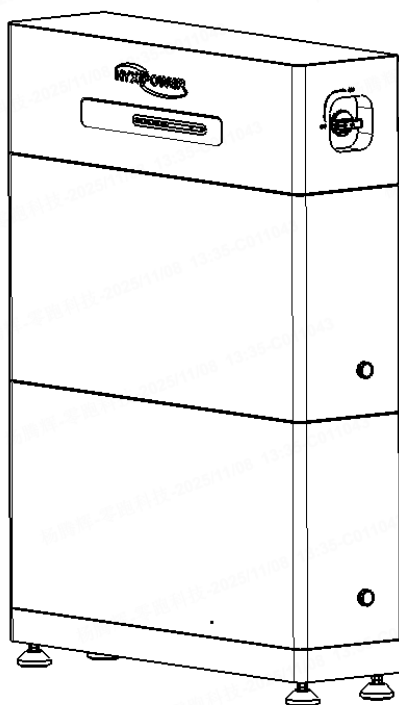


E50/100/150/200-H

# ***HIGH VOLTAGE BATTERY***



Carefully read this battery system user instructions before using.  
Read and save these instructions.

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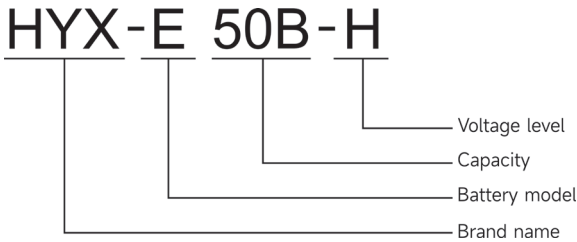
# 1. Product Introduction

## 1.1 Scope of Application

This manual is intended for the following devices:

- HYX-EBDU-H
- HYX-E50B-H
- HYX-E50-H
- HYX-E100-H
- HYX-E150-H
- HYX-E200-H

## 1.2 Overview of Product Naming Rules



Hyxi energy storage high voltage stacker can provide a variety of operating modes according to different needs, self-generation, peak-shaving, battery priority, etc.

## 2. Safety Instructions

### 2.1 Interpretation of The Logo

| Symbol                                                                            | Description                                                                                                                      |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
|  | There are potential hazards when the equipment is in operation, so please take precautions when operating the equipment.         |
|  | High voltage exists when the equipment is in operation, so when operating the equipment, make sure the equipment is powered off. |
|  | The equipment should be kept away from open flames or sources of ignition.                                                       |
|  | At the end of the equipment's life, do not dispose of it with household waste.                                                   |
|  | Beware of fire.                                                                                                                  |
|  | Before operating the equipment, please read the product manual in detail.                                                        |
|  | Equipment should be kept away from areas accessible to children.                                                                 |
|  | Please use the equipment reasonably, extreme conditions of use, the equipment has the risk of explosion.                         |
|  | Observe enclosed documentation.                                                                                                  |
|  | Protective gloves must be worn.                                                                                                  |
|  | CE certification mark.                                                                                                           |

### 2.2 Precautions/Environmental Requirements

When installing, operating and maintaining the equipment, please read this manual and follow all safety precautions marked on the equipment and in the manual.

The "NOTICE", "CAUTION", "WARNING" and "DANGER" items in this manual do not represent all safety items to be observed. They are in addition to all safety precautions. HYXiPOWER shall not be liable for any violation of the general safety requirements or for any violation of the safety standards for the design, manufacture and use of the equipment.

The equipment should be used in an environment that conforms to the design specifications; otherwise, equipment failure may result, and the resulting abnormal functioning of the equipment or damage to components, personal safety accidents, and property damage are not covered by the equipment warranty.

Local laws, regulations and codes should be observed when installing, operating and maintaining the equipment. The safety precautions in the manual are intended only as a supplement to local laws and regulations and norms.

Lifting or lowering the system carries the risk of injury. The battery is heavy. There is a risk of injury if the battery is not lifted or dropped properly during transport or during installation or removal. Two or more people must lift and transport the battery.

## 2.3 Risk Factors

### Risks of Explosion:

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

### Risks of Fire:

- Do not expose the battery module to temperature exceeding 140° F (6° C);
- Do not place the battery module near a heat source, such as a fireplace;
- Do not expose the battery module to direct sunlight;
- Do not allow the battery connectors to touch conductive objects such as wires.

### Risks of Electric Shock:

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

### Risks of Damage to The Battery Module:

- Do not expose the battery module to liquids;
- Do not subject the battery module to high pressures;
- Do not place any objects on top of the battery module;
- It shall be protected from the sun and rain.

## 2.4 Response to Emergency Situations

### Leaking Batteries

In case the leakage of electrolyte solution occurs, please avoid direct contact with the electrolyte solution and the gas that may be generated by it. Direct contact may lead to skin irritation or chemical burns. If the user comes into contact with the electrolyte solution, please do as follows:

### Accidental Inhalation of Harmful Substances:

Evacuate from the contaminated area, and seek medical attention immediately.

### Eye Contact:

Rinse eyes with flowing water for 15 minutes, and seek medical attention immediately.

### Dermal Contact:

Wash the affected area thoroughly with soap and water, and seek medical attention immediately.

### Ingestion:

Induce vomiting, and seek medical attention immediately.

### Fire:

Please keep a Class ABC fire extinguisher or a carbon dioxide extinguisher near the equipment.



**If a fire breaks out where the battery module is installed, please do as follows:**

- Extinguish the fire before the battery module catches fire;
- If the battery module catches fire, please do not try to put out the fire, and evacuate immediately.

### **Wet Batteries and Damaged Batteries**

- Do not touch the battery module after being wet from and soaked in the water.
- Do not use the battery module if it is damaged. Otherwise, the loss to life and property will be caused.
- Please pack the battery in its original packaging, and return it to our company or the distributor.

## **2.5 Notes**

The operation of transportation, turnover, installation, wiring and maintenance shall meet the laws, regulations and related standards of the country and region where it is located.

The user's own materials and tools required for operation must meet the laws and regulations and related standards of the country or region where they are located.

Permission must be obtained from the power department of the country or region in which the system is located before it can be connected to the grid.

You should be fully familiar with the composition and working principle of the whole grid-connected photovoltaic power generation system and the relevant standards of the country/region where the project is located.

Reverse engineering, decompiling, disassembling, adapting, implanting or other derivative operations of the equipment software are prohibited. It is not allowed to study the internal implementation of the equipment, obtain the source code of the equipment software, steal intellectual property rights, etc. in any way, nor shall the results of any equipment software performance test be disclosed.

## **2.6 Personnel Requirements**

Personnel responsible for the installation and maintenance of Hyxi equipment must first be strictly trained to understand various safety precautions and master the correct operation methods.

Only qualified professionals or trained personnel are allowed to install, operate and maintain the equipment.

Only qualified professionals are allowed to remove safety facilities and overhaul equipment.

Personnel who operate the equipment, including operators, trained personnel, and professionals should have the local state required special operating qualifications, such as high voltage operation, ascent, and special equipment operation qualifications.

Replacement of equipment or parts (including software) must be done by professionals or authorized personnel.

**Description:**

- Professional personnel: People who have training or experience in operating equipment and can clearly understand the various potential sources and magnitudes of hazards during equipment installation, operation, and maintenance.
- Trained personnel: A person who has received the appropriate technical training and has the necessary experience to be aware of the hazards that may be presented to him when performing a particular operation and to take measures to minimize the hazards to himself or to other personnel.
- Operator: A person, other than a trained person or a professional, who may come into contact with the equipment.

## 3. Limitation of liability

### **Hyxi is not responsible in the event of any of the following**

- It does not operate in the conditions of use described in this manual.
- The installation and use environment does not comply with the provisions of the relevant international or national or regional standards.
- Unauthorized disassembly, modification of the product or modification of the software code.
- Failure to follow the operating instructions and safety warnings in the product and documentation.
- Equipment damage caused by abnormal natural environment (force majeure, such as earthquake, fire, windstorm, flood, mudslide, etc.).
- Damage to equipment caused by abnormal natural environment (force majeure, such as earthquake, fire, storm, flood, mudslide, etc.)
- Transportation damage caused by the customer's own transportation.
- Damage caused by storage conditions that do not meet the requirements of the product documentation.
- Damage to the hardware or data of the equipment due to customer negligence, improper operation or intentional damage.
- Damage to the system caused by a third party or the customer, including damage caused by handling and installation that does not meet the requirements of this manual, and damage caused by adjustments, alterations, or removal of identification marks that do not meet the requirements of this manual.

