.5	196.5	241.5
Communication	RJ45 (RS485, CAN, Dry contact)			

Module	LiFe Battery System 102-37
Battery Module Capacity (kWh)	3.8
Rated Battery Module Voltage (V)	102.4
Battery Module Dimensions	625 x 315 x 250 mm (W x H x D)
Battery Control Box	LiFe Battery System 102-37 Control Box
Rated Voltage (V)	307.2 (with 3 modules in string)
Control Box Dimensions	625 x 150 x 250 mm (W x H x D)
Operation Environment & Warranty	
Operating Temperature	Charge: 0°C ~ 40°C Discharge: -10°C ~ 50°C
Operating Humidity	0 ~ 90% RH
Operating Altitude	≤ 2000 m
Installation	Wall-mounted or Floor type
Enclosure Protection Rating	IP 65
Warranty	10-year warranty with energy retention above 75 %, 6000 life cycle Warranty is based on the condition listed below: Operate in the recommended condition which is in ambient temperature with 25A standard charge and discharge and 80% DoD settings
Cycle life	≥75% rated capacity @ 6000 cycles, 25A charge, 25A discharge at 25°C, 80% depth of discharge (DoD)
Certification	IEC62619 / UN38.3 / CE

Table 11 Modular Datasheet

6 Troubleshooting

According to the severity of the fault, the fault status of the battery pack is defined as a major fault or minor fault. In general, minor faults can recover automatically after the fault condition is resolved, while major fault needs to contact the supplier for service.

Refer to the below table for troubleshooting.

Phenomenon	Fault severity	Possible cause	Troubleshooting
The battery cannot be started up by pressing the power button, but no status LED in the power button is lit up	Minor	The DC breaker of the battery pack is off	Turn on the DC breaker on the battery pack and try again
	Major	Fuses in the power loop failed	Contact supplier for service
The battery cannot discharge, status LED in the power button is blinking red	Minor	Protection against under-voltage	Check the event list of the inverter via the APP to see if there is a battery under voltage event, and make it charge the battery pack
		Protection against over-temperature or under-temperature (cell temperature is lower than -20 °C or higher than 65 °C).	Check the battery pack temperature via the inverter's APP. If the battery pack temperature is higher than 65°C, wait for the temperature to drop to 55°C. If the battery pack temperature is lower than -20°C, wait for the temperature to rise to -10°C.
		Protection against over current	Remove some unimportant load, set a lower load power limit of the inverter, and wait for 60 seconds
The battery cannot charge, status LED in the power	Minor	Protection against over-voltage	Set the inverter to discharge the battery.

button is blinking red		Protection against over-temperature or under-temperature (cell temperature is lower than 0 °C or higher than 55 °C).	<p>Check the battery pack temperature via the inverter's APP.</p> <p>If the battery pack temperature is higher than 55°C, wait for the temperature to drop to 50°C.</p> <p>If the battery pack temperature is lower than -20°C, wait for the temperature to rise to -10°C</p>
		Protection against over current	Set a lower charging power limit for the inverter, and wait for 60 seconds
The status LED in the power button is steady red	Major	<p>Cells failure.</p> <p>The contactor in the battery pack failed.</p> <p>Battery pack EOL;</p>	Contact supplier for service

Table 12 Troubleshooting list

7

Acronyms and abbreviations

Battery system	Rechargeable Lithium-Ion Battery Pack
Ext. devices	Compatible external device able to be used with battery pack (Selected inverters, UPSs, EV Chargers, Heat pumps, etc.)
DC	Direct current power supply
BMS	Battery Management System
CC-CV	Constant current to constant voltage
APP	Application
EOL	End of life

Table 13 Acronyms and abbreviations