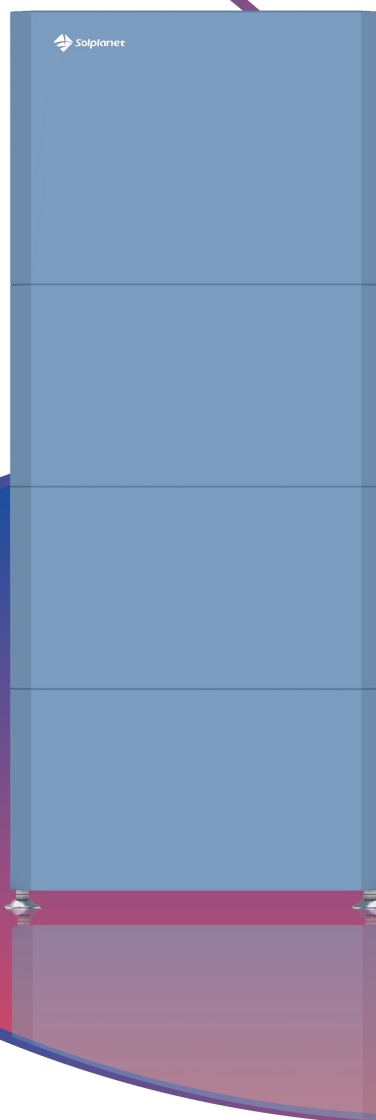




Ai-HB-E 050A/Ai-HB-E 100A

Ai-HB-E 150A/Ai-HB-E 200A

# Ai-HB G2-E Series Battery

## User Manual

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# 1 General information

## 1.1 About this document

This document describes the mounting, installation, commissioning, configuration, operation, troubleshooting and decommissioning of the Ai-HB-E battery system (BS).

The contents of this guide may be updated or revised due to on-going product development and continuous improvement.

The information in this guide is subject to change without notice. The latest version of this document and the user manual for installation, commissioning, configuration and decommissioning are to be found in PDF format at [www.solplanet.net](http://www.solplanet.net).

It is recommended that this document be readily accessible at all times.

## 1.2 Product validity

This document is valid for the following models:

- Ai-HB-E 050A
- Ai-HB-E 100A
- Ai-HB-E 150A
- Ai-HB-E 200A

## 1.3 Target group

This document is intended for qualified persons who must perform the tasks exactly as described in this user manual.

All installation work must be performed by appropriately trained and qualified persons.

Qualified persons must possess the following skills:

- Knowledge of how batteries work and are operated.
- Knowledge of how an inverter works and is operated.
- Training in how to deal with the dangers and risks associated with installing, repairing and using electrical devices, batteries and installations.
- Training in the installation and commissioning of electrical devices.
- Knowledge of all applicable laws, standards and directives.
- Knowledge of and compliance with this document and all safety information.

Not adhering to the prescribed instructions may potentially void the manufacturer's warranty. If in doubt please contact the local Solplanet service team.

## 1.4 Symbols



### ***DANGER***

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.



### ***WARNING***

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.



### ***CAUTION***

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

### ***NOTICE***

Indicates a situation which, if not avoided, can result in property damage.



Information that is important for a specific topic or goal, however not related to safety.

## 2 Safety

### 2.1 Intended use

The Ai-HB-E is a BS for both residential and commercial applications and operates with Solplanet hybrid inverters, please check the battery compatibility list which can be found at [www.solplanet.net](http://www.solplanet.net).

- It is a high voltage Li-ion BS controlled via a battery control unit (MASTER MODULE).
- It can be operated in on-grid, off-grid and backup modes with all officially compatible Solplanet inverters. The latest version of the Solplanet battery compatibility list can be found in PDF format at [www.solplanet.net](http://www.solplanet.net).
- The product is suitable for indoor applications.
- The product must only be used as a stationary device.
- Alterations to the product are not allowed unless authorised in writing by Solplanet.
- Unauthorised alterations will void the guarantee and warranty claims. Solplanet will not be held liable for any damage caused by such unauthorised alterations.
- The product is not suitable for supplying power to life-sustaining medical devices.
- Please ensure that no personal injury would lead due to the power outage of the battery system.
- The product must only be used in countries for which it is approved for by Solplanet.
- Use this product only in accordance with the information provided in this documentation and with the locally applicable standards and directives. Any other application may cause personal injury or property damage.
- The type label must remain permanently attached to the product.
- This document does not replace any regional, state, provincial, federal or national laws, regulations or standards that apply to the installation, electrical safety and use of the product.

### 2.2 Important safety instructions

The product has been designed and tested strictly according to the international safety requirements. As with all electrical or electronical devices, there are residual risks despite careful construction.

To prevent personal injury and property damage and to ensure long-term operation of the product, read this section carefully and observe all safety information at all times.

#### **DANGER**

##### **Danger to life due to high voltages of the battery!**

When the BS connected to the inverter, and its circuit breaker and ON/OFF button is ON, the batteries generate a high DC voltage energizing the DC cable and live components.

- Do not touch non-insulated parts or cable ends.
- Do not touch the DC conductors.
- Do not touch any live components of the product.
- Do not open the product.
- All work on the product must only be carried out by qualified personnel who have read and fully understood all safety information contained in this document.
- Disconnect the product from all voltage and energy sources and ensure it cannot be reconnected before working on the product.
- Wear suitable personal protective equipment, in accordance with local regulations, for all work on the product.

## **DANGER**

### **Danger to life due to electric shock where surge protection is not used !**

If there is no surge protection, a voltage surge can be conducted into the building and to other connected devices in the same system through power cables, network cables or other types of cable. Touching live parts and cables may result in death or lethal injury due to electric shock.

- Ensure all devices in the same system and the inverter are integrated within an existing surge protection system/device.
- Refer to local installation regulations to determine the requirements for the installation of surge protection devices.

## **WARNING**

### **Danger to life due to electric shock from destruction of measurement devices due to overvoltage !**

Overvoltage can damage a measurement device and result in voltage being present in the enclosure of the measurement device. Touching the live enclosure of the measuring device results in death or lethal injuries due to electric shock.

- Only use measuring devices with a measurement span equal to or higher than maximum voltage range of the product.

## **WARNING**

### **Risk of injury due to weight of product !**

Injuries may result if the product is incorrectly handled or dropped while being transported or mounted.

- Lift and transport the product carefully. Take the weight of the product into account.
- Wear suitable personal protective equipment, in accordance with local regulations, for all work on the product.

## **NOTICE**

### **Damage to the battery system due to electrostatic discharge!**

Internal components of the battery system can be irreparably damaged by electrostatic discharge.

- Ground yourself before touching any component.

## **NOTICE**

### **Damage to the MASTER MODULE due to particles and water!**

Particles such as dust and sand can damage the MASTER MODULE and impair its functionality.

- Only open the MASTER MODULE top cover when the humidity is within the permitted range of the product and the environment is free of dust and sand.

## 2.3 Symbols on the label

---



Beware of a danger zone

This symbol indicates that the product must be additionally grounded if additional grounding or equipotential bonding is required at the installation site.

---



Beware of high voltage and operating current!

The product operates at a high voltage and current. Work on the product must only be carried out by skilled and authorized electricians.

---



Beware of explosion!

The battery is an electro-chemical device and poses a risk of explosion under extreme conditions. Maintain a safe distance if such a situation arises.

---



Beware of danger to children!

The battery must be inaccessible to children.

---



Beware: Flammable!

Keep the battery system away from open flames or ignition sources.

---



WEEE Designation

Do not dispose of the product together with household waste. Dispose the product in accordance with local disposal regulations for electronic waste applicable in the country of installation.

---



CE marking

The product complies with the requirements of the applicable EU directives.

---



Certification mark

The product has been tested by TÜV and obtained the quality certification mark.

---



RCM (Regulatory Compliance Mark)

The product complies with the requirements of the applicable Australian standards.

---



The battery is recyclable

The battery can be recycled by a professional recycling organization, please refer to the relevant local regulations.

---



Observe the documentation

Read and understand all documentation supplied with the product.

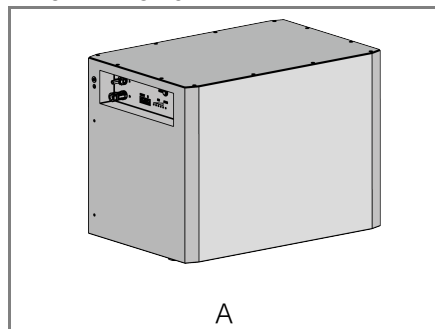
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## 3 Unpacking and storage

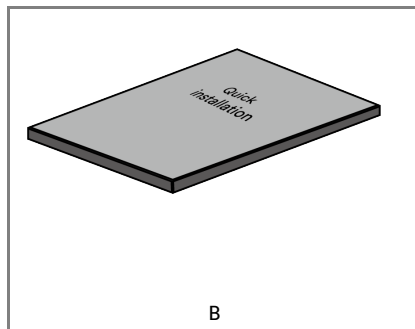
### 3.1 Scope of delivery

Check the scope of delivery for completeness and any visible external damage. Contact your distributor if the scope of delivery is incomplete or damaged.

