

User Manual

UHB Li-HV System



Copyright

This user manual's copyright belongs to original manufacturer. Any unit or individual shall not reproduce or partially reproduce the contents of this manual without permission, and shall not convert or distribute in any form or means. Manufacturer reserves the copyright, and owns the power of interpretation. All information may be changed or updated without notice, please understand.

Preface

Overview

This manual is aimed at electricians, specialists with professional qualifications and end users. It mainly introduces the assembly, installation, electrical connection, debugging, maintenance and troubleshooting of the products. Before installing and using battery, please read this manual carefully, understand the safety information and be familiar with the functions and characteristics of hybrid battery.

Target Groups

This manual is applicable to the electrical installers with professional qualifications and end-users.

Content

| | |
|---|----|
| Copyright | 1 |
| Preface | 2 |
| 1 Safety Instructions | 4 |
| 1.1 Safety Notes | 4 |
| 1.2 Important Safety Matters | 4 |
| 1.3 Environmental Conditions | 6 |
| 1.4 Symbol on the Battery Label | 7 |
| 1.5 Symbol on the Packing Box | 8 |
| 2 Battery Introduction | 9 |
| 2.1 Appearance Introduction..... | 9 |
| 2.1.1 Control Module..... | 9 |
| 2.1.2 Battery Module | 10 |
| 2.1.3 Battery Base..... | 10 |
| 2.2 Packing List | 11 |
| 3 Installation | 12 |
| 3.1 Location Requirements..... | 12 |
| 3.2 Battery System Installation..... | 12 |
| 4 Electrical Connection | 16 |
| 4.1 Cables Connection | 16 |
| 4.2 Battery Power Connector Assembly Procedures | 17 |
| 4.3 Communication Cable Connection | 18 |
| 5 System Start and Stop | 19 |
| 5.1 Start System..... | 19 |
| 5.2 Turning Off the System..... | 19 |
| 5.3 LED indication | 20 |
| 6 Trouble Shooting | 21 |
| 6.1 Maintenance..... | 21 |
| 6.2 Maintenance of Electrical Components..... | 21 |
| 6.3 Battery Maintenance | 22 |
| 7 Technical Parameters | 23 |

1 Safety Instructions






1.1 Safety Notes










Before installation, please read this manual and warning labels on battery carefully and follow the instructions in this manual strictly.






1.2 Important Safety Matters

SAVE THESE IMPORTANT SAFETY INSTRUCTIONS.





UHB 200 Stackable Li-HV system installation and maintenance instructions Must have high voltage electrical knowledge. The Company assumes no liability for injury or property damage due to repairs attempted by unqualified individuals or a failure to properly follow these instructions. These warnings and cautions must be followed when using our product.

| | |
|--|--|
|  Warning | Read this entire document before installing or using UHB 200 stackable Li-HV system. Failure to do so or to follow any of the instructions or warnings in this document can result in electrical shock, serious injury, or death, or can damage UHB 200 stackable Li-HV system, potentially rendering it inoperable. |
|  Warning | A battery can present a risk of electrical shock, fire, or explosion from vented gases. Observe proper precautions. |
|  Warning | UHB 200 stackable Li-HV storage system installation must be carried out only by Installers, who have been trained in dealing with high voltage electricity. |
|  Warning | The product is heavy and challenging to lift. |
|  Warning | Use UHB 200 Battery only as directed. |






| | |
|--|--|
|  Warning | <p>Do not use UHB 200 Battery if it is defective, appears cracked, broken, or otherwise damaged, or fails to operate.</p> |
|  Warning | <p>Do not attempt to open, disassemble, repair, tamper with, or modify UHB 200 Battery. UHB 200 Battery is not user serviceable. LFP Cells in UHB 200 Battery are not replaceable. Contact the UHB 200 Authorized Reseller who sold the UHB 200 Battery for any repairs.</p> |
|  Warning | <p>Do not connect UHB 200 Battery to alternating current carrying conductors. UHB 200 storage system including battery and battery must be wired to either a battery or a DC combiner panel that is then wired to an inverter. No other wiring configuration may be used.</p> |
|  Warning | <p>UHB 200 Battery contains components, such as switches and relays, that can produce arcs or sparks.</p> |
|  Warning | <p>To protect UHB 200 Battery and its components from damage when transporting, handle with care. Do not impact, pull, drag, or step on UHB 200 Battery. Do not subject UHB 200 Battery to any strong force. To prevent damage, leave UHB 200 Battery in its shipping packaging until it is ready to be installed.</p> |
|  Warning | <p>Do not insert foreign objects into any part of UHB 200 Battery.</p> |
|  Warning | <p>Do not expose UHB 200 Battery or its components to direct flame.</p> |
|  Warning | <p>Do not install UHB 200 Battery near heating equipment.</p> |
|  Warning | <p>Do not immerse UHB 200 Battery or its components in water or other fluids.</p> |

| | |
|--|--|
|  Warning | Do not use cleaning solvents to clean UHB 200 Battery, or expose UHB 200 Battery to flammable or harsh chemicals or vapors. |
|  Warning | Do not use fluids, parts, or accessories other than those specified in this manual, including use of non-genuine UHB 200 parts or accessories, or parts or accessories not purchased directly from UHB 200 or a UHB 200 -certified party. |
|  Warning | Do not place UHB 200 Battery in a storage condition for more than one (1) month, or permit the electrical feed on the UHB 200 Battery to be severed for more than one (1) month, without placing UHB Battery into a storage condition in accordance with UHB's storage specifications. |
|  Warning | Do not paint any part of UHB 200 Battery, including any internal or external components such as the exterior shell or casing. |
|  Warning | Do not connect UHB 200 Battery directly to photovoltaic (PV) solar wiring. |





