

SOLAX



T-BAT-SYS-HV-5.8

User Manual

Version 4.0

www.solaxpower.com



eManual in the QR code or
at www.solaxpower.com

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About This Manual

Scope of Validity

This manual is an integral part of T-BAT-SYS-HV-5.8. It describes the transportation, storage, installation, electrical connection, commissioning, maintenance and troubleshooting of the product. Please read it carefully before operating.

This manual is valid for the following models:

Model	Type
T-BAT H 5.8 V3	BMS
T-BAT H 5.8H V3	
HV11550 V3	Battery pack
HV11550H V3	
HV11550-A V3	

Model code of BMS

T-BAT H 5.8 V3

1 2

No.	Definition	Description
1	H	Grid grade: high-voltage system
2	5.8	Nominal energy

Model code of battery pack

HV11550 V3

1 2 3

No.	Definition	Description
1	HV	Grid grade: high-voltage system
2	115	Nominal voltage
3	50	Rated capacity

Target Group

The installation and maintenance setting can only be performed by qualified personnel who:

- Are licensed and/or satisfy state and local jurisdiction regulations;
- Have good knowledge of this manual and other related documents.

Conventions

The symbols that may be found in this manual are defined as follows.

Symbol	Description
 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!	Provides tips for the optimal operation of the product.

Change History

Version 4.0 (2026-06-10)

Updated installation spacing based on design change.
Added the software version of the BMS and battery pack in “[11 Technical Data](#)”.
Update model code and SN explanation.
Updated the “SolaX” logo on the front and back covers.

Version 3.0 (2026-02-25)

Added relevant information about Australian model.

Version 2.0 (2025-11-11)

Updated the discharge temperature.
Deleted the contact information and QR code of the back cover.
Deleted the document from the battery packs' packing list.
Updated the number of heater cable to “J3” for HV11550H V3.
Added the QR Code of the front cover.

Version 1.0 (2025-09-02)

Added notes of communication ports for T-BAT H 5.8/T-BAT H 5.8 V2/
HV11550/HV11550 V2.

Optimized the diagram of power cable.

The name of "Short-circuit plug" is changed to "Heat port short-circuit
plug".

Added notes of compatibility with T-BAT-Charger, BMS Parallel Box-II G2,
T-BAT H 5.8, T-BAT H 5.8 V2, HV11550 and HV11550 V2.

Version 0.0 (2025-07-20)

Initial release.

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1 Safety

1.1 General Safety

Before transporting, storing, installing, operating, using and/or maintaining the device, please carefully read and understand the document, and strictly follow the instructions and safety precautions given herein, as well as symbols affixed on the device. The safety instructions herein are only supplements to local laws and regulations.

The operator should not only abide by all safety precautions provided in the document, including but not limited to the "Danger" sign, "Warning" sign, "Caution" sign, and "Notice" sign, but also comply with relevant international, national and local laws, regulations, standards, guidelines and industry rules in the process of transportation, storage, installation, operation, and maintenance. SolaX will not assume any responsibilities for the loss caused by improper operation, or violation of safety standards for design, production and equipment suitability.

SolaX will not be liable for maintenance for possible device failure, device malfunction, or parts damage, nor will the company assume any liability to pay compensation for the possible physical and property damage resulting from the installation environment that does not meet the design requirements.

The device is well designed and tested to meet all applicable state and international safety standards. However, like all electrical and electronic equipment, safety precautions must be observed and followed during the installation of the device to reduce the risk of personal injury and to ensure a safe installation.

SolaX will not assume any responsibilities if any of the following circumstances occur, including but not limited to:

- Device damage due to force majeure, such as earthquake, flooding, thunderstorm, lighting, fire hazard, volcanic eruption, war, typhoon, tornado, etc.
- Device damage due to human causes.
- Device used or operated against local policy or regulations.
- Failure to follow the operation instructions and safety precautions on the product and in this document.
- Installation and use under improper environment or electrical condition.
- Unauthorized modifications to the product or software.
- Device damage caused during transportation by the customer or the third party.
- Battery damage caused by strong vibrations from external factors before, during and after installation.
- Storage conditions that do not meet the requirements specified in this document.
- Use of incompatible inverters or devices.
- Installation and commissioning operated by unauthorized personnel who are not licensed and /or satisfy state and local jurisdiction regulations.

1.2 Battery Safety

DANGER!

- Do not connect the positive and negative poles of a battery together. Otherwise, it may be short-circuited. This will result in an excessive flow of current and large quantities of energy for a short time, and then will cause battery leakage, smoke, the emission of flammable gases, thermal runaway, fire, or even an explosion. Therefore, the battery must be powered off before maintenance.
- If a battery is overheated, it will cause leakage, smoke, release of flammable gases, thermal runaway, fire, or even an explosion. Therefore, please ensure that the installation site shall be well ventilated and kept away from high temperatures.
- Do not dismantle, change, shake, drop, crush, impact, cut, penetrate with a sharp object, or any other ways to damage the battery. Otherwise, it may cause leakage, smoke, emission of flammable gases, thermal runaway, fire, or even an explosion.
- Do not mix different types or makes of the battery. Otherwise, it may cause leakage or rupture, resulting in personal injury or property damage.
- The battery electrolyte is toxic and volatile. Never get in contact with the leaked liquids or inhale gases in the case of the battery leakage or odor, and contact professionals immediately. The professional must wear PPE (including but not limited to safety glasses, safety gloves, gas masks, and protective clothing) before powering off the device, and then contact our company at once after removing the damaged battery.
- Normally, the battery will not release any gases. However, in the following situations: burnt, needle-pricked, squeezed, struck by lightning, overcharged, or subject to other adverse conditions that may cause battery thermal runaway, the battery may be damaged or an abnormal chemical reaction may occur inside the battery, resulting in electrolyte leakage or production of gases. If the battery needs to exhaust flammable gas, safe emission measures must be taken to prevent fire and device corrosion.
- Do not use damaged batteries.

WARNING!

- Please read the document carefully before installation, operation and maintenance.
- Must arrange fire-fighting equipment in advance according to the local laws, regulations, and standards while installing and commissioning the device.
- Please check that there is no damage to the outer packaging before and after unpacking, and in the process of storage and transportation. The battery shall be correctly placed or stacked in accordance with the requirements stipulated on the labels to prevent damaging or scrapping the battery resulting from crushing or falling.
- Must tighten screws securing cables and on the copper bars according to the torque information specified in the document, and check whether they are tightened periodically. For instance, whether there is any rust, corrosion, or any other foreign object on it, and then clean it up if any. Because the loose screw connections may result in excessive voltage drops and large currents, leading to generating a lot of heat and burning the battery.

