

# STELTEC

V1.3



**Focus-H2**

Battery Module 51.2V, 100Ah

## Focus-H2 Operation Manual

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# 01

## TECHNICAL DATA

### NOTE

Operating current derating according to cell voltage and battery temperature.



|                                                |                                                                                   |                  |                  |                  |
|------------------------------------------------|-----------------------------------------------------------------------------------|------------------|------------------|------------------|
| <b>Product type</b>                            | <b>STE-BCO-100-XS</b>                                                             |                  |                  |                  |
| <b>High Voltage Box</b>                        | STE-BCO-100                                                                       |                  |                  |                  |
| <b>Number of Battery Modules</b>               | 3                                                                                 | 6                | 9                | 12               |
| <b>Battery System Capacity</b>                 | 15.36kWh                                                                          | 30.72kWh         | 46.08kWh         | 61.44kWh         |
| <b>Battery System Voltage</b>                  | 153.6V                                                                            | 307.2V           | 460.8V           | 614.4V           |
| <b>Operating Voltage Range</b>                 | 136.8~168.6V                                                                      | 273.6~337.2V     | 410.4~505.8V     | 547.2~674.4V     |
| <b>Dimension (W*D*H)</b>                       | 680*420*720(mm)                                                                   | 680*420*1140(mm) | 680*420*1560(mm) | 680*420*1980(mm) |
| <b>Weight</b>                                  | 178kg                                                                             | 322kg            | 466kg            | 610kg            |
| <b>Scalability</b>                             | Min. 3 modules, Max. 12 modules in series                                         |                  |                  |                  |
| <b>Cell Technology</b>                         | Li-ion(LFP)                                                                       |                  |                  |                  |
| <b>Charge/ Discharge Current (Recommended)</b> | 50A                                                                               |                  |                  |                  |
| <b>Charge/ Discharge Current (Max)</b>         | 100A                                                                              |                  |                  |                  |
| <b>Cooling Method</b>                          | Natural convection                                                                |                  |                  |                  |
| <b>Communication Port</b>                      | RS485, CAN                                                                        |                  |                  |                  |
| <b>Protection Class</b>                        | IP65                                                                              |                  |                  |                  |
| <b>Environment</b>                             | Indoor or Outdoor Eaves                                                           |                  |                  |                  |
| <b>Charging Temperature</b>                    | -20°C~55°C (with heating)<br>0°C~55°C (without heating)                           |                  |                  |                  |
| <b>Discharging Temperature</b>                 | -20°C~55°C                                                                        |                  |                  |                  |
| <b>Humidity</b>                                | 5%~95%                                                                            |                  |                  |                  |
| <b>Max. Operating Altitude</b>                 | 2,500m                                                                            |                  |                  |                  |
| <b>Cycle Life</b>                              | >6000 @25°C, 0.5C, 90% DOD                                                        |                  |                  |                  |
| <b>Wi-Fi Module</b>                            | Built in Wi-Fi module, APP OTA function                                           |                  |                  |                  |
| <b>Extended Functions</b>                      | Thermal aerosol fire extinguishing device (standard ) / Heating system (optional) |                  |                  |                  |
| <b>Certificates</b>                            | IEC62619 / IEC61000 / CE / UN38.3 / MSDS                                          |                  |                  |                  |

### Each Single Battery Module Specification

|                                          |               |
|------------------------------------------|---------------|
| <b>Battery Module Model</b>              | STE-BHO-5120  |
| <b>Battery Cell Capacity</b>             | 100Ah         |
| <b>Battery Module Capacity</b>           | 5.12kWh       |
| <b>Battery Module Voltage</b>            | 51.2V         |
| <b>High Voltage Box Dimension(W*D*H)</b> | 680*420*200mm |
| <b>High Voltage Box Weight</b>           | 22kg          |
| <b>Battery Module Dimension(W*D*H)</b>   | 680*420*140mm |
| <b>Battery Module Weight</b>             | 48kg          |
| <b>Battery Base Dimension(W*D*H)</b>     | 680*420*100mm |
| <b>Battery Base Weight</b>               | 12kg          |

## SAFETY INFORMATION

### 2.1 General Safety

Please carefully read the manual safety precautions and observe all the safety instructions on the equipment and in this document.

The "DANGER", "WARNING", and "NOTICE" statements in this document do not cover all the safety instructions. They are only supplements to the safety instructions.

For user safety and utilization efficiency of this manual, a list of symbols is designed to alert people from danger. You must understand and comply with the emphasized information to avoid personal injury and property damage. Relative safety symbols have been listed below.

|                                                                                                     |                                                                                                                       |
|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <br><b>DANGER</b>  | DANGER indicates a hazardous situation which, if not avoided will result in serious injury and/or fire.               |
| <br><b>WARNING</b> | WARNING indicates a hazardous situation which, if not avoided, will result in property loss and/or void the warranty. |
| <br><b>NOTICE</b>  | NOTICE indicates normal situation which, if not avoided, will result in damage to the battery.                        |

### NOTICE

Follow local laws and regulations when installing, operating, or maintaining the equipment. The safety instructions in this document are only supplements to local laws and regulations.