1.3 Environmental Conditions

| | |
|--|---|
|  Warning | Install UHB 200 Battery at a height that prevents water from flowing into. |
|  Warning | Operating or storing UHB 200 Battery in temperatures outside its specified range might cause damage to UHB 200 Battery. |
|  Warning | Do not expose the UHB 200 Battery to ambient temperatures above 55°C (131°F) or below -20°C (-4°F). |
|  Warning | Ensure that no water sources are above or near UHB 200 Battery, including downspouts, sprinklers, or faucets. |

1.4 Symbol on the Battery Label

| Symbol | Description |
|---|---|
|  | Do not sit or put heavy things on product. |
|  | Do not drop, deform, impact, cut or spearing with a sharp object. |
|  | Do not place close to open flame or flammable material. |
|  | Do not place at a children's or pet's reach. |
|  | Electric shock hazard, live parts, risk of electric shock, do not touch. |
|  | If on fire, switch off the breaker on DC side and stay away from battery. |
|  | Please read the instructions carefully before installation.battery. |
|  | The battery cannot be disposed of with household waste. |

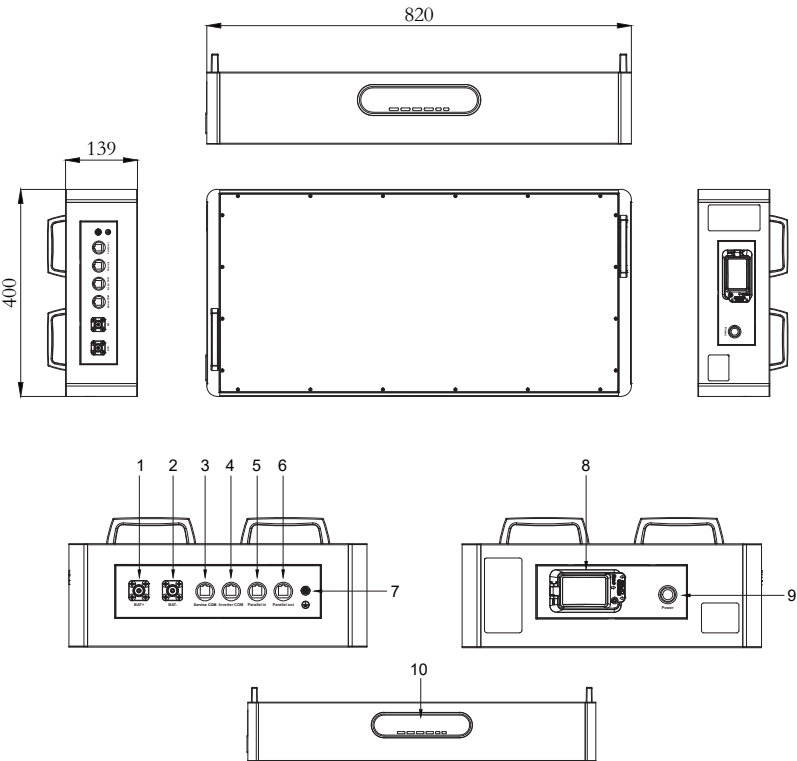
1.5 Symbol on the Packing Box

| Symbol | Description |
|---|-------------------|
|  | Handle with care. |
|  | This side up. |
|  | Keep dry. |
|  | Stacked layers. |