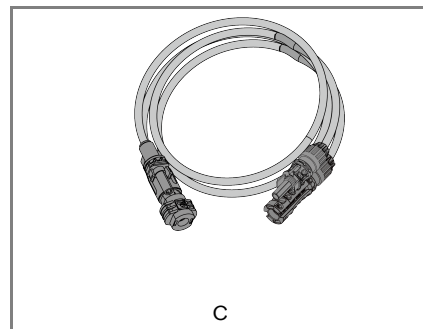
MASTER MODULE :



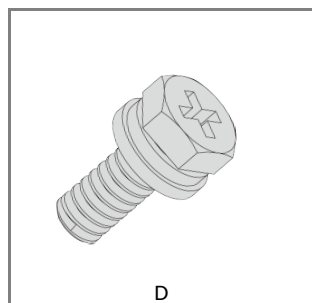
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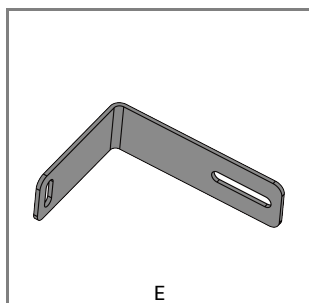
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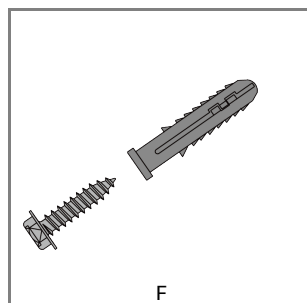
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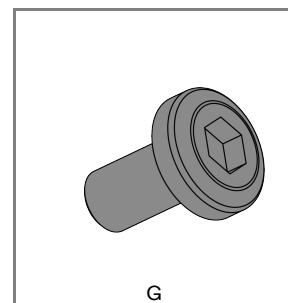
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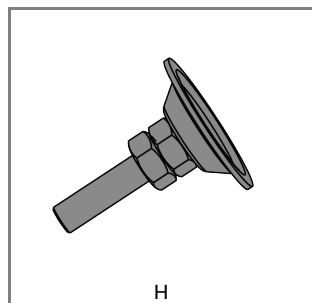
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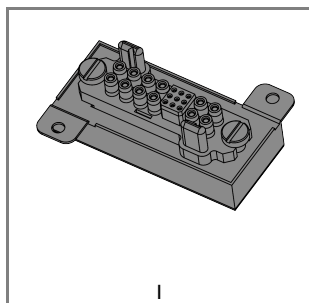
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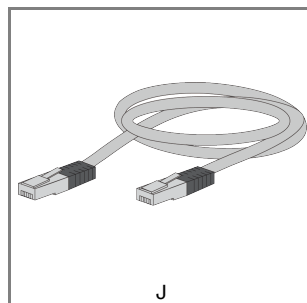
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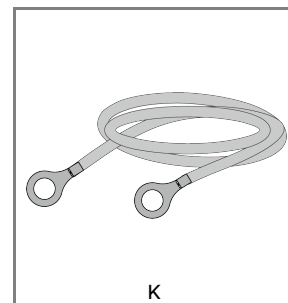
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I



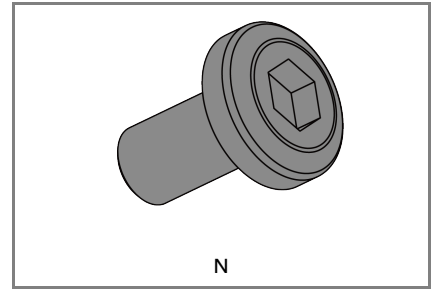
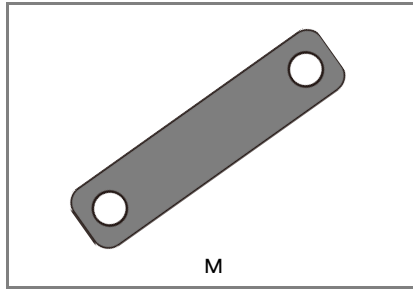
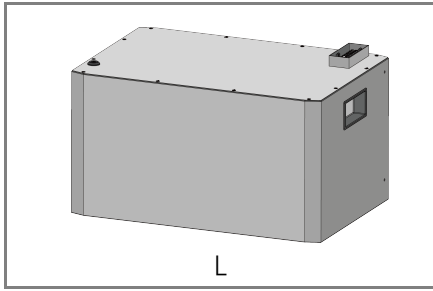
J



K

| Object | Description                          | Quantity |
|--------|--------------------------------------|----------|
| A      | Master Module                        | 1        |
| B      | Quick installation guide             | 1        |
| C      | Positive and negative battery cables | 1        |
| D      | Hexagon screw (M6 X 16)              | 1        |
| E      | L-bracket                            | 2        |
| F      | Expansion anchor bolt (M8 X 40)      | 2        |
| G      | Screw (M5 X 10)                      | 4        |
| H      | Foot                                 | 4        |
| I      | Series plug                          | 1        |
| J      | Network Cable                        | 1        |
| K      | PE Cable                             | 1        |

#### Slave Module Package:



| Object | Description          | Quantity |
|--------|----------------------|----------|
| L      | Slave Module         | 1        |
| M      | Module locking plate | 2        |
| N      | Screw (M5 X 10)      | 4        |

## 3.2 Product storage

Suitable storage is required if the equipment is not installed immediately:

- Store the battery in the original packing case.
- The storage temperature must be between -20 °C to +45 °C, and the storage relative humidity must be between 5 % and 95 %, non-condensing.
- Store the battery with a 25 – 50 % SOC and recharge it every 6 months to prevent over-discharge. The packing with the equipment shall not be tilted or inverted.
- Place the equipment in a cool place away from direct sunlight.
- Keep the equipment away from flammable, explosive, and corrosive materials.
- Keep the equipment away from rain.
- If stored for 3+ months, the product must be inspected and tested by authorized personnel before use.

## 4 Battery system overview

### 4.1 Product description

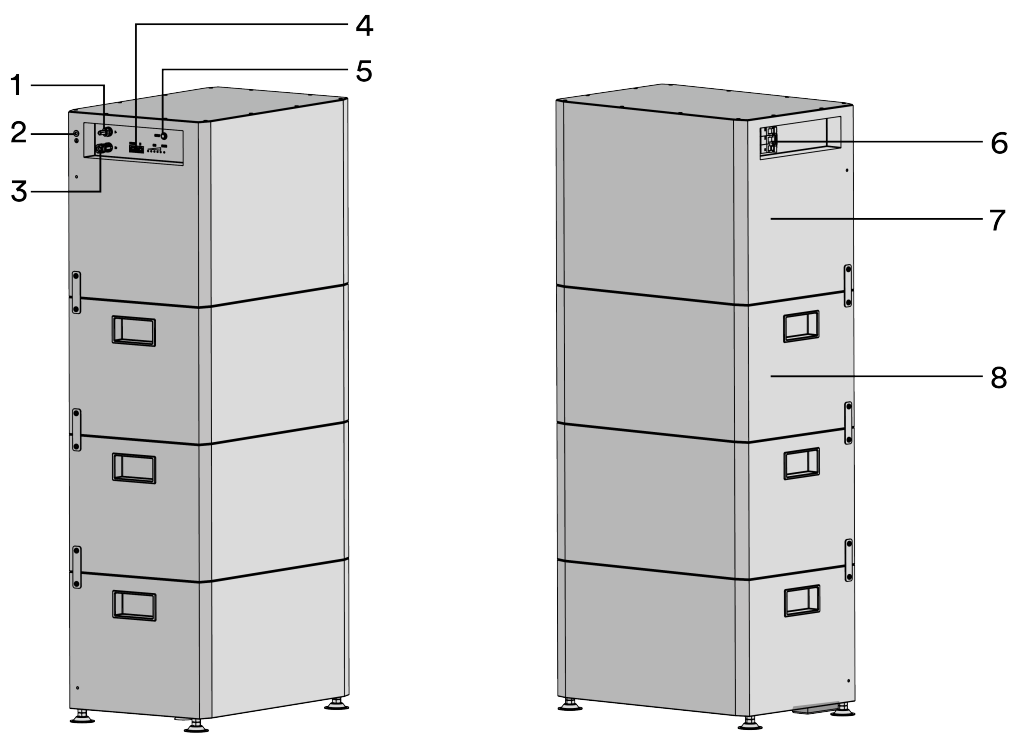
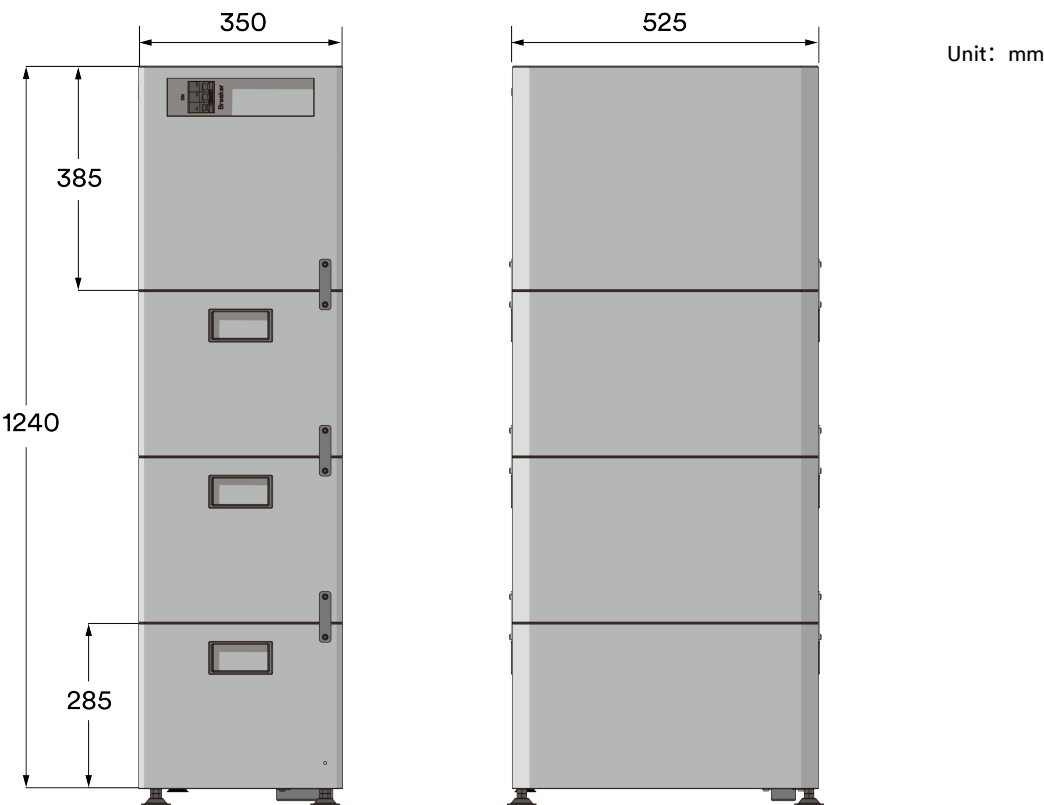


Figure shown here is for reference only. The actual product received may differ!

| Object | Description        |
|--------|--------------------|
| 1      | P-                 |
| 2      | Grounding terminal |
| 3      | P+                 |
| 4      | PCS OUT/ IN        |
| 5      | On/ Off button     |
| 6      | Circuit breaker    |
| 7      | Master Module      |
| 8      | Slave Module       |

4.2 Dimensions



4.3 LED indicator

The LED's on the MASTER MODULE indicates the status of the BS.