# 4. Installation

## 4.1 Installation packing list of BDU

| No. | Accessories                                                                         | Model                                       | Quantity                              |
|-----|-------------------------------------------------------------------------------------|---------------------------------------------|---------------------------------------|
| 1   |    | Anti-tilting bracket                        | 1                                     |
| 2   |    | Wall Mount Tie Rods                         | 2                                     |
| 3   |    | Fixed Cross Beam                            | 1                                     |
| 4   |    | M6*80 hexagonal flange face expansion bolts | 2                                     |
| 5   |    | M5*8 Phillips countersunk head screws       | 4<br>located at the bottom of the BDU |
| 6   |    | M6 nuts                                     | 2                                     |
| 7   |    | M6*20 anti-theft screws                     | 2                                     |
| 8   |    | Ethernet cable(1m)                          | 1                                     |
| 9   |    | High voltage cable (HV- 4-6mm²)             | 1                                     |
| 10  |  | High voltage cable (HV+ 4-6mm²)             | 1                                     |

\*Description: PACK without accessories.

## 4.2 List of Operating Tools

For example, protective gear that users need to prepare when installing the product



Impact Drill



Socket wrenches



Torque wrench



Torque screwdriver



Marker



Measuring tape



Horizontal ruler



Vacuum cleaner



Protective gloves



Goggles



Dust mask



Insulated shoes

### 4.3 Location and environmental requirements

The battery enclosure has an IP65 protection rating and suitable for outdoor installation. While considering the complex outdoor environment—including floods, hurricanes, etc.—indoor installation is recommended.

The battery has no ventilation requirements.

The battery housing should be installed in a location free from the risk of water (standing water, submersion, etc.). The installation location must be well drained.

The product needs to be installed on a level surface.

**The following places are not allowed to be installed:**

- In environments where the temperature is less than -20°C or more than 50°C .
- Places where humidity and condensation exceed 95%.
- Places where salt and humid air can penetrate.
- Flooded areas.
- Earthquake areas - additional safety measures are required here.
- Locations at altitudes above 2000 meters.
- Explosive atmospheres.
- Locations with prolonged exposure to sunlight.
- Places where the ambient temperature changes drastically.
- Humid rooms.
- Locations with highly flammable materials or gases.
- Locations with a potentially explosive atmosphere.

**When multiple PACKs form a battery system:**

1. If the factory date of each PACK  $\leq 3$  months, it can be used directly to form a system

The 6th and 7th digits of SN represent the year, and the 8th and 9th digits represent the number of weeks. E.g. 2421 represents the 21st week of 2024.

|    |    |    |    |    |    |    |    |    |     |     |     |     |     |
|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|
| D1 | D2 | D3 | D4 | D5 | D6 | D7 | D8 | D9 | D10 | D11 | D12 | D13 | D14 |
|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|

Manufacture Date

**2. If the factory date of each PACK > 3 months, it is recommended to fully charge each PACK separately before forming a system**

Because of the same charging and discharging characteristics of the series system, the imbalance problem can only occur before the formation of the system; After the formation of the system, all the PACKs are charged and discharged at the same time with the exact same amount of power, so there will be no imbalance problem.

## **4.4 Product installation instructions**

### **4.4.1 Installation space requirements**

#### **Installation angle**

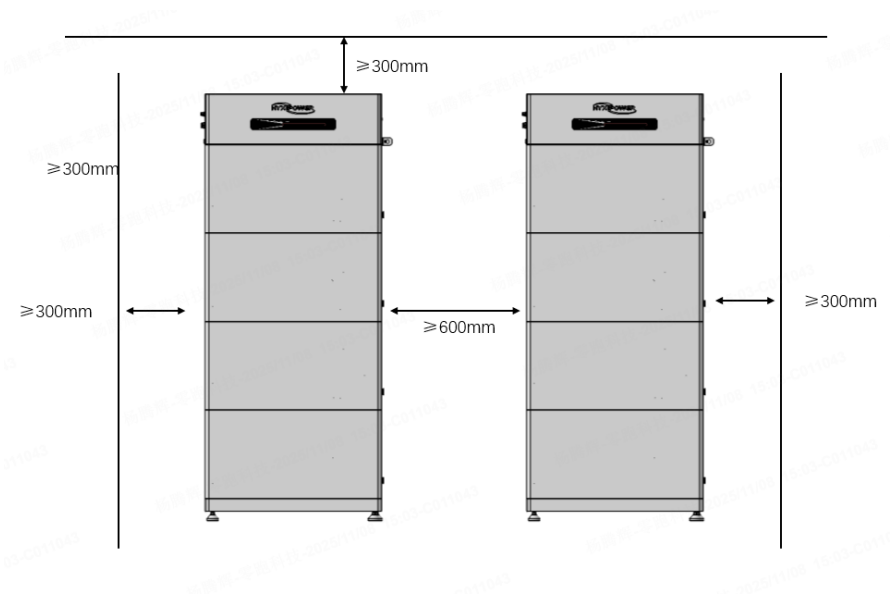
The product supports installation on the ground and with the anti-tilting device, do not tilt the product forward, horizontal, upside down, backward and sideways installation.

#### **Installation position**

If you choose other types of walls and floors, the walls and floors should meet the load-bearing requirements of the equipment, and the walls and floors where the installation is located should have fire retardant properties.

#### **Installation space**

When installing this product, make sure there is no other equipment (except for the installation of necessary equipment, masking devices) and flammable and explosive materials around, and reserve sufficient installation space as shown in the following figure (for example, the highest stacking method of this product) to ensure installation, heat dissipation, safety and other needs.



### 4.4.2 Precautions

The battery are heavy. There is a risk of injury if the battery is not lifted or dropped properly during transportation or during installation or removal.

Two or more people must lift and transport the inverter and battery.

When wiring the battery, it must be well protected, one person should wire and one person should supervise and check to prevent the battery short circuit accident.

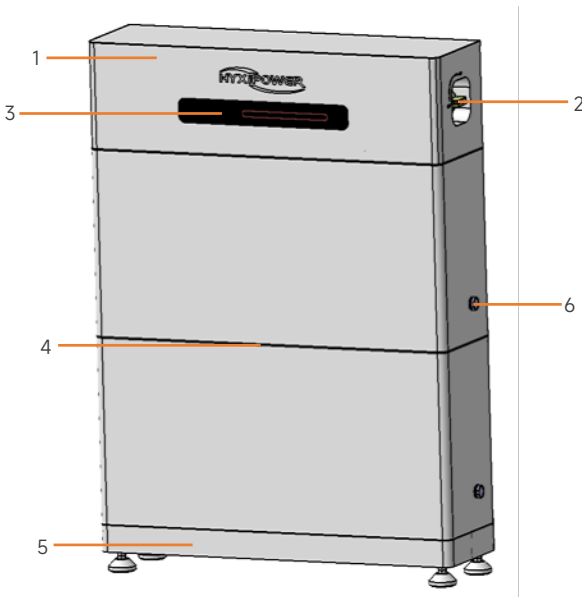
The electrical connection must be complete and firm, and the installation position and direction of the CT on the grid side must be correct (the direction of the arrow of the CT faces the grid side), otherwise the current will not be detected; in addition, if you need to realize the backflow prevention, the CT should be installed on the main road of the grid.

The installer should wear protective equipment.