2 Battery Introduction

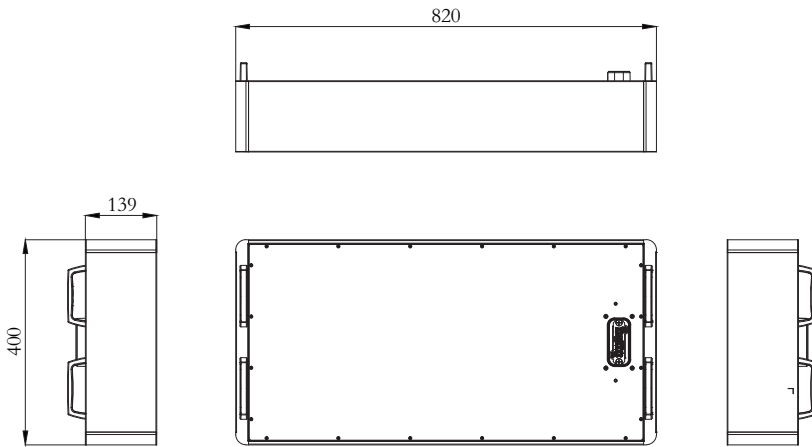
2.1 Appearance Introduction

2.1.1 Control Module

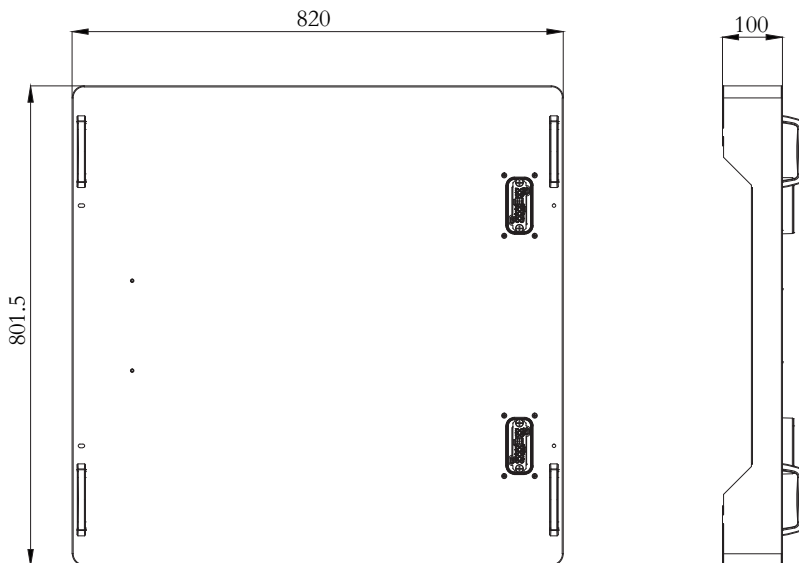


| Item | Terminal | Note |
|------|--------------|---|
| 1 | BAT+ | / |
| 2 | BAT- | / |
| 3 | Service COM | Specified Debug Interface |
| 4 | Inverter COM | Connect to the inverter |
| 5 | Parallel in | / |
| 6 | Parallel out | / |
| 7 | Ground wire | Ground Wire Interface |
| 8 | BAT Switch | Power switch between battery and inverter |
| 9 | Power | Turn the Battery on |
| 10 | LED | / |

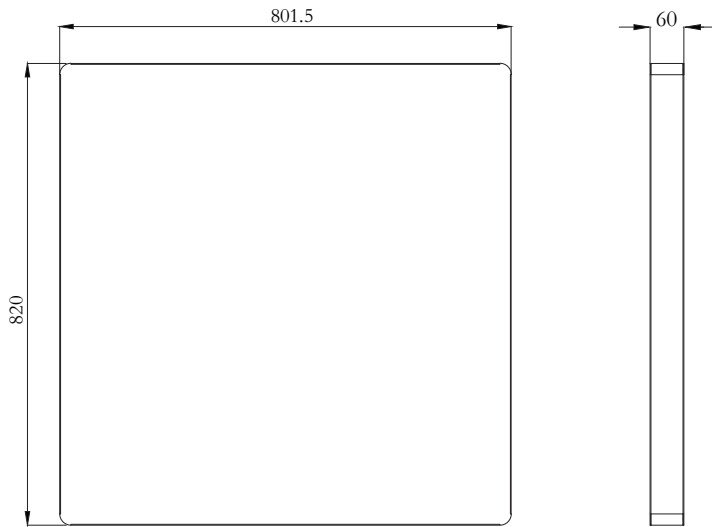
2.1.2 Battery Module



2.1.3 Battery Base

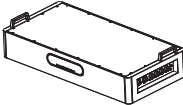
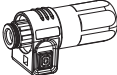
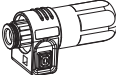








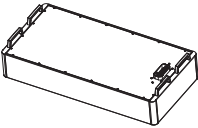

2.1.4 Controller Cover

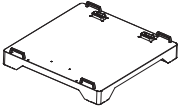
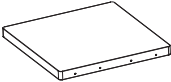
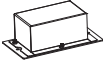




2.2 Packing List

The package includes 1PCS Controller Box, 7-17PCS slave battery modules, and 1PCS battery base and other installation accessories. Please check if the battery modules and accessories are complete in the package when receiving the goods, See the following figure for your reference.

| Controller Box Packing List | | | | |
|---|---|---|---|---|
|  |  |  |  | |
| Control Module × 1 Pcs | Positive Connection Terminal + (Orange) × 1 Pcs | Negative Connection Terminal - (Black) × 1 Pcs | Communication Terminal × 4 Pcs | |
|  |  |  |  |  |
| Screw M4-10 × 2 Pcs | OT-RNB5.5-4L Terminal × 1 Pcs | Packing List × 1 Pcs | User Manual × 1 Pcs | Quality Certificate × 1 Pcs |

| Battery Module Packing List | |
|---|---|
|  |  |
| Battery Module × 1 Pcs | Quality Certificate × 1 Pcs |

| Base & Controller Cover | | | |
|---|---|---|---|
|  |  |  |  |
| Controller Base × 1 Pcs | Controller Cover × 1 Pcs | Terminal Box Components × 1 Pcs | Screw M4-30 × 8 Pcs |
|  | | | |
| Quality Certificate × 1 Pcs | | | |