LED status definitions:

- Solid On: LED is permanently illuminated.
- Off: LED is off (is not illuminated).
- Blinking: LED illuminates for 1 second and turns off for 1 second.

| Function | LED                                                                                          | Description                                                       |
|----------|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| Status   |  Blinking | Indicates an alarm.                                               |
|          |  Solid ON | MASTER MODULE is power on, and the battery is waiting to turn on. |
|          |  Off      | Normal state.                                                     |
|          |  Solid ON | Indicates a fault.                                                |
| SOC      |  ON       | SOC: 80 % ~ 100 %                                                 |
|          |  ON       |                                                                   |
|          |  ON       |                                                                   |
|          |  ON       |                                                                   |

|     |                                                                                         |                  |
|-----|-----------------------------------------------------------------------------------------|------------------|
|     |  ON    |                  |
| SOC |  OFF   | SOC: 60 % ~ 80 % |
|     |  ON    |                  |
|     |  ON    |                  |
|     |  ON    |                  |
|     |  ON    |                  |
| SOC |  OFF   | SOC: 40 % ~ 60 % |
|     |  OFF   |                  |
|     |  ON    |                  |
|     |  ON    |                  |
|     |  ON    |                  |
| SOC |  OFF   | SOC: 20 % ~ 40 % |
|     |  OFF  |                  |
|     |  OFF |                  |
|     |  ON  |                  |
|     |  ON  |                  |
| SOC |  OFF | SOC: 0 % ~ 20 %  |
|     |  OFF |                  |
|     |  OFF |                  |
|     |  OFF |                  |
|     |  ON  |                  |



There are five LEDs to indicate the State of Charge (SOC) of the battery, and the different LED statuses indicate the various working states of the battery as follows:

- Solid on (all bright LEDs according to SOC) indicated discharging state.
- Blinking on (only top bright LED according to SOC) indicated Charging state.
- Solid on (all bright LEDs according to SOC) indicated standby state.

## 4.4 Interfaces and functions

The product is equipped with the following interfaces and functions:

### **Communication (CAN) Interface - “Link Port”**

The “Link Port” is an RJ45 port used for connecting the MASTER MODULE to an inverter. The product can communicate with the inverter through the CAN interfaces. The CAN interfaces can also be used for the parallel operation of the products.

### **System startup**

Turn on the circuit breaker. When the status indicator turns green, press the ON/OFF button for at least 3s, all lights will turn on from bottom to top, the BS is in working mode, and the device can be charged and discharged normally.

### **System sleep**

Press the ON/OFF button for at least 5s. Make sure that both the SOC indicator and the status indicator of the MASTER MODULE are off.

### **System shut down**

Turn off the circuit breaker. Make sure that both the SOC indicator and the status indicator of the MASTER MODULE are off.

## 4.5 Fire Supression Systems

The Ai-HB-E Series battery includes a built-in intelligent aerosol extinguishing device in each battery pack, designed to address emergency safety risks effectively.

Based on the battery module size and cell capacity, the integrated aerosol system extinguishes initial cell fires efficiently, preventing the spread of flames within the module. This inside-out approach provides the most effective fire suppression, and minimizes thermal runaway losses.

The aerosol extinguishing device, QRR0.03G/S, contains a 30 g aerosol charge, a 500 mm double-output thermal wire, and a 40 mm glass fiber protective tube at the aerosol outlet. When the thermal wire detects a module temperature  $\geq 185\text{ }^{\circ}\text{C}$ , it activates the aerosol generator in the fire extinguishing device, spraying the agent within  $\leq 12$  seconds. This rapid response extinguishes fire and prevents recurrence, ensuring robust fire safety.

## 5 Mounting

### 5.1 Mounting requirements

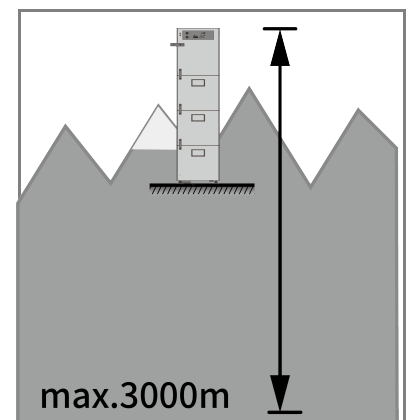
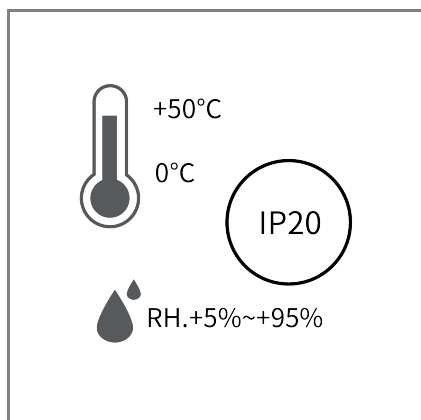
#### 5.1.1 Installation location requirements

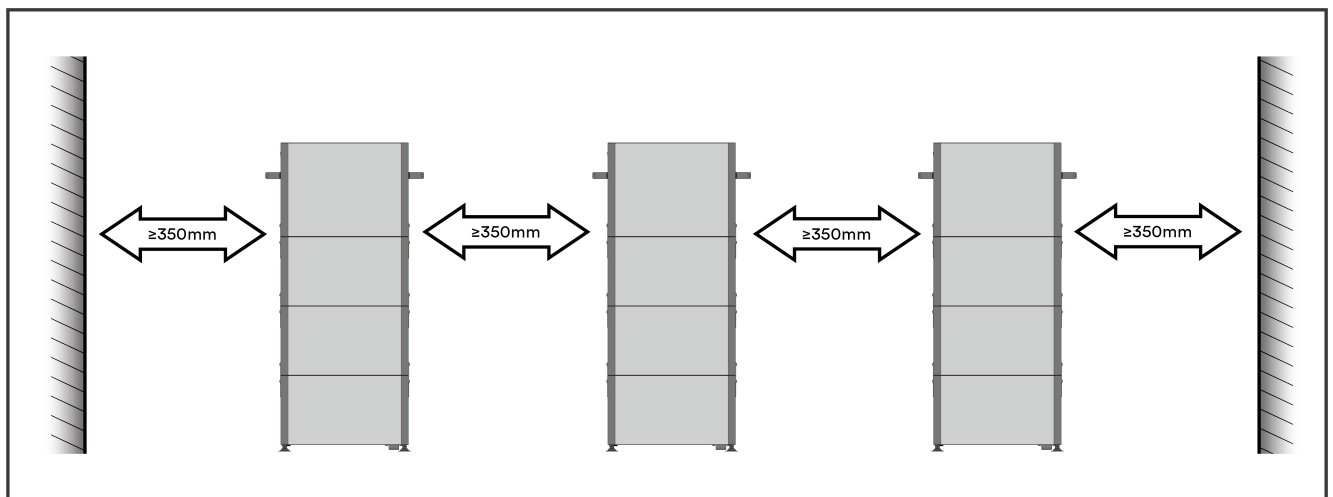
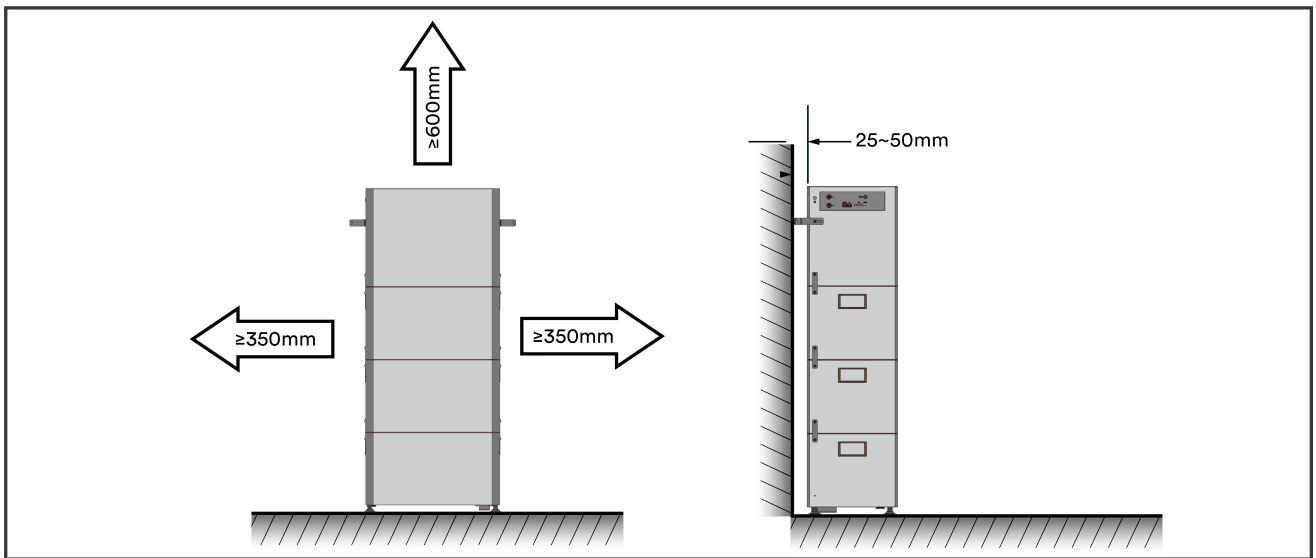
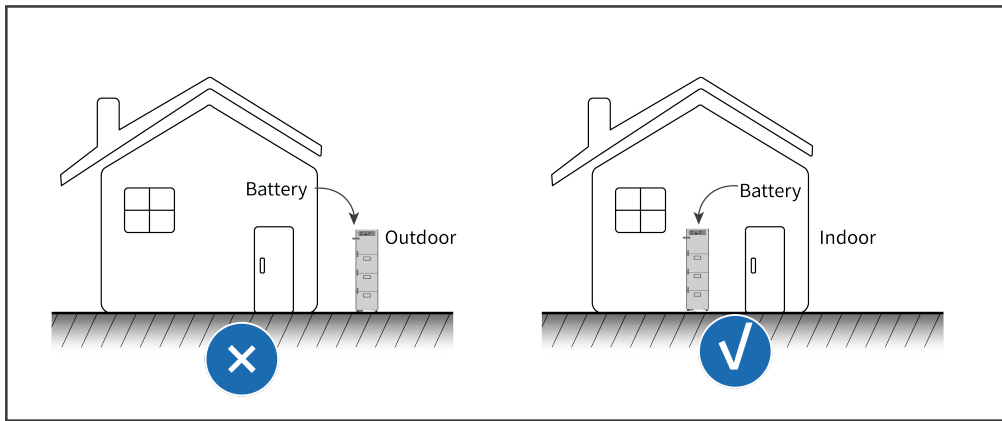
#### **DANGER**