### 2.2 Personal Safety

#### Personal Requirements

People who plan to install or maintain battery equipment must be trained, understood all necessary safety precautions, and are able to correctly perform all operations. Only qualified professionals or trained people are allowed to install, operate, and maintain the equipment.

### DANGER

- Do not connect battery with AC power directly.
- Do not connect battery with PV wiring directly.
- Do not connect battery to faulty or unqualified inverter or charger.
- Do not place battery near open flame or flammable material.
- Do not short-circuit the external connection.
- Do not place battery under direct sunlight.
- Do not disassemble or repair by yourself.
- Do not drop, deform, impact, cut or spear with a sharp object.
- Do not put any objects onto the battery.
- Do not expose to liquids or moisture.

### 2.3 Electrical Safety

#### Symbols on Battery

There are some electrical symbols on battery relate to electrical safety. Please make sure you have fully understood them before installation.

|                                                                                       |                                     |                                                                                                                            |
|---------------------------------------------------------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
|    | Electrical danger                   | Voltage exists when the battery is powered on. Only qualified engineers are allowed to operate.                            |
|    | Earth connector                     | Earth connection.                                                                                                          |
|  | DC positive and negative connectors | Identify positive and negative connectors of DC power source.                                                              |
|  | CE mark                             | The product meets CE certification.                                                                                        |
|  | WEEEtag                             | Batteries must not be disposed with general waste. It must be appropriately recycled in accordance with local regulations. |
|  | Recycle                             | Batteries can be recycled, please refer to your local regulations regarding the correct disposal methods.                  |

## Electrical Safety

### DANGER

- Before installation or operation you must read the "Focus H2 manual" carefully.
- The batteries will produce high-voltage DC power and might cause lethal voltage and electric shock.
- Don't open repair or disassemble batteries. Only qualified persons are allowed to wire the batteries. Only Steltec employees or authorized personnel are allowed to operate.
- We do not take any responsibility caused by violation of safety operation or equipment safety standards.
- Install the battery under a roof or cover.
- Keep out of reach of children, animals or insects.
- Recharge battery every six months.
- Recharge battery within 48 hours after battery is fully discharged.(SOC=0%)
- Connect inverter PV and AC before starting the battery.
- Make sure the grid power is cut off and battery is powered off before installation.
- Make sure the earthing cable connect correctly before operation.
- Power off battery and disconnect power connections before maintenance.
- Contact the supplier within 24 hours if anything wrong.

### WARNING

- Ensure battery cable is installed correctly.
- When the battery is being installed or repaired, ensure the battery is powered off and isolated. Using a multimeter check to ensure there is no voltage in the positive and negative terminals.
- If you need to add or replace a battery, please contact the after-sale service center.

### NOTICE

- Please use appropriately insulated tools for installation and maintenance.
- Please check the LED status when the battery is powered on.
- Please ensure the communication cable is connected correctly between the battery and the inverter.
- Please check for inverter alarms and the SOC reading once communication is established between the inverter and the battery.
- Please check the product and packing list after unpacking. If the product is damaged or parts are missing, please contact the local dealer.

## Environmental Safety

### WARNING

- Ensure the battery is installed in a dry and well-ventilated location.
- The installation position must be away from direct sunlight and rain.
- The installation position must be far away from potential sources of fire.
- The installation position must be far away from all sources of water.
- Do not install the equipment in locations that contain flammable gases and/or flammable liquids.
- The operation and service life of the battery depends on the operating temperature. Operate the battery at a temperature equal to or better than the ambient temperature. The recommended operating temperature range is:  
With heating function: From -20°C to 55°C  
Without heating function: From 0°C to 55°C

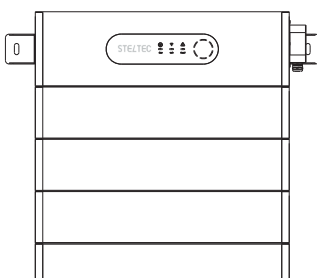
## 2.4 Transportation Safety

### WARNING

- The products have passed UN38.3 certification.
  - The products have MSDS documents available.
  - The products belong to class 9 dangerous goods.
- Please protect the packing case from the below situations:**
- Being dampened by rains, snows, or falling into water.
  - Falling down or mechanical impact.
  - Being upside-down or tilted.
  - Warranty claims are excluded for direct or indirect damage due to items above.

