VEICHI

Lithium-ion battery

VCLB-16K-E01



USER MANUAL

Catalog

Catalog ..... **I**
Version Change Log **1**
1 Technical Data **2**
2 Product Overview **3**
2.1 Brief Introduction 3
2.2 Interface Introduction 3
2.2.1 Switch ON/OFF 4
2.2.2 CAN/RS485 Port 4
2.2.3 RS232 Port 4
2.2.4 Display Definition 5
3 Installation Guide **6**
3.1 Checking Before Installation 6
3.1.1 Checking Outer Packing Materials 6
3.1.2 Checking Deliverables 6
3.2 Tools 7
3.3 Installation Requirements 7
3.3.1 Installation Environment Requirements 7
3.3.2 Installation Carrier Requirements 7
3.4 Installation Instructions 8
3.4.1 Dimensions 8
3.4.2 Electrical Connection Steps 8
4 Maintenance **14**
4.1 Troubleshooting 14
4.2 BMS Protection 14
4.3 Circuit Breaker and Thermal Aerosol Protection 14
5 Battery Recharge **16**
5.1 Recharge Requirements During Normal Storage 16
5.2 Recharge Requirements When Over Discharged 16

Version Change Log

Date	Version	Content
2026.05	V1.0	First version released

1 Technical Data

NOTE

The operating current may be derated depending on the cell voltage and battery temperature.

Performance	
Nominal Voltage	51.2VDC
Nominal Capacity	314Ah
Battery Energy	16076Wh
Charge Voltage	57.6VDC
Discharge Voltage	44.8VDC
Nominal Charge/Discharge Current	150A
Nominal Charge/Discharge Power	7680W
Max. Charge/Discharge Current	200A
Max. Charge/Discharge Power	10240W
Short Circuit Current	350A/3mS
Communication	
Display	SOC status indicator, LED indicator
Communication	RS232, RS485, CAN
General Specification	
Dimensions (W×H×D) (mm)	460×240×820
Weight (kg)	120
Installation	Floor-standing
Charging Temp. Range	0℃~+55℃
Discharge Temp. Range	-20℃~+55℃
Operating/Storage Humidity	≤95%RH
Max. Operating Altitude	≤3000m
IP Rating	IP20
Cell Technology	$LiFePO_4$ (Lithium Iron Phosphate)
Cycle Life	6000 cycles @ 80% DOD / 25℃/0.5C, 60%EOL
Scalability	Max. 15 batteries in parallel
Usage Environment	Indoor
Standard Compliance	
Certification	CE , MSDS , UN 38.3

Nominal Capacity Test Conditions: 100% depth of discharge (DoD), 0.2C charge and discharge rate at 25℃.

Charge/discharge derating occurs when the operating temperature is within -10°C~+5°C or +45°C~+55°C.

Conditions Apply: Refer to the VCLB-16K-E01 Warranty Letter

2 Product Overview

2.1 Brief Introduction

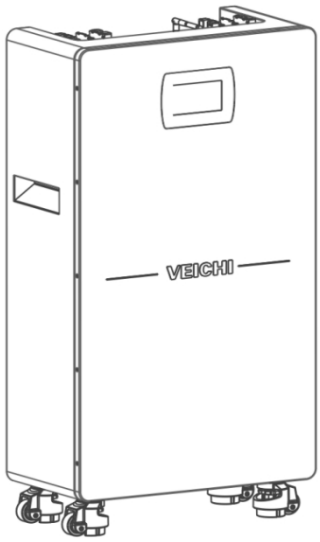


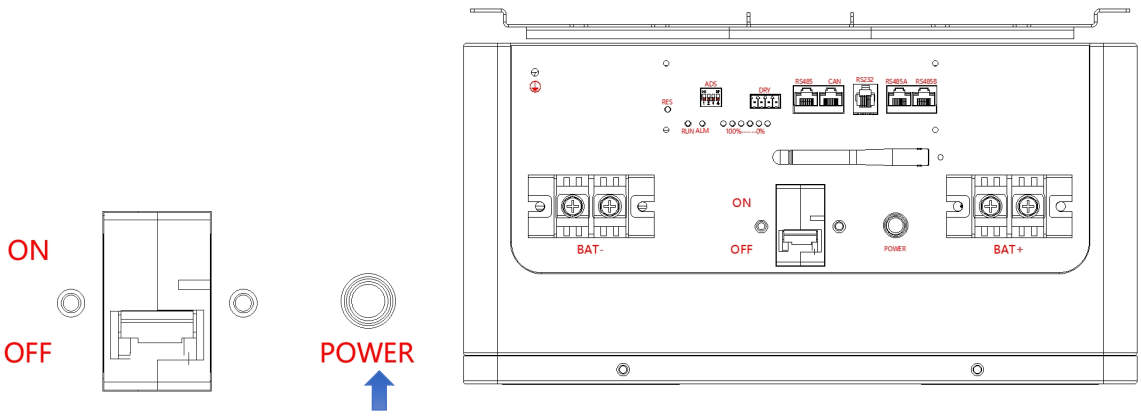
Figure 2-1 Product Overview

VCLB-16K-E01 is a lithium battery with an operating voltage range between 44.8~57.6V. It is designed for residential energy storage applications and works together with a 48v battery hybrid inverter. VCLB-16K-E01 is not suitable for supporting life-sustaining medical devices.