##### **Danger to life due to fire or explosion!**

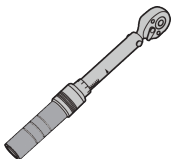
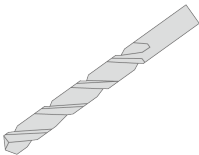
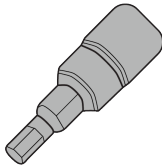
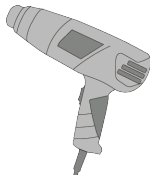
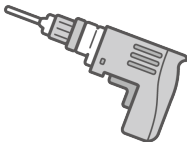
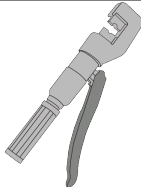
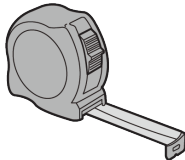
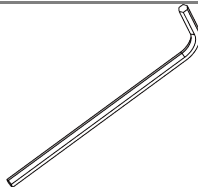
Despite careful construction, electrical devices can cause fires. This can result in death or serious injury.

- Do not mount the product in areas containing highly flammable materials or gases.
- Do not mount the inverter in areas where there is a risk of explosion.
- A solid support surface must be available (e.g. concrete or masonry).
- The mounting location must be inaccessible to children.
- The installation location must be suitable for the weight and dimensions of the BS.
- Keep away from conductive (metal) materials.
- Keep away from water, heat, flammable, or explosive materials.
- The installation location must not be near fire.
- Position the product to ensure clear visibility of the LED indicators.
- The circuit breaker of the BS must always be freely accessible.
- The altitude of the installation location should be less than 3000 m.
- An operating temperature between  $-20^{\circ}\text{C}$  ~  $+50^{\circ}\text{C}$  is recommended.
- An ambient humidity between 5 – 95 % is recommended.
- Do not expose the mounting location to direct solar irradiation. Exposure to direct solar irradiation can cause the exterior components to age prematurely and may result in overheating. Excessive heat can trigger the BS to reduce power output, potentially shortening its lifespan.



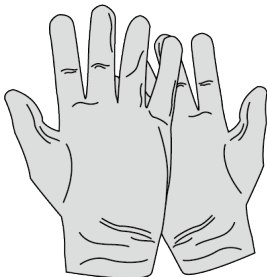
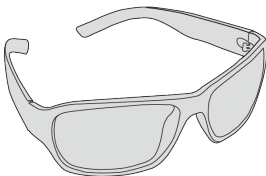


## 5.1.2 Tools

|                                                                                                                                        |                                                                                                                           |                                                                                                                                             |                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
|  <p>Phillips-screwdriver<br/>Specification: M5/M6</p> |  <p>Marker pen</p>                       |  <p>Phillips Screwdriver Bit<br/>Specification: M5/M6</p> |  <p>Wrench</p>           |
|  <p>Torque wrench</p>                                 |  <p>Twist drill(8mm)</p>                 |  <p>Hexagon socket bit S=4</p>                            |  <p>Heat Gun</p>         |
|  <p>Electric Drill</p>                               |  <p>Network Cable<br/>Crimping Tool</p> |  <p>Wire Stripper</p>                                    |  <p>Crimping Pliers</p> |
|  <p>Scissors</p>                                    |  <p>Hammer</p>                         |  <p>Tape measure</p>                                    |  <p>Hex Key S=4</p>    |

## 5.1.3 Personal protective equipment (PPE)

Wear the following safety gear when working on the BS. Adhere to local occupational health and safety standards.

|                                                                                                             |                                                                                                           |                                                                                                           |
|-------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
|  <p>Insulated gloves</p> |  <p>Safety goggles</p> |  <p>Safety shoes</p> |
|-------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|

## 5.2 Mounting

### **DANGER**

#### **Danger to life due to high voltages of the battery !**

When the BS connected to the inverter, and the circuit breaker and ON/OFF button is ON, the batteries will generate a high DC voltage which will be present in the DC cable and live components.

- Do not touch non-insulated parts or cables.
- Do not touch the DC conductors.
- Do not touch any live components of the product.
- Do not open the product.
- All work on the product must only be carried out by qualified personnel who have read and fully understood all safety information contained in this document.
- Disconnect the product from voltage sources and ensure it cannot be reconnected before working on the product.
- Wear suitable personal protective equipment, in accordance with local regulations, for all work on the product.

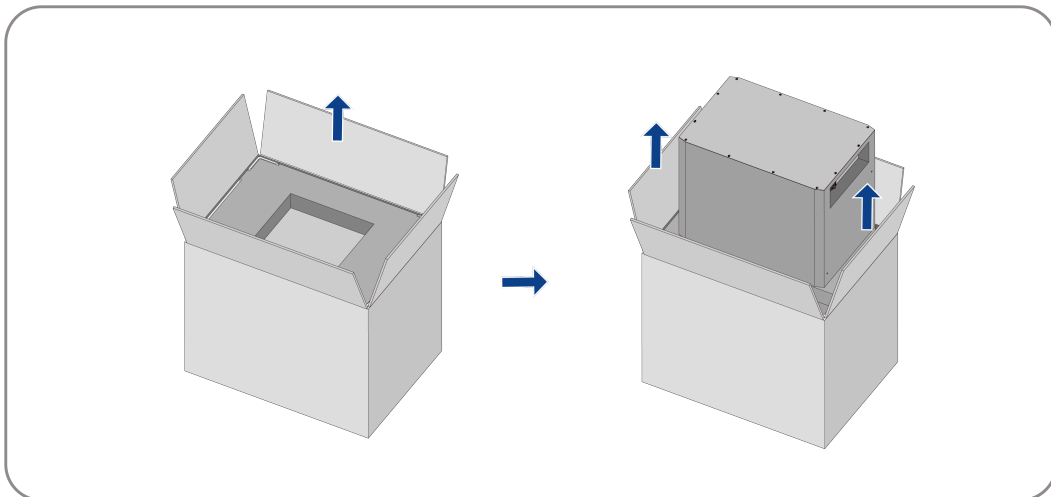
### **WARNING**

#### **Risk of injury due to weight of product !**

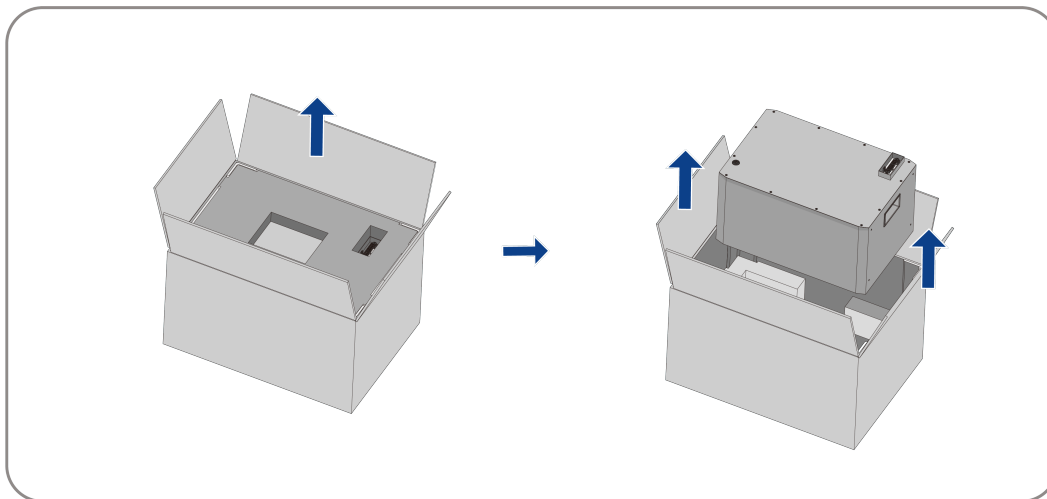
Injuries may result if the product is incorrectly handled or dropped while being transported or mounted.