## PRODUCT OVERVIEW

### 3.1 Brief Introduction



PRODUCT OVERVIEW

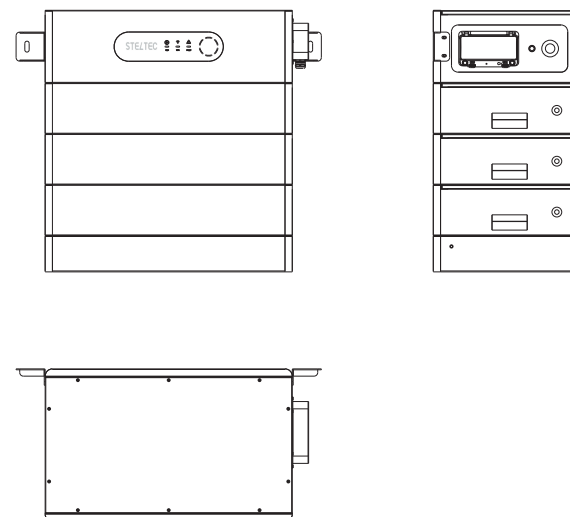
Focus-H2 is a high-voltage battery storage system based on lithium-iron phosphate technology. It is used to primarily store excess PV power that is generated by an inverter based PV system.

**Focus-H2 is not suitable for supporting life-sustaining medical devices.**

Focus-H2 has built-in BMS (Battery Management System), which can manage and monitor cells information including voltage, current and temperature. Besides that, BMS can balance cells charging to extend cycle life. BMS has protection functions including over-discharge, over-charge, over-current and high/low temperature; the system can automatically manage charge state, discharge state and balance state.

Ensure that the number of modules connected in series is no fewer than 3 and no more than 12 STE-BHO-5120 units.

### 3.2 Interface Introduction



#### 3.2.1 Switch ON/OFF

##### 1. Switch ON

Turn on the DC breaker on the high-voltage box. Press and hold the power button for 5 seconds until the light of the power button remains on. Wait for the SOC light to turn on and the RUN light to flash. The battery is now active.

##### 2. Switch OFF

Press and hold the power button for 5 seconds. The breaker will automatically disconnect and the battery will shut down.

## 3.2.2 LED Indicator Definition

Note:

flash 1 - 0.5s light / 0.5s off

### LED Indicators Instructions

| Fault Status          | ALM                            | RUN    | Battery Level Indicator |     |     |       |       |       |
|-----------------------|--------------------------------|--------|-------------------------|-----|-----|-------|-------|-------|
|                       |                                |        | L6                      | L5  | L4  | L3    | L2    | L1    |
| Cell Fault            | Light                          | OFF    | OFF                     | OFF | OFF | OFF   | OFF   | OFF   |
| NTC Fault             | Light                          | OFF    | OFF                     | OFF | OFF | OFF   | OFF   | Light |
| Precharge Fault       | Light                          | OFF    | OFF                     | OFF | OFF | OFF   | Light | OFF   |
| Short Circuit Fault   | Light                          | OFF    | OFF                     | OFF | OFF | OFF   | Light | Light |
| Charge Relay Fault    | Light                          | OFF    | OFF                     | OFF | OFF | Light | OFF   | OFF   |
| Discharge Relay Fault | Light                          | OFF    | OFF                     | OFF | OFF | Light | OFF   | Light |
| Precharge Fault       | Light                          | OFF    | OFF                     | OFF | OFF | Light | Light | OFF   |
| Negative Relay Fault  | Light                          | OFF    | OFF                     | OFF | OFF | Light | Light | Light |
| Protect Status 3      | Cell Over Voltage              | Flash1 | OFF                     | OFF | OFF | Light | OFF   | OFF   |
|                       | Total Over Voltage             | Flash1 | OFF                     | OFF | OFF | Light | OFF   | Light |
|                       | Charge Over Current            | Flash1 | OFF                     | OFF | OFF | Light | OFF   | Light |
|                       | Cell Under Voltage             | Flash1 | OFF                     | OFF | OFF | Light | OFF   | Light |
|                       | Total Under Voltage            | Flash1 | OFF                     | OFF | OFF | Light | Light | OFF   |
|                       | Discharge Over Current         | Flash1 | OFF                     | OFF | OFF | Light | Light | OFF   |
|                       | Abnormal Charge Temperature    | Flash1 | OFF                     | OFF | OFF | Light | Light | Light |
|                       | Abnormal Discharge Temperature | Flash1 | OFF                     | OFF | OFF | Light | Light | Light |