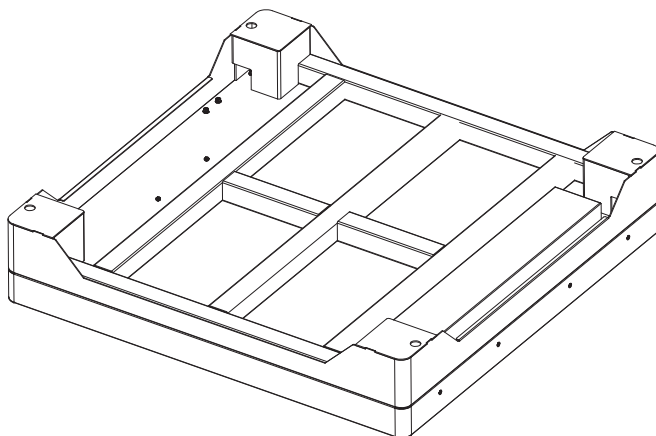
3 Installation

3.1 Location Requirements

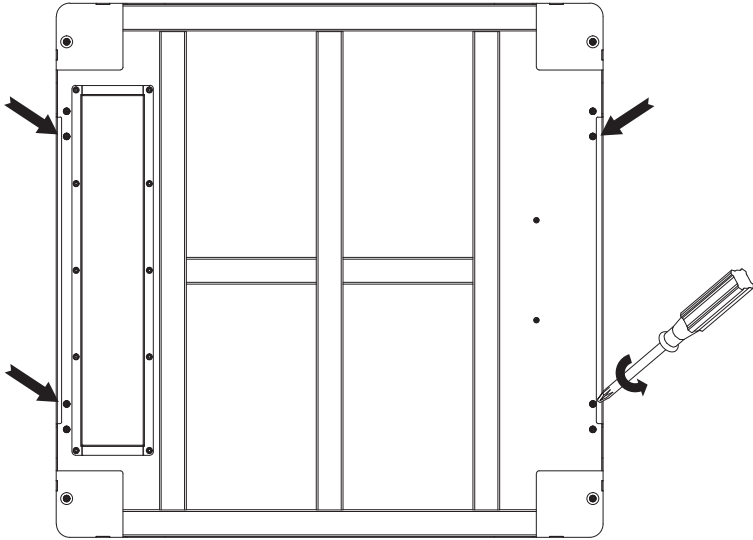
- ① The area is completely water proof. The floor is flat and level.
- ② There are no flammable or explosive materials.
- ③ The ambient temperature is within the range from -20°C to 55°C degree.
- ④ The temperature and humidity are maintained at a constant level. There is minimal dust and dirt in the area.
- ⑤ The distance from heat source is more than 2 meters.
- ⑥ Keep the distance of the whole battery system from the air outlet more than 0.5m. Do not cover or wrap the battery cabinet please!
- ⑦ Keep the battery out of kids' and pets' reach please. There should be no direct sunlight at the installation location.
- ⑧ There are no mandatory ventilation requirements for battery module, but please avoid installation in confined space (Installation to the wall should be less than 20mm).
- ⑨ The aeration shall avoid of high salinity.
- ⑩ Make sure the load capacity of the floor not less than 500KG.

3.2 Battery System Installation

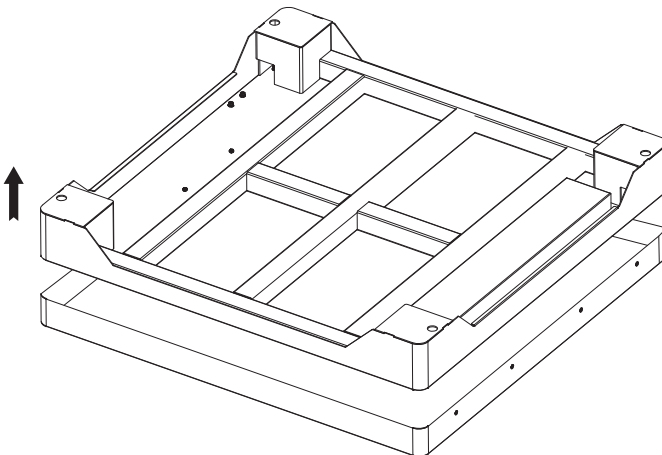
Step 1: Open the packaging and remove the pearl cotton (as shown in the picture).



Step 2: Remove the 4 screws with a screwdriver.

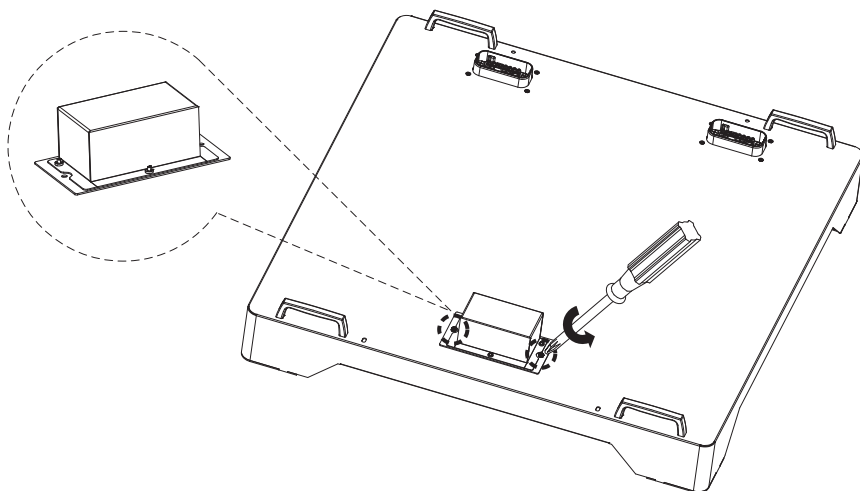


Step 3: Separate the battery base from the battery top cover.

