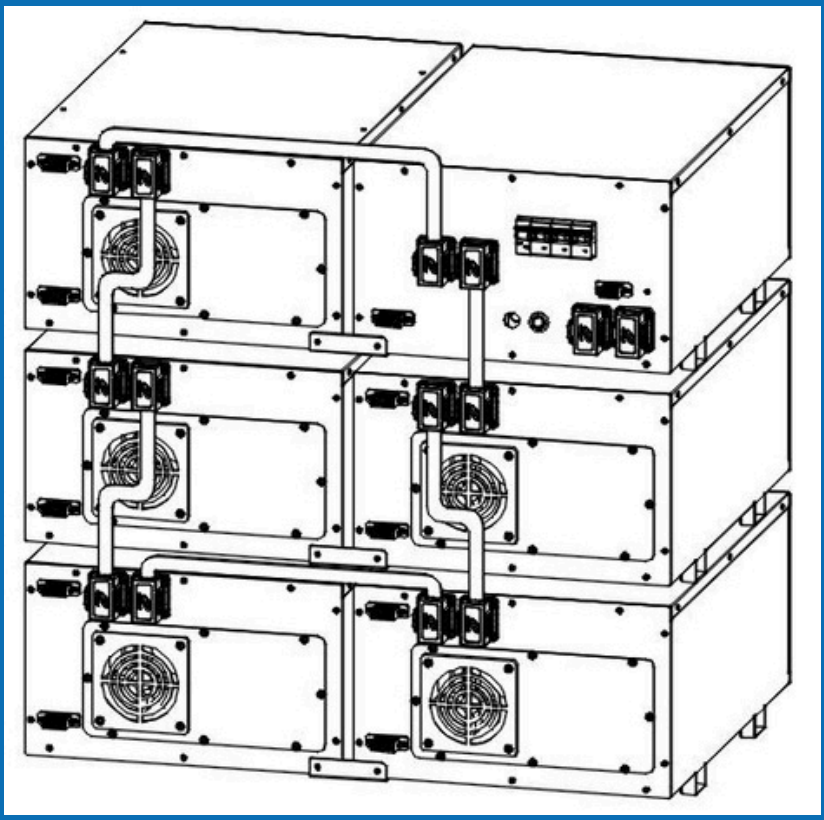
JEBEL

Operating Instruction

Home energy storage lithium battery



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1 Legal Notice

- Without the prior written authorization of the manufacturer, no part of this document may be excerpted, copied, translated, annotated, or adapted in any form or manner.
- The storage, use, and disposal of the product must strictly comply with the product instructions, relevant contracts, and applicable laws and regulations.
- It is strictly prohibited to use, in any manner, the data contained in the firmware or software developed by the manufacturer (whether partially or entirely) for commercial purposes.
- It is strictly prohibited to perform reverse engineering, cracking, or any other actions that may compromise the original software design developed by the manufacturer.

2 Disclaimer

Under the following circumstances, the manufacturer shall not be liable for personal injury, property damage, product deterioration, or consequential losses:

- Losses caused by force majeure include, but are not limited to, earthquakes, floods, volcanic eruptions, landslides, lightning strikes, fires, wars, military conflicts, typhoons, and hurricanes.
- Did not comply with the provisions of this manual.
- The installation, operation, and storage environment does not comply with relevant international, national, or regional standards.
- misuse of this product
- Do not repair, disassemble the product, or perform any other operations by unauthorized or unqualified personnel.
- Use unauthorized spare parts.
- Do not modify or make technical changes to the product or software without authorization.
- The shipment was sent by you or a third party you authorized.
- The materials and tools you are using do not comply with applicable international, national, or regional standards.
- Damages resulting from negligence, intent, gross misconduct, or improper operation by you or a third party.

Please read this manual and other related documents carefully and keep them properly accessible at all times.

3 Safety Guidelines for the Use of Lithium Batteries

danger

Read and follow all safety warnings and instructions carefully. Failure to comply may result in electric shock, fire, severe personal injury, or death. Only qualified personnel may perform battery wiring operations.

warn

1 This product is strictly prohibited for non-professionals to operate, as it may cause damage to the battery system or personal injury. Only authorized personnel may operate it.

2 Do not remove the connector during system operation! To move or maintain the battery system, disconnect the power supply and ensure the battery is fully powered off.

3 A damaged battery may cause electrolyte leakage. If leakage occurs, do not come into contact with the leaked electrolyte or volatile gases, and immediately contact customer service for assistance. If you accidentally come into contact with the leaked substance, follow these steps:

- Inhalation of leaked substances: Immediately evacuate the contaminated area and seek medical assistance.
- Eye contact: Rinse with clean water for at least 15 minutes and seek medical attention immediately.
- Skin contact: Thoroughly wash the affected area with soap and water, and seek medical attention immediately.
- Administration: If vomiting occurs, seek immediate medical attention.
- Do not move the device if the battery system is connected to an external expansion module. For battery replacement or addition, contact customer service.

4 During a fire, only dry powder fire extinguishers may be used; the use of liquid fire extinguishers is strictly prohibited.

prudent

Connect First

1 After opening the package, please check the product and packaging list. If you find any damage or missing parts, contact customer service.

② Ensure the power supply is turned off and the battery is discharged.

During Connection

① The wiring must be correct. Pay attention to the positive and negative terminals of the cable and ensure there is no short circuit connection with external devices.

② Do not connect the battery directly to an AC power source.

③ The battery system must be properly grounded with a resistance value <1 Ω.

④ Ensure the electrical parameters of the battery system are compatible with the relevant equipment.

⑤ Do not connect different types of batteries.

⑥ Do not connect the battery to an incompatible or faulty inverter.

⑦ Do not let the terminals come into contact with exposed wires or metal.

in use

If you need to expand system capacity, please first confirm with after-sales service personnel, then have a qualified authorized technician disconnect the power supply before proceeding.

Keep this device out of reach of children and animals.

Do not place the battery near sources of fire, heaters, or high temperatures to reduce the risk of explosion or injury.

The battery may explode near a source of ignition (such as an open flame), releasing fragments and chemicals. In such cases, immediately rinse the affected area with plenty of water.

Avoid immersing the battery in water or exposing it to humid or waterlogged environments.

Do not disassemble or modify the battery in any way.

Do not move the device if the battery system is connected to an external expansion module.

For battery replacement or addition, contact customer service.

We shall not be liable for any consequences or related responsibilities arising from violations of safety operating procedures or equipment safety standards.

4 Safety Signs and Terminology Explanation

Characteristic	Description

	Indicates a potential hazard that, if not avoided, may cause equipment damage or personal injury.
	Indicates flammability risk. Keep away from open flames or high-temperature sources, as this may cause fire or explosion.
	Indicates chemical hazard; the battery contains hazardous chemicals. Do not disassemble or repair it without professional guidance.
	This indicates a risk of electric shock; failure to follow safety procedures may result in personal injury.
	Do not use open flames near batteries to prevent fires or explosions.
	Under no circumstances should water be used to extinguish a battery fire; only dry powder fire extinguishers are permitted.
	Keep the battery out of reach of children to prevent accidents.
	The battery should be recycled by a professional facility after use.
	The product must not be discarded as regular household waste and should be recycled in accordance with local regulations.
	If you notice any abnormalities, please contact customer service within 24 hours for assistance.
	This indicates that maintenance is for professional personnel only; unauthorized disassembly or modification is prohibited.
	Indicates that the product complies with the safety, health, and environmental requirements specified in relevant EU directives.

5 Product Description

5.1 Product Features

①This series features a modular stacking design for flexible expansion, supporting the series

connection of 5 to 10 battery modules to increase both voltage and capacity.

②Rack-mounted design with plug-and-play modules, eliminating complex wiring; capacity expansion can be achieved simply by adding more modules.

③The cathode material is lithium iron phosphate $LiFePO_4$, which exhibits strong thermal stability, poses no risk of fire or explosion, and offers long cycle life. The entire module is non-toxic, pollution-free, and environmentally friendly.