VCLB-16K-E01 has built-in BMS (Battery Management System), which can manage and monitor cells information including voltage, current and temperature. Besides that, BMS can balance cells charging to extend cycle life. BMS has protection functions including over-discharge, over-charge, over-current and high/low temperature; the system can automatically manage charge state, discharge state and balance state.

Multiple VCLB-16K-E01 can be connected in parallel to expand capacity and power, 15 VCLB-16K-E01 can be connected in parallel at most.

2.2 Interface Introduction



2.2.1 Switch ON/OFF

- Switch ON

For a single VCLB-16K-E01, turn on the air switch, then press and hold the circular weak-current switch for more than 3 seconds. The display will light up and the battery will operate normally.

For multiple VCLB-16K-E01 units connected in parallel, turn on the circular weak-current switch on all batteries. Then press and hold the ON/OFF button of the master battery for more than 3 seconds. The LED will flash. The battery system will automatically assign an ID to each slave battery.

- Switch OFF

Press and hold the circular weak-current switch of the master pack for more than 3 seconds, then release the button. When all slave packs are turned off, the master pack will also turn off and enter sleep mode. For multiple VCLB-16K-E01 units connected in parallel, first turn off the circular weak-current switch on the master battery. Then turn off the circular weak-current switch on all slave batteries.

2.2.2 CAN/RS485 Port

The CAN/RS485 communication terminal (RJ45 port) connects to the inverter and follows the CAN/RS485 protocol.

PIN	Definition
Pin1, Pin8	RS485-B (to PCS)
Pin2, Pin7	RS485-A (to PCS)
Pin3	NC
Pin4	CAN-H (to PCS)
Pin5	CAN-L (to PCS)
Pin6	GND

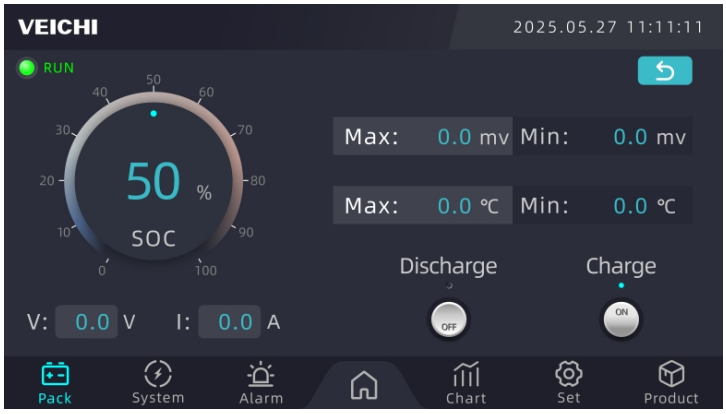
2.2.3 RS232 Port

The RS232 communication terminal (RJ45 port) follows the RS232 protocol and is used by manufacturers or professional engineers for debugging or service.

PIN	Definition
Pin5	GND
Pin3	RS232_TX
Pin4	RS232_RX
Pin1, Pin2, Pin6	NC

2.2.4 Display Definition

Pack: The main interface for displaying battery information, where users can view the remaining SOC, voltage, current, and battery charging and discharging status.



System: Battery cell information display interface, where users can view the voltage value of a single battery cell.



Alarm: Battery alarm query interface, where users can view the current alarm and fault status.

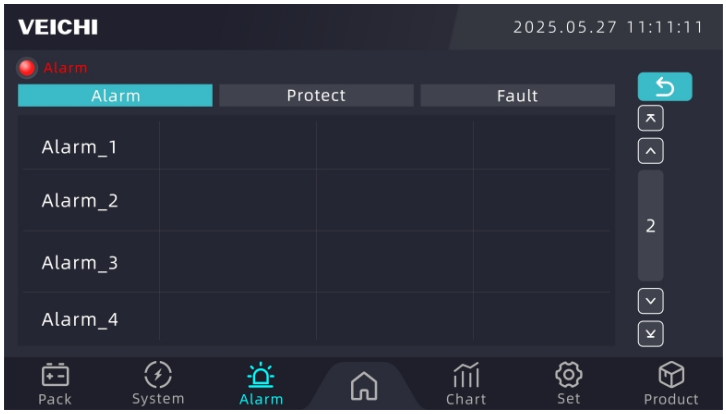
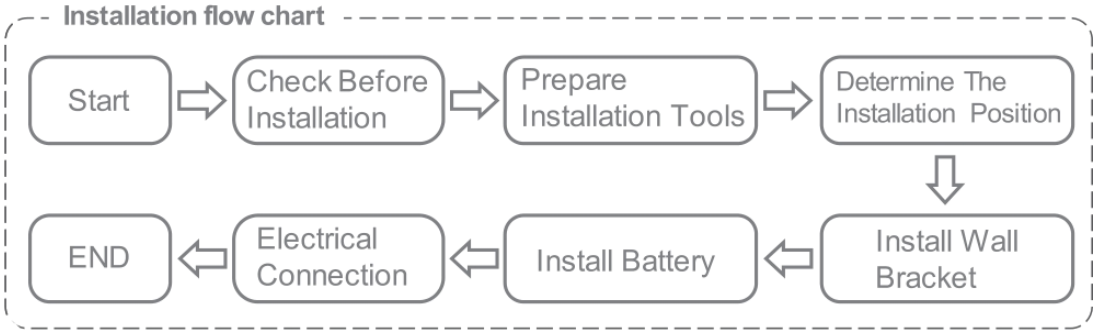


Chart: Battery data curve interface, where users can view schematic diagrams of voltage, current, and capacity curves.