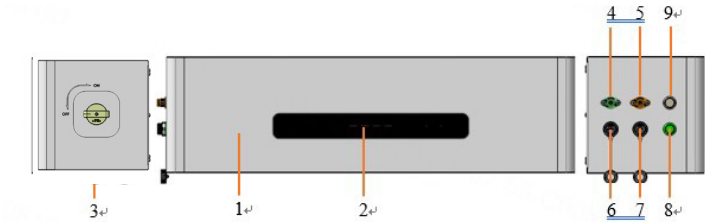
## 4.5 Product appearance diagram

### 4.5.1 Overall appearance diagram

| No. | Description                            |
|-----|----------------------------------------|
| 1   | Battery energy distribution unit (BDU) |
| 2   | BDU emergency stop switch              |
| 3   | BDU display panel                      |
| 4   | Battery PACK module                    |
| 5   | Base                                   |
| 6   | Explosion-proof valve                  |



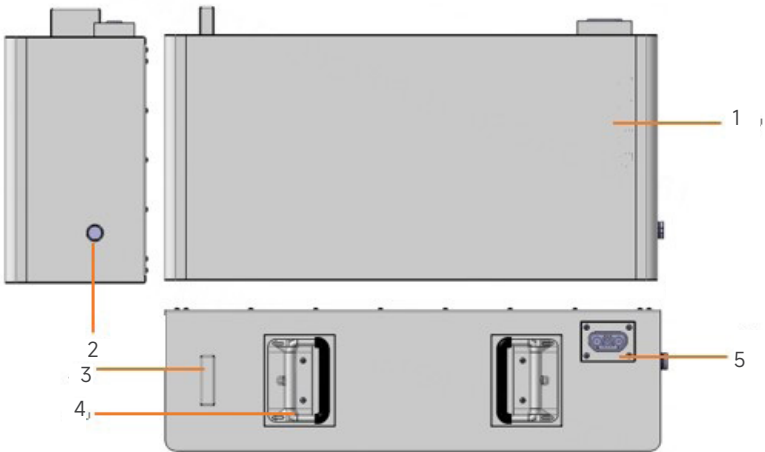
### 4.5.2 BDU Appearance Schematic



| No. | Description                            |
|-----|----------------------------------------|
| 1   | Battery energy distribution unit (BDU) |
| 2   | BDU display panel                      |
| 3   | BDU emergency stop switch              |
| 4   | High-voltage negative socket           |
| 5   | High-voltage positive socket           |
| 6   | Debug                                  |
| 7   | Inverter connection socket             |
| 8   | High voltage power button              |
| 9   | 12V low voltage power button           |

### 4.5.3 Schematic Diagram of Battery PACK Module Appearance

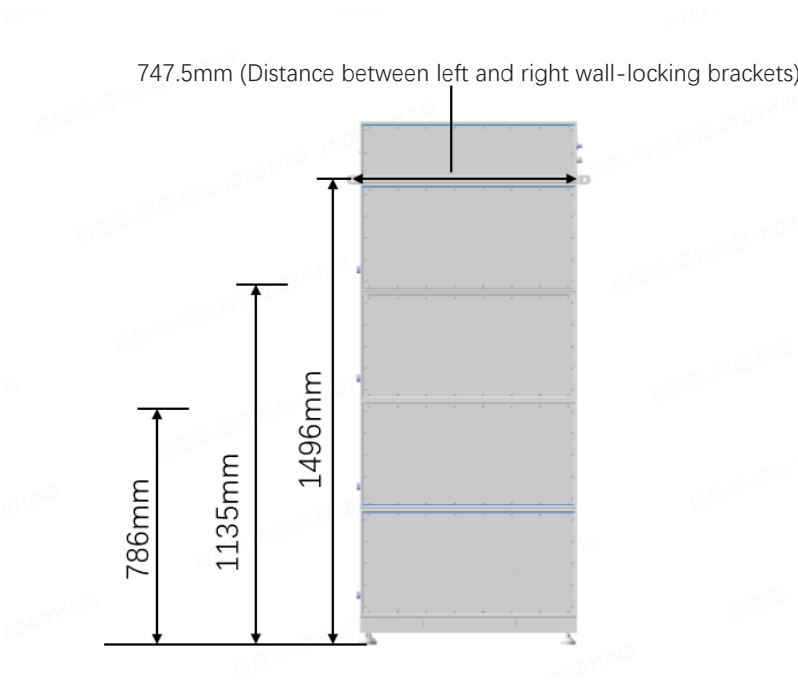
The standard capacity of a single PACK is 5kWh.



| No. | Description                                                            |
|-----|------------------------------------------------------------------------|
| 1   | Battery PACK module                                                    |
| 2   | PACK explosion-proof valve                                             |
| 3   | Installation positioning block                                         |
| 4   | PACK puller                                                            |
| 5   | High voltage/communication connector<br>(one on top and one on bottom) |

4.5.4 Installation holes on the floor

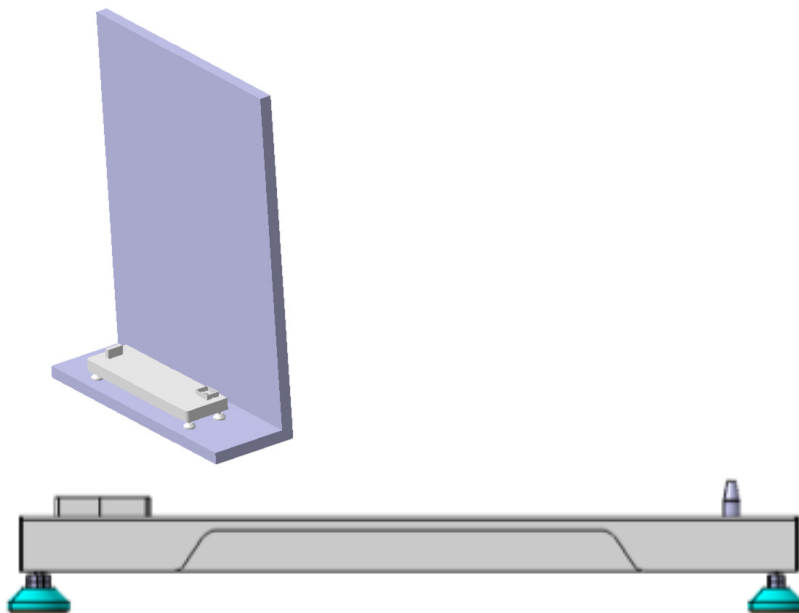
The dimensions of the installation holes for the floor-mounted anti-tip structure of this product  
The height refers to the installation height of the floor-mounted anti-tip from the bottom:



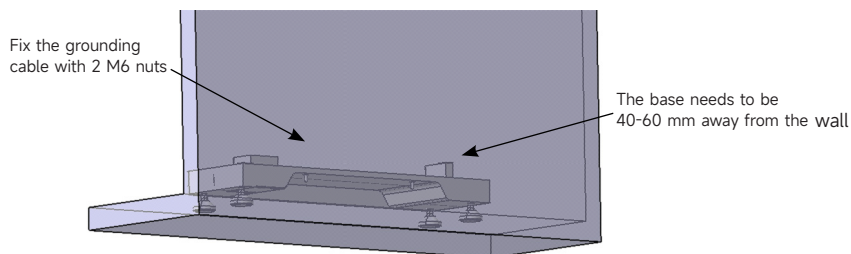
## 4.6 Installation steps on the floor

### Version 1

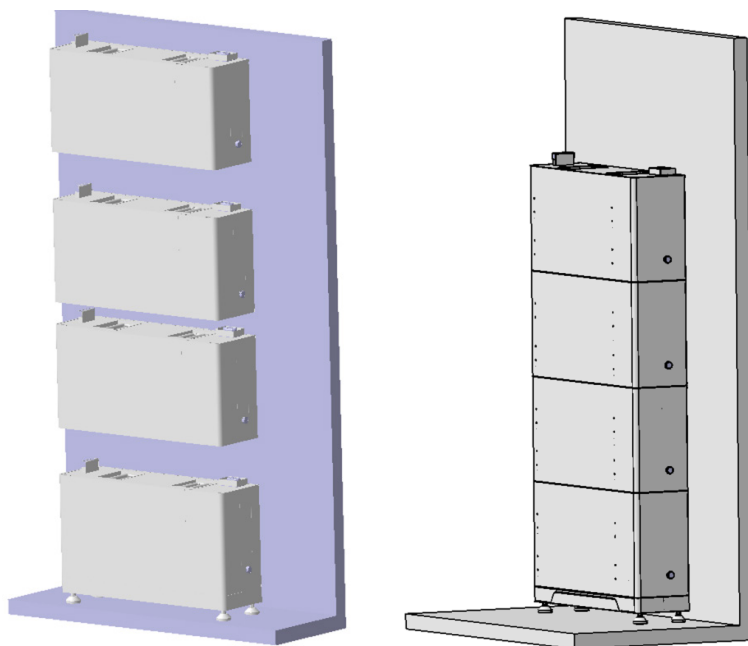
**Step 1:** Place the base on the ground and adjust it via the feet at the bottom. First pre-tighten the hexagon nuts by hand, then tighten them with a wrench.