④Equipped with a built-in Battery Management System (BMS) that provides comprehensive protection against overcharging, overdischarging, overcurrent, overheating, and short circuits. It automatically manages the charging/discharging states of each battery cell while monitoring key parameters such as cell voltage, current, and temperature, while simultaneously balancing cell voltage and current to extend cycle life.

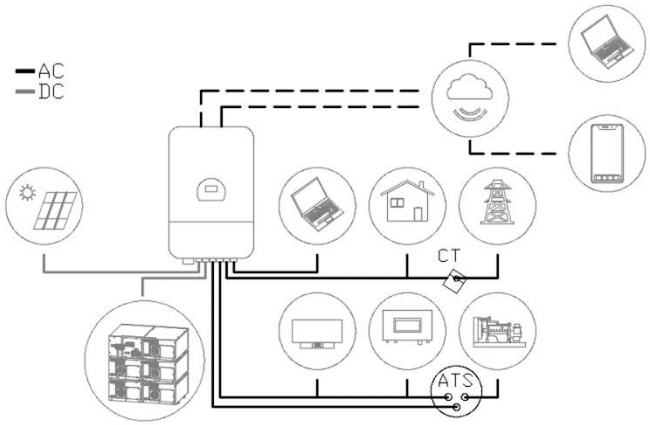
⑤It employs a self-cooling/wind-cooling mode to effectively reduce operating temperatures and ensure stable performance in high-temperature environments.

⑥This module features low self-consumption power, providing up to 6 months of operation without charging; it exhibits no memory effect and demonstrates excellent shallow charge-discharge performance.

⑦The operating temperature range is 0 to 55°C, with excellent discharge performance and cycle life; achieving ≥6,000 cycles and a service life of 10–15 years.

5.2 Application Scenarios

The figure on the right illustrates the basic application of this battery.



Additionally, it includes the following components to form a complete operating system:

- Generators or public utilities
- Photovoltaic module
- Low-pressure hybrid PCS (charge-discharge)

Consult your system integrator to learn about other system architectures that may be suitable for your needs.

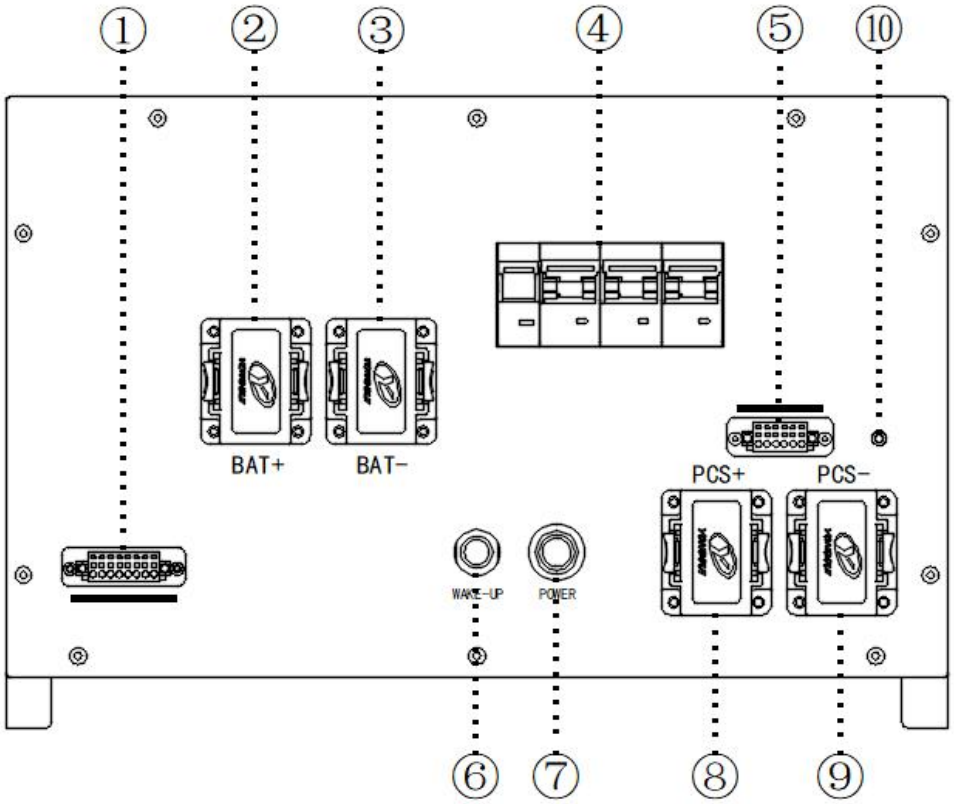
5.3 Product Overview

The JEBEL series is a high-voltage lithium-ion battery energy storage system characterized by high integration, reliability, long service life, and wide operating temperature range. It features a modular design composed of one JEBEL-BCU (Battery Control Unit) connected in series with multiple JEBEL battery modules, operating within a voltage range of 232 V to 576 V for household and commercial energy storage applications when paired with high-voltage inverters.

The JEBEL series features a built-in Battery Management System (BMS), comprising both a master BMS in the Battery Control Unit (BCU) and slave BMS units within battery modules, enabling management and monitoring of battery parameters such as voltage, current, and temperature. The BMS also balances battery charging to extend service life and includes protection against over-discharge, overcharging, overcurrent, and extreme temperatures. The system automatically manages charging, discharging, and balancing states.

The JEBEL series features built-in soft-start circuits, enabling compatibility with inverters without soft-start functionality. JEBEL-BCU (Battery Control Unit)

The JEBEL-BCU comprises the main Battery Management System (BMS), a DC fuse, a soft-start circuit, a charging circuit, a discharge circuit, and a 24 V DC power module.

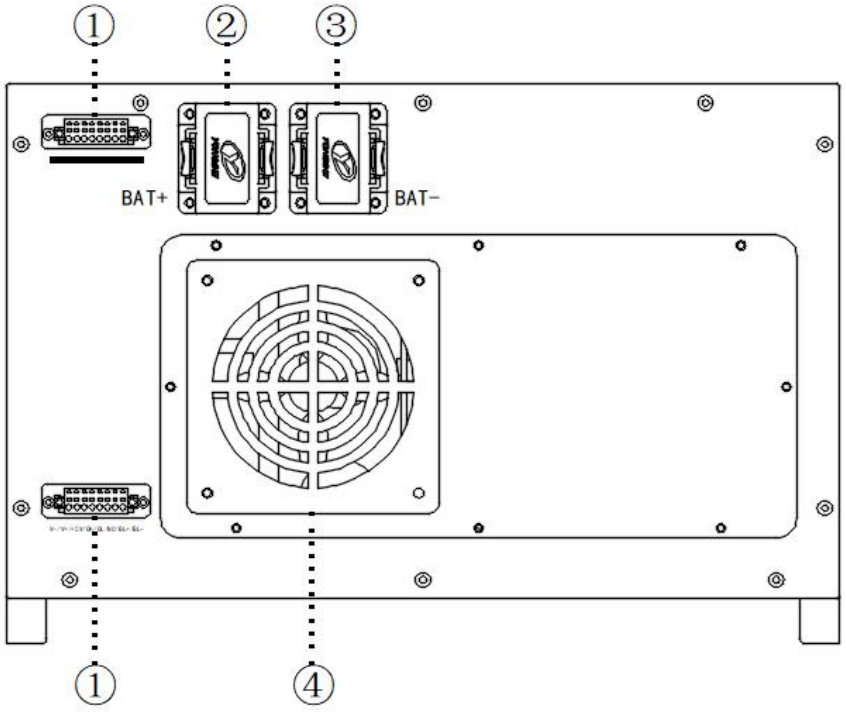


Number	Part Name	Description
1	Parallel Communication Composite Port	V+/V-: Power interface; + 5V: Address port; OH/OL: Communication port; BL+/BL-: Fan power supply interface
2	Battery Positive Terminal Input	Total "+" port after connecting batteries in series
3	Battery Negative Terminal Input	Total number of "—" ports after connecting the batteries in series
4	Circuit breaker	Turn Battery System On/Off
5	PCS Communication Composite Port	1 H/1L: Connect to the inverter's CAN communication port; 2 H/2L: Maintain the communication port (CAN); 485A/485 B:485 communication ports

Number	Part Name	Description
6	WAKE-UP	Wake Button: Wake Battery
7	POWER	Power Switch: Turns battery power on/off.
8	PCS+	Connect to the "+" port of the inverter
9	PCS-	Connect to the "-" port of the inverter
10	Grounding electrode	Used to connect the conductive parts of electrical equipment to ground

JEBEL Battery Module:

The BMS in the JEBEL battery module collects battery voltage and temperature data and uploads it to the main BMS via the internal CAN bus. The main BMS in the BCU controls charging voltage/current and discharging voltage/current.