Note: When multiple faults occur, the run light remains on

Wifi light ON: Wifi connected successfully

Wifi light OFF: Wifi not connected or power off

### Charging/Discharging Battery Level Indicators Instructions

| Alarm/Run  | ALM | RUN    |
|------------|-----|--------|
|            |     |        |
| LED status | OFF | Flash1 |

| Status                  | Charging |         |         |         |         |         |         | Discharging |       |       |       |       |       |       |
|-------------------------|----------|---------|---------|---------|---------|---------|---------|-------------|-------|-------|-------|-------|-------|-------|
| Battery Level Indicator | L6       | L5      | L4      | L3      | L2      | L1      |         | L6          | L5    | L4    | L3    | L2    | L1    |       |
| Battery Level(%)        | 0%~17%   | OFF     | OFF     | OFF     | OFF     | Flash 1 | Flash 1 | OFF         | OFF   | OFF   | OFF   | OFF   | Light | Light |
|                         | 18%~33%  | OFF     | OFF     | OFF     | OFF     | Flash 1 | Light   | OFF         | OFF   | OFF   | OFF   | Light | Light | Light |
|                         | 34%~50%  | OFF     | OFF     | OFF     | Flash 1 | Light   | Light   | OFF         | OFF   | OFF   | Light | Light | Light | Light |
|                         | 51%~66%  | OFF     | OFF     | Flash 1 | Light   | Light   | Light   | OFF         | OFF   | Light | Light | Light | Light | Light |
|                         | 67%~83%  | OFF     | Flash 1 | Light   | Light   | Light   | Light   | OFF         | Light | Light | Light | Light | Light | Light |
|                         | 84%~100% | Flash 1 | Light   | Light   | Light   | Light   | Light   | Light       | Light | Light | Light | Light | Light | Light |

## 3.2.3 RS485/CAN Port

RS485 communication Terminal(RJ45 port), follow RS485 protocol, for manufacturer or professional engineer to debug or service.

| PIN   | Definition      |
|-------|-----------------|
| Pin 1 | NC              |
| Pin 2 | NC              |
| Pin 3 | NC              |
| Pin 4 | CANH (reserved) |
| Pin 5 | CANL (reserved) |
| Pin 6 | NC              |
| Pin 7 | RS485-A         |
| Pin 8 | RS485-B         |

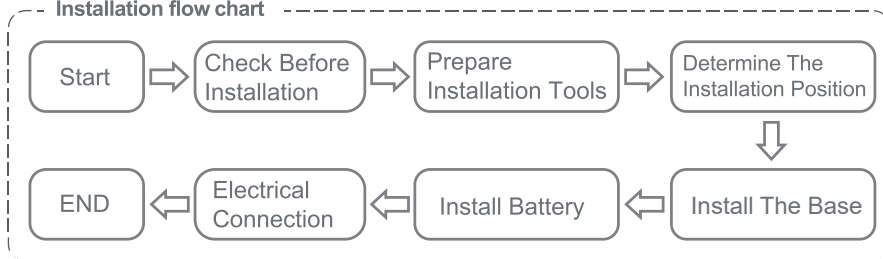
CAN Communication Terminal(RJ45 port), connect to inverter follow CAN protocol.

| PIN   | Definition    |
|-------|---------------|
| Pin 1 | NC            |
| Pin 2 | NC            |
| Pin 3 | NC            |
| Pin 4 | CANH (to PCS) |
| Pin 5 | CANL (to PCS) |
| Pin 6 | NC            |
| Pin 7 | NC            |
| Pin 8 | NC            |

# 04

## INSTALLATION GUIDE

Installation flow chart



### 4.1 Check Before Installation

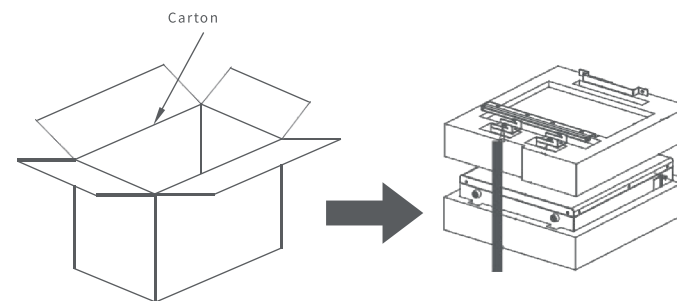
#### 4.1.1 Check Packing Integrity

Packing materials and components may be damaged during transportation. Therefore, check the outer packing materials before installing the battery. Check the surface of packing materials for damage, such as holes and cracks. If any damage is found, do not unpack the battery and contact the dealer as soon as possible. It is recommended to remove packing materials only after confirming no damage.

#### 4.1.2 Verify Components

After unpacking the battery, check whether components are intact and complete. If any component is missing or damaged, contact the dealer. The below table shows the components and mechanical parts that should be delivered.