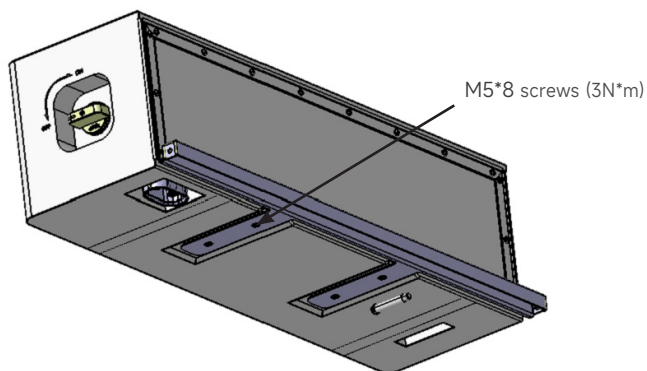
**Step 2:** Ground the base.



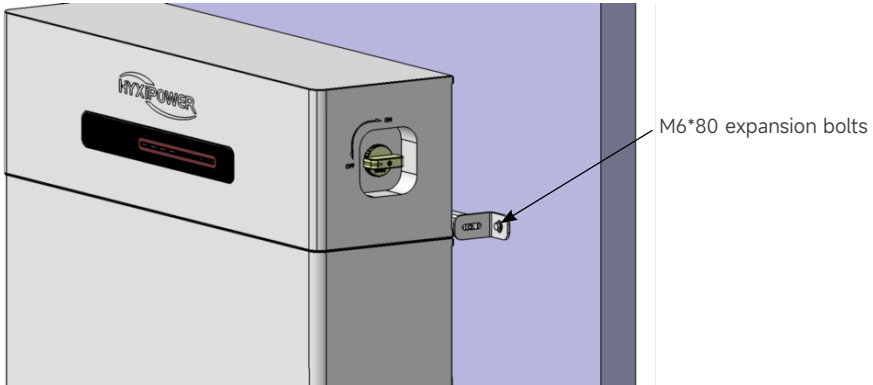
**Step 3:** PACK stacking, according to the installation position of the wall-mounted ties, with the help of a horizontal ruler and marker to determine the placement of the base, PACK stacking in turn to ensure accurate positioning, tightly connected, before and after stacking.



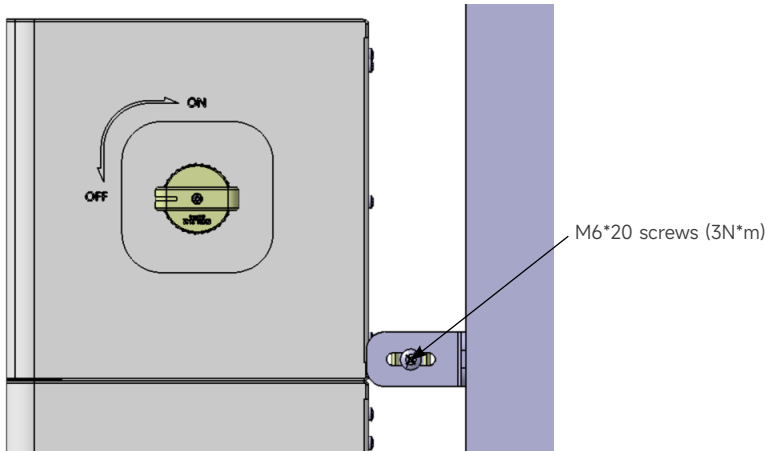
**Step 4:** BDU installation anti-tip bracket, the anti-tip bracket through four M5\*8 countersunk head screws fixed in the bottom of the BDU, while paying attention to the installation direction of the anti-tip bracket, the normal installation, the outer flip side of the bracket towards the bottom.



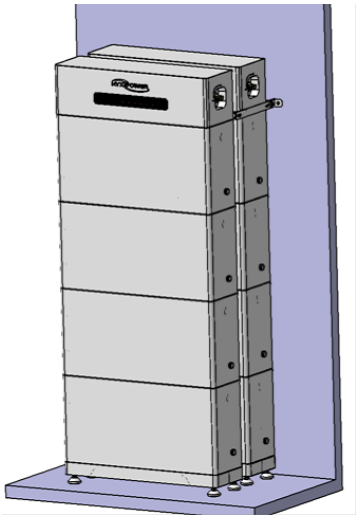
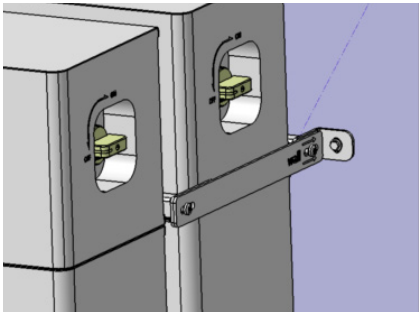
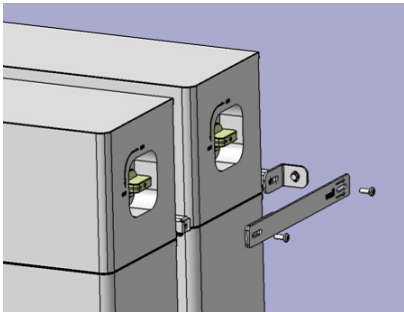
**Step 5:** Place the BDU with the fixed anti-tip bracket on the top battery — that is, on the basis of Step 3, add the BDU equipped with the anti-tip bracket, then fix the wall-locking bracket to the wall using M6\*80 expansion bolts.



**Step 6:** Fix the wall-locking bracket and the anti-tip bracket with M6\*20 screws to complete the installation.

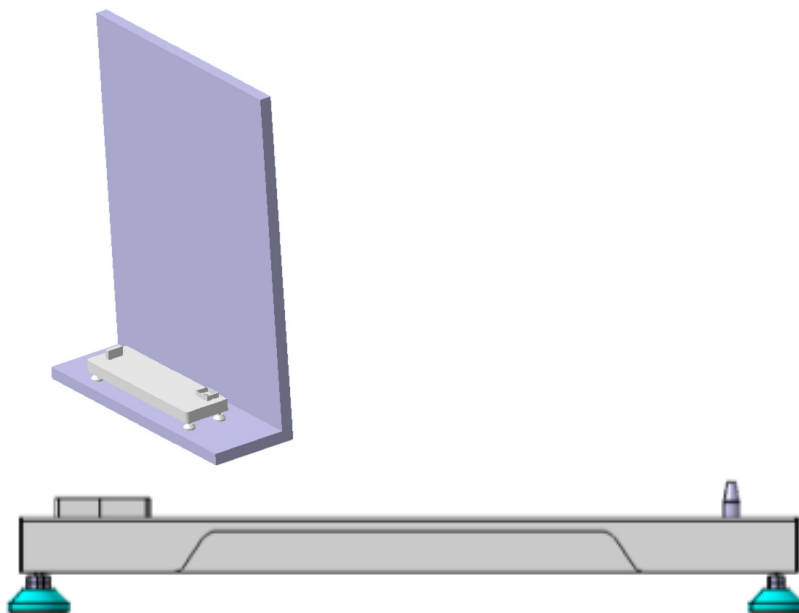


**Step 7:** For the scenario of 2-column installation, repeat Steps 1 to 5 for the first column of batteries, repeat Steps 1 to 4 for the second column of batteries, then fix the two columns of batteries together using fixed connection beams. (Note: The distance between the front and rear two columns of batteries is 40~60mm)