Number	Part Name	Description
1	Parallel Communication Composite Port	V+/V-: Power interface; + 5V: Address port; OH/OL: Communication port;

Number	Part Name	Description
		BL+/BL-: Fan power supply interface
2	Battery positive electrode	The "+" port of the battery
3	Battery negative electrode	The "–" port of the battery
4	Radiator fan	Heat dissipation for battery modules

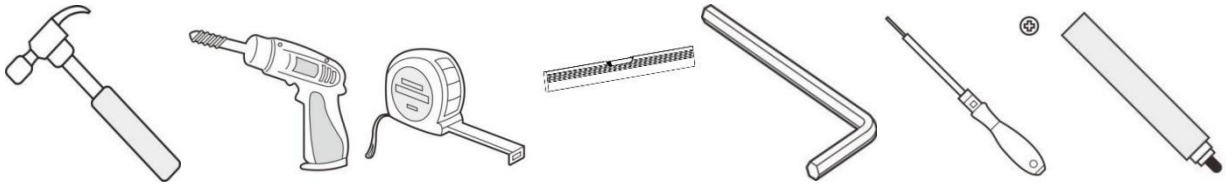
6 Installation Preparation

6.1 Unboxing List

The unboxing list is included in the product packaging box. Upon opening, immediately check whether all accessories are complete.

6.2 Required Tools

The following tools are required to install the battery: screwdriver, electric drill, tape measure, level, hex key, Phillips screwdriver, and marker pen.



6.3 Safety Equipment

The following safety equipment should be worn when handling battery packs: insulating gloves, safety shoes, and goggles.



Warning!Use tools with proper insulation to prevent electric shock or short circuits. If insulated tools are unavailable, wrap metal parts (excluding tips) with electrical tape.

7 Installation Instructions

7.1 Installation Personnel and the Environment

1 During installation and operation, lithium batteries should be protected from direct sunlight, rain exposure, and snow accumulation.

2 Ensure the installation location meets the following requirements: The installation area should avoid direct sunlight.

3 The floor and walls must be completely waterproof.

4 The wall must be flat.

5 Do not store flammable or explosive materials.

6 Install the equipment in a clean, dry, and well-ventilated area with appropriate temperature, humidity, and altitude. For more details, see the Technical Specifications section.

7 The installation area should minimize dust and dirt as much as possible.

8 Do not place the device near heat sources or fire sources, such as smoke, candies, heaters, or other heating devices. Overheating may damage the device or cause a fire.

9 The distance between the air outlets of the PCS should be greater than 0.5 meters.

10 Do not place in areas accessible to children or pets.

11 There are no mandatory ventilation requirements for battery modules, but avoid installing them in enclosed spaces. Do not cover or wrap the battery box or cabinet.



pay attention to！

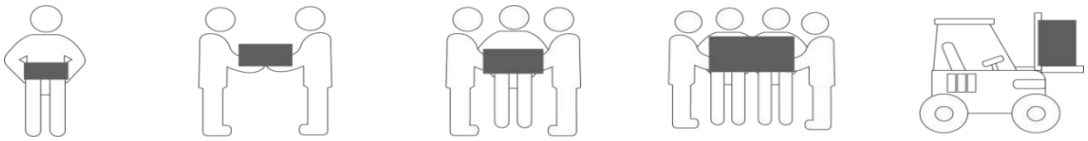
1 **Cleaning:**Before power-on installation, remove dust and metal debris to maintain a clean environment. Do not install in dusty areas without a protective housing.

2 **Temperature:**The battery pack will shut down for self-protection when the ambient temperature exceeds the specified range. Frequent exposure to temperatures outside-20°C to 60°C may reduce performance and shorten service life.

③、 **Fire suppression system:**For safety reasons, it is advisable to install a fire suppression system and conduct regular inspections and maintenance.

④、 **Moving heavy objects:**Exercise caution when moving heavy items. Select appropriate methods and the number of personnel based on the product weight (refer to the table below).

⑤、 **When handling heavy items:**Exercise caution to avoid injury. Select an appropriate handling method based on the item's weight. Refer to the figure below.



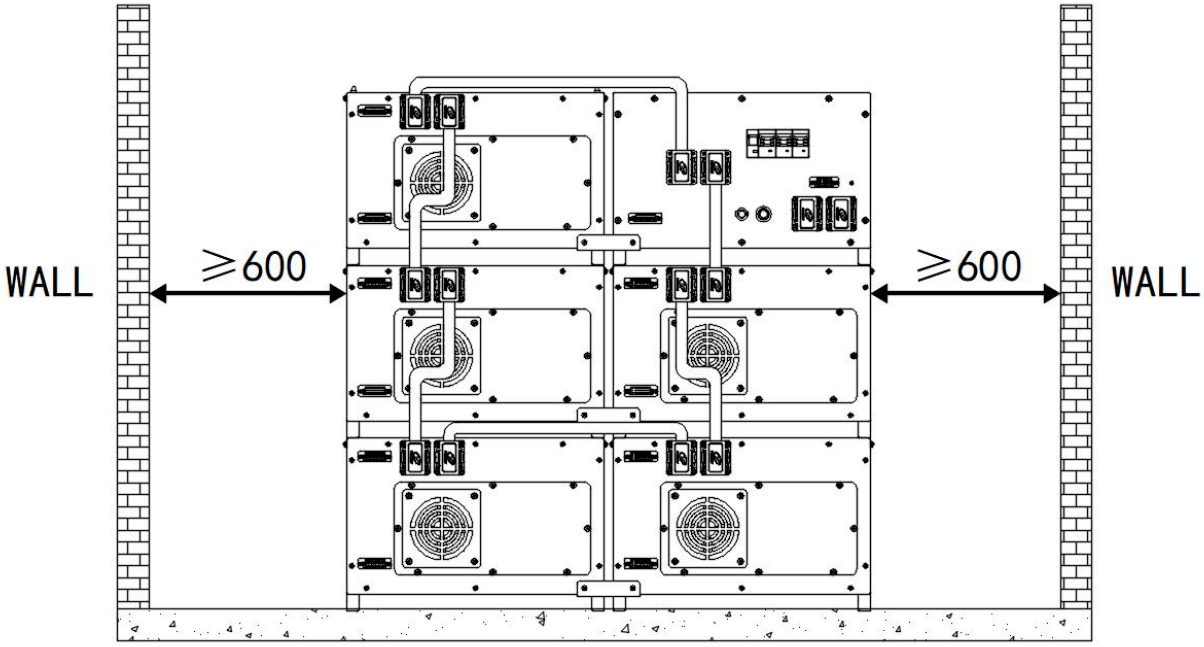
Weight	Method	Propose
＜18kg（40lbs）	Manual handling	1 human being
18~32kg（40~70lbs）	Manual handling	2 human being
32~55kg（71~121lbs）	Manual handling	3 human being
55~68kg（121~150lbs）	Manual handling	4 human being
＞68kg（150lbs）	Mobile devices	Forklift