# STELTEC



STE-BCO-100 Packing List of High Voltage Box

| No | Specifications                                                                                                                                  | Quantity | Photo | Used for                                          |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------|---------------------------------------------------|
| 1  | High voltage box                                                                                                                                | 1        |       |                                                   |
| 2  | Fixing bracket 80*80*45mm                                                                                                                       | 2        |       | To secure with the wall                           |
| 3  | The Base<br>V1.0_680*420*100_t=2.5mm_SP<br>CC_Pantone 433C_Fine sand<br>lines                                                                   | 1        |       | To put at the bottom of the battery               |
| 4  | Flat locating pin_⌀<br>8*12.1_M6_Iron_Black                                                                                                     | 4        |       | Used for positioning multiple packs               |
| 5  | Wall plug_M8*80mm_8.8level<br>304 stainless steel                                                                                               | 6        |       | To fix the wall hanging bracket                   |
| 6  | Phillips hexagon screw with three<br>combination bolt_M6*15mm_8.8<br>level 304 stainless steel                                                  | 2        |       | Grounding screws                                  |
| 7  | Phillips hexagon screw with three<br>combination bolt_M5*10mm_8.8<br>level 304 stainless steel                                                  | 4        |       | To fix high voltage box and the fixing<br>bracket |
| 8  | Power cord, SC25-8 at one end,<br>SC25-6 at the other end,<br>AWG4# silicone wire 3512,<br>L=1500mm, Black color                                | 1        |       | Power cable-                                      |
| 9  | Power cord, SC25-8 at one end,<br>SC25-6 at the other end,<br>AWG4# silicone wire 3512,<br>L=1500mm, Red color                                  | 1        |       | Power cable+                                      |
| 10 | V1.0_RNB1.25-6_1 yellow-green<br>two-color grounding cable<br>BVR2.5<br>length 1500mm_RNB1.25-6                                                 | 1        |       | Grounding cable                                   |
| 11 | V1.0_RJ45 crystal plug_Black<br>Super Class 5 Unshielded,<br>Customized wire sequence 4 on<br>4_5 on 5_Line length 2000mm_<br>RJ45 crystal plug | 1        |       | Communication cable                               |

STE-BCO-100 Packing List of High Voltage Box

| No | Specifications                                                             | Quantity | Photo | Used for                   |
|----|----------------------------------------------------------------------------|----------|-------|----------------------------|
| 12 | Red Nylon Tube Terminal_VE25-<br>25_Purple Copper with Tin<br>Plating      | 1        |       | Accessory terminals        |
| 13 | Black Nylon Tube<br>Terminal_VE25-<br>25_Purple Copper with Tin<br>Plating | 1        |       | Accessory terminals        |
| 14 | 20g moisture-proof desiccant                                               | 2        |       | Moisture proof             |
| 15 | Outgoing Inspection Report                                                 | 1        |       | Outgoing Inspection Report |
| 16 | Battery Networking Guide                                                   | 1        |       | Battery Networking Guide   |
| 17 | Quick Installation Guide                                                   | 1        |       | Quick Installation Guide   |

STE-BHO-5120 Packing List of Battery Box

| No | Specifications                                 | Quantity | Photo | Used for                            |
|----|------------------------------------------------|----------|-------|-------------------------------------|
| 1  | Battery box 51.2V 100Ah<br>RAL5014 Pigeon blue | 1        |       |                                     |
| 2  | Flat locating pin_⌀<br>8*12.1_M6_Iron_Black    | 4        |       | Used for positioning multiple packs |
| 3  | 20g moisture-proof desiccant                   | 2        |       | Moisture proof                      |
| 4  | Outgoing Inspection Report                     | 1        |       | Outgoing Inspection Report          |

## 4.2 Tools

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

## 4.3 Installation requirements

### 4.3.1 Installation environment requirements

Charging temperature range: -20°C - +55°C(Products with heating function)

Charging temperature range: 0°C - +55°C(Products without heating function)

Discharging temperature range: -20°C - +55°C

Relative humidity: 5%-85%RH

Elevation: no more than 2500m

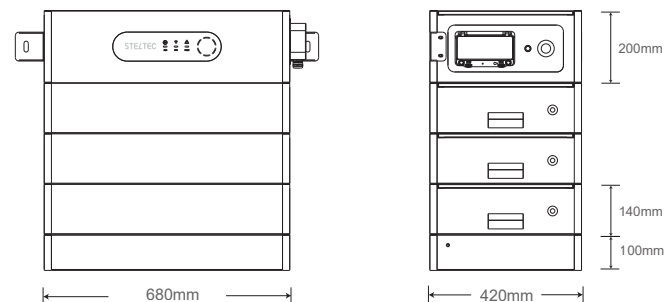
- Lithium battery may be installed indoors or outdoors. But please avoid direct sunlight, rain exposure or snow cover.
- Place battery under a roof or cover.
- Place battery in secure location away from children and animals.
- The ground for product arrangement shall be flat and level.
- Do not place battery near open flame or flammable material.
- Do not place battery near heat sources or fire sources.
- Keep away from dust and messy zones.
- The floor and walls are completely waterproof.