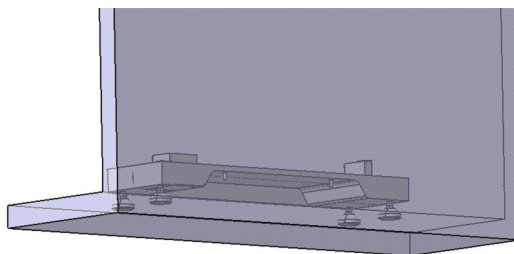


## Version 2

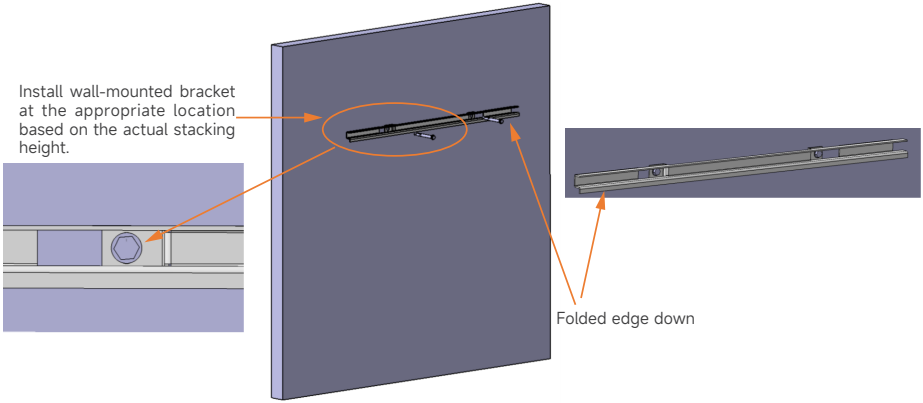
**Step 1:** Place the base on the ground and adjust it via the feet at the bottom. First pre-tighten the hexagon nuts by hand, then tighten them with a wrench.



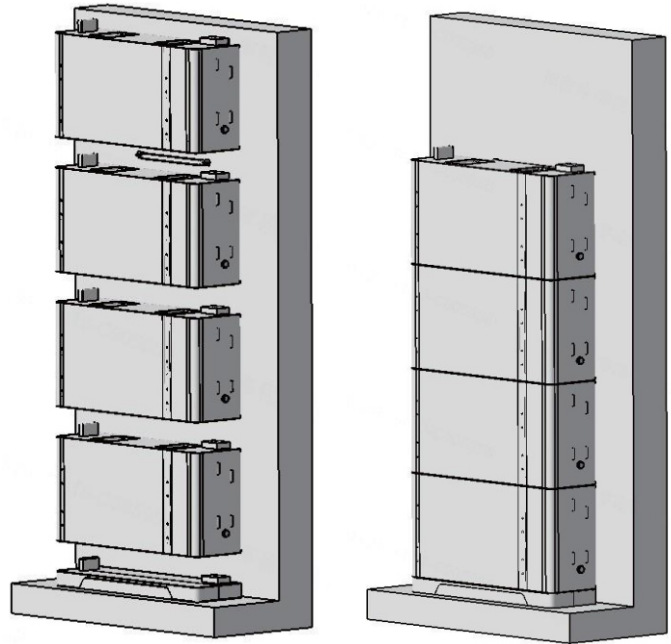
**Step 2:** Ground the base.



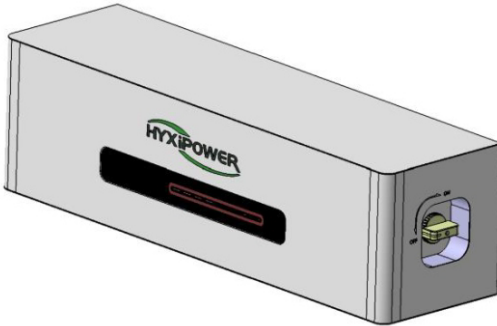
**Step 3:** Install wall mounting bracket.



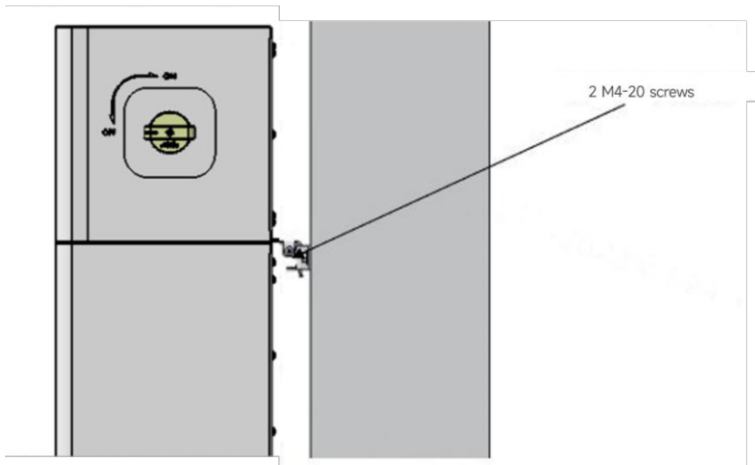
**Step 4:** PACK stacking, according to the installation position of the wall-mounted ties, with the help of a horizontal ruler and marker to determine the placement of the base, PACK stacking in turn to ensure accurate positioning, tightly connected, before and after stacking.



**Step 5:** BDU installation anti-tip bracket, the anti-tip bracket through four M5-8 countersunk head screws fixed in the bottom of the BDU, while paying attention to the installation direction of the anti-tip bracket, the normal installation, the outer flip side of the bracket towards the bottom.



**Step 6:** BDU stacking and hanging anti-toppling device, the BDU installed anti-toppling bracket stacked on the PACK in step 3, to ensure accurate positioning, tightly connected at the same time the anti-toppling bracket can be inserted into the wall ties to play the role of anti-toppling, and then lock into two M4-20 anti-theft screws, the installation is completed



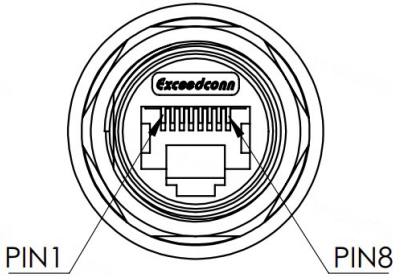
#### **⚠ DANGER**

- Before drilling, please make sure to avoid the pre-buried utility lines in the wall to avoid danger;
- To prevent dust from entering human respiratory tract or eyes when punching holes, personnel should wear appropriate protective gear;
- Every time you stack a PACK, you need to check the stacking position of the PACK to avoid dumping due to rapid stacking;
- Ensure that the switch is closed when stacking BDU at the end to avoid danger.

# 5. Electrical & Com. Connection

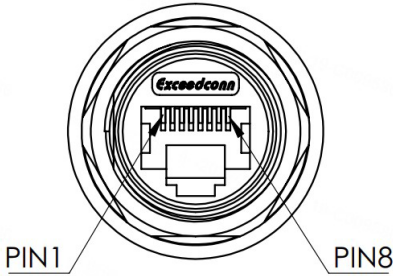
## 5.1 Electrical and Communication Interfaces

### 5.1.1 Communication Interface (COM.)



| Pins | Name               | Function               | Connector |
|------|--------------------|------------------------|-----------|
| 1    | 485A               | Internal debugging use | RJ45      |
| 2    | 485B               | Internal debugging use | RJ45      |
| 3    | Debug_CANH         | Internal debugging use | RJ45      |
| 4    | Debug_CANH         | Internal debugging use | RJ45      |
| 5    | DO output positive | Internal debugging use | RJ45      |
| 6    | DO output negative | Internal debugging use | RJ45      |
| 7    | SBMU_CANH          | Internal debugging use | RJ45      |
| 8    | SBMU_CANL          | Internal debugging use | RJ45      |

### 5.1.2 Communication Interface (CAN)



| Pins | Name | Function                     | Connector |
|------|------|------------------------------|-----------|
| 1    | 485A | Communication with inverters | RJ45      |
| 2    | 485B | Communication with inverters | RJ45      |
| 3    | /    | /                            | RJ45      |
| 4    | CANH | Communication with inverters | RJ45      |
| 5    | CANL | Communication with inverters | RJ45      |
| 6    | /    | /                            | RJ45      |

5.1.3 Power Button

12V



| Button | Function                                                                        |
|--------|---------------------------------------------------------------------------------|
| 12V    | Activate the BDU-PACK communication. Need to be switched on when system running |

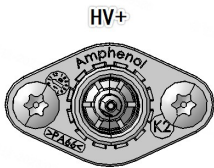
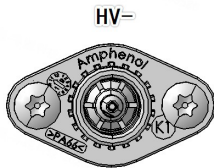
5.1.4 High-voltage Power-up Button