Set: Battery parameter setting interface, allowing users to select communication protocols for different inverters.

Product: Battery version query interface, where users can view the current program version of the battery.

3 Installation Guide



3.1 Checking Before Installation

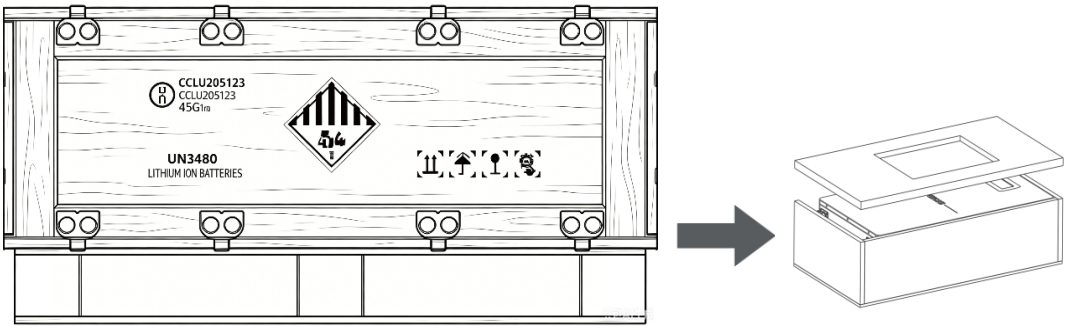
3.1.1 Checking Outer Packing Materials

Packing materials and components may be damaged during transportation. Therefore, check the outer packaging for damage, such as holes or cracks, before installing the battery. If any damage is found, do not unpack the battery and contact the dealer as soon as possible.

3.1.2 Checking Deliverables

After unpacking the battery, check whether all deliverables are intact and complete. If any damage is found or any component is missing, contact the dealer.

The table below shows the components and mechanical parts that should be delivered.



No.	Pictures	Qty.	Uses
1		1	Battery box
2		1	Power cable-1500mm
3		1	Power cable-1500mm
4		1	Communication network cable
5		1	Desiccant

6		1	Quality certificate
7		1	User manual

3.2 Tools

Tools			
Installation	Knife 	Measuring tape 	Socket wrench （10/16mm） 
	Rubber mallet 	Cross Screwdriver 	Hammer drill 
Protection	ESD gloves 	Safety goggles 	Anti-dust respirator 
	Safety shoes 	-	-

3.3 Installation Requirements

3.3.1 Installation Environment Requirements

- Install the battery in an indoor environment.
- Place the battery in a secure location away from children and animals.
- Do not install the battery near heat sources or open sparks.
- Do not expose the battery to moisture or liquids.
- Do not expose the battery to direct sunlight.
- Suitable for short-term use in marine environments.

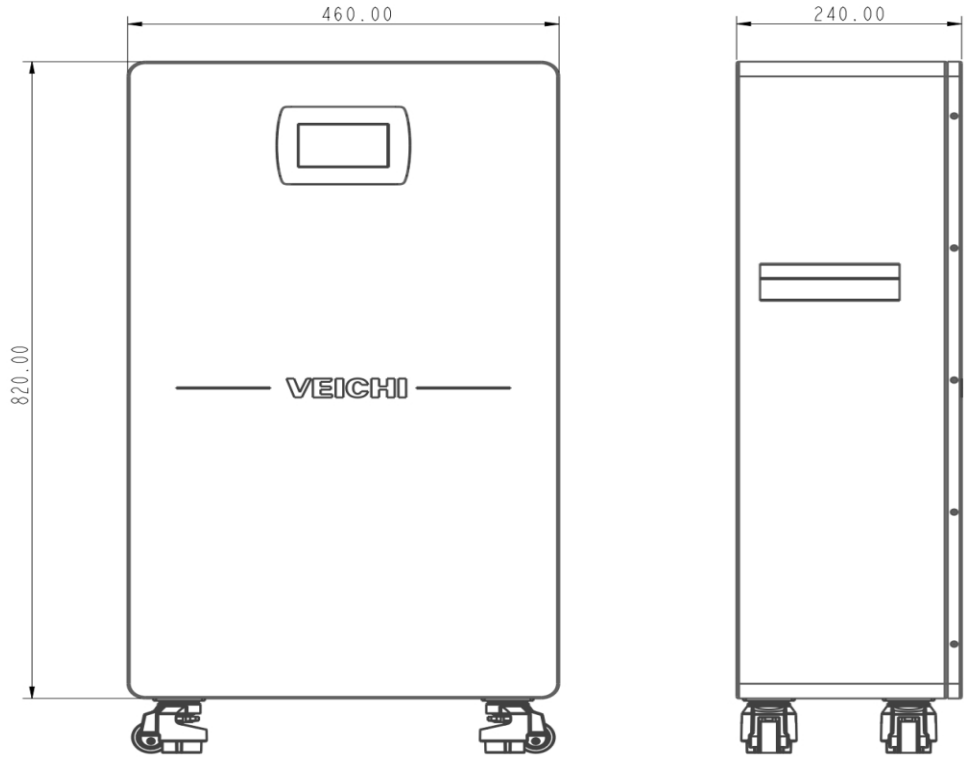
3.3.2 Installation Carrier Requirements

Only mount the battery on fire-resistant building structures. Do not install the battery on flammable surfaces.