 WARNING!

- The battery should be charged in time after discharge, to prevent battery damage due to overdischarge. If a battery pack is stored for a long time, please periodically recharge it to protect it from damage according to the storage requirements specified in the document.
- Please charge the battery within the specific temperature range because the low temperature may result in a short circuit. Hence, do not charge it when the temperature is below the low limit of the operating temperature.
- Do not use the battery when you find a bulge, or dents on the battery housing, and contact the installer or professional maintenance personnel to dismantle and replace it. The damaged battery must be kept away from other devices and flammable and explosive articles, and do not contact it except for professionals.
- Before operation, ensure that there are no irritating or burning smells around the battery.
- Do not weld or grind near a battery. Because electric sparks or arcs may cause fires.
- Do not step, lead, stand, or set on the battery.

 CAUTION!

- It has the IP66 ingress protection, which allows it to be installed outdoor. If the battery packs are installed outdoors, the precautions against direct sunlight, rain exposure and snow accumulation are recommended. Exposure to direct sunlight raises the temperature inside the battery. This temperature rise poses no safety risks, but may impact the battery performance.

NOTICE!**Transportation requirements for battery:**

- Relevant qualifications for the transport of dangerous goods must be obtained by the forwarding agent engaged in such businesses, and they must strictly abide by the local regulations for the transport of dangerous goods.
- Please check the battery before transportation. If a battery leaks, smells, or is damaged, do refuse to transport it.
- Please handle gently in the process of loading and unloading, transportation, and moving a battery to prevent bumping, and take effective moisture-proof measures to prevent personal injuries and battery damage.
- Unless otherwise specified, do not transport the batteries, which are classified as dangerous goods, together with food, medicine, or other additives on the same means of transport.

NOTICE!

If the battery leaks electrolyte or any other chemical materials, the electrolyte leakage can lead to toxic gases. Therefore, do not contact with them at all times. In case of accidentally coming into contact with them, please do as follows:

- In case of inhalation: Leave the contaminated area immediately, and seek medical attention at once;
- In case of contact with eyes: Rinse eyes with running water for at least 15 mins, and seek medical attention;
- In case of contact with skin: Wash the contact area thoroughly with soap, and seek medical attention;
- In case of ingestion: Induce vomiting, and seek medical attention.

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

- In case a battery is charging when the fire breaks out, provided it is safe to do so, press the emergency stop button and unplug the power cable;
- In case a battery is not on fire yet, use a water-based fire extinguisher or a carbon dioxide extinguisher to extinguish the fire;
- In case a battery catches fire, do not try to put it out, and evacuate immediately;
- A battery may catch fire when it is heated above 150°C/302°F. If the battery catches fire, please evacuate immediately since it will generate noxious and poisonous gases.

Recovery of damaged or wasted battery:

- Dispose of the damaged or wasted batteries according to local laws and regulations instead of placing them in the household trash or curbside recycling bins. Otherwise, it may cause environmental pollution or explosions.
- Ensure that the damaged or wasted batteries are not exposed to the following situations: high temperatures, high humidity, direct sunlight, or corrosive environments.
- Contact a battery recycling company to scrap the battery, which leaks electrolytes, or is damaged or expired.
- Please take protective steps to prevent battery short circuits before moving batteries.
- Please keep away from flammable material storage areas, residential areas, and other population centers when transporting and storing the damaged battery.

1.3 Electrical Safety

DANGER!

- Please make sure that the unit is free from any damage before the electrical connection.
- Do not modify, change, or dismantle the device.
- Do not change the power-on and power-off sequences and the installation procedure written in the document, and please properly and correctly operate it.
- Do not power on the device during installation. Otherwise, it may cause a fire, personal injury, or device damage.
- Must remove earrings, rings, bracelets, watches, and any other metal jewelry before operation, to avoid electrical shock, burns, or even death.
- During operation, special insulated tools must be used to avoid electric shock or short circuit failure. The insulated tools' voltage ratings must exceed the system voltage ratings. Please refer to "11. Technical Data" for system information.

WARNING!

- Please wear PPE, such as, protective clothing, insulating shoes, goggles, safety helmets, insulating gloves, etc., when conducting electrical wiring.
- Please check that there is no damage to the outer packaging before unpacking. If damaged, do not use and contact the transporter and manufacturer immediately.
- Do not place installation tools, metal parts and other sundries on the battery while installing. Items on and around it need to be cleaned up in time after finishing installation.
- Do not install the battery in rain, snow, fog and other weather to avoid battery damage.
- If the battery is damaged or accidentally drenched in water, do not install and use it. Please transport it to a safety isolation point and contact the local fire department or professional technicians for scrapping.
- If the battery cables are submerged in water, do not approach, touch or use them.
- Ensure that the positive and negative terminals of the battery are not accidentally grounded. If accidental grounding occurs, disconnect the battery terminals from the ground immediately.
- Do not touch the power supply equipment directly, or through conductors or damp objects.
- Do not touch the parts of the equipment of which warning signs are attached, to avoid personal injury or device damage.

CAUTION!

- Do not power on the device until it has been installed and confirmed by professionals.
- In the event of a fire, evacuate immediately and call the local fire services.

NOTICE!

General requirement:

- Please operate according to the safety code for power station.
- Please make sure that the equipment and its associated switches are off before connecting and disconnecting power cables.
- Please check whether the protective housing and insulating sleeve for an electrical component have been installed correctly after finishing installation, to avoid electric shock.
- Must turn off the output switch of the power supply equipment when maintaining its electrical terminal device and power distribution device.
- If the device is required to be powered off during troubleshooting and diagnosis, please do as the following procedure: power off > electricity testing > connecting PE cable > hanging warning signs and setting up guardrails.
- Must hang up "Do Not Switch On" warning signs on the relevant switches or circuit breakers before completing maintenance, to prevent power connection. Do not switch on before the fault is solved.
- Do not use water, alcohol, oil, or other solvents when cleaning electrical components inside and outside the device.

Grounding requirement:

- The device's grounding impedance shall meet the requirements of local electrical safety standards.
- The equipment shall be permanently connected to a grounding wire within the building's electrical system. Please check whether the device is reliably grounded before operation. The PE cable should be removed last while dismantling and maintaining the device.
- Do not start the device if it is not fitted with a grounding conductor.
- All acts against the grounding conductor are prohibited.
- If the device is equipped with a three-pronged socket, make sure that the ground prong is reliably grounded.
- For the device that may generate large contact currents, please make sure that the grounding terminal on the housing has been grounded before powering on, to avoid electric shock.