### 4.3.2 Installation carrier requirements

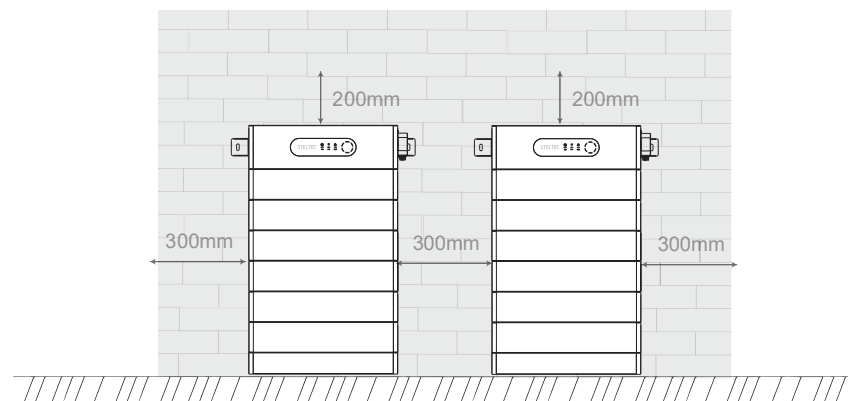
- Only mount battery on fire resistant building. Do not install batteries on flammable buildings.
- Battery is quite heavy, make sure the wall/ground can meet the load bearing requirements.

## 4.4 Installation Instructions

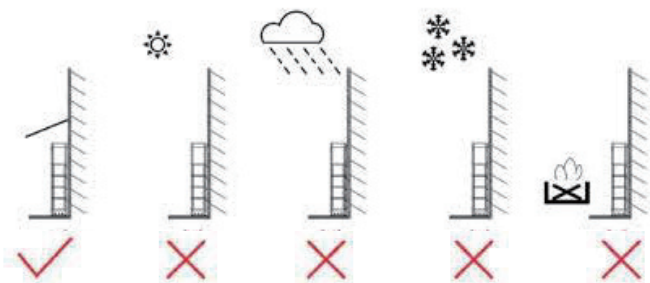
### 4.4.1 Dimensions



Minimum mounting distance between battery pack and equipment:

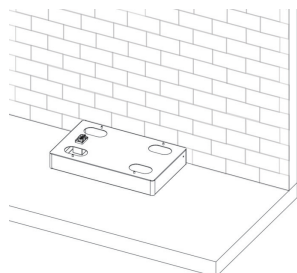


## 4.4.2 Installation Procedure



### STEP 1

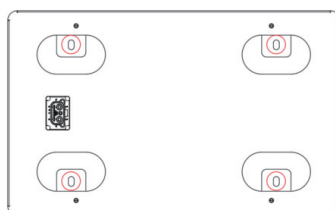
Place the base tightly against the wall, mark the drilling locations through the holes in the base.



### STEP 2

Drill holes at the marked locations and install expansion bolts. Position the base over the bolts and tighten securely.

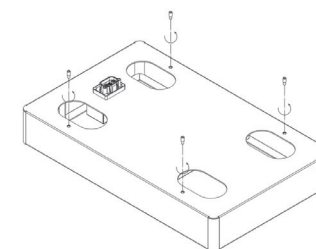
**Note:** Use the level meter during the installation, make sure the levelness is less than 2mm.



### STEP 3

Secure the locating pins to the base and put the battery module onto the base.

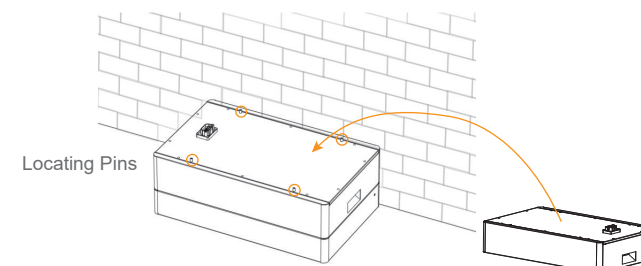
**Note:** Make sure that all the locating pins on each layer are tightened.



### STEP 4

Secure the locating pins to the battery pack and place the next battery module onto the lower battery module.

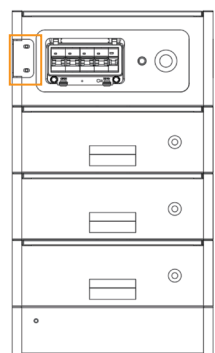
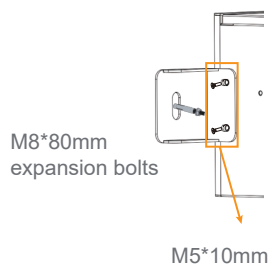
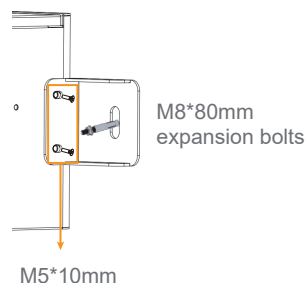
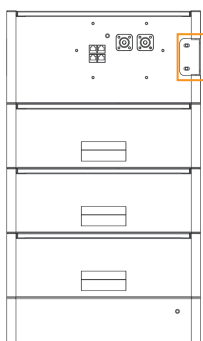
Repeat until all battery modules are installed.