POWER



| Button | Function                                                                                                              |
|--------|-----------------------------------------------------------------------------------------------------------------------|
| POWER  | Activate the BDU-PACK energy flow. Need to be switched on when system Running (long press for 5s until hear “click”). |

5.1.5 Power Interface



| Pins | Name | Function            | Remarks                 | Connector  |
|------|------|---------------------|-------------------------|------------|
| 1    | HV-  | BDU output negative | Connecting the inverter | Quick plug |
| 2    | HV+  | BDU output positive | Connecting the inverter | Quick plug |

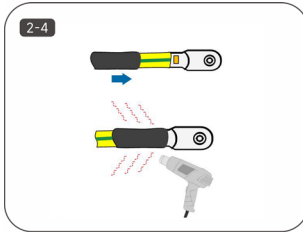
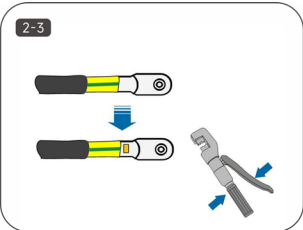
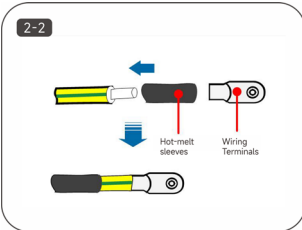
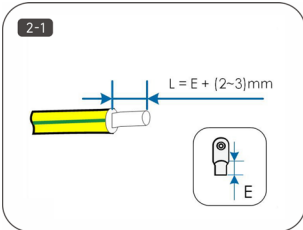
## 5.2 Electrical Connection

### 5.2.1 Grounding procedure

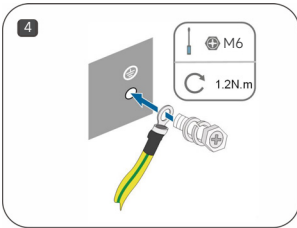
The cross-sectional area of the secondary grounding cable must be the same as the cross-sectional area of the PE core in the AC cable.

The secondary grounding cable and terminal block are to be prepared by the customer.

- Step 1: Make the cable and crimp the terminal block.
- Step 2: Remove the screws from the grounding terminal and use a screwdriver to secure the cable.



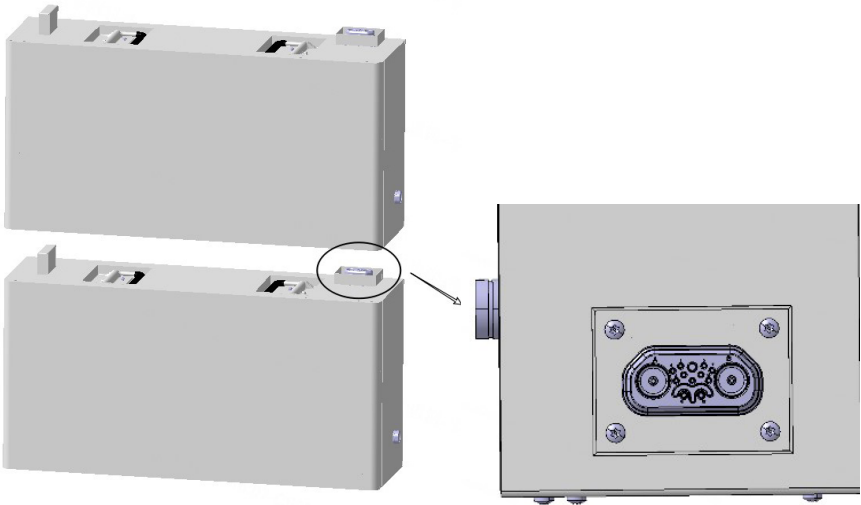
- Step 3: Apply silicone or paint to the grounding terminal to improve its corrosion resistance.
- Step 4: Use an M6 hex socket electric tool (or a manual M6 hex socket wrench) to secure the grounding wire harness to the grounding position on the base with two M6 hex flange nuts.



### 5.2.2 PACK-PACK

| Pins | Name  | Function                      |
|------|-------|-------------------------------|
| A    | PACK- | Power negative connection     |
| B    | PACK+ | Power positive connection     |
| 1    | 12V+  | 12V power positive connection |

| Pins | Name     | Function                           |
|------|----------|------------------------------------|
| 2    | PE       | Box equipotential connection cable |
| 3    | 12V-     | 12V power negative connection      |
| 4    | CANH     | Communication CANH                 |
| 5    | CANL     | Communication CANL                 |
| 6    | /        | /                                  |
| 7    | /        | /                                  |
| 8    | BAS_CANH | Communication BAS_CANH             |
| 9    | BAS_CANL | Communication BAS_CANL             |



5.2.3 PACK-BDU

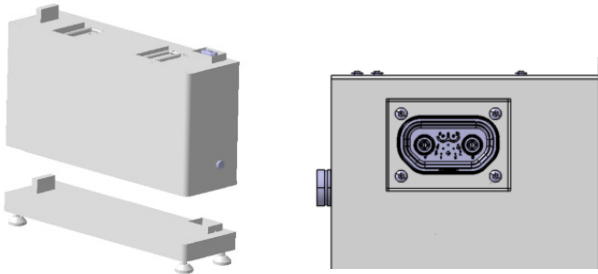
| Pins | Name  | Function                           |
|------|-------|------------------------------------|
| A    | PACK- | Power negative connection          |
| B    | PACK+ | Power positive connection          |
| 1    | 12V+  | 12V power positive connection      |
| 2    | PE    | Box equipotential connection cable |
| 3    | 12V-  | 12V power negative connection      |
| 4    | CANH  | Communication CANH                 |
| 5    | CANL  | Communication CANL                 |
| 6    | /     | /                                  |

| Pins | Name  | Function          |
|------|-------|-------------------|
| 7    | /     | /                 |
| 8    | /     | /                 |
| 9    | /     | /                 |
| 10   | /     | /                 |
| 11   | PACK+ | DC input positive |
| 12   | PACK- | DC input negative |



5.2.4 PACK-BASE

| Pins | Name  | Function                           |
|------|-------|------------------------------------|
| A    | PACK- | Power negative connection          |
| B    | PACK+ | Power positive connection          |
| 1    | /     | /                                  |
| 2    | PE    | Box equipotential connection cable |
| 3    | /     | /                                  |
| 4    | CANH  | Communication CANH                 |
| 5    | CANL  | Communication CANL                 |



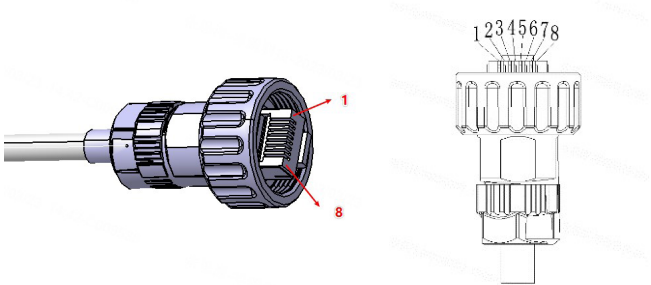
## 5.2.5 BDU-PCS

### Making BMS Communication Cables

To ensure the normal operation of the BMS and inverter wiring before the BMS communication cable needs to be made.