- Lift and transport the product carefully. Take the weight of the product into account.
- Wear suitable personal protective equipment, in accordance with local regulations, for all work on the product.

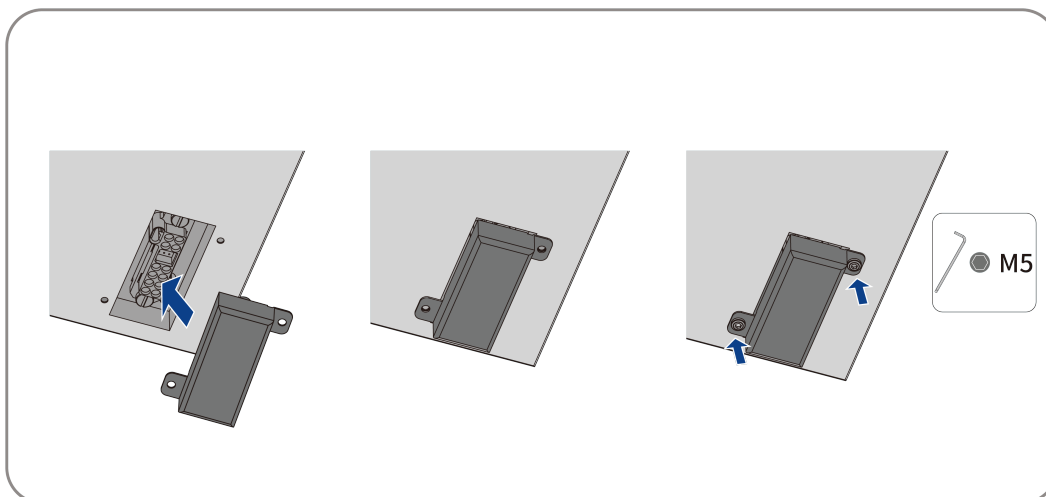
**Step 1:** Remove the Master Module from the package.



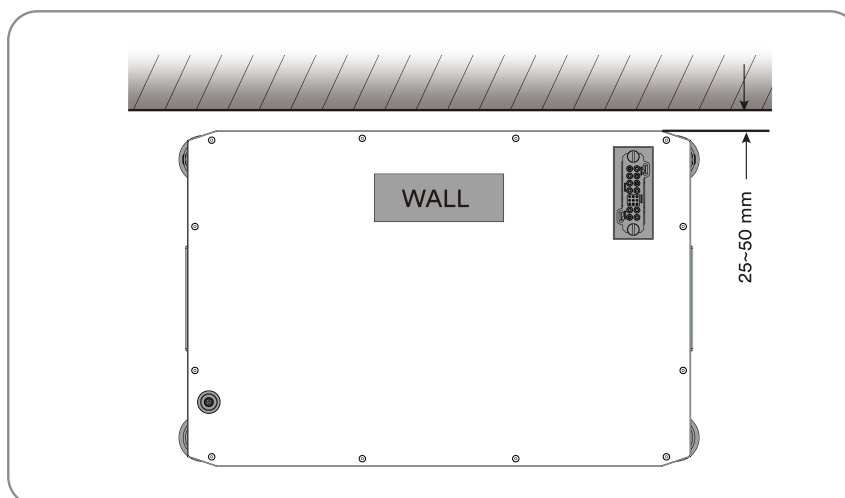
**Step 2:** Remove the Slave module from the package.



**Step 3:** Install the bottom communication plug and four support legs.

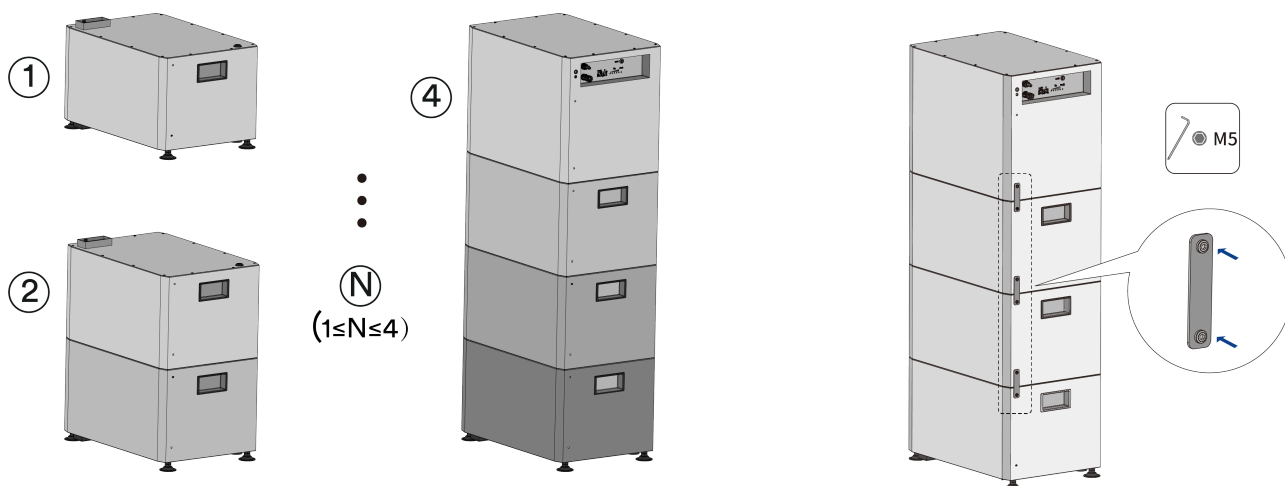


**Step 4:** Place the Slave Module along the wall, and ensure a gap of 25 ~ 50 mm between the wall and the Slave Module. Confirm the Slave Module is oriented correctly, with the power-mating connectors facing outward.

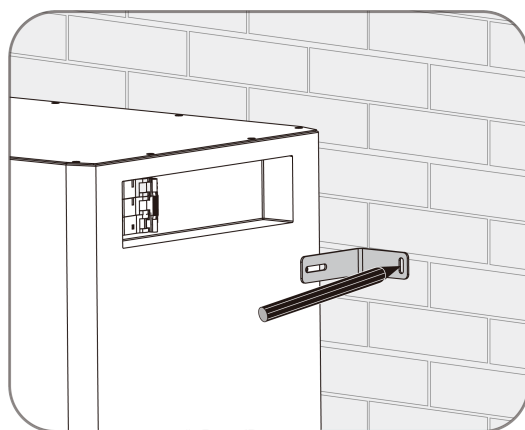


**Step 5:** Repeat the process for the remaining the Slave Module.

**Step 6:** Place the Master Module on top of the highest Slave Module and fixed by the module locking plate and screws(M5x10). Tighten to a torque of 4 N · m. Ensure the Master Module is correctly oriented, with its power-mating connectors aligned with those on the Slave Module.



**Step 7:** Position the L-bracket at the intended mounting location on the wall and mark the hole positions. Please pay attention that there may be power cables or other supply lines (e.g., gas or water) routed in the wall. Ensure that no cables or other supply lines are laid in the wall, which could be damaged when drilling holes.



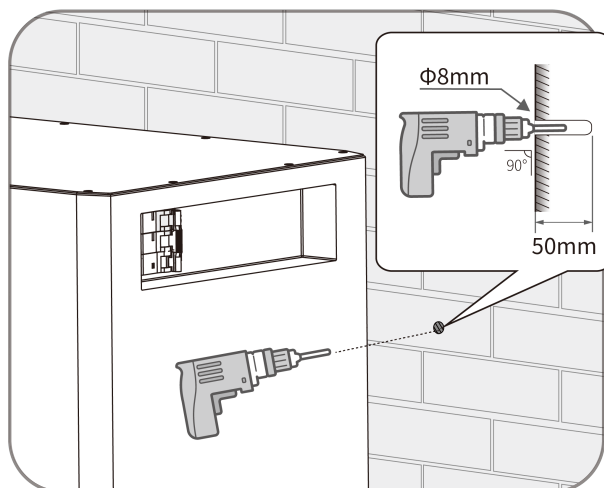
## ⚠ CAUTION

**Damage to power cables or pipes may cause personal injury!**

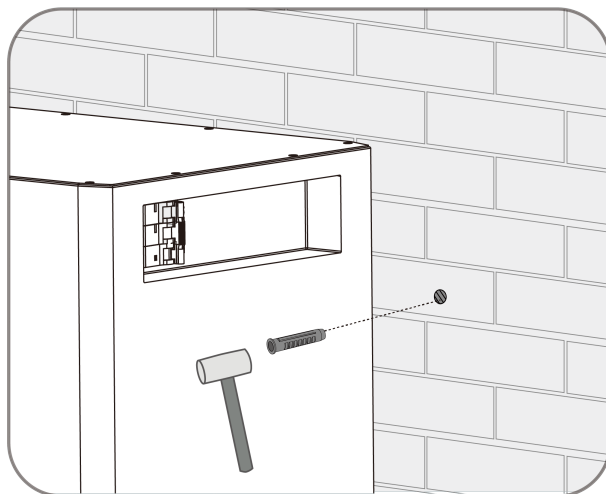
Walls may contain electrical cables or pipes (e.g., gas or water).

- Ensure no cables or pipes are damaged when drilling.