## STEP 5

Place the high-voltage box onto the top battery module.  
Secure the mounting bracket on the high-voltage box and mark the drilling locations based on the bracket's holes.

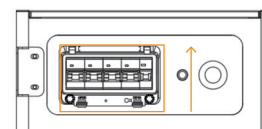
Drill holes at the marked locations. Install expansion bolts and M5\*10mm screws on both sides to secure the box and the wall.



## STEP 6

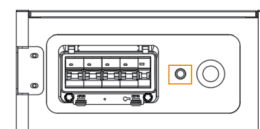
Battery System Self-test:

1. Turn on the DC breaker on the high-voltage box.



2. Press and hold the power button for 5 seconds until the light of the power button remains on.

Wait for the SOC light to turn on and the RUN light to flash. The battery is now active.

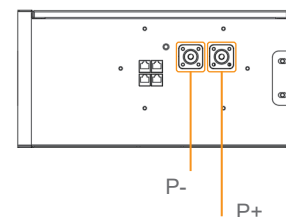


Press and hold for 5 seconds

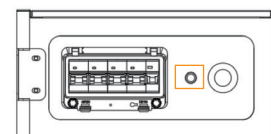


3. Measure the system output voltage.

- Use a multimeter to measure the output voltage between the positive and negative terminals of the high-voltage box.
- The output voltage should conform to the voltage range in table "Battery System Technical Specifications".



4. Press and hold the power button for 5 seconds. The breaker will automatically disconnect and the battery will shut down.



Press and hold for 5 seconds

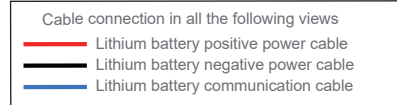
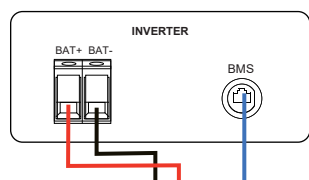
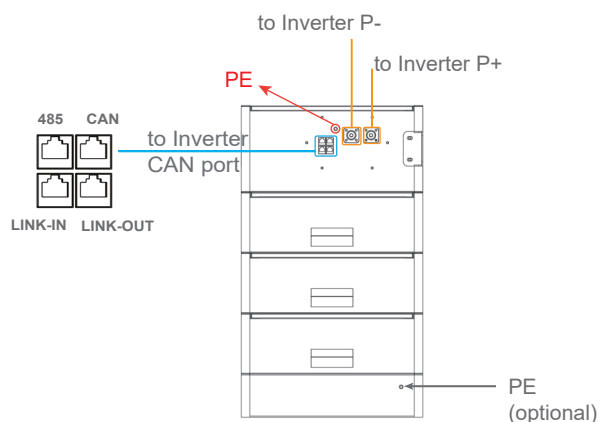
## STEP 7

Connect the power cable and the ground cord.

Connect the High-voltage box CAN port to the BMS port of the inverter for communication.

### Note:

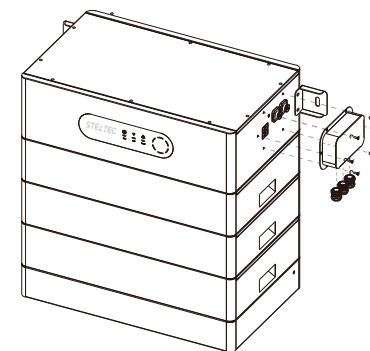
1. At least 3 units must operate in one cluster.
2. The maximum number of units that can operate in cluster is 12.



## STEP 8

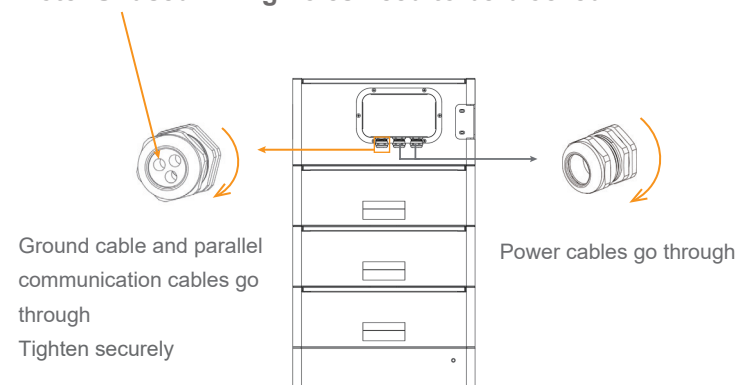
Route cables as follows:

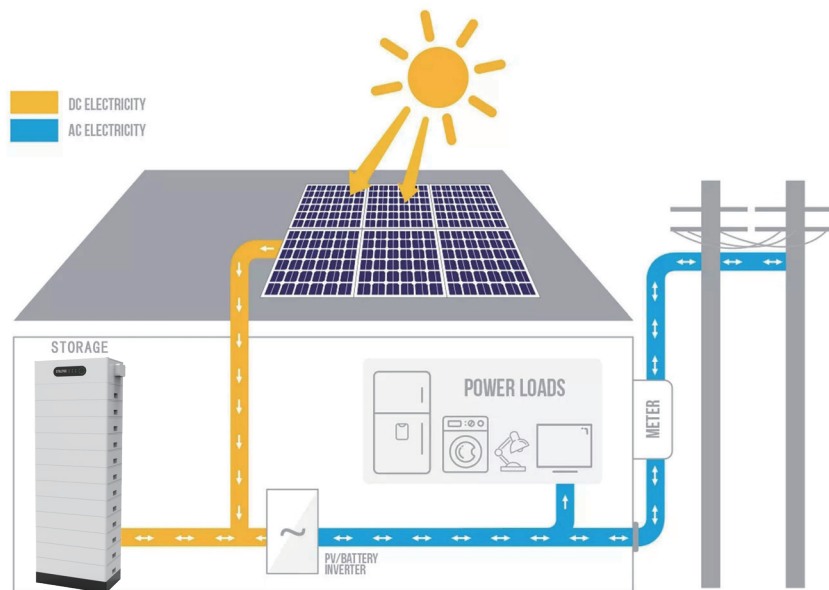
1. Power cables go through the side cable glands.
2. Ground and communication cables go through the middle glands.
3. Install the waterproof covers and fully tighten all screws and the cable glands on the high-voltage box.



4. Tighten all glands after routing.

**Note: Unused wiring holes need to be blocked.**





## 05 COMMISSIONING PROCEDURE

After all the cable (power and communication) connections are completed, please ensure the following:

- Ensure the DC switch on the inverter is OFF.
- Ensure the AC switch that is connected to the grid and EPS output (if used) of the inverter is OFF.

For commissioning we recommend the following steps:

- Refer to section 3.2.1 Start for turning on the battery.
- Wait until the LED's on.
- Wait until the inverter LED's on.
- Turn the DC switch on the inverter ON.
- Turn the AC switch that is connected to the grid and EPS output of the inverter ON .
- Connect the battery to Wi-Fi following the App instructions, ensure the Wifi LED is ON to confirm successful connection.
- Set-up the battery and the inverter using the App.

## 06

## MAINTENANCE

### 6.1 Recharge Requirements During Normal Storage

Battery should be stored in an environment with temperature range between  $-10^{\circ}\text{C}$   $\sim +45^{\circ}\text{C}$ , and maintained regularly according to following table with 0.5C current till 50% SOC after long storage time.

#### Recharge Conditions When In Storage

| Storage Environment Temperature  | Relative Humidity of storage Environment | Storage Time     | SOC                            |
|----------------------------------|------------------------------------------|------------------|--------------------------------|
| Below $\sim -10^{\circ}\text{C}$ | /                                        | prohibit         | /                              |
| $-10\sim 25^{\circ}\text{C}$     | 5%-70%                                   | $\leq 12$ months | $30\%\leq \text{SOC}\leq 60\%$ |
| $25\sim 35^{\circ}\text{C}$      | 5%-70%                                   | $\leq 6$ months  | $30\%\leq \text{SOC}\leq 60\%$ |
| $35\sim 45^{\circ}\text{C}$      | 5%-70%                                   | $\leq 3$ months  | $30\%\leq \text{SOC}\leq 60\%$ |
| Above $45^{\circ}\text{C}$       | /                                        | prohibit         | /                              |

### 6.2 Recharge Requirements When Over Discharged

Over discharged (90% DOD) battery should be recharged according to following table, otherwise over discharged battery will be damaged.

#### Recharge conditions when battery is over discharged

| Storage Environment Temperature | Storage Time    | Note                                        |
|---------------------------------|-----------------|---------------------------------------------|
| $-10\sim 25^{\circ}\text{C}$    | $\leq 7$ days   | Battery Pack Disconnected from the Inverter |
| $25\sim 35^{\circ}\text{C}$     | $\leq 5$ days   |                                             |
| $-10\sim 45^{\circ}\text{C}$    | $\leq 24$ hours | Battery Pack connected to Inverter          |