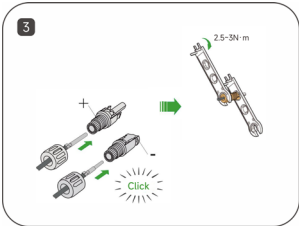
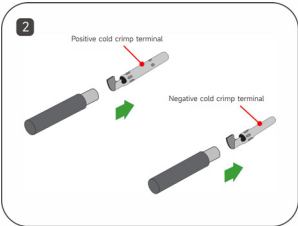
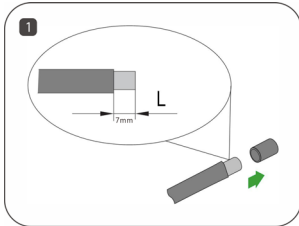
The communication cables are defined as follows:

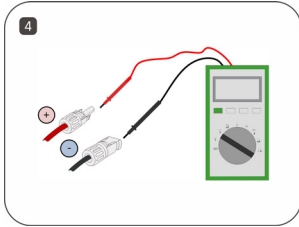
| Pins | Name | Function                     |
|------|------|------------------------------|
| 1    | 485A | Communication with inverters |
| 2    | 485B | Communication with inverters |
| 3    | CANH | Communication with inverters |
| 4    | CANL | Communication with inverters |
| 5    | /    | /                            |
| 6    | /    | /                            |



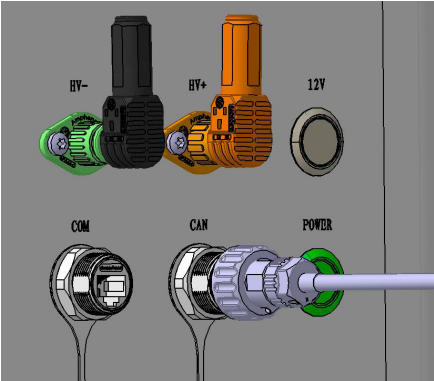
### Electrical connection of BDU and inverter

- Step 1: Strip off the insulation layer of all DC cables by about 7mm.
- Step 2: Use crimping pliers to bundle the cable ends at the wiring terminals.
- Step 3: Pass the cable through the cable gland, insert the insulating sleeve and fasten it. Gently pull the cable to ensure that it is connected and fastened. Use a force of 2.5~3N·m to tighten the gland and insulating sleeve.
- Step 4: Use a multi-meter to check and confirm that the polarity of the photovoltaic string connecting cable is correct.





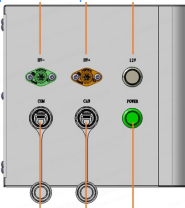
- Connect the inverter's negative quick plug to the HV- socket of the battery BDU.
- Connect the positive quick plug of the inverter to the HV+ socket of the battery BDU;
- Connect the communication network cable of the inverter to the PCS communication interface of the battery BDU.



### 5.2.6 Switch on when system connected

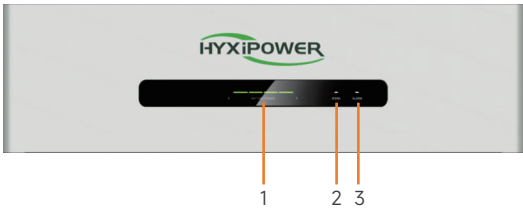
When all system connections have been made, turn "12V" button and "Power" button on "Power" button need long press 5s until hear "click" in order to prevent accidental enable

| Pins | Name  | Function                     |
|------|-------|------------------------------|
| 1    | HV-   | High-voltage negative socket |
| 2    | HV+   | High-voltage positive socket |
| 3    | 12V+  | Communication Switch         |
| 4    | COM   | Debug                        |
| 5    | CAN   | Inverter connection socket   |
| 6    | POWER | Power Switch                 |



# 6. LED indicator description

## 6.1 LED display and system status



| Pins | Name       |
|------|------------|
| 1    | SOC Green  |
| 2    | WORK Green |
| 3    | ALARM Red  |

| System Status      | WORK              | ALARM             | SOC                            |  |  |  |
|--------------------|-------------------|-------------------|--------------------------------|--|--|--|
|                    |                   |                   |                                |  |  |  |
| Shutdown           | Off               | Off               | Off                            |  |  |  |
| Idle state         | On 0.5s, off 1.5s | Off               | According to the power display |  |  |  |
| Normal operation   | On                | On 0.5s, off 0.5s | According to the power display |  |  |  |
| First level alarm  | On                | On 0.5s, off 1.5s | According to the power display |  |  |  |
| Second level alarm | Off               | Off               | According to the power display |  |  |  |
| Third level alarm  | Off               | On                | According to the power display |  |  |  |

## 6.2 SOC lamp and capacity correspondence

| Status              | Charging          |                   |                   |                   | Discharging |     |     |     |
|---------------------|-------------------|-------------------|-------------------|-------------------|-------------|-----|-----|-----|
| Capacity indicator  |                   |                   |                   |                   |             |     |     |     |
| SOC<25%             | On 0.5s, off 1.5s | Off               | Off               | Off               | On          | Off | Off | Off |
| 25% ≤ SOC<50%       | On                | On 0.5s, off 1.5s | Off               | Off               | On          | On  | Off | Off |
| 50% ≤ SOC<75%       | On                | On                | On 0.5s, off 1.5s | Off               | On          | On  | On  | Off |
| 75% ≤ SOC<90%       | On                | On                | On                | On 0.5s, off 1.5s | On          | On  | On  | On  |
| 90% ≤ SOC<100%      | On                | On                | On                | On                | On          | On  | On  | On  |
| Operation indicator | On                |                   |                   |                   |             |     |     |     |

# 7. Battery System Startup and Shutdown Procedure

## Battery system startup normal process

- Press the BDU “POWER” button, both indicators of “POWER” and “ON/OFF” light up
- Long press the BDU “ON/OFF” button for more than 3s until hear “click”
- Current both LED indicators show the system is on running, all system startup complete.

## Battery system shutdown process

- Long press the BDU “ON/OFF” button for more than 3s until hear “click”
- Press the BDU “POWER” button, both indicators of “POWER” and “ON/OFF” will go out
- Current all LED indicator lights are off, all system shutdown complete.

## Battery system power knob process

- Turn the knob switch to OFF, all system will shutdown completely.
- At the HV state, turn the knob switch to ON, the batteries will connect to the inverter.

## 8. Online monitoring

All the battery data is uploaded to the inverter, and the monitoring is uploaded from the inverter side.

# 9. Routine Maintenance

## 9.1 Routine maintenance

- If the energy storage system is not used for more than three months, it is necessary to charge the energy storage battery to a full charge to avoid over-discharge due to self-consumption of the system.
- The battery has a discharge depth of 95%, i.e. the system stops discharging when 5% of the power SOC remains. It is recommended to charge in time.
- If the battery does not receive a charge source (from PV or GRID) for an extended period, please turn off the "12V" button. Otherwise, self-consumption may deplete the battery completely.

### Product cleaning

- First, gently wipe the surface with a soft microfiber cloth to remove dust or debris.
- Moisten the cloth with water (neutral detergent can also be added) and wring out excess water.
- Wipe away any debris or dirt.
- Finally, wipe off all water from the surface with a dry microfiber cloth.

#### CAUTION

- The cleaning process should be carried out away from electrical connections to prevent water from getting inside the product housing, connection ports, etc.
- Do not wipe the product with reagents other than water (H2O).

## 9.2 General Troubleshooting

### Battery communication failure:

- Failure analysis: CAN communication or 485 communication failure.
- Solution: Check if the communication line is in good contact.

### Battery over-undervoltage fault:

- Failure Analysis: Voltage range is not compatible with the battery and the battery energy is insufficient.
- Solution: Check the battery voltage, PV or whether it will be charged automatically when there is grid.

### Overload fault:

- Failure Analysis: The load is too large.
- Solution: Check whether the load exceeds the machine power, all down and then part of the load up.

### Output short circuit fault:

- Fault analysis: There is a short circuit working condition on the load side.
- Solution: All power down, after the power indicator goes off, check whether the load is short-circuited, and then power up after troubleshooting.

### 9.3 Storage Requirements:

- Short-term storage (duration <1 month): Temperature  $\leq 50^{\circ}\text{C}$
- Long-term storage (3 months): Temperature  $\leq 35^{\circ}\text{C}$ , battery charge state at 30%-50%
- Long-term storage (more than 6 months): Temperature  $\leq 25^{\circ}\text{C}$ , battery charge state at 30%-50%
- When not in use for an extended period, it is recommended to perform a standard charge and discharge maintenance on the battery every 6 months. The battery should be stored at a charge state of 30%-50%.

**Note:** Long-term storage can lead to irreversible loss of battery capacity. For example, according to CN national standards, a battery stored at  $45^{\circ}\text{C}$  with 50% state of charge (SOC) for 28 days should have a capacity recovery rate of >94%.

It is recommended to fully charge each battery pack to 100% SOC before installing a new system or expanding energy capacity, and then proceed with the installation or expansion.

#### SOC Handling:

Occasional SOC fluctuation are considered normal and do not affect the normal operation of the system. If SOC fluctuates frequently, please contact the installer or manufacturer.

It is recommended to fully charge each battery pack to 100% SOC before installation or energy expansion for a new system. Then proceed with installation or expansion.