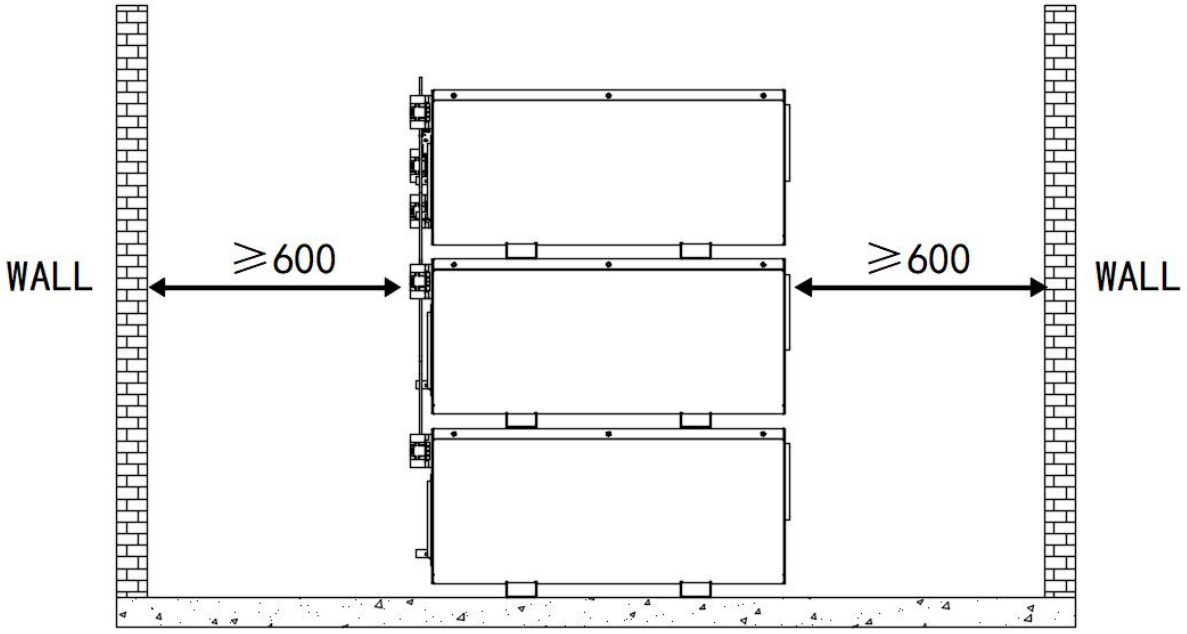
7.2 Installation Location Selection



pay attention to！

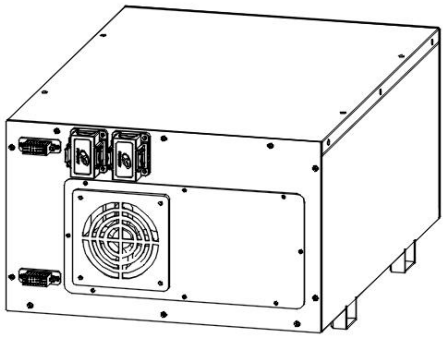
The battery should be installed in a clean, flat area away from fire sources, not in living spaces, and at an appropriate temperature. The recommended installation location must meet the dimensional requirements shown in the figure below:



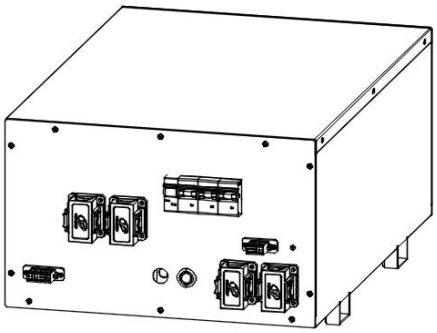


7.3 Install Battery

Remove the JEBEL battery modules and the JEBEL-BCU (Battery Control Unit) (as shown below) from the packaging box. Each energy storage battery contains one JEBEL-BCU and several JEBEL battery modules:

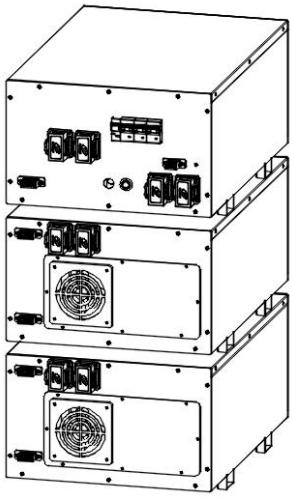


JEBEL Battery Module

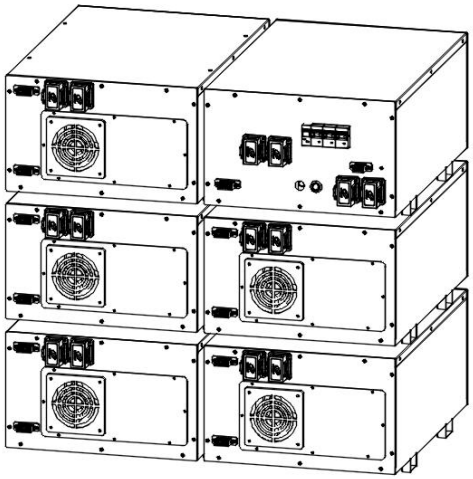


JEBEL-BCU (Battery Control Unit)

The JEBEL series offers two installation modes: single-row and double-row. As shown in the figure below:



single-row

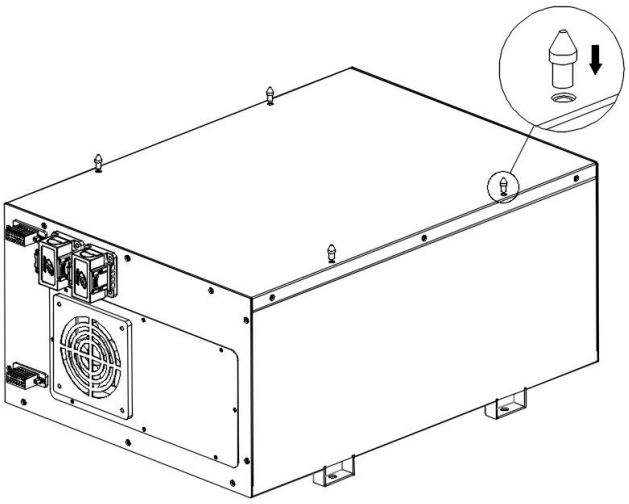


Biserial

7.3.1 Single-Column Installation

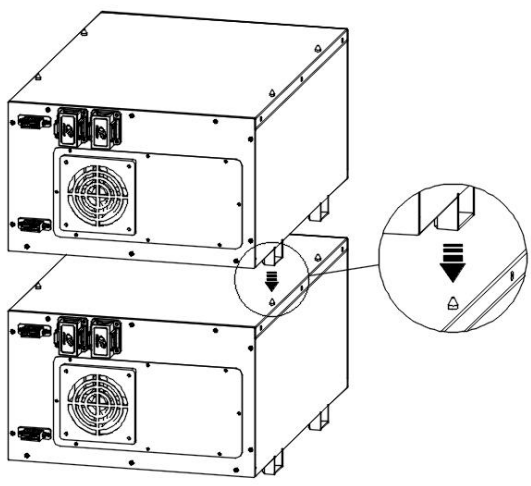
Step 1

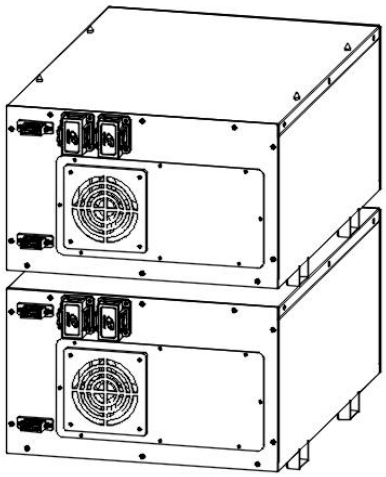
Insert four external conical positioning pins into the upper part of the ELERCAK battery module.