Cable requirement:

- When deciding the wire diameter, and connecting or wiring cables, follow the local laws, regulations, and codes to ensure safety.
- Before connecting power cables, please make sure that the cable labels are correctly labelled and the cable terminals are well insulated.
- Do not loop and twist cables while conducting electrical wiring. If the length of the power cable is not enough, please replace it instead of joining or welding. Ensure that all the cables of the correct type and size are fully connected and well insulated, and the edges of cable slots and crossing holes are smooth.
- Cables should be kept away from heaters or other heat sources, because a high temperature environment may result in aging and damage to cable insulation.

NOTICE!**Short circuit protection:**

- Please use electrical tape to wrap the bare conductor cables to prevent short circuits when installing and maintaining the battery.
- Prevent any object from entering into batteries, which may cause a short circuit.
- Regularly check the screws or copper bars on the device, to ensure that they are fully tightened.

2 Product Overview

2.1 Introduction

T-BAT-SYS-HV-5.8 is a high-performance energy storage battery system, comprising a leader-control BMS (an integrated BMS with an internal battery pack) and optional follower battery packs. Its versatile installation is adaptable to various scenarios. Compared to the previous generation, it is smaller, lighter, and easier to carry, with optional heating and single-string 6-unit expansion capabilities. Performance is significantly enhanced, with a depth of discharge (DOD) up to 95%, meeting a wider range of needs.

- Leader-control BMS (hereinafter referred to as BMS): an integrated unit combining the Battery Management System (BMS) and its internal battery pack unit, responsible for battery monitoring, management, and energy storage. It can operate independently as a battery system.
- Follower battery pack: a standalone battery pack unit that can be combined with the leader-control BMS to expand the battery system's capacity for larger-scale energy storage needs.
- Battery system: can be configured with the leader-control BMS alone or in combination with follower battery packs, offering flexible adaptation to diverse scenarios.

NOTICE!

- The diagrams in this document are for reference only; the actual appearance of the received device shall prevail.

2.2 Product Appearance

2.2.1 System Introduction

System appearance

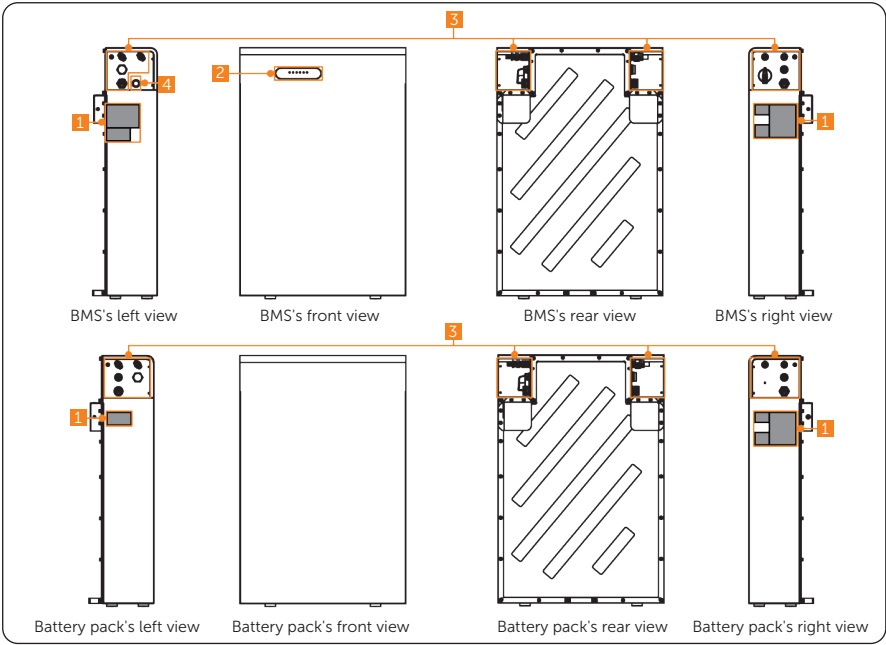


Figure 2-1 Appearance

Table 2-1 Description

No.	Item	Description
1	Labels	Including performance label, which clearly identifies the device type, serial number, parameters, etc., or manufacturer label describing name and address of manufacturer and so on. Please refer to "2.5 Label" for details.
2	Indicator panel	Provide a human-readable indication of an instrument signal. For details, please refer to "2.3 Indicator Panel" for details.
3	Electrical connection area	Including communication port, heat port, grounding point, etc. Please refer to "Parts Introduction" for details.
4	Power button	Power on or off the system.

Weight and dimension

Table 2-2 Weight of BMS and battery pack

Model	T-BAT H 5.8 V3	T-BAT H 5.8H V3	HV11550 V3	HV11550H V3	HV11550-A V3
Net weight (kg)	61.5±1		59.5±1		