The battery is heavy. Ensure the wall or ground structure meets the required load-bearing capacity.

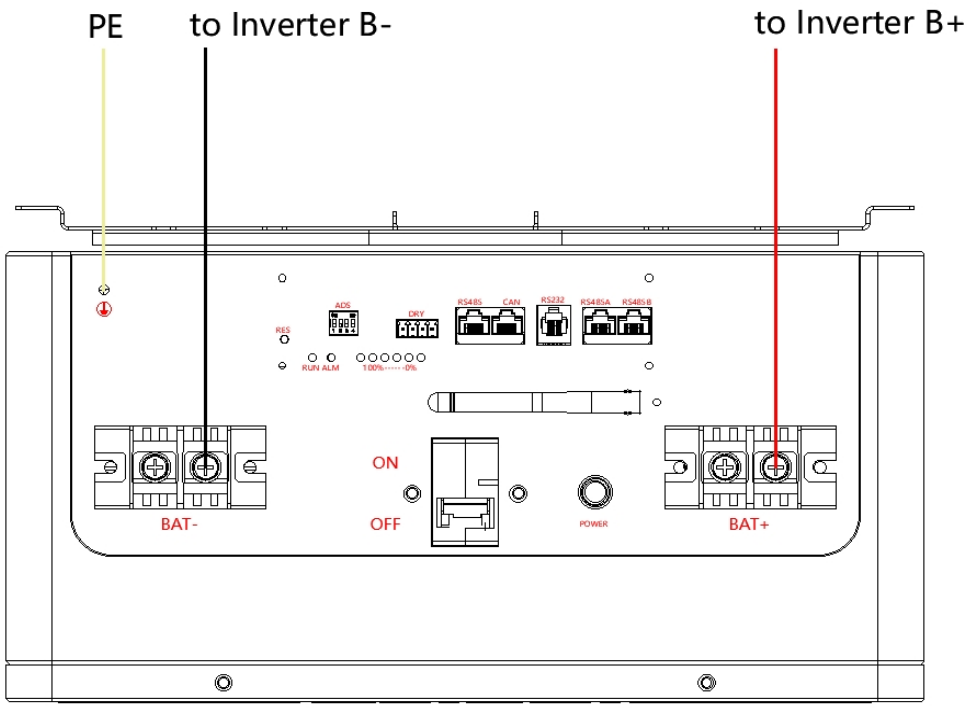
3.4 Installation Instructions

3.4.1 Dimensions

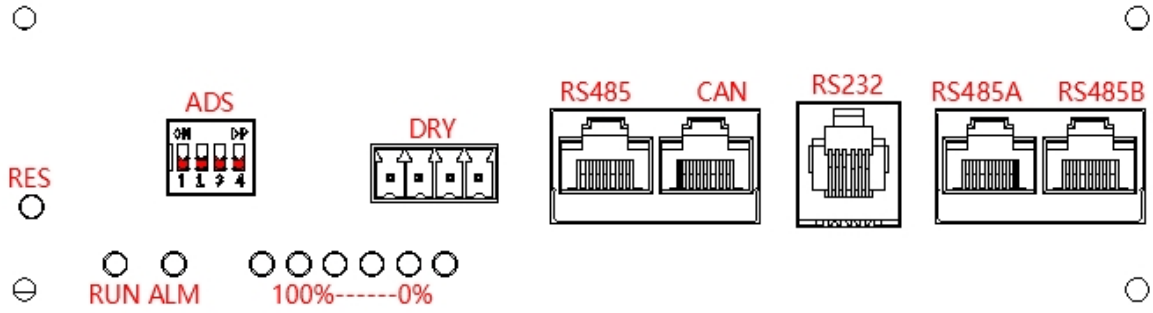


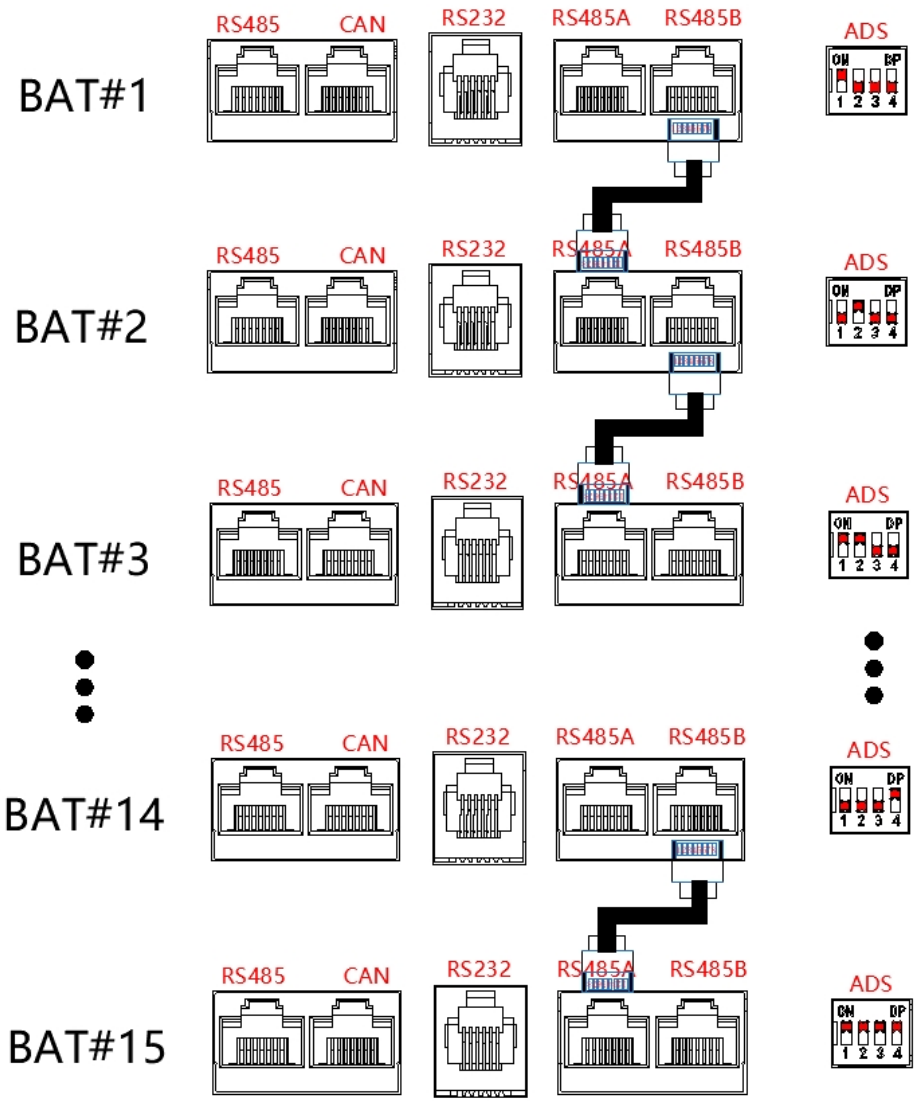
3.4.2 Electrical Connection Steps

- Connect power cable and ground



- Connect communication cable



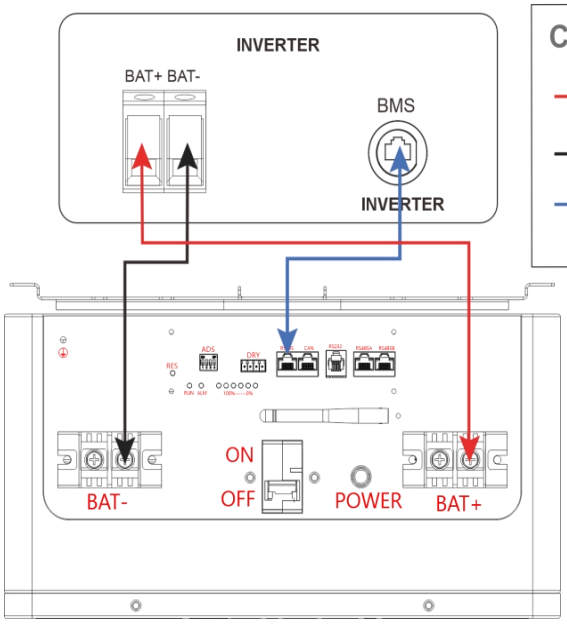


1. Loads exceeding 5kW require at least two units operating in parallel.
2. The maximum number of units connected in parallel is 15. The inverter power selected for the battery module must not exceed the maximum output power of the battery module.