### 9.4 Alarm Description

The following alarms are recoverable alarms, please refer to the following table to process and resume operation.

| Fault name                          | Action                                                      | Recovery conditions                                                                                                                                                   |
|-------------------------------------|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Battery discharge overcurrent       | Prohibition of discharge / high voltage relay disconnection | 1. Turn off part of the load<br>2. Reboot the device                                                                                                                  |
| Battery charging overcurrent        | Prohibition of charge / high voltage relay disconnection    | 1. Restart the device<br>2. Contact Hyxi after-sales staff to solve                                                                                                   |
| Battery charging over-voltage       | Prohibition of charge/ high voltage relay disconnection     | 1. Restart the device<br>2. Contact Hyxi after-sales staff to solve the problem                                                                                       |
| Battery discharge undervoltage      | Prohibition of discharge / high voltage relay disconnection | 1. Restart the device<br>2. Contact Hyxi after-sales staff to solve the problem                                                                                       |
| Battery discharge high temperature  | Prohibition of discharge / high voltage relay disconnection | 1. Turn off the load of the equipment, and leave it until the battery temperature is less than $40^{\circ}\text{C}$<br>2. Contact Hyxi after-sales personnel to solve |
| Battery charging high temperature   | Prohibition of charge / high voltage relay disconnection    | 1. Leave the battery temperature less than $40^{\circ}\text{C}$<br>2. Contact Hyxi after-sales personnel to solve                                                     |
| Battery discharging low temperature | Prohibition of discharge / high voltage relay disconnection | 1. Leave to wait for the battery temperature is greater than $2^{\circ}\text{C}$<br>2. Contact Hyxi after-sales personnel to solve                                    |

|                                              |                                                                                            |                                                                                                                        |
|----------------------------------------------|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Excessive battery temperature difference     | Prohibition of discharge and charge / high voltage relay disconnection                     | 1. Leave the battery temperature difference less than 4°C<br>2. Contact Hyxi after-sales personnel to solve            |
| Loss of communication with PCS               | High Voltage Relay Disconnection                                                           | 1. Check the connection between BDU and PCS harness<br>2. Contact Hyxi after-sales staff to solve the problem          |
| Tandem cascade communication lost            | High Voltage Relay Disconnection                                                           | Contact Hyxi after-sales personnel to solve                                                                            |
| Battery pack communication lost              | High Voltage Relay Disconnection                                                           | 1. Check the connection between BDU and battery pack harness<br>2. Contact Hyxi after-sales staff to solve the problem |
| Smoke sensor communication lost              | High Voltage Relay Disconnection                                                           | Contact Hyxi after-sales personnel to solve                                                                            |
| BDU overtemperature                          | Prohibition of charging and discharging / high voltage relay disconnection                 | 1. Leave to BDU temperature less than 70°C<br>2. Contact Hyxi after-sales personnel to solve                           |
| Current collection sensor overtemperature    | Prohibition of charging and discharging / high voltage relay disconnection                 | 1. Leave the sensor temperature less than 70°C<br>2. Contact Hyxi after-sales staff to solve                           |
| BDU main positive relay failure              | Prohibit high voltage/ Prohibit charging and discharging/ Disconnecting high voltage relay | Contact Hyxi after-sales staff to solve                                                                                |
| BDU main positive relay failure              | Prohibit high voltage/ Prohibit charging and discharging/ Disconnecting high voltage relay | Contact Hyxi after-sales staff to solve                                                                                |
| Pre-charge fault                             | Prohibit high voltage                                                                      | 1. Restart the device<br>2. Contact Hyxi after-sales staff to solve the problem                                        |
| BMS self-test fault                          | Prohibit high voltage                                                                      | 1. Restart the device<br>2. Contact Hyxi after-sales staff to solve the problem                                        |
| Battery temperature detection sensor failure | Prohibit high voltage/ Prohibit charging and discharging/ Disconnecting high voltage relay | 1. Restart the device<br>2. Contact Hyxi after-sales staff to solve the problem                                        |
| Cell voltage sampling line failure           | Prohibit high voltage/ Prohibit charging and discharging/ Disconnecting high voltage relay | 1. Restart the device<br>2. Contact Hyxi after-sales staff to solve the problem                                        |
| Low insulation resistance of BDU             | Prohibit high voltage                                                                      | 1. Restart the device<br>2. Contact Hyxi after-sales staff to solve the problem                                        |

# 10. Appendix

## 10.1 Technical Parameter

| Battery System                        | HYX-E50-H                                                                                     | HYX-E100-H                                                                                     | HYX-E150-H                                                                                     | HYX-E200-H                                                                                     |
|---------------------------------------|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| Module Number                         | <br>1 Module | <br>2 Modules | <br>3 Modules | <br>4 Modules |
| Nominal Battery Energy (kWh)          | 5.3                                                                                           | 10.6                                                                                           | 15.9                                                                                           | 21.2                                                                                           |
| Usable Capacity (kWh)                 | 5.035                                                                                         | 10.07                                                                                          | 15.105                                                                                         | 20.14                                                                                          |
| Nominal Voltage (V)                   | 102.4                                                                                         | 204.8                                                                                          | 307.2                                                                                          | 409.6                                                                                          |
| Working Voltage (V)                   | 86.4 ~ 115.2                                                                                  | 172.8 ~ 230.4                                                                                  | 259.2 ~ 345.6                                                                                  | 345.6 ~ 460.8                                                                                  |
| Rated Output Power(kW)                | 3.0                                                                                           | 6.0                                                                                            | 9.0                                                                                            | 12.0                                                                                           |
| Cell Type                             | LiFePO4                                                                                       |                                                                                                |                                                                                                |                                                                                                |
| Max. Charging/Discharging Current (A) | 35                                                                                            |                                                                                                |                                                                                                |                                                                                                |
| SOC Indicator                         | 4*LED (25%, 50%, 75%, 100%)                                                                   |                                                                                                |                                                                                                |                                                                                                |
| State Indicator                       | 2*LED (work, alarm)                                                                           |                                                                                                |                                                                                                |                                                                                                |
| Communication                         | CAN, RS485                                                                                    |                                                                                                |                                                                                                |                                                                                                |
| Working Temperature (°C)              | -10 ~ +50 (heating version -20 ~ +50)                                                         |                                                                                                |                                                                                                |                                                                                                |
| Ingress Protection Rating             | IP65 (PACK IP67)                                                                              |                                                                                                |                                                                                                |                                                                                                |
| Working Humidity (RH)                 | 5 ~ 95%                                                                                       |                                                                                                |                                                                                                |                                                                                                |
| Working Altitude (m)                  | < 4,000                                                                                       |                                                                                                |                                                                                                |                                                                                                |
| DOD                                   | 95%                                                                                           |                                                                                                |                                                                                                |                                                                                                |
| Calendar Life                         | > 6,000 (70%EOL)                                                                              |                                                                                                |                                                                                                |                                                                                                |
| Dimension (W*H*D, mm)                 | 700*600*200                                                                                   | 700*950*200                                                                                    | 700*1300*200                                                                                   | 700*1650*200                                                                                   |
| Dimension (W*H*D, mm)                 | 700*600*200                                                                                   | 700*950*200                                                                                    | 700*1300*200                                                                                   | 700*1650*200                                                                                   |
| Net Weight (kg)                       | BDU (9kg)*1+PACK (44kg)*N+base (5.6kg)*1                                                      |                                                                                                |                                                                                                |                                                                                                |
| Alarms                                | Over charge / Over discharge/Over current /<br>Over temperature / Short Circuit               |                                                                                                |                                                                                                |                                                                                                |
| Warranty                              | 10 years                                                                                      |                                                                                                |                                                                                                |                                                                                                |

## 10.2 SDS data

For SDS data, please scan the QR code below:



### 10.3 Contact Information

If you have any questions about this product, please contact us.

In order to provide you with faster and better after-sales service, we need your assistance in providing the following information.

- Equipment model: \_\_\_\_\_

- Serial number of the device: \_\_\_\_\_

- Fault code / name: \_\_\_\_\_

- A brief description of the fault phenomenon: \_\_\_\_\_

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UM\_HYX-E(50-200)-H\_V1.7-202608\_EN

The manual is subject to change without notice while the product is being improved.



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