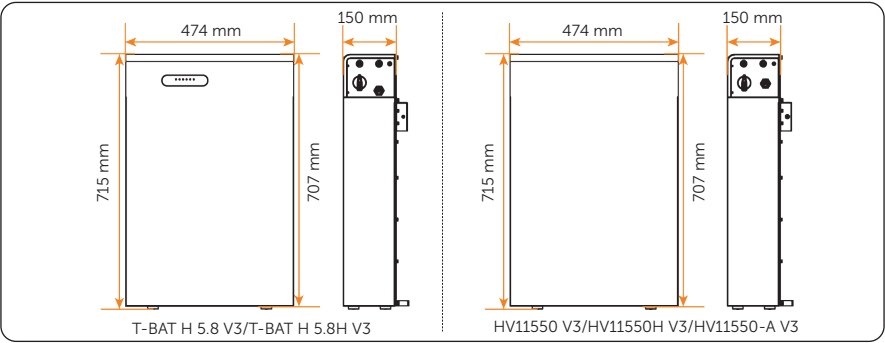


Figure 2-2 Dimension of BMS and battery pack

2.2.2 Parts Introduction

Ports of BMS

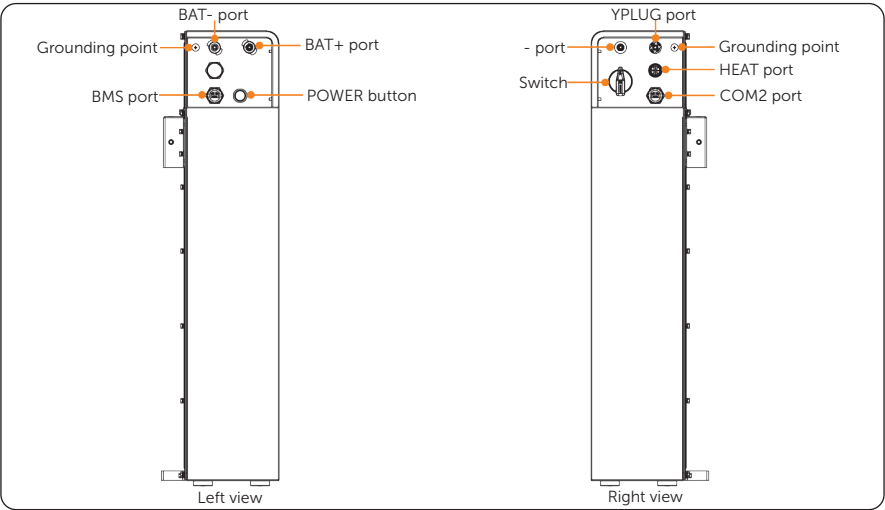


Figure 2-3 Introduction for general model of BMS

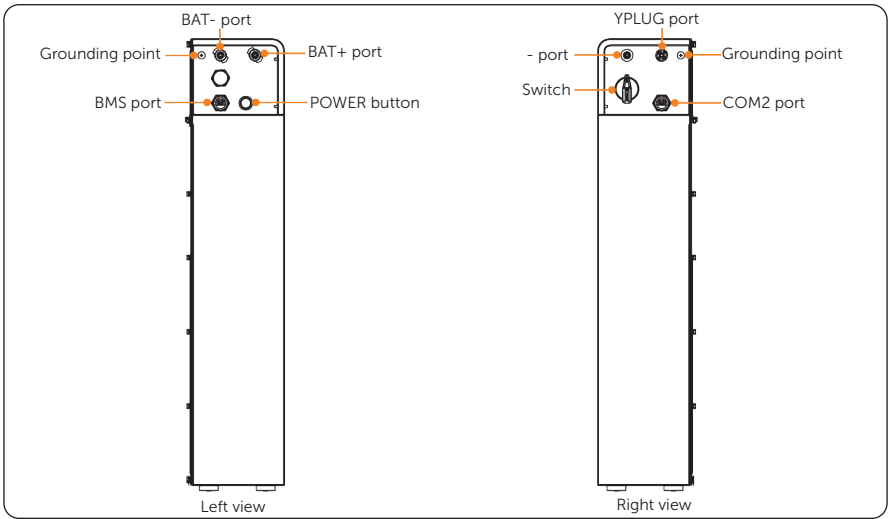


Figure 2-4 Introduction for Australian model of BMS

Table 2-3 Introduction of BMS

Item	Description
BAT- port	Negative power port: to connect to BAT- port of the inverter.
BAT+ port	Positive power port: to connect to BAT+ port of the inverter.
BMS port	Communication port: to connect to the inverter's communication port.
COM2 port	Communication port: to connect to COM1 port of the battery pack; or doesn't need to be connected (only for single BMS).
HEAT port (Only for T-BAT H 5.8H V3)	Heat port: to connect to HEAT port of the battery pack; or to connect a heat port short-circuit plug.
- port	Power connector: to connect to + port of next battery pack; or to connect a series-connected plug.
YPLUG port	Power connector: to connect to XPLUG port of next battery pack; or to connect a series-connected plug.
Grounding point	Grounding point: to connect to the grounding points of the inverter and battery packs (if any).
POWER button	To power on/off the system.
Switch	Switch to turn on before powering on.

Ports of battery pack

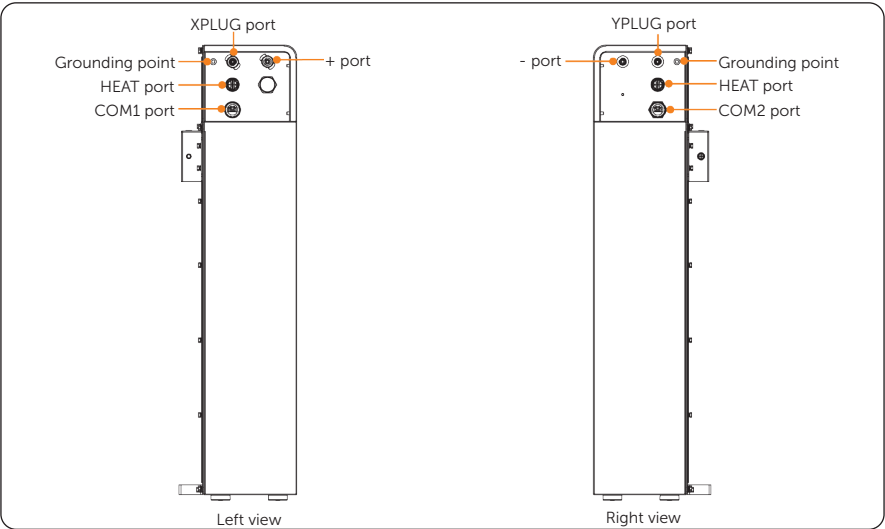


Figure 2-5 Introduction for general model of battery pack

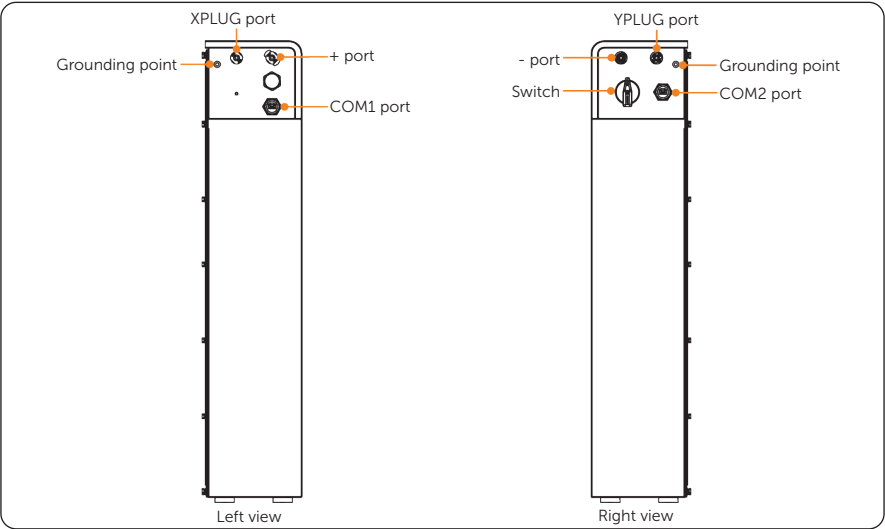


Figure 2-6 Introduction for Australian model of battery pack

Table 2-4 Introduction of battery pack

Item	Description
COM1 port	Communication port: to connect to the COM2 port of the BMS or battery pack.
COM2 port	Communication port: to connect to COM1 port of the next battery pack; or doesn't need to be connected (only for the last battery pack).
HEAT port (Only for HV11550H V3)	Heat port: to connect to HEAT port of the battery pack; or to connect a heat port short-circuit plug.
+ port	Power connector: to connect to - port of the BMS or the next battery pack.
XPLUG port	Power connector: to connect to YPLUG port of the BMS or the next battery pack.
- port	Power connector: to connect to + port of the next battery pack; or to connect a series-connected plug.
YPLUG port	Power connector: to connect to XPLUG port of the next battery pack; or to connect a series-connected plug.
Grounding point	Grounding point: to connect to the grounding points of the BMS and battery packs (if any).
Switch (only for HV11550-A V3)	Switch to turn on before powering on.