Parallel Operation	Load Power	Connection Mode
1unit	Below 5kW	1
2~15units	Below 5kW	2
2~15units	5~10kW	3/4

2~15units	10~20kW	5 Each additional unit increases the battery power by 5kW.

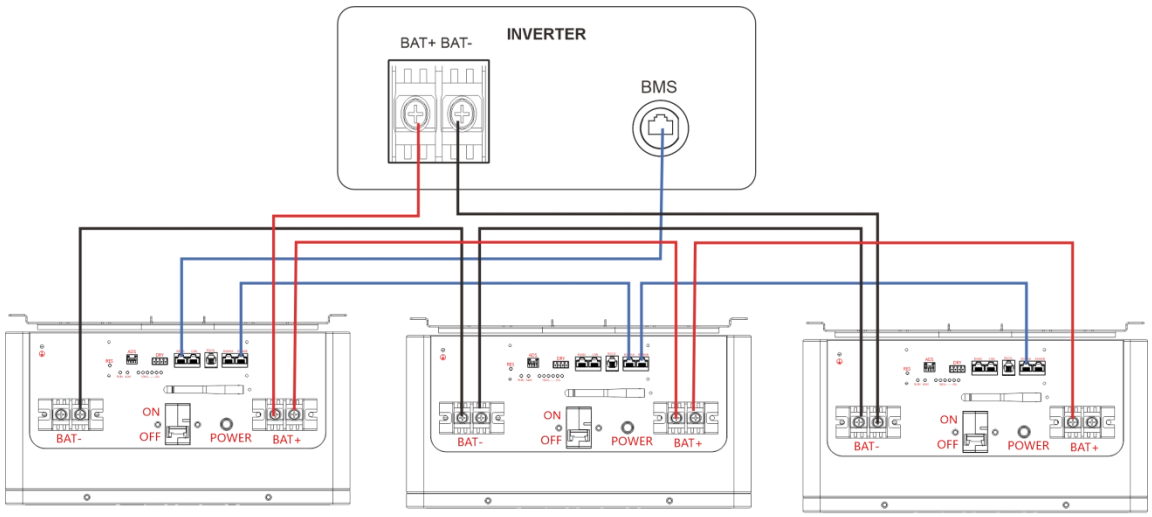
Danger	Ensure that power cables are installed with the correct polarity. A dangerous situation may arise if the polarities are reversed.
Danger	Do not create a short circuit between the positive and negative terminals of the battery. Ensure the polarity is correct during installation.
Warning	Incorrect communication cable connections may cause the battery system to operate unexpectedly, which may lead to system failure.