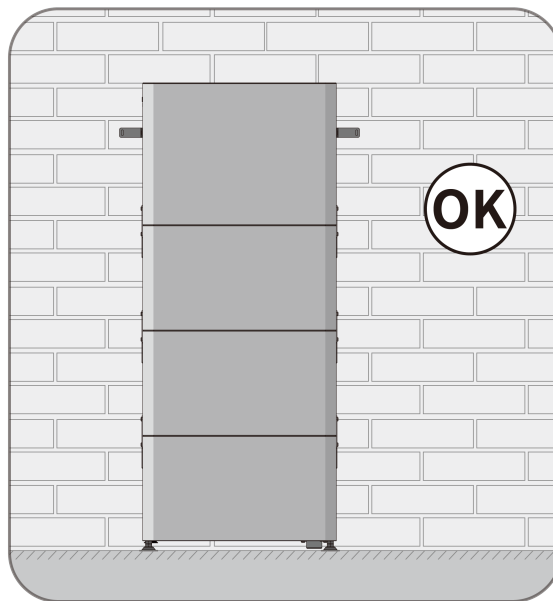
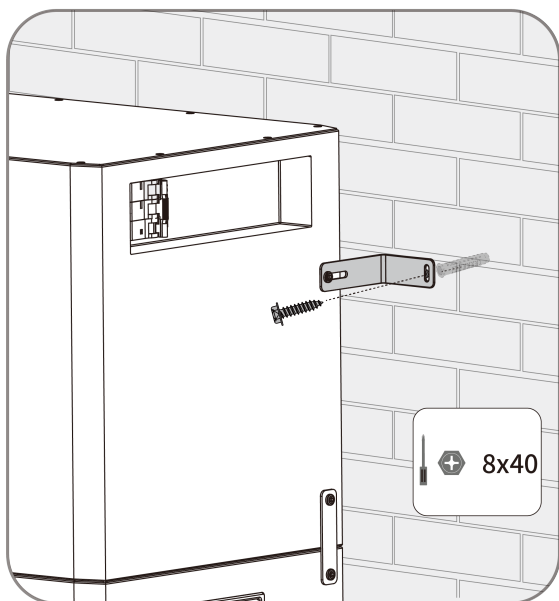
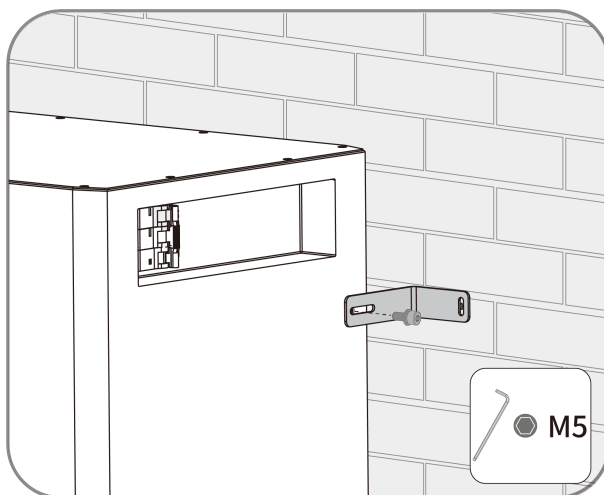
**Step 8:** Set the L-bracket aside and drill the marked holes with an 8 mm diameter drill bit and a depth of 50 mm. Repeat on the other side of the Master Module.



**Step 9:** Insert a screw anchor into the drilled holes. Repeat on the other side of the Master Module.



**Step 10:** Fix two L-brackets on both sides of the Master Module with the supplied screws (M5×10), using a 4mm ratchet wrench. Tighten to a torque of 4 Nm.



**Step 11:** Secure the hanger using the supplied screws (M8×40).

**Complete the installation.**

## 6 Electrical connection

### 6.1 Overview of the connection area

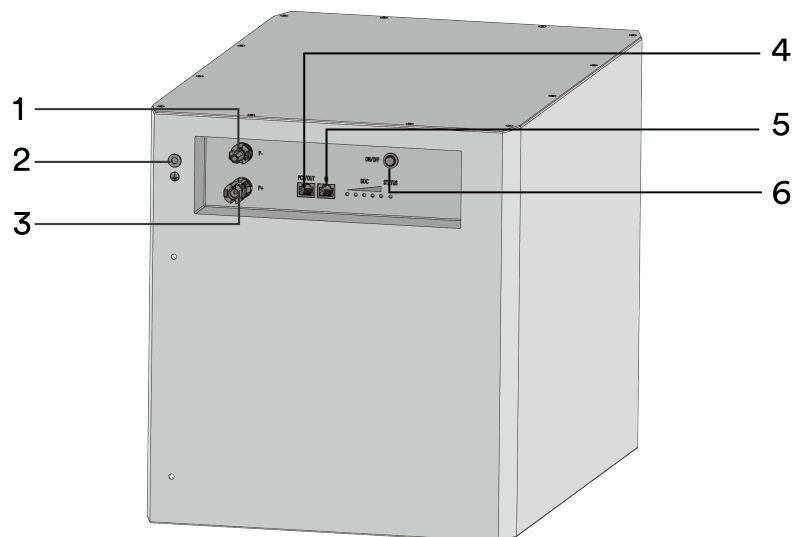


Figure shown here is for reference only. The actual product received may differ!

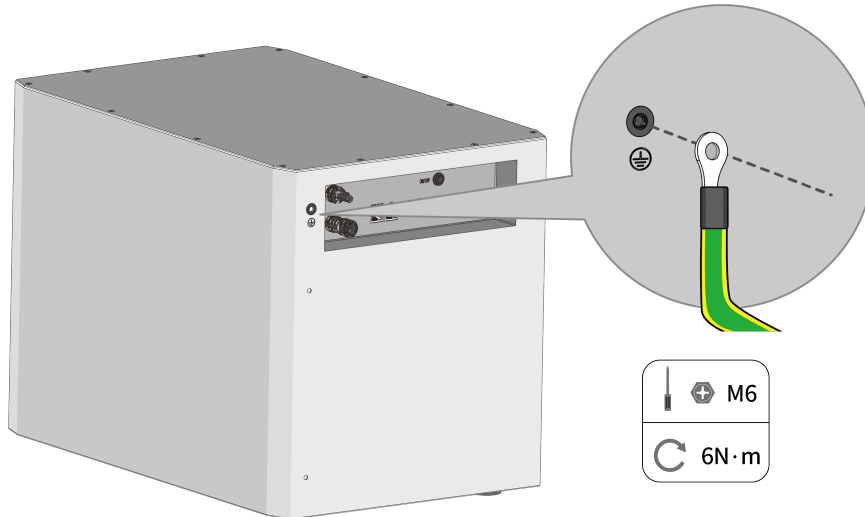
| Object | Description                        |
|--------|------------------------------------|
| 1      | P- (negative battery power output) |
| 2      | Grounding terminal                 |
| 3      | P+ (positive battery power output) |
| 4      | Link port out(PCS/OUT)             |
| 5      | Link port in(IN)                   |
| 6      | On/Off button                      |

## 6.2 Connecting the grounding conductor

### Procedure:

**Step 1:** Take the secondary grounding wire from the accessory package.

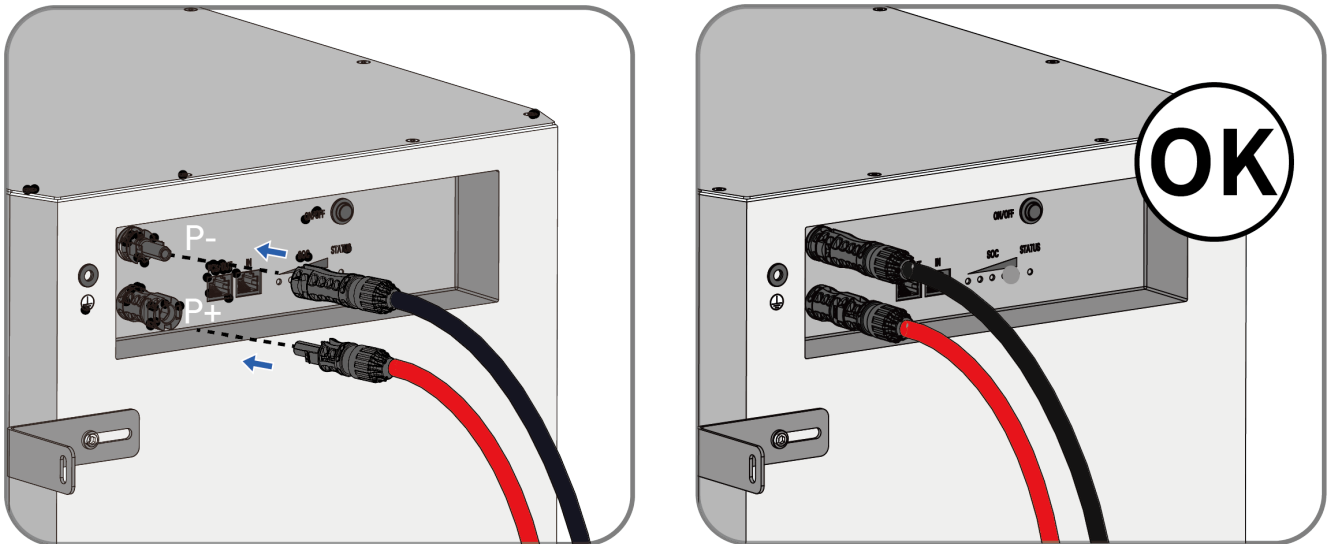
**Step 2:** Fix the grounding terminal with a screw (M6×16) using a Phillips screwdriver .Tighten to a torque of 6 Nm.