2.3 Indicator Panel

2.3.1 BMS Indicators

The BMS is equipped with two tri-colour status light (yellow/green/red) and four single-colour SOC power indicators (green) to show its operating status. The **Status** indicator shows the state of BMS, the **S1** indicator shows the state of BMS's inner battery pack, the **SOC** indicators show the current battery percentage.

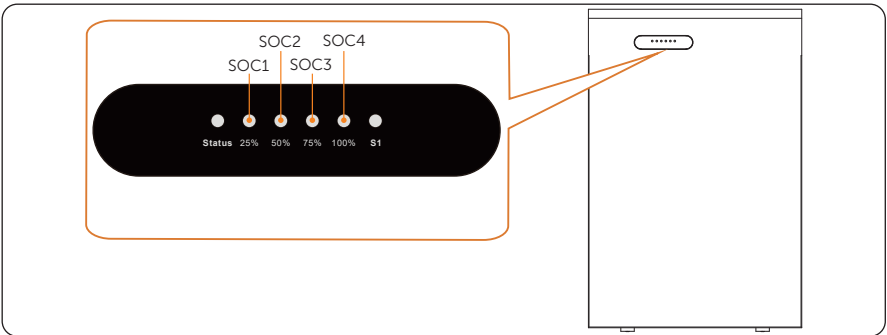


Figure 2-7 Indicators

Status indicator

Table 2-5 Information on Status indicator

Indicator	Mode	Description
Status	Power on	 Red and green LED flash alternately.
	Standby	 Green LED lights on for 1 s briefly, and then lights off for 4 s.
	Power off	 Yellow LED flashes briefly.
	Fault	 Red LED flashes slowly.
	Idle command from inverter	 Yellow LED briefly lights on for 1 s, and lights off for 1 s.
	Charging	 Solid green.
	Discharging	 Solid green.
	BMS upgrading	 Green LED flashes briefly when receiving data.
		 Red LED flashes briefly when conducting a formal upgrade.
	Activation	 Red and green LED flash alternately.

S1 indicator

Table 2-6 Information on S1 indicator

Indicator	Mode	Description
S1	Standby	 Green LED lights on for 1 s briefly, and then lights off for 4 s.
	Battery pack upgrading	 Green LED flashes briefly.
	Charging	 Green LED lights on for 1 s briefly, and then lights off for 4 s.
	Discharging	 Green LED lights on for 1 s briefly, and then lights off for 4 s.
	Fault	 Fault occurs when RS485 communication is losing, LED stays solid red for 10 mins, after that it lights on for 1 s briefly, and then lights off for 4 s.
		 In other cases, yellow LED lights on for 1 s briefly, and then lights off for 4 s.

SOC indicators while charging

Table 2-7 Information on SOC indicators

SOC value	SOC1	SOC2	SOC3	SOC4
SOC = 0%				
$0% < \text{SOC} \leq 25\%$				
$25\% \leq \text{SOC} \leq 50\%$				
$50\% \leq \text{SOC} \leq 75\%$				
$75\% \leq \text{SOC} \leq 100\%$				

SOC indicators while discharging

Table 2-8 Information on SOC indicators

SOC value	SOC1	SOC2	SOC3	SOC4
SOC = 0%				
$0% < \text{SOC} \leq 25\%$				
$25\% \leq \text{SOC} \leq 50\%$				
$50\% \leq \text{SOC} \leq 75\%$				
$75\% \leq \text{SOC} \leq 100\%$				

SOC indicators during Black Start

Table 2-9 Information on SOC indicators

SOC value during Black Start	10-second cycle: SOC1/4 and SOC2/3 alternately light on for 1 s each. For more information, please refer to "2.4 Black Start".
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2.3.2 Battery Pack Indicators

The battery pack is equipped with a tri-colour status light (yellow/green/red) indicator to show the state of battery pack.

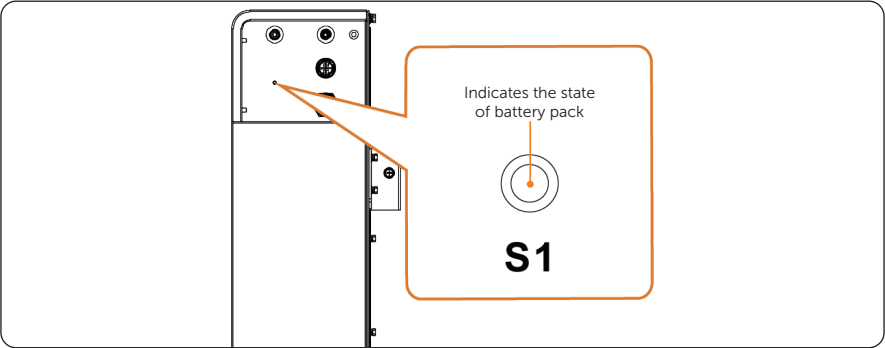


Figure 2-8 Indicator for general model of battery pack

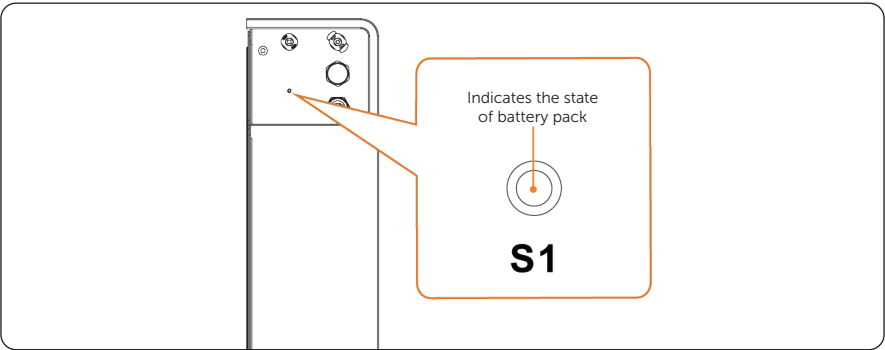


Figure 2-9 Indicator for Australian model of battery pack

S1 indicator

Table 2-10 Information on S1 indicator

Indicator	Mode	Description
S1	Standby	 Green LED lights on for 1 s briefly, and then lights off for 4 s.
	Battery pack upgrading	 Green LED flashes briefly.
	Charging	 Green LED lights on for 1 s briefly, and then lights off for 4 s.
	Discharging	 Green LED lights on for 1 s briefly, and then lights off for 4 s.
	Fault	 Fault occurs when RS485 communication is losing, LED stays solid red for 10 mins, after that it lights on for 1 s briefly, and then lights off for 4 s.  In other cases, yellow LED lights on for 1 s briefly, and then lights off for 4 s.