Step 2

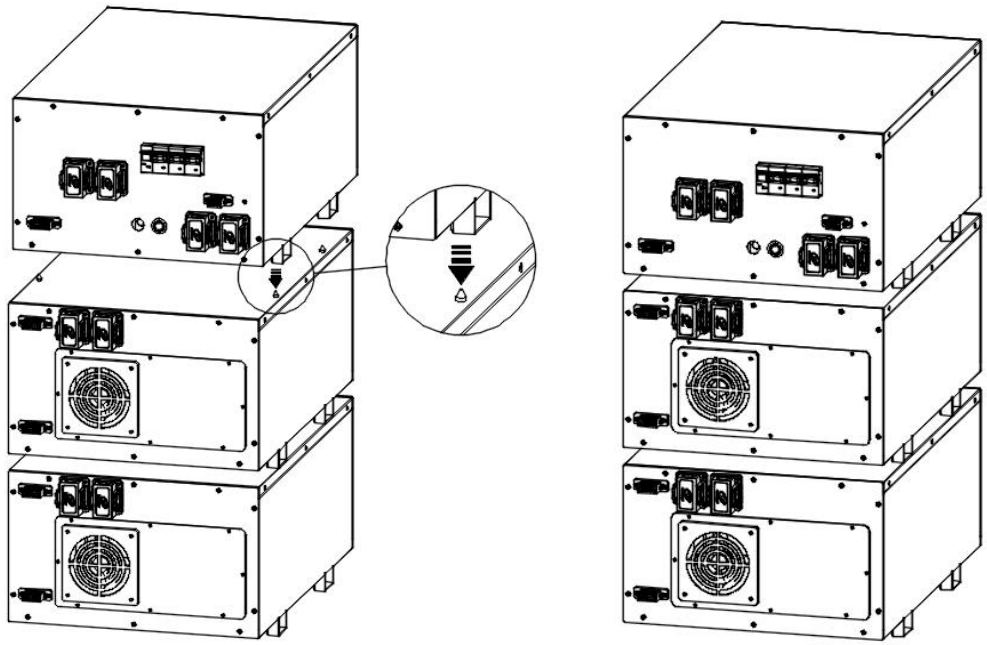
Place the first ELERCAK battery module on a level surface, then position the second module on top of it using positioning pins, and stack the battery modules sequentially upward.





Step 3

Once All Battery Modules Are Installed, Position the JEBEL-BCU (Battery Control Unit) on the Top Layer Using Positioning Pins.



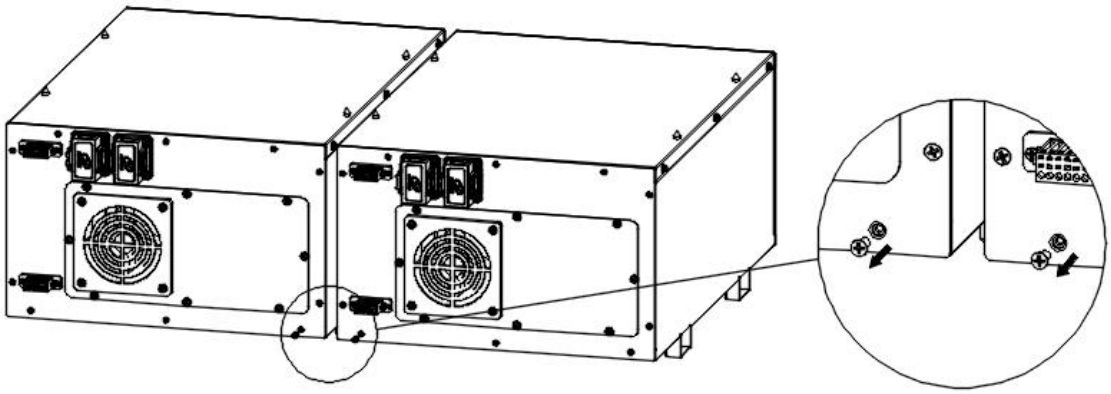
7.3.2 Double-Column Installation

Step 1

Same as Step 1 for Single-Column Installation.

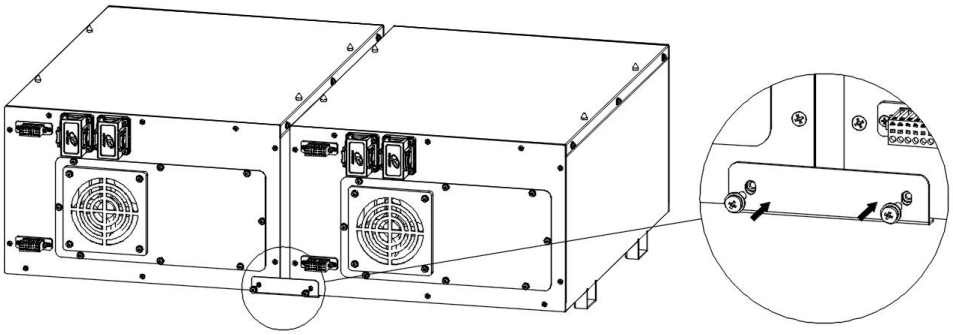
Step 2

Align and place the battery modules with a 15 mm gap between them, then remove two countersunk screws (as shown below); repeat the same procedure on the rear side.

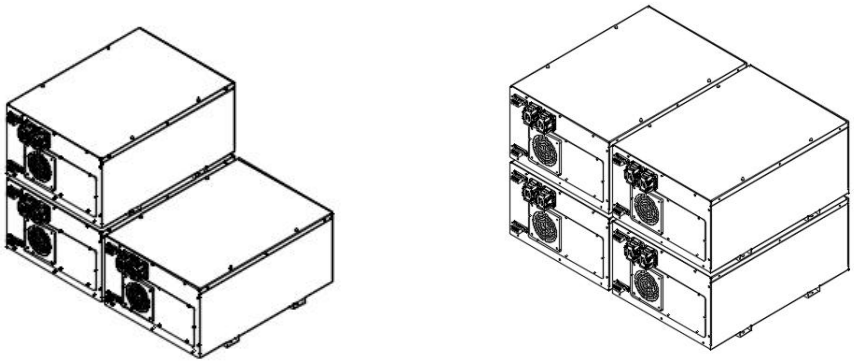


Step 3

Secure the Housing Fasteners With Two M4 Three-Piece Screws (as Shown Below), and Repeat the Same Procedure at the Rear End.

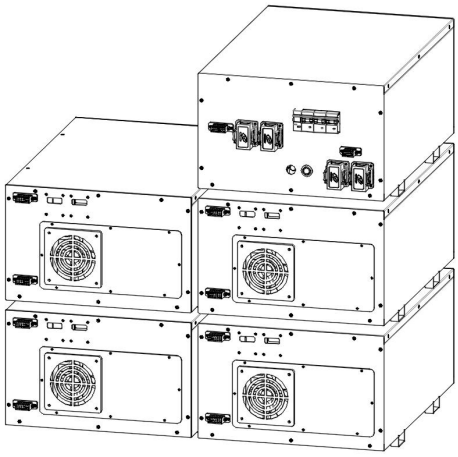


Then repeat steps 2 and 3 to stack further upward (as shown below)

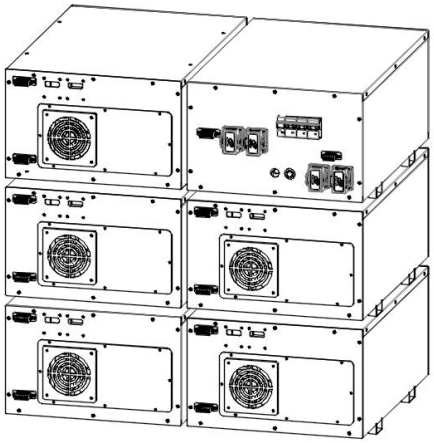


Step 4

Once All Battery Modules Are Installed, Place the JEBEL-BCU (Battery Control Unit) on the Top Layer (as Shown Below).