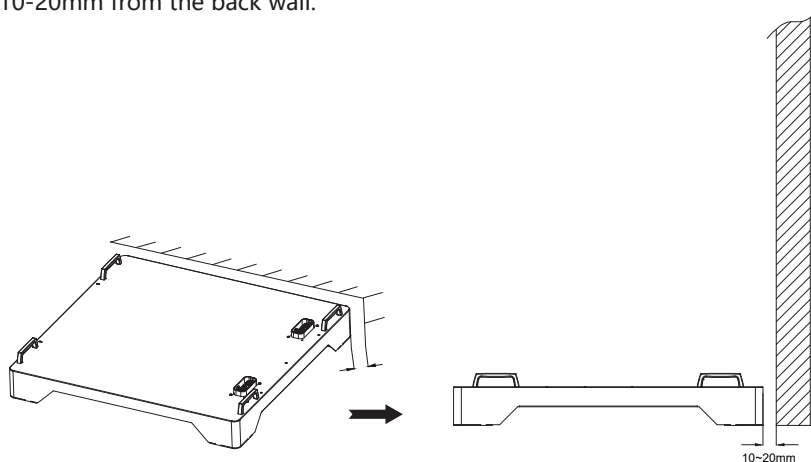


Step 4: Flip the base to the front. Remove the terminal box by removing the two screws as shown.

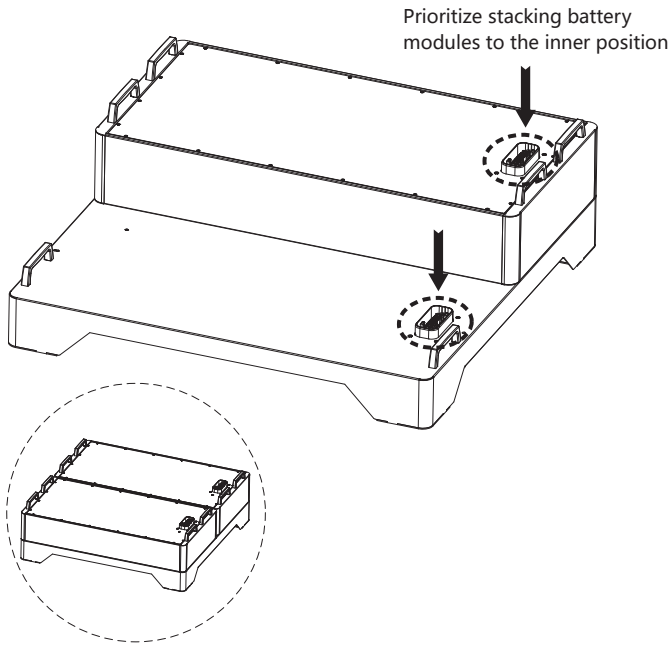
Note: The terminal box and screws should be properly stowed away and will be installed onto the topmost battery module in a later step.



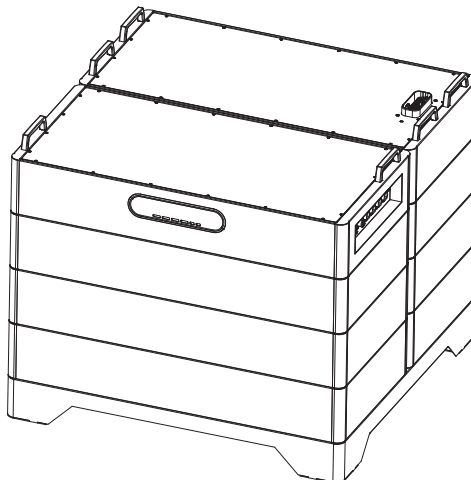
Step 5: Place the battery base in the mounting position at a distance of 10-20mm from the back wall.



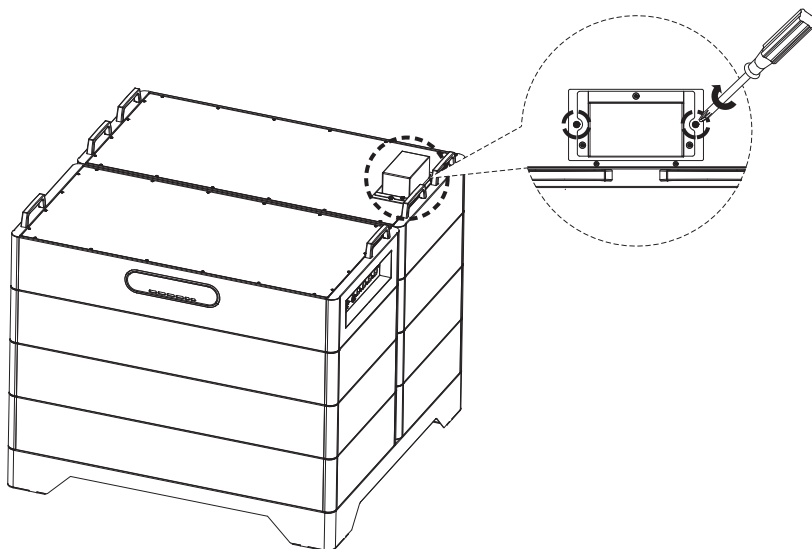
Step 6: Align the terminals of the battery module with the terminals of the base, and then complete the stacking of the battery modules according to the instructions in the diagram.