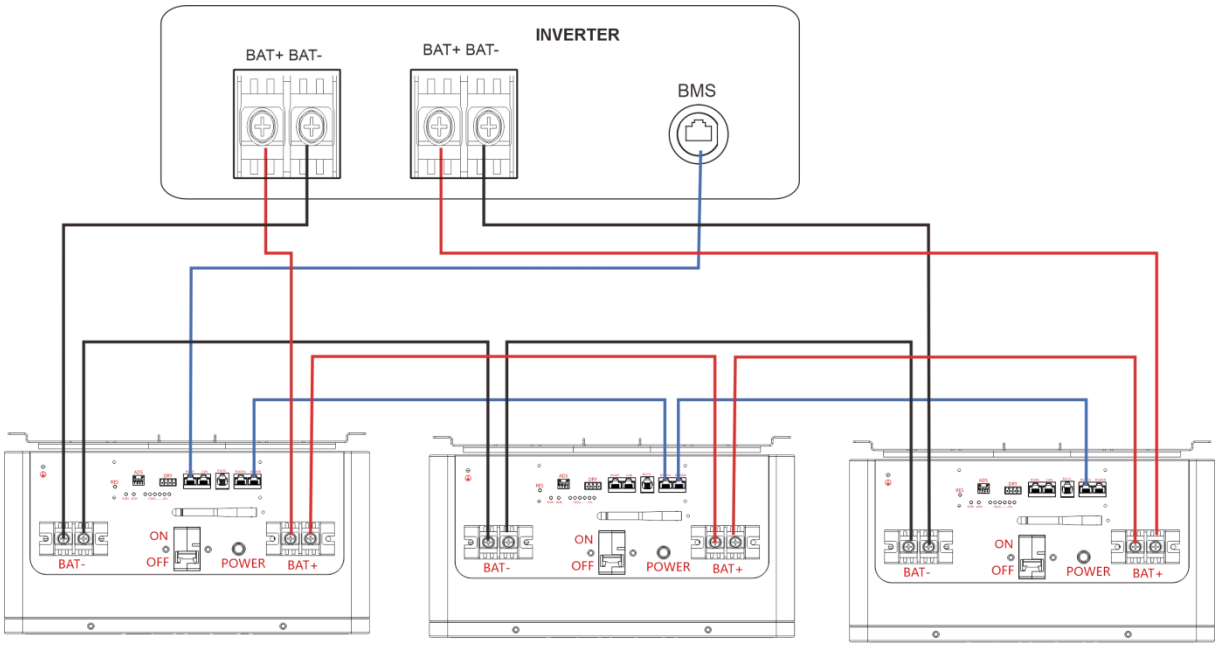
Cable connection in all the following views

- Lithium battery positive power cable
- Lithium battery negative power cable
- Lithium battery communication cable

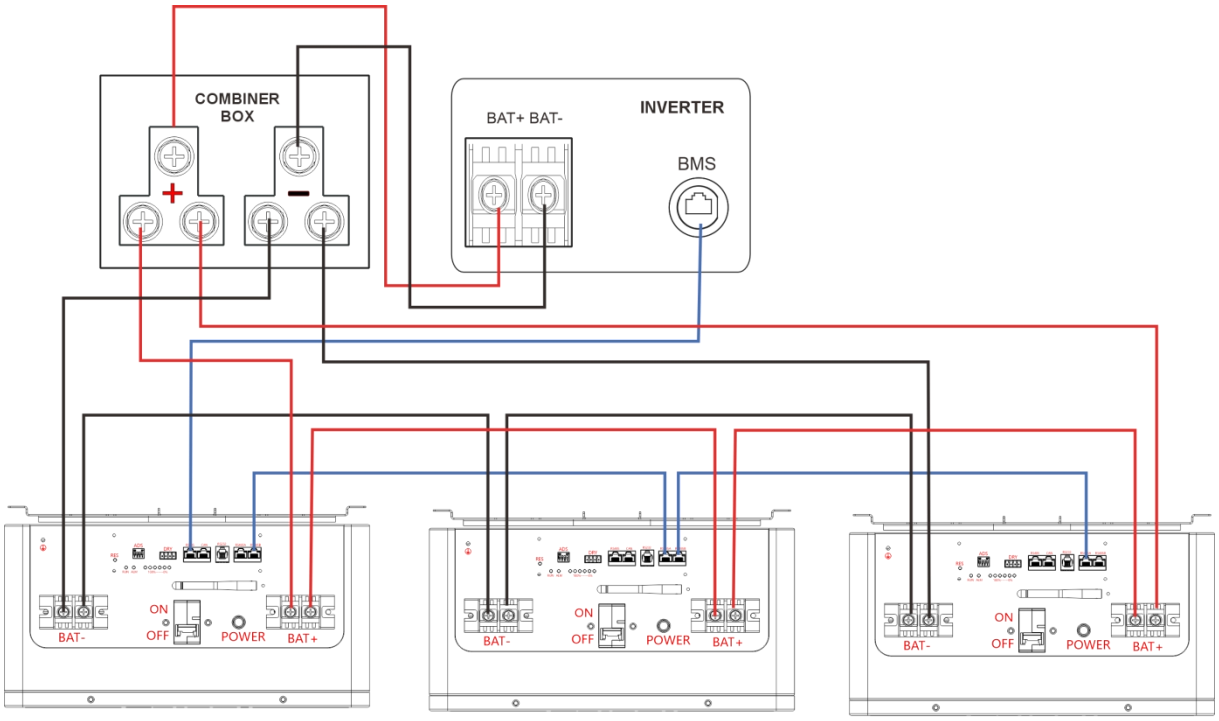
1	**Warning** Wiring method of 1 units module with power below 5kW