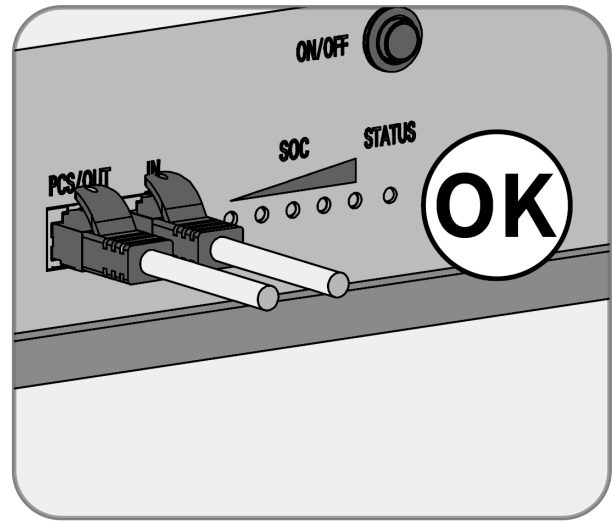
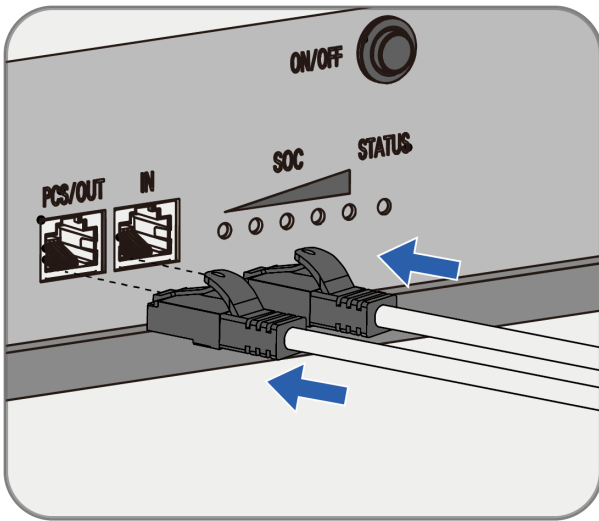
Complete the installation.

## 6.3 Power and communication cable connection instructions

**Step 1:** Connect the supplied power cables to the DC connectors on the Master Module. Positive cable (red) connects to the P+ terminal on the Master Module. Negative cable (black) connects to the P- terminal on the Master Module.



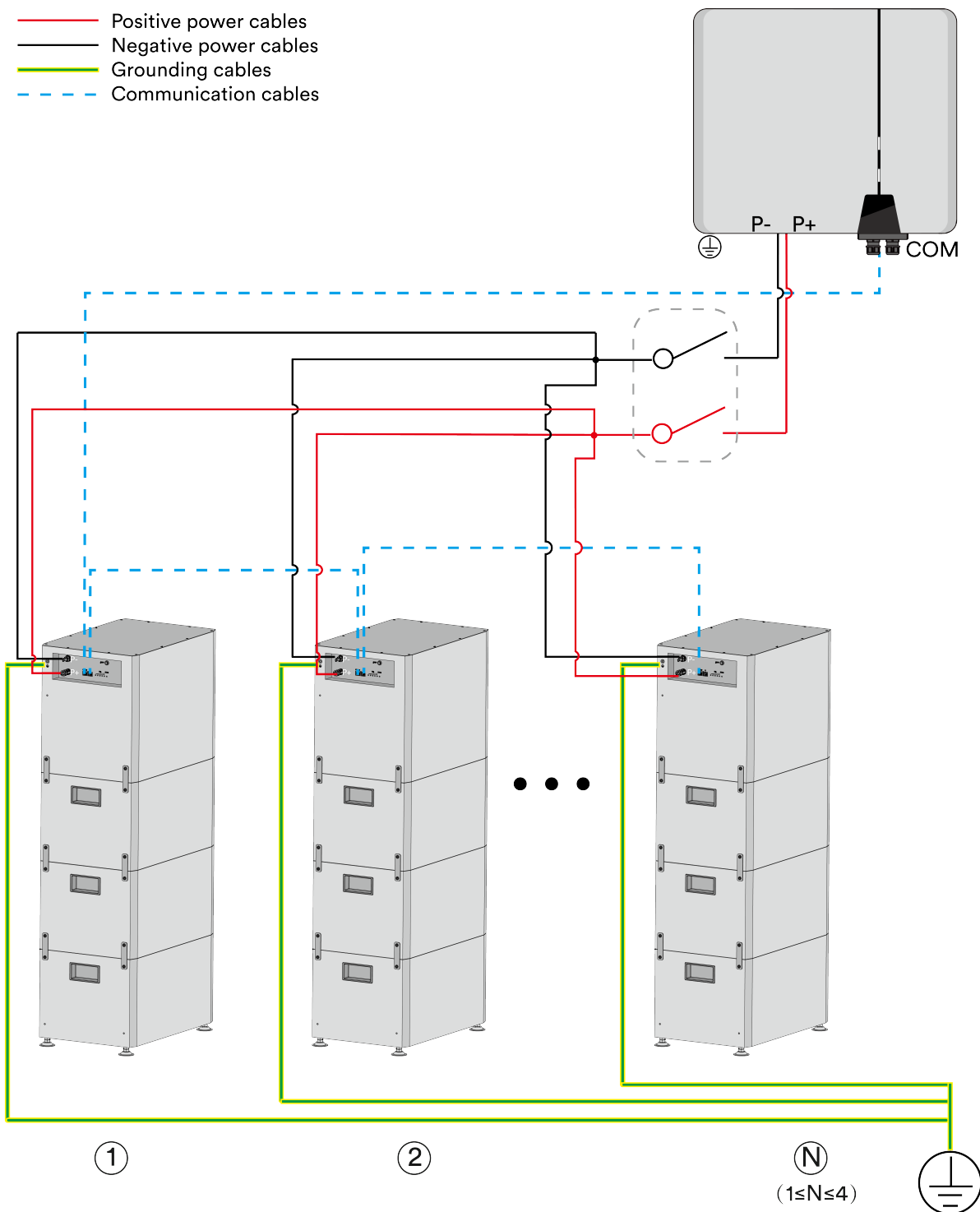
**Step 2:** Connect the “PCS/OUT” of the Master Module to the BMS port of the inverter using a shielded CAT 5 (or higher) ethernet cable.



For connecting multiple the Master Module's (and therefore multiple BS units) in parallel, follow this steps:

- Connect the "IN" of the first MASTER MODULE to the "PCS/OUT" of the adjacent the Master Module (daisy chain).

## 6.4 Parallel system connection diagram



Ai-HB-E 050A/ 100A/ 150A/ 200A

## 7 Commissioning and operation

### 7.1 Inspection before commissioning

Check the following items before commissioning the BS:

- Ensure inverter is compatible with the battery.
- Ensure the inverter is correctly mounted as per Solplanet's guidelines, please refer to the inverter manual
- Ensure the battery is properly installed and secured in accordance with this manual.
- Ensure the circuit breaker between the battery system and the inverter is off.
- Ensure the communication cables and DC cables are correctly and securely connected.
- Ensure the ground terminal on the BS is grounded.
- Ensure the DC power cables have been installed with the correct polarity.

### 7.2 Commissioning procedure

Ensure inverter and battery are assembled and wired properly and start-up the battery as follows.

**Step 1:** Start inverter according to inverter start-up procedure.

**Step 2:** Turn the circuit breaker on the MASTER MODULE to the "ON" position.

**Step 3:** Wait for the status LED to turn green, then press the ON/OFF button for 5s, and the BS will enter into working mode.

**Step 4:** Read the battery status information using the Solplanet App to confirm that the BS is communicating with the inverter, and observe the LED's on the BS to determine the current status.



#### **Recommended standard charging and discharging procedure:**

- Charge at a constant current with 0.5C until the SOC reaches 80%, then charge to 100% SOC with 0.25C at 25°C.
- Discharge at a constant current with 0.6C until the SOC reaches 0% at 25°C.

## 8 Decommissioning the product

### **CAUTION**

#### **Risk of injury due to weight of the battery module!**

Injuries may result if the battery module is lifted incorrectly or dropped while being transported or installed.

- Lift and transport the battery module carefully. Take the weight of the battery module into account.
- Always wear suitable personal protective equipment as per local regulation when working on the battery system.

### **DANGER**

#### **Danger to life from electric shock due to live DC cables or conductors at the battery system !**

The DC cables connected to the battery system may be live. Touching the DC conductors or the live components leads to lethal electric shocks..

- Do not touch non-insulated cable ends.

#### **Procedure:**

**Step 1:** Switch off the inverter by first turning off the AC circuit breaker downstream of the AC output of the inverter and second by turning off the inverter DC switch.

**Step 2:** Switch off the BS.

**Step 3:** Switch off the any external DC switches between the inverter and the BS if there are any.

**Step 4:** Take off the nuts on the cable glands on the BS operating panel.

**Step 5:** Remove all cables from the BS.

**Step 6:** Loosen the screws on L-brackets between the Master Module and the wall and remove the L-brackets.

**Step 7:** Loosen the screws and the module locking plates between the Master Module and the Slave Module.



**Before lifting the battery module, ensure to remove the screws on both sides.**

**Step 8:** Tighten the nuts on the cable glands on the operating panel.

**Step 9:** Remove the Master Module from the Slave Module and then the Slave Module from the Slave Module(the Bottom).

If the battery system is to be stored or shipped, pack the system using the original packaging or a packaging that is suitable for the weight and dimensions of the system.

Dispose of the battery system in accordance with the local battery disposal regulations.