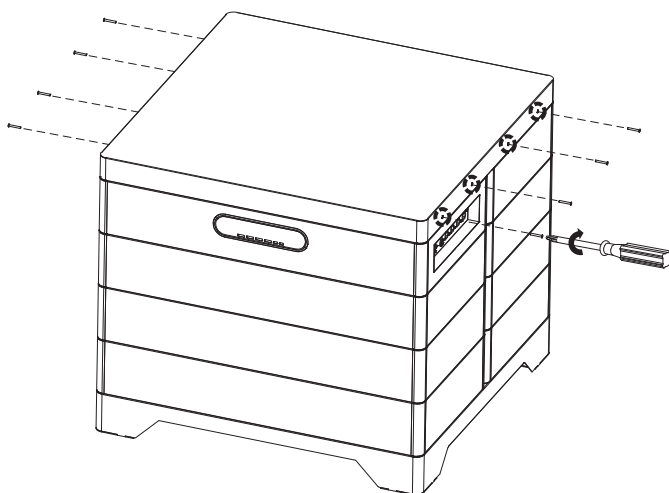
Step 7: Stacking the control module to the outer position for easy setup and operation.








Step 8: Secure the Terminal Box removed from the battery base with screws above the topmost battery module terminals as shown.



Step 9: Align the cover plate to the topmost part of the battery module and controller module and secure with M4-30 screws.



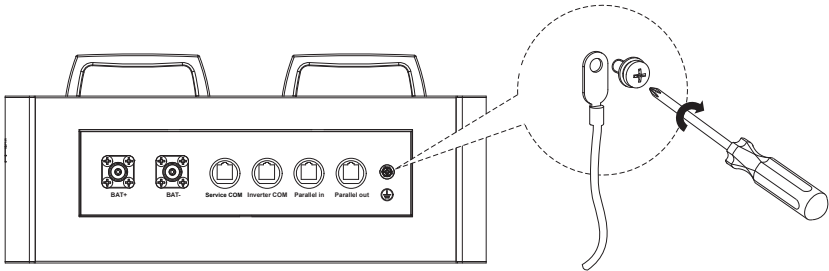
4 Electrical Connection

| | |
|---|--|
|  Warning | <p>A high voltage in the conductive part of the battery may cause an electric shock. When installing the battery, make sure that the DC sides of the battery is completely deenergized.</p> |
|  Warning | <p>Do not ground the positive or negative pole of the battery output, otherwise it will cause serious damage to the battery.</p> |
|  Warning | <p>Static may cause damage to the electronic components of the battery. Anti-static measures should be taken during installation and maintenance.</p> |
|  Warning | <p>Do not use other brands or other types of terminals other than the terminals in the accessory package. The Company has the right to refuse to held liable of all damages caused by the mixed-use of terminals.</p> |
|  Warning | <p>Moisture and dust can damage the battery, ensure the cable gland is securely tightened during installation. The warranty claim will be invalidated if the battery is damaged as a result of using poorly connected cable connector.</p> |

4.1 Cables Connection

After the mechanical installation is completed, please connect the inverter and the control battery module with the positive and negative cables, communication and ground cables.

- ① Check if the battery switch is off.
- ② Connect the grounding wire.



4.2 Battery Power Connector Assembly Procedures

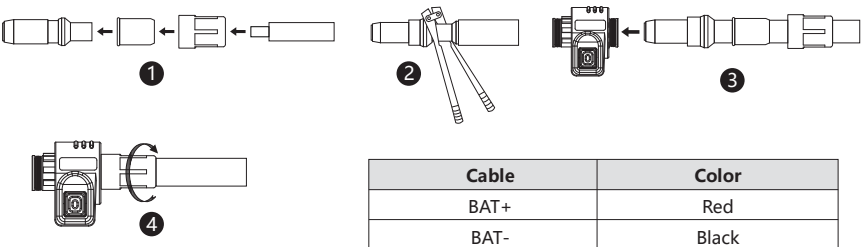
Step 1: Prepare the cables, the cable wire diameter is listed below. Use wire strippers to strip out the core of the cable by about 11mm±1.