2.4 Black Start

The device can provide Black Start capacity, meaning that our energy storage inverter and battery can continue to run even if the power grid and photovoltaic panel are out of service. Procedure to enable the Black Start function: press and hold the **POWER** button of the BMS for over 5 s, the SOC1/4 and SOC2/3 alternately light on for 1 s each, the flashing cycle will last for 10 s.

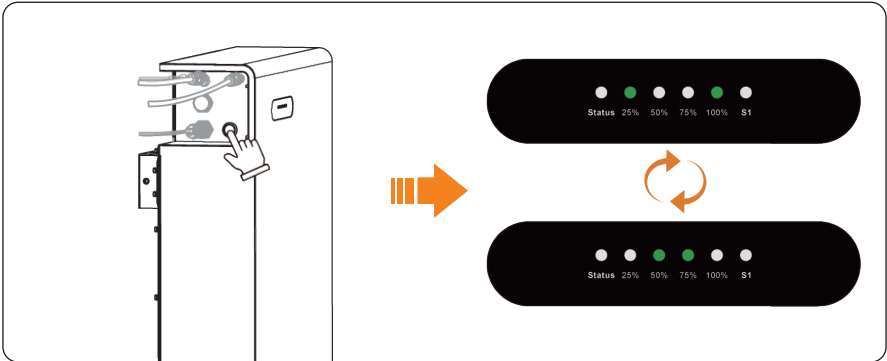


Figure 2-10 Startup procedure for Black Start

2.5 Label

Some kinds of labels, such as a performance label, a manufacturer label, etc., should be pasted on the battery pack and BMS. The above-mentioned labels are located on the top corner on the left or right side of the BMS and battery pack. For example, the system performance label of the BMS consists of the following parts:

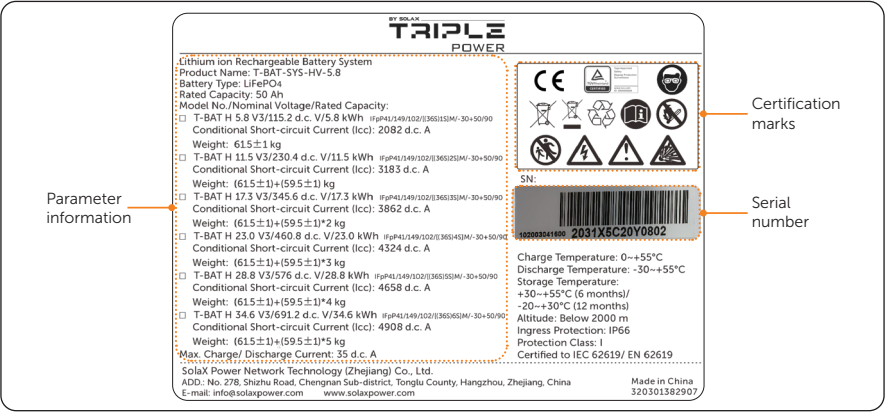


Figure 2-11 System performance label

Serial number

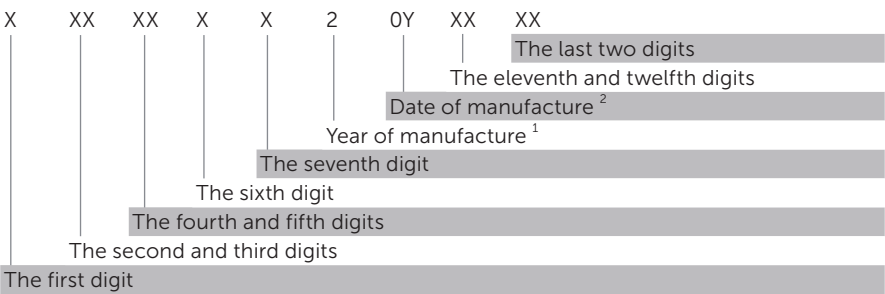


Figure 2-12 Explanation of SN

1 0-2023, 1-2024, 2-2025 A-2033, B-2034

2 The two digits represent the week of when the battery pack was produced. There are totalling 52 weeks in a year, and the first week is represented by the number 00, and the second week is represented by the number 01. Do the rest in the same manner in accordance with the 32-base coding rule.

2.6 Explanation of Symbols and Icons

The meaning of the symbols and icons on the labels is shown as follows:

Table 2-11 Explanation of symbols and icons

Symbol and icon	Description
	CE mark of conformity
	TUV certification
	Caution, risk of electric shock
	Caution, risk of explosion
	Safety glasses must be worn.
	Caution, risk of danger
	Read the enclosed documentations.
	Do not dispose of the battery pack together with household waste.
	Do not dispose of the battery pack together with household waste.
	The battery system must be disposed of at a proper facility for environmentally-safe recycling.
	Keep the device away from children.
	Keep the battery system away from open flames or ignition systems.

3 Transportation and Storage

3.1 Transportation Requirements

DANGER!

- Please be careful to avoid physical collisions during transportation. Do not place the equipment upside down, be exposed to water, etc., which may result in equipment damage, or even a fire or an explosion.

CAUTION!

- The BMS and battery must be transported in its original packaging. SolaX will not be held responsible for any damage to the BMS and battery caused by improper transportation or by transportation after it has been installed.
- Please strictly comply with the transportation requirements of the warning signs on the packaging and equipment.
- Relevant qualifications for the transport of dangerous goods must be obtained by the forwarding agent engaged in such businesses, and they must strictly abide by the local regulations for the transport of dangerous goods. Please check the battery before transportation. If a battery leaks, smells, or is damaged, do refuse to transport it.

NOTICE!