Double-column layout with unequal heights

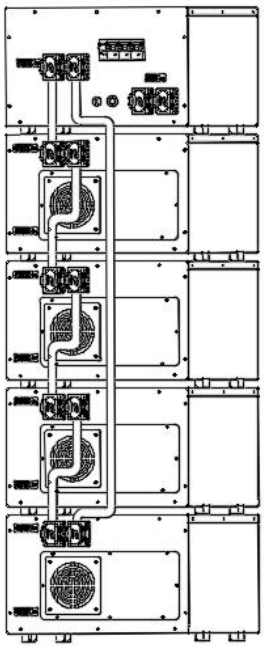


Double-column isometric layout

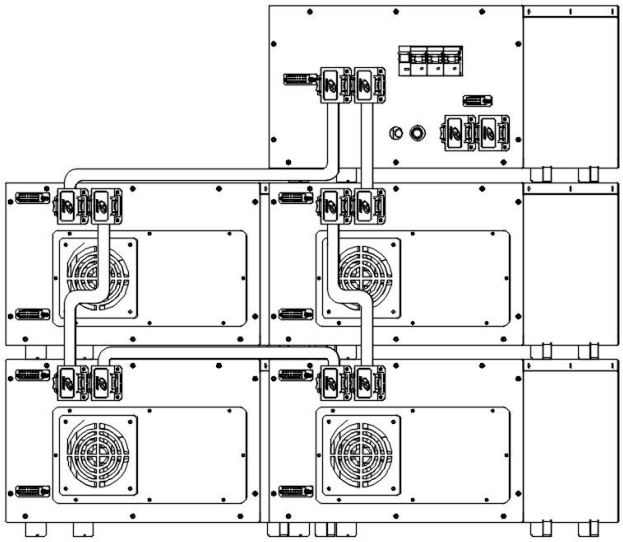
8. Electrical Connection

8.1 Aluminum Pipe Installation

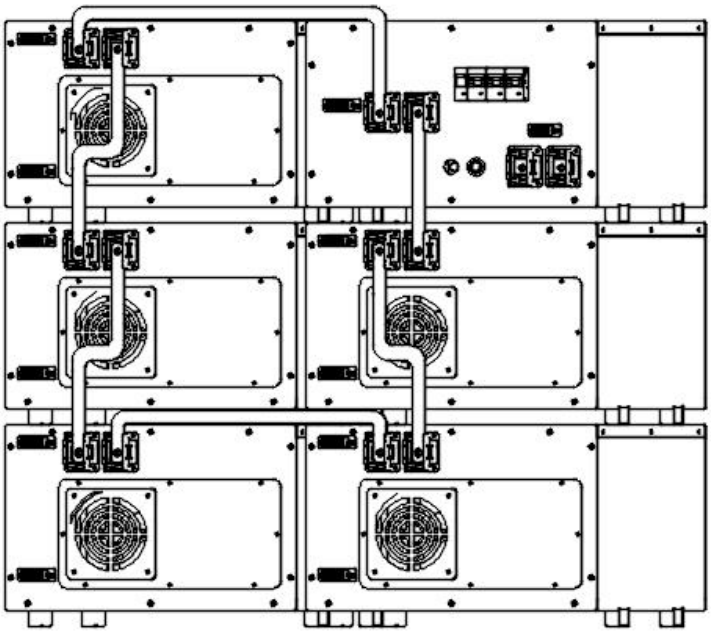
As Shown in the Figure Below, Connect the Aluminum Busbar in the Accessory Pack Accordingly.