11mm±1

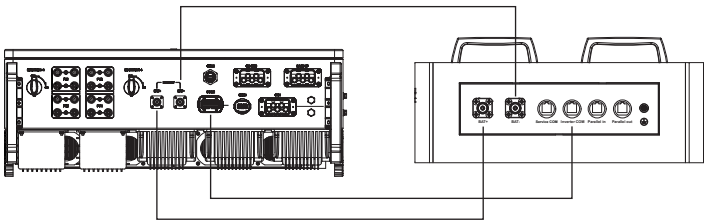


| Cable Type | Core Cross Sectional Area (mm²) |
|------------|---------------------------------|
| 4 AWG | 25 |

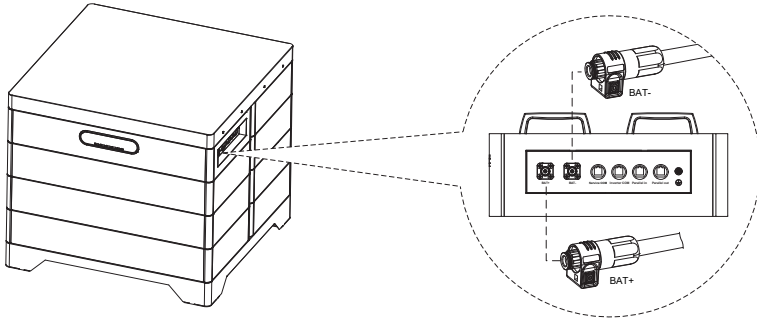
Step 2: Apply the cable into the crimping position. Use a special tool to crimp the cable to ensure that the crimping is intact.



Step 3: The picture on this page shows the cables connection. Please follow the instruction and make sure all the cables are connected correctly.




Step 4: Complete the wiring between the inverter and the batteries as shown.

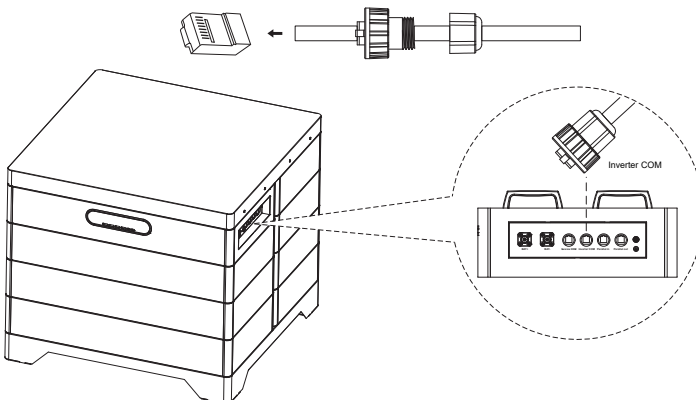


4.3 Communication Cable Connection

One side of the communication cable used to connect the inverter and control module port is preinstalled on the inverter before leaving the factory, insert the other side to the "Inverter COM" port in the control module when installing it.

Communication interface and definition:

|  | Item | Service COM | Inverter COM |
|---|------|-------------|--------------|
| | 1 | - | - |
| | 2 | - | - |
| | 3 | - | - |
| | 4 | - | CAN_H |
| | 5 | - | CAN_L |
| | 6 | RS485_A | - |
| | 7 | RS485_B | - |
| | 8 | - | - |

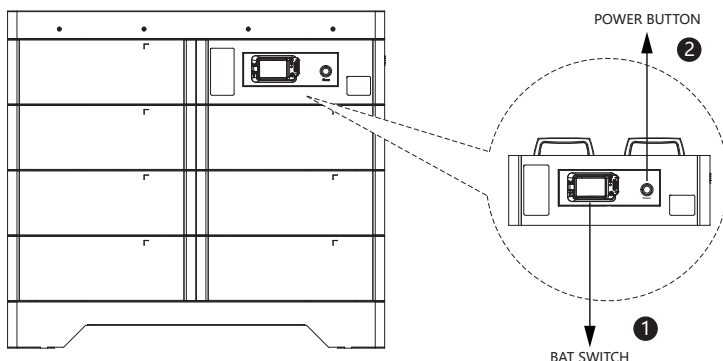


5 System Start and Stop

5.1 Start System

When starting the system, follow these steps:

- ① Turn on the DC Switch in the bottom of inverter.
- ② Turn on the Battery Switch on the controller box.
- ③ Press and hold the power button until the green light blinks, then release it. The press and hold the power button again until the green light is always on.



- ④ Observe the status indicator, green light flashing indicates the normal output.
- ⑤ Switch on the AC breaker first.
- ⑥ The inverter will start to check the DC and AC input parameters and self-check for 30s~1min, and if everything is normal, the inverter will start to work according to the working mode which you set on the App. The inverter display and indicators will show relevant parameters and status.

5.2 Turning Off the System

When turning off the system, please follow the steps below:

- ① Switch off the breakers on the grid and load side.
 - ② Turn off the Battery Switch on the controller box.
 - ③ Wait 30 seconds and then turn the inverter DC switch to the "OFF". At this time, there is remaining power in the inverter capacitor. Wait for 5 minutes until the inverter is completely de-energized before operating.
- If the device is not used for a long time, please unplug the AC and DC cables.