- Please choose an appropriate transport method based on site conditions and device weight.
- Please wear PPE (e.g. protective gloves, shoes, belt, etc.) and lift the device with proper postures, to prevent personal injuries and device damage.
- Please reasonably arrange the number of workers, the right mix, and the handling position to achieve distributing weight and balancing load when moving the device.
- Please hold the handles or the bottom of the device when moving, to avoid device damage.
- Please pay attention to the surrounding environment when moving, such as, obstacles, slippery ground, etc., to avoid personal injuries and device damage.

3.2 Storage Requirements

DANGER!

- The battery must be stored indoors, which the environment should meet the following requirements:
 - » Avoiding direct sunlight and keeping out of rain;
 - » Dry and well-ventilated;
 - » Keeping away from heat and fire sources;
 - » Keeping away from radiation;
 - » Keeping away from chemicals;
 - » Keeping away from dust and metal conductive dust;
 - » Being equipped with fire facilities.
- Batteries must be stored in accordance with the requirements of the warning signs and other information on the packaging.
- Do not store with any other electronic equipment, chemicals, or other items that may cause interference or danger.
- Please pay attention to the height when stacking batteries to avoid deforming or damaging the battery at the bottom.

Notice!

- Store the device according to the signs on the packaging.
- Do not store the batteries for a long time. If long periods of storage are unavoidable, please recharge it periodically to avoid battery damage.
- If the battery has been stored for more than 1 year, it must be checked and tested by professionals before use.
- The relative humidity should be between 4% and 100%.
- It is recommended to store the battery in a temperature range of -20 to +55°C.

Table 3-1 Storage temperature range and recharge frequency

Storage temperature range	Recharge frequency
+30 to +55°C	Every 6 months
-20 to +30°C	Every 12 months

4 Preparation before Installation

4.1 Selection of Installation Location

NOTICE!

- Since the operating temperature affects the operation and service life of a battery, please install it in an appropriate ambient environment.
- The discharge current will be reduced when the temperature of the battery cell is below +10°C or over +45°C. And the charge current will be reduced when the temperature of the battery cell is below +25°C or over +45°C.

The installation location selected for the rechargeable battery is quite critical in the aspect of the guarantee of machine safety, service life and performance.

- The selection of installation sites must strictly comply with local laws, regulations, and related industry standards;
- Fire extinguishers must be configured at the installation site according to the local fire codes;
- Flaunting an IP66 enclosure, the battery can be used outdoors and indoors;
- The installation site shall be convenient for wiring connection, operation and maintenance;
- During the planning phase, please consider the space for more connections in the future;
- Good transportation for the installation site;
- Do not install devices on the undesirable soil that are prone to deformation and settlement;
- Since the salt-damaged and polluted areas may corrode the device, the device must keep away from these areas.

4.1.1 Installation Environment Requirements

Make sure the installation site meets the following conditions:

- Ambient temperature: -30 to +55°C;
- Relative humidity: 4–100%RH;
- Altitude: Below 2000 meters;
- Good ventilation;
- Keep away from combustibles;
- Keep away from antenna;
- Keep away from inflammable and explosive materials;
- Keep away from corrosive substances.

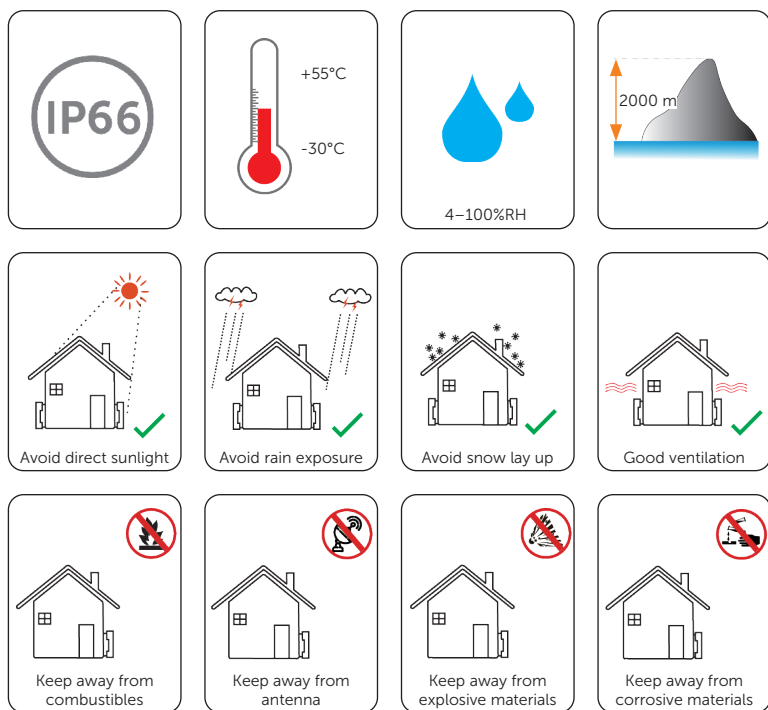


Figure 4-1 Environment requirements

NOTICE!

- For outdoor installation, precautions against direct sunlight, rain exposure and snow layup are recommended.
- Exposure to direct sunlight raises the temperature inside the battery. This temperature rise poses no safety risks, but may impact the battery performance.

4.1.2 Installation Carrier Requirement

The mounting location must be suitable for the weight and dimensions of the product and the support surface for installation must be made of a non-flammable material. Detailed requirements are shown below:

- The installation floor and wall shall be made of noncombustible materials, such as solid brick, concrete, and the surface shall be level, firm, and flat with a sufficient load-bearing capacity;
- Please ensure that the installation site has a bearing capacity of at least 4 times the weight of the entire battery system. For instance, if one BMS and two battery packs are purchased, the bearing capacity $\geq (\text{BMS weight} + \text{battery pack weight} \times 2) \times 4$;

- Please ensure that the wall is solid brick or concrete wall with a minimum thickness of 100 mm;
- The product must not be installed on the wood wall.

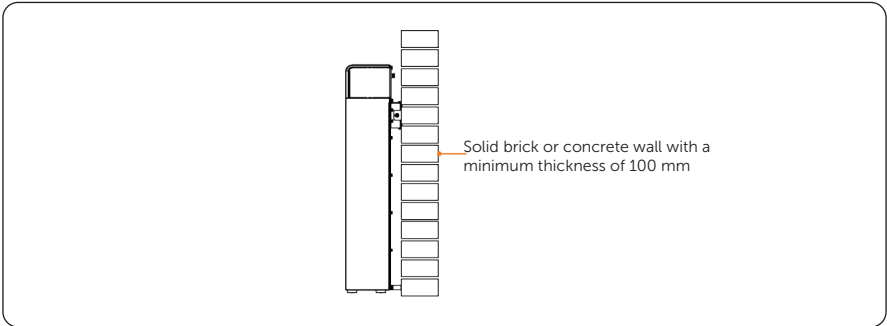


Figure 4-2 Wall requirement

4.1.3 Clearance Requirement

To guarantee proper heat dissipation and ease of disassembly, the minimum space around the rechargeable battery must meet the standards indicated below.