Installation of a single-row aluminum strip

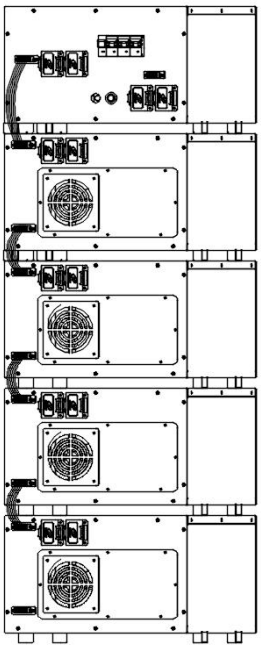


Installation of double-column aluminum profiles with unequal heights

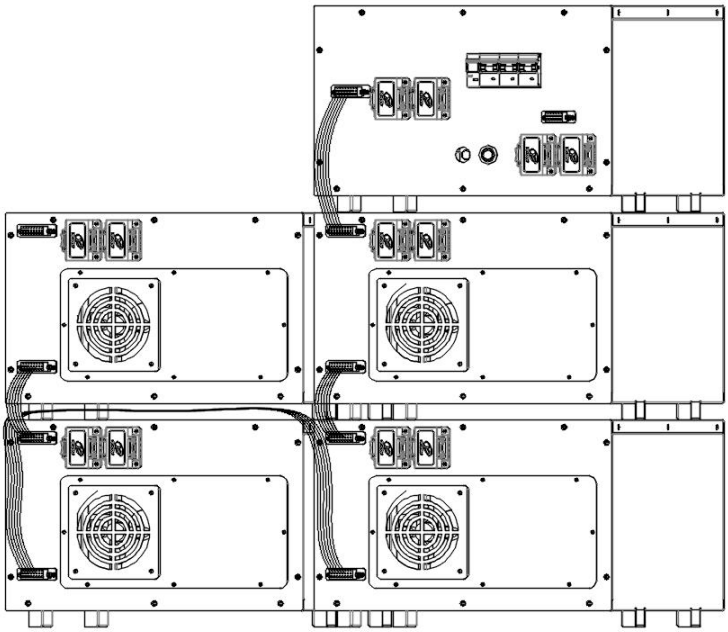


Installation of double-column, isoscale aluminum strips

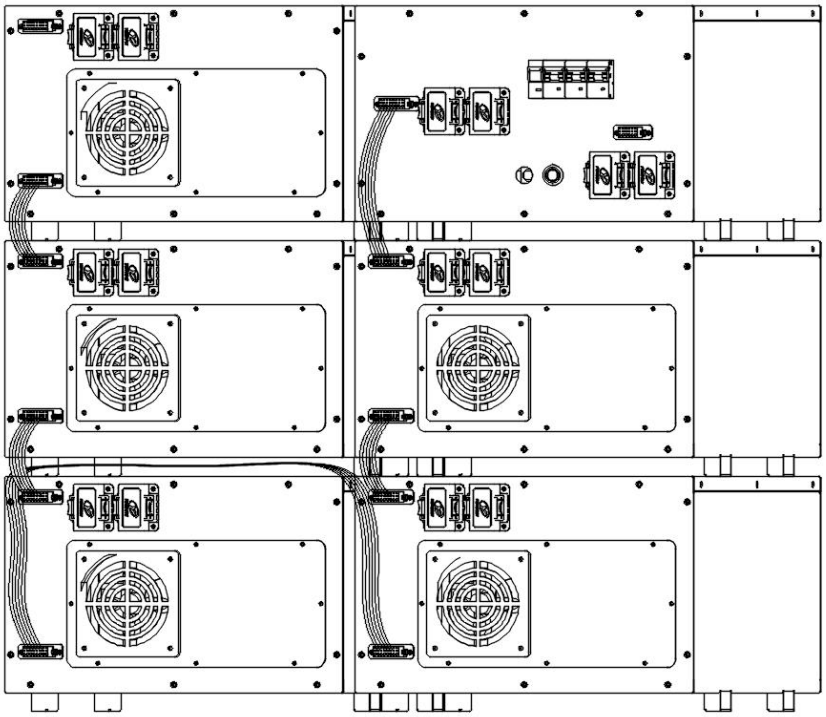
8.2 Communication Line Installation



Single-column communication line installation

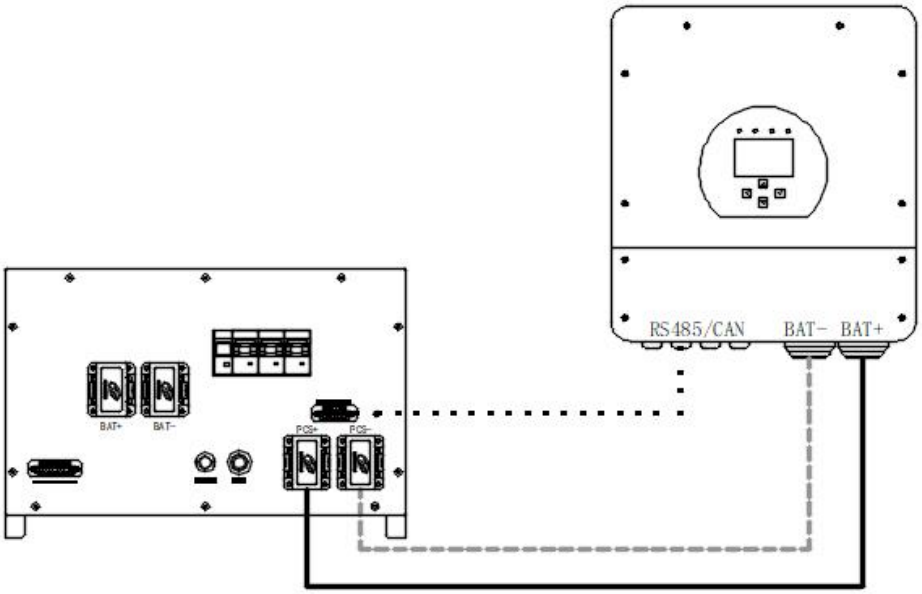


Installation of dual-column communication lines with unequal heights



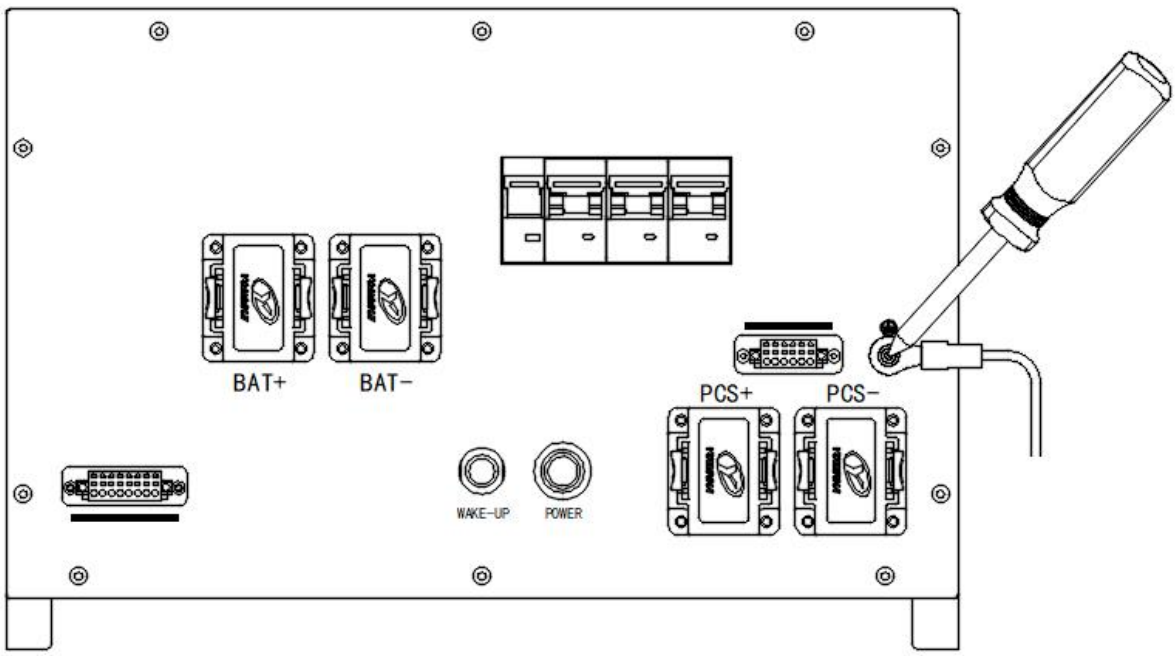
Installation of dual-column, isoscale communication lines

8.3 Connect to the Inverter



8.4 Landing

Your battery system must be properly grounded. Follow the steps in the following diagram:



9 Battery Startup/Shutdown Process

Before operating the product, ensure:

① All Cables and Aluminum Busbars Are Properly and Securely Connected.

② All fasteners (including bolts and screws) are tightened.

③ No spectators or animals are permitted within the work area.

④ Do not allow foreign objects (especially metals) to come near the battery.

9.1 Open Battery System

Turn off the interrupter, press the power button (POWER), and release it after 10 seconds. The battery enters a self-test mode; upon completion, it enters a pre-charging state.

9.2 Turn off the Battery System

Press the power button (POWER) and release it after 10 seconds; the battery will stop supplying power. Alternatively, simply turn off the interrupter.

9.3 Battery Wake Up Function

If the first step fails to activate the battery system, it indicates low battery voltage preventing startup. In this case, press both the POWER button and the WAKE-UP button simultaneously, then release them after 10 seconds. The system will perform a self-check; if no issues are detected, the inverter will begin charging.

10 Inspection, Cleaning, and Maintenance

10.1 General Information

1. The battery is not fully charged. We recommend completing installation within 3 months after delivery.
2. During maintenance, do not reinstall the battery into the device. Otherwise, battery performance may decrease.
3. Under no circumstances should any battery component within a battery product be removed, nor should the battery itself be disassembled in any manner.
4. After an excessive discharge, recharge the battery within 48 hours.
5. Do not attempt to open or remove the battery! There are no repairable components inside the battery.
6. Before performing cleaning and maintenance procedures, disconnect the lithium-ion battery from all loads and charging devices.
7. All battery terminals must be disconnected during maintenance.
8. If you encounter any issues, please contact customer service within 24 hours.
9. Do not use cleaning solvents to clean the battery.

10.2 Check Up

1. Check the battery circuit and contacts for looseness, damage, cracks, deformation, leakage, or any other defects. If a battery is damaged, replace it immediately. Do not charge or use a damaged battery. Do not touch the liquid inside a cracked battery.
2. Regularly check the battery level. Lithium iron phosphate batteries undergo slow self-discharge when not in use or during storage.
3. Consider replacing the battery if any of the following occurs:

- The battery runtime is less than 70% of the original runtime.
- The battery charging time has increased significantly.

10.3 Cleaning

If necessary, clean the lithium-ion battery with a soft dry cloth. Do not use liquids, solvents, or abrasives to clean the lithium-ion battery.

10.4 Maintenance

Lithium-ion batteries require no maintenance. To maintain battery capacity, charge uninstalled batteries to at least 80% of their capacity annually.

11 Storage

1. Battery products should be stored in a dry, cool environment.
2. If the battery is stored for extended periods, it should be charged every six months, and its SOC (State of Charge) must remain above 50%.
3. Under normal conditions, batteries can be stored for up to 6 months at room temperature. If storage exceeds 6 months, check the voltage of each battery module. Continue storage if the voltage remains above 51.2 V. Additionally, inspect the voltage at least once monthly.
4. When the battery module voltage falls below 51.2 V, charge it according to the charging strategy.
5. The charging procedure is as follows: discharge the battery at 0.5 C current until reaching the cut-off voltage, then charge it at 0.5 C current for approximately 3 hours. During storage, maintain the battery's SOC between 40% and 60%.
6. During storage, battery products should be kept away from sources of ignition or high-temperature environments, and positioned distant from explosive and flammable areas.

12 Debugging

Users can monitor operational status, warnings, and alarm information via the inverter's LCD display.