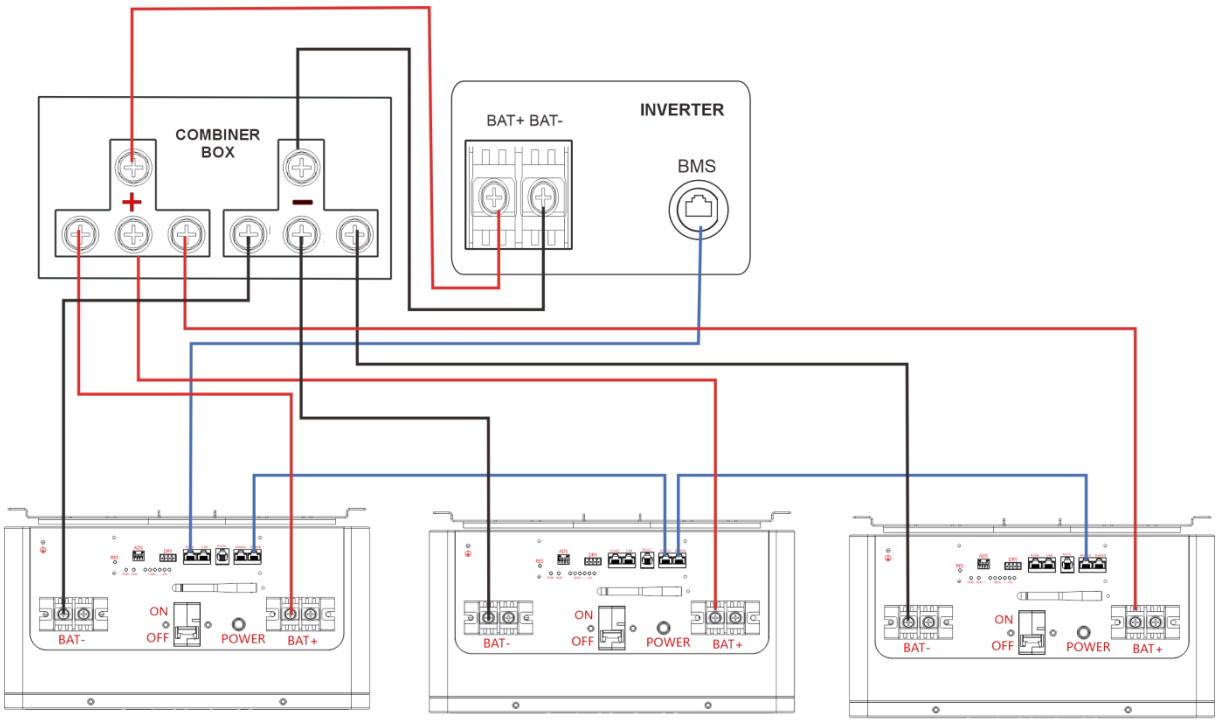
2	**Warning**
	For 2 units -15 units is-layer module with power below 5kW. (The number of units in the middle of the diagram is omitted, the length of the two positive and negative poles connecting lines must be the same.)



3	**Warning**
	The wiring mode for the inverter with two battery input ports. For 2 units -20 units is 5KW - 10KW. (The number of units in the middle of the diagram is omitted, the length of the two positive and negative poles connecting lines must be the same.)



4	**Warning** For the inverter with only one battery input port, the wiring method of the combiner box must be added. For 2 units -15 units is 5KW - 10KW. (The number of units in the middle of the diagram is omitted.In order to ensure equal current flow, the length of the two positive and negative poles connecting lines must be the same.)



5	**Warning** When using an inverter of 10kW or above, the positive and negative ports of each battery must be connected to the combiner cabinet in the wiring method shown in the figure below. For 2 units -15 units is 10KW - 20KW. (The number of units in the middle of the diagram is omitted.In order to ensure equal current flow, the length of the positive and negative poles connecting lines must be the same.)

4 Maintenance

4.1 Troubleshooting

The BMS (Battery Management System) is designed to protect the battery and battery cells from various conditions that may damage or destroy system components. This protection also helps maintain proper battery and cell operation and extends service life. Each battery is configured to ensure optimal performance and operation with compatible inverter systems.