## 9 Technical data

| Model                                     |                | Ai-HB-E 050A                                                                                                                                                                | Ai-HB-E 0100A      | Ai-HB-E 150A       | Ai-HB-E 200A        |
|-------------------------------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------|---------------------|
| System Data                               |                |                                                                                                                                                                             |                    |                    |                     |
| Battery module-Master                     |                | ASW5120M-HB-E                                                                                                                                                               |                    |                    |                     |
| Battery module-Slave                      |                | ASW5120S-HB-E                                                                                                                                                               |                    |                    |                     |
| Cell type                                 |                | LiFePO <sub>4</sub>                                                                                                                                                         |                    |                    |                     |
| Module quantity                           |                | 1 Master                                                                                                                                                                    | 1 Master + 1 Slave | 1 Master + 2 Slave | 1 Master + 3 Slave  |
| Rated capacity                            |                | 50 Ah                                                                                                                                                                       |                    |                    |                     |
| Nominal Energy <sup>1</sup>               |                | 5.12 kWh                                                                                                                                                                    | 10.24 kWh          | 15.36 kWh          | 20.48 kWh           |
| Usable energy <sup>2</sup>                |                | 4.6 kWh                                                                                                                                                                     | 9.21 kWh           | 13.82 kWh          | 18.43 kWh           |
| Nominal Voltage                           |                | 102.4 V                                                                                                                                                                     | 204.8 V            | 307.2 V            | 409.6 V             |
| Battery voltage range                     |                | 96 V - 115.2 V                                                                                                                                                              | 192 V - 230.4 V    | 288 V - 345.6 V    | 384 V - 460.8 V     |
| Max. charging current                     |                | 50 A                                                                                                                                                                        |                    |                    |                     |
| Max. discharge current                    |                | 50 A                                                                                                                                                                        |                    |                    |                     |
| Rated charging / discharging power        |                | 5.12 kW                                                                                                                                                                     | 10.24 kW           | 15.36 kW           | 20.48 kW            |
| Max.charging power                        |                | 5.12 kW                                                                                                                                                                     | 10.24 kW           | 15.36 kW           | 20.48 kW            |
| Max.discharging power                     |                | 5.12 kW                                                                                                                                                                     | 10.24 kW           | 15.36 kW           | 20.48 kW            |
| General Data                              |                |                                                                                                                                                                             |                    |                    |                     |
| Dimensions including the base (W / D / H) |                | 525 / 350 / 415 mm                                                                                                                                                          | 525 / 350 / 700 mm | 525 / 350 / 985 mm | 525 / 350 / 1270 mm |
| Weight                                    |                | 60.5 kg                                                                                                                                                                     | 116.0 kg           | 171.5 kg           | 227.0 kg            |
| Installation location                     |                | Indoor                                                                                                                                                                      |                    |                    |                     |
| Mounting method                           |                | Floor mounted                                                                                                                                                               |                    |                    |                     |
| Operating temperature range               |                | Charge: 0 °C ~ 50°C<br>Discharge: -20°C ~ 50°C                                                                                                                              |                    |                    |                     |
| Storage temperature range                 |                | -20 °C ~ 45 °C                                                                                                                                                              |                    |                    |                     |
| Cooling concept                           |                | Natural convection                                                                                                                                                          |                    |                    |                     |
| Degree of protection                      |                | IP20                                                                                                                                                                        |                    |                    |                     |
| Relative humidity                         |                | 5%~95%RH, no condensing                                                                                                                                                     |                    |                    |                     |
| Communication                             |                | CAN                                                                                                                                                                         |                    |                    |                     |
| Protection                                |                | Charging over-voltage protection, discharge under-voltage protection, over-current protection, over-temperature protection, short-circuit protection, fire suppression, etc |                    |                    |                     |
| Round-trip efficiency                     |                | ≥ 95 %                                                                                                                                                                      |                    |                    |                     |
| Life cycle <sup>3</sup>                   |                | 6000 times                                                                                                                                                                  |                    |                    |                     |
| Standard and Certification                | Safety         | IEC62619, IEC 62477                                                                                                                                                         |                    |                    |                     |
|                                           | EMC            | IEC61000-6-1, IEC61000-6-3                                                                                                                                                  |                    |                    |                     |
|                                           | Transportation | UN38.3                                                                                                                                                                      |                    |                    |                     |

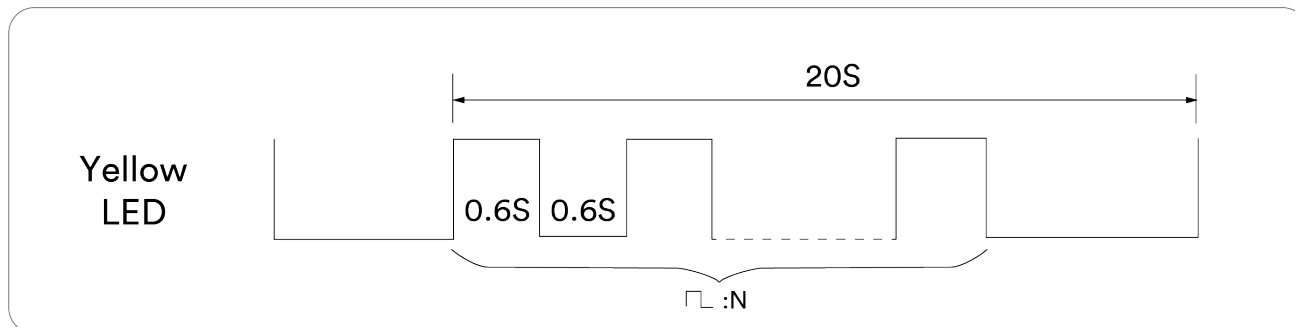
\*1. Nominal energy is defined under the following conditions: cell voltage 2.5 ~ 3.65 V, 0.5 C charge & discharge at +25 °C.

\*2. Usable energy is defined under the following conditions: 90% DOD, 0.5C charge & discharge at +25°C. Usable energy may vary depending on discharge, charge, environmental conditions and SOC % limits defined by the user.

\*3. Life cycle is defined under the following condition: 90 % DOD, 70 % EOL, 0.2C charge & discharge at +25 °C.

## 10 Troubleshooting

When the yellow LED indicator blinks, it indicates that the battery is in an alarm state. Different blink patterns indicate different alarm faults.



| Number of yellow blinks: N | Warning Fault                         | Corrective measures                                      |
|----------------------------|---------------------------------------|----------------------------------------------------------|
| 2                          | High cell voltage                     | Stop charging                                            |
| 3                          | Low cell voltage                      | Stop discharging                                         |
| 4                          | High temperature during charging      | Stop charging and wait 30 minutes                        |
|                            | High temperature during discharging   | Stop discharging and wait 30 minutes                     |
| 5                          | Low temperature during charging       | Wait for the cell temperature to rise before charging    |
|                            | Low temperature during discharging    | Wait for the cell temperature to rise before discharging |
| 6                          | Over current during charging          | Waiting 60 s to recovery, or restart the inverter        |
|                            | Over current during discharging       | Waiting 60 s to recovery, or restart the inverter        |
| 7                          | Low system insulation                 | Check insulation                                         |
| 8                          | High system voltage                   | Stop charging                                            |
| 9                          | Low system voltage                    | Stop discharging                                         |
| 10                         | High temperature of the MASTER MODULE | Stop charging and discharging, and wait 30 minutes       |

If the red indicator is constant, the battery is faulty. Turn off the circuit breaker immediately and contact the manufacturer for after-sales service.

## 11 Maintenance

### Cleaning

It is recommended to clean the battery system periodically. If the enclosure is dirty, please use a soft, dry brush or a dust collector. Liquids such as solvents, abrasives, or corrosive liquids should not be used to clean the enclosure.

### Maintenance

The battery module should be stored in an environment with a temperature range between -20 °C ~ +45 °C, and charged regularly according to the table below with no more than 0.5C to the SOC of 30 % after a long time of storage.

| Temperature  | Relative humidity | Storage time | Original SOC      |
|--------------|-------------------|--------------|-------------------|
| Below -20 °C | /                 | Not allowed  | /                 |
| 0 ~ 25 °C    | 35 % ~ 85 %       | ≤ 6 months   | 25 % ≤ SOC ≤ 50 % |
| -20 ~ 45 °C  | 35 % ~ 85 %       | ≤ 1 months   | 25 % ≤ SOC ≤ 50 % |
| Above 45 °C  | /                 | Not allowed  | /                 |

### NOTICE

#### Damage to the system due to under voltage!

- Charge the over-discharged system within seven days when the temperature is above 25 °C.
- Charge the over-discharged system within fifteen days when the temperature is below 25 °C.

## 12 Recycling and disposal

Dispose of the packaging and replaced parts according to the rules applicable in the country where the device is installed.



Do not dispose of the product together with the household waste but in accordance with the disposal regulations for electronic waste applicable at the installation site.

## 13 EU declaration of conformity

Within the scope of the EU directives:

-Electromagnetic compatibility directive 2014/30/EU

(L 96/79-106, March 29, 2014) (EMC)

-Low voltage directive 2014/35/EU (L 96/357-374, March 29, 2014) (LVD)

Restriction of the use of certain hazardous substances 2011/65/EU

(L 174/88, June 8, 2011) and 2015/863/EU (L 137/10, March 31, 2015) (RoHS)

AISWEI New Energy Technology (Yangzhong) Co., Ltd. confirms here with that the products described in this document are in compliance with the fundamental requirements and other relevant provisions of the above mentioned directives.

The entire EU Declaration of Conformity can be found at [www.solplanet.net](http://www.solplanet.net).



## 14 Service and warranty

If you have any technical problems concerning our products, please contact Solplanet service.

We require the following information in order to provide you with the necessary assistance:

- Battery serial numbers
- Battery type and model
- Inverter device type
- Inverter serial number
- Type and number of connected PV modules
- Mounting location
- Installation date

Warranty terms and conditions can be downloaded at [www.solplanet.net](http://www.solplanet.net).

When the customer needs warranty service during the warranty period, the customer must provide a copy of the invoice, factory warranty card, and ensure the electrical label of the battery is legible. If these conditions are not met, Solplanet has the right to refuse to provide with the relevant warranty service.

## 15 Contact

### EMEA

Service email: [service.EMEA@solplanet.net](mailto:service.EMEA@solplanet.net)

### APAC

Service email: [service.APAC@solplanet.net](mailto:service.APAC@solplanet.net)

### LATAM

Service email: [service.LATAM@solplanet.net](mailto:service.LATAM@solplanet.net)

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<https://solplanet.net/contact-us/>