Fault Diagnosis Table

<table>
<tr><th>Fault type</th><th>Phenomenon</th><th>Possible Reasons</th><th>Rx</th></tr>
<tr><td rowspan="5">Battery system startup failure</td><td rowspan="5">When you press the POWER button, the indicator light does not illuminate.</td><td>The DC circuit breaker of BCU is not closed</td><td>Enable the BCU DC circuit breaker</td></tr>
<tr><td>The battery is deeply discharged and needs to be charged first</td><td>Press both the Power button (POWER) and the Wake-up button (WAKE-UP) simultaneously. When the system detects no response...
Start charging after other faults occur.</td></tr>
<tr><td>The fuse in the BCU is faulty.</td><td>Replace the fuse</td></tr>
<tr><td>The voltage of a single battery pack is 51 V or higher.
The device is on, but the battery still cannot power it up</td><td>Please contact the distributor.</td></tr>
<tr><td>The battery shows no response after charging for 30 minutes or longer.</td><td>Please contact the distributor.</td></tr>
<tr><td>Charging/Discharging Failure</td><td>The battery can be started but cannot be charged or discharged.</td><td>The battery BMS control board has failed.</td><td>Please contact the distributor.</td></tr>
<tr><td>Heating Temperature Protection</td><td>An alarm will be triggered at a high temperature of 45°C.
High-temperature protection for batteries at 50°C</td><td rowspan="2">The ambient temperature of the battery is excessively high, with an abnormal heat source present in the vicinity.</td><td rowspan="3">Move the battery to a temperature range of 5° C to 45°C.
Within the normal operating temperature range</td></tr>
<tr><td>High-temperature protection during discharge</td><td>An alarm will be triggered at a high temperature of 50°C.
High-temperature protection for batteries: 60°C</td></tr>
<tr><td>Charging Temperature Protection</td><td>An alarm will be triggered at a low temperature of 5°C.
Low-temperature protection for batteries at 0°C</td><td rowspan="2">The battery's ambient temperature is too low.</td></tr>
<tr><td>Discharge Low-Temperature Protection</td><td>An alarm is triggered at low temperatures of-10°C; battery protection is activated at-20°C.</td><td></td></tr>
<tr><td>Current Protection</td><td>The battery current exceeds the current protection threshold.</td><td>The battery protection device is enabled</td><td>Stop using electrical appliances that exceed the battery's maximum power capacity.</td></tr>
<tr><td>Overvoltage Protection</td><td>Cell voltage exceeds 3.6 V</td><td>Battery protection is enabled</td><td>Stop charging.</td></tr>
<tr><td>Undervoltage protection</td><td>Cell voltage is below 2.6 V</td><td>The power outage lasted too long, causing the battery to drain. The battery protection feature has been activated.</td><td>Stop discharging and charge the battery promptly. If the battery cannot be restored due to abnormal protection, contact your local engineer for assistance.</td></tr>
</table>

		The cell voltages are inconsistent, with some cells exhibiting rapid capacity degradation or excessively high internal resistance.	
Short-circuit protection failure	The battery outputs a voltage without any current.	Start-up under load with inter-pole short circuit	Short-circuit protection failure
Cell voltage acquisition failed	The cell voltage sampling circuit is faulty. There is a fault in the cell temperature sampling circuit.	The solder joint used for cell voltage sampling is loose or broken. The voltage sampling terminal is disconnected The temperature sensor for the battery cell is faulty.	Change the data collection line Change the temperature sensor
Connection fault between the battery and the inverter	When the battery is connected to the inverter, the DC circuit breaker automatically trips.	There is a short-circuit point in the circuit between the battery and the inverter.	Check for any short circuit in the circuit between the battery and the inverter; verify whether the inverter is faulty.
Communication failure between the battery and the inverter	When the battery is connected to the inverter, no connection can be established between the battery and the inverter.	The wrong battery model was selected in the inverter settings.	Select the correct battery model in the inverter settings

Check the above data and send it to After-Sales Service. We will provide the appropriate solution upon receiving your information.

13 Technical Specifications

Product model			JBL-HV-10K-M	JBL-HV-16K-M	JBL-HV-20K-M
Battery Type			$LiFePO_4$	$LiFePO_4$	$LiFePO_4$
Maximum charge and discharge currents			50/50	105/120	150/200
Continuous charging and discharging			50/50	100/110	140/180
Number of Modules	5	Battery capacity （Wh）	25600	51200	80384
		Rated Voltage (Vdc)	256	256	256
		Operating Voltage Range (Vdc)	232~288	232-288	232-288
		Single-column dimensions (H*W*D) (mm)	1110*377*550	1665*413*623	1665*413*758
		Two-column dimensions (H*W*D) (mm)	555*769*550	832.5*841*623	
		Weight （kg）	239	444	594
Number of Modules	6	Battery capacity （Wh）	30720	61440	96460.8
		Rated Voltage (Vdc)	307.2	307.2	307.2
		Operating Voltage Range (Vdc)	278.4-345.6	278.4-345.6	278.4-345.6
		Single-column dimensions (H*W*D) (mm)	1295*377*550		
		Two-column dimensions (H*W*D) (mm)	740*769*550	1110*841*623	1110*841*758
		Weight （kg）	284	528	709
Number of Modules	7	Battery capacity （Wh）	35840	71680	112537.6
		Rated Voltage (Vdc)	358.4	358.4	358.4
		Operating Voltage Range (Vdc)	324.8-403.2	324.8-403.2	324.8-403.2
		Single-column dimensions (H*W*D) (mm)	1480*377*550		
		Two-column dimensions (H*W*D) (mm)	740*769*550	1110*841*623	1110*841*758
		Weight （kg）	329	612	824
Number of Modules	8	Battery capacity （Wh）	40960	81920	128614.4
		Rated Voltage (Vdc)	409.6	409.6	409.6
		Operating Voltage Range (Vdc)	371.2-460.8	371.2-460.8	371.2-460.8
		Single-column dimensions (H*W*D) (mm)	1665*377*550		
		Two-column dimensions (H*W*D) (mm)	925*769*550	1387.5*841*623	1387.5*841*758

		Weight （kg）	374	696	939
Number of Modules	9	Battery capacity （Wh）	46080	92160	144691.2
		Rated Voltage (Vdc)	460.8	460.8	460.8
		Operating Voltage Range (Vdc)	417.6-518.4	417.6-518.4	417.6-518.4
		Single-column dimensions (H*W*D) (mm)	1850*377*550		
		Double-column dimensions (H*W*D) (mm)	925*769*550	1387.5*841*623	1387.5*841*758
		Weight （kg）	419	780	1054
Number of Modules	10	Battery capacity （Wh）	51200	102400	160768
		Rated Voltage (Vdc)	512	512	512
		Working Voltage Range (Vdc)	464-576	464-576	464-576
		Single-column dimensions (H*W*D) (mm)	2035*377*550		
		Two-column dimensions (H*W*D) (mm)	1110*769*550	1665*841*623	1665*841*758
		Weight （kg）	464	864	1169
Work Environment Temperature Range (°C)			0-55		
Temperature Control Method			Natural cooling		
Communication interface			CAN		
Levels of protection			IP20		
Installation Method			Stacked indoor installation		
Working Humidity			≤95% RH, no condensation		
Storage Environment Humidity			≤95% RH – No condensation		
Work altitude			≤3000m		
Storage temperature			≤25°C: 12 months ≤35°C; 6 months ≤45°C; 3 months		
Attestation			UN		

14 Transportation Requirements

①Battery products shall be transported after packaging and during transit. Avoid severe vibration, impact, or compression. Transportation may be performed using vehicles such as automobiles, trains, or ships.

②Before transporting lithium iron phosphate batteries, always review all applicable local, national, and international regulations.

③In certain cases, the transportation of discarded, damaged, or recalled batteries may be subject to special restrictions or prohibitions.

④ The transportation of lithium-ion batteries falls under Category 9 (UN3480) of the United Nations Classification of Dangerous Goods. When transported by water, air, or land, they belong to Packaging Category PI965 Part 1. Transport lithium-ion batteries classified as Category 9 using the appropriate Category 9 hazardous goods label and the UN identification tag; refer to the relevant transport documents for details.



Category 9: Other hazardous materials and United Nations identification labels