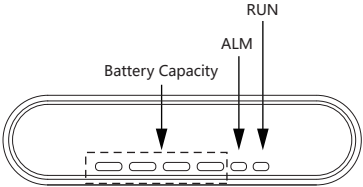
5.3 LED indication

| Battery Status | Protection, alarm normal | RUN | ALM | Capacity | | | | Description |
|----------------|----------------------------|---------|---------|---|-------|-------|-------|-------------------------------|
| | | Green | Red | Green | Green | Green | Green | |
| Off | | Off | Off | Off | Off | Off | Off | All off |
| On | Normal | Flash 1 | Off | Based on capacity | | | | No charging or discharging |
| | Warning | Flash 1 | Flash 3 | | | | | PACK low voltage |
| Charge | Normal | ON | Off | Based on capacity, the highest level LED flashes (flash 2), the other SOC lights is on all the times. | | | | |
| | Warning | ON | Flash 3 | | | | | |
| | Over Charge | On | Off | On | On | On | On | Stop charging |
| | Over Temp/ Current Failure | Off | On | Off | Off | Off | Off | |
| Discharge | Normal | Flash 3 | Off | Based on capacity, the highest level LED flashes, the other SOC lights is on all the times. | | | | |
| | Warning | Flash 3 | Flash 3 | | | | | |
| | Over Discharge | Off | Off | Off | Off | Off | Off | Stop discharging |
| | Over Temp/ Current Failure | Off | On | Off | Off | Off | Off | |
| Failure | | Off | On | Off | Off | Off | Off | Stop charging and discharging |

SOC status





| Status | | Charge | | | | Discharge | | | |
|----------|----------|---------|---------|---------|---------|-----------|-----|-----|-----|
| | | L1 | L2 | L3 | L4 | L1 | L2 | L3 | L4 |
| Capacity | 0~25% | Flash 2 | Off | Off | Off | On | Off | Off | Off |
| | 25%~50% | On | Flash 2 | Off | Off | On | On | Off | Off |
| | 50%~75% | On | On | Flash 2 | Off | On | On | On | Off |
| | 75%~100% | On | On | On | Flash 2 | On | On | On | On |
| Run | | On | | | | Flash 3 | | | |

Flash
description:
Flash 1: 0.25s on /3.75s off
Flash 2: 0.5s on /0.5s off
Flash 3: 0.5s on /1.5s off



6 Trouble Shooting

6.1 Maintenance

| | |
|--|--|
|  Warning | Risk of battery damage or personal injury due to incorrect service! |
|  Warning | Keep unqualified persons away! |
|  Warning | Restart the battery only after removing the fault that impairs safety performance. Never arbitrarily replace any internal components. |
|  Warning | Servicing of the device in accordance with the manual should never be undertaken in the absence of proper tools, test equipment or the latest revision of the manual which has been clearly and thoroughly understood. |

6.2 Maintenance of Electrical Components

| Item | Project | Checkpoint | Methods | Repair Condition | |
|------|------------------|---|-------------------|---|--|
| 1 | Electrical | Check whether the voltage output is normal. | Multi-meter | The battery voltage exceeds the preset range | Contact the dealer or manufacturer. |
| 2 | Failure to check | Check whether the light is normal. | Visual inspection | Warning | |
| 3 | Cable | Insulation, terminal | Visual inspection | Insulation crack, aging, the terminal is peeling or corroded. | Replace the cable, replace the terminal board. |

7 Technical Parameters

| Model | UHB 200-7S | UHB 200-9S | UHB 200-11S | UHB 200-13S | UHB 200-15S | UHB 200-17S |
|-----------------------------------|---|---------------|---------------|----------------|----------------|----------------|
| Electrical parameters | | | | | | |
| NO. Of Series Battery | 7 | 9 | 11 | 13 | 15 | 17 |
| Rated Energy (kwh) | 53.7 | 69.1 | 84.4 | 99.8 | 115.2 | 130.5 |
| Usable Energy (kwh) | 48.3 | 62.2 | 76 | 89.8 | 103.6 | 117.6 |
| Rated Voltage (V) | 268.8 | 345.6 | 422.4 | 499.2 | 576 | 652.8 |
| Voltage Range (V) | 235.2~302.4 | 302.4~388.8 | 369.6~175.2 | 436.8~561.66 | 504~648 | 571.2~734.4 |
| Battery Type | Li-ion (LFP) | | | | | |
| Rated Capacity(Ah) | 200Ah | | | | | |
| Charge Current(A) | 100A (Rated) | | | | | |
| Discharge Current (A) | 100A (Rated) | | | | | |
| Cycle Times | 80% DOD, cycles>6000, residual capacity>70% | | | | | |
| Communication | RS-485 / CAN 2.0 | | | | | |
| Protection function | Over voltage / Under voltage / Over temperature / Low temperature / Over current / Short circuit | | | | | |
| Size [W x D x H, mm] | 820*801.5*716 | 820*801.5*855 | 820*801.5*994 | 820*801.5*1133 | 820*801.5*1274 | 820*801.5*1413 |
| Working conditions | | | | | | |
| Installation conditions | Indoor | | | | | |
| Range of working temperature | Charge: 0°C~55°C Discharge: -20°C~55°C | | | | | |
| Optimal working temperature range | 20°C~30°C | | | | | |
| Storage temperature | 20°C~55°C | | | | | |
| Working humidity | 5%-95% (No condensation) | | | | | |
| Altitude | ≤2000m | | | | | |
| Protection degree | IP54 | | | | | |
| Cooling method | Natural cooling | | | | | |

Contact Information

Should you have any question about this product, please contact us.

We need the following information to provide you the best assistance:

- Model of the device
- Serial number of the device
- Date of the device
- Fault code/name
- Brief description of the problem