4.2 BMS Protection

1. PCB Temperature Protection

The BMS ensures that the Printed Circuit Board (PCB) does not overheat. The PCB contains most of the control circuitry of the battery system. If overheating is detected, the BMS will shut down the battery to prevent damage.

2. Cell Balance Protection

Cell balancing ensures that each cell remains within a specified voltage range relative to the other cells. Proper cell balancing is essential for maintaining correct battery operation and extending battery service life. This process is performed automatically by the BMS.

3. Environmental Temperature Protection

Operating the battery in extremely high or low temperatures may be hazardous. Continued operation under such conditions may result in permanent damage to the battery module and its components. To prevent this, the BMS monitors the temperature during charging and discharging and will shut down the battery if necessary to prevent damage.

4. Voltage Protection

The BMS continuously monitors the voltage of each individual cell to ensure that the cells are not overcharged or undercharged.

5. Current Protection

The BMS continuously monitors the charge and discharge current and includes built-in protection mechanisms to prevent operation beyond specified limits. These protections include fast shutdown in the event of short circuits, protection against excessive current, and delayed shutdown when the current slightly exceeds the rated value.

4.3 Circuit Breaker and Thermal Aerosol Protection

1. The circuit breaker can trip within milliseconds in case of abnormal current, cut off the DC circuit, and prevent damage or burnout of battery cells, cables and inverters.
2. The thermal aerosol fire extinguishing system quickly extinguishes fires through chemical inhibition (flame chain interruption) and physical smothering (oxygen reduction), thereby ensuring personal and property safety.

Note:

If any fault listed in the table below persists, contact the distributor for further troubleshooting.

Fault	Analysis
Overvoltage Protection	RUN light is constantly on.
Undervoltage Protection	5-minute delay before entering sleep mode.
Overtemperature Protection	ALM light is constantly on.
Low-Temperature Protection	ALM light is constantly on.
MOS Overtemperature Protection	ALM light is constantly on.
Ambient High Temperature	ALM light is constantly on.
Ambient Low Temperature	ALM light is constantly on.
Short Circuit Protection	ALM light is constantly on.
Charging	RUN light is constantly on, SOC light is flashing.
Discharging	RUN light is flashing, SOC light is constantly on.
Standby	RUN light is flashing, SOC light is constantly on.

5 Battery Recharge

5.1 Recharge Requirements During Normal Storage

The battery should be stored in an environment with a temperature range of -10 ℃~+45 ℃. During long-term storage, the battery shall be maintained regularly according to the following table. After long-term storage, recharge the battery at 0.5C until the SOC reaches 40%.

Storage Temp.	Humidity	Storage Time	SOC
Below - 10℃	/	Prohibited	/
- 10 ~ +25℃	5%~ 70%	≤12 months	30%≤SOC≤60%
+ 25 ~ +35℃	5%~ 70%	≤6 months	30%≤SOC≤60%
+ 35 ~ + 45℃	5%~ 70%	≤3 months	30%≤SOC≤60%
Above +45℃	/	Prohibited	/

5.2 Recharge Requirements When Over Discharged

An over-discharged (90% DOD) battery shall be recharged according to the following table; otherwise, it may be damaged.

Recharge conditions when the battery is over-discharged.

Storage Temp.	Storage Time	Note
- 10 ℃ ~ + 25℃	≤15 days	Battery pack disconnected from inverter
+25 ℃ ~ + 35℃	≤7 days	
+35 ℃ ~ + 45℃	<12 hours	Battery pack connected to inverter

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Official Website

*Version: 1.0，2026

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Certificate of Approval

QC check



The product has been checked and proved to be qualified for delivery in conformity with standard.

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Warranty Card

Profile

User Name: _____

Address: _____

Contacts: _____ Phone: _____ Fax: _____

Model: _____ Machine Code: _____

Agent/Distributor Profile

Delivery Company: _____

Contacts: _____ Phone: _____ Delivery Date: _____

Warranty Clauses

The Company solemnly states that since the day users purchase from my company (hereinafter referred to as manufacturer),they can enjoy the following warranty services.

1.Since the date of purchase, users can enjoy the following warranty services of the product:

1) Warranty service is provided by the company within 60 months after shipment.

2) Only the products exported to countries other than China enjoy the above warranty service.

2. Since the date of purchase, users can enjoy the service of the company when they pay for the service.

3. Exception Clauses: Product failures caused by the following reasons would not enjoy the free warranty services of the manufacturer:

1) Failures caused by operations of users that is not operated in accordance with the requirements of the product manual.

2) Failures caused when users repair or renovate the product without communicating with the manufacturer in advance.

3) Failures caused by abnormal aging of the product resulted from poor using environment.

4) Failures caused by earthquake, fire or other natural disasters or abnormal voltage.

5) Failures caused by damage during transportation(mode of transportation is decided by users and the company only helps to handle cargo shipment procedures).

4. In the following conditions, the manufacturer have the right not to provide warranty services:

1) When the marks, trademarks or nameplates of the products are destroyed or can not be identified.

2) When users do not pay for the product according to signed contract.

3) When users intentionally hiding the improper operations during installation, wiring and maintenance.

5. For products that enjoy all returning, replacement and maintenance services, first the product should be returned to the company and after responsibility confirmation, the product can be replaced or repaired.