- The length of both positive and negative power cables (connecting from the battery to the inverter) provided by our company is 2000 mm;
- The BMS can connect up to five battery packs. Please reserve a distance between 240 and 320 mm (rec. 280 mm) on both sides of the device.

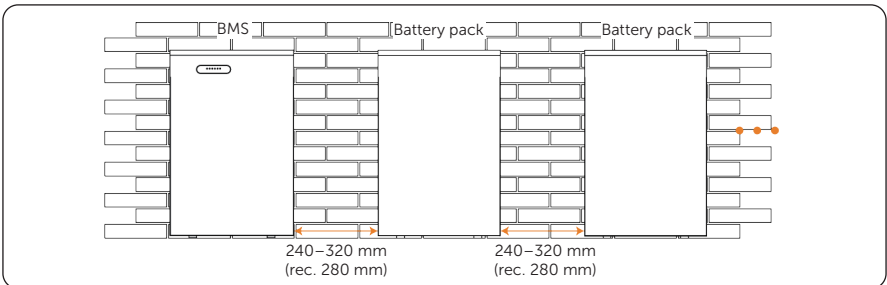
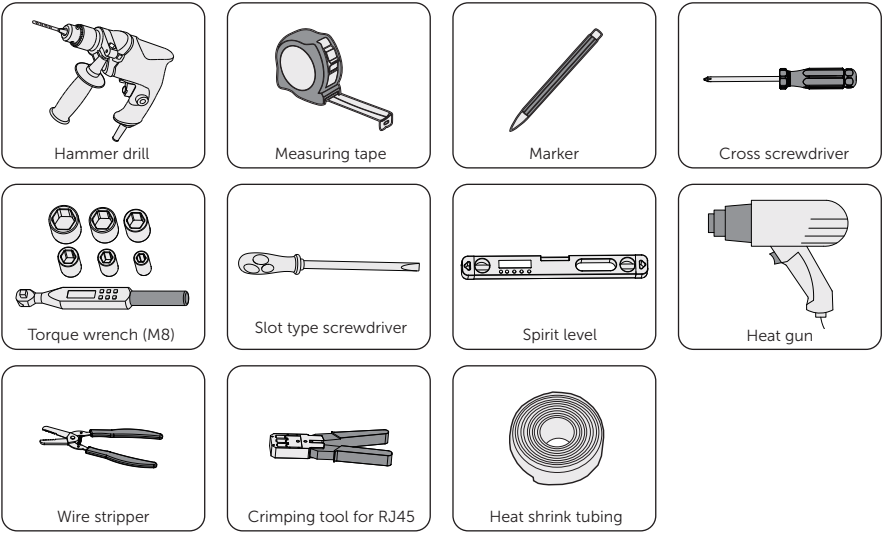


Figure 4-3 Installation clearance

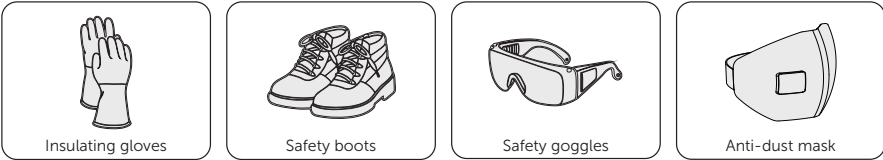
4.2 Tools Requirement

Installation tools include but are not limited to the following recommended ones. If necessary, use other auxiliary tools on site.

Installation tools



Personal protective equipment



4.3 Additionally Required Materials

Table 4-1 Additionally required materials

No.	Required material	Type	Cross-section/ diameter
1	Additional PE wire	 Conventional yellow and green wire	6 mm ²
2	Cushion (optional)	Foam or other materials	30–40 mm

5 Unpacking and Inspection

5.1 Unpacking

- The rechargeable battery undergoes 100% testing and inspection before shipping from the manufacturing facility. However, transport damage may still occur. Before unpacking the rechargeable battery, please verify that the model and outer packing materials for damage, such as holes and cracks.
- Unpack a battery pack according to the following figure. If there are other cartons, such as the BMS carton and series box carton, the unpacking procedure can also be referred to the following figure.

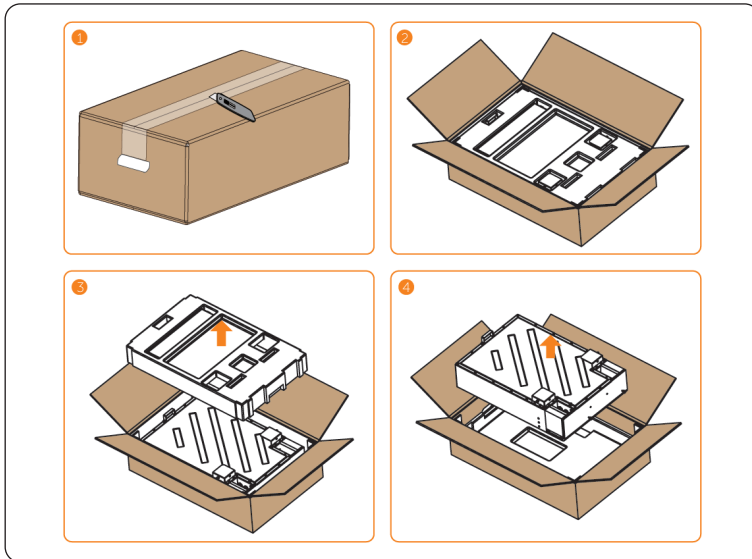
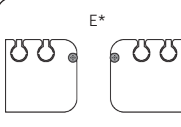
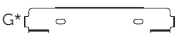


Figure 5-1 Unpacking the battery pack

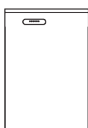
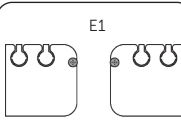
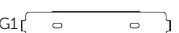
- Be careful when dealing with all package materials which may be reused for storage and relocation of the rechargeable battery in the future.
- Upon opening the package, check whether the appearance of the rechargeable battery is damaged or lack of accessories. If any damage is found or any parts are missing, contact your dealer immediately.

5.2 Scope of Delivery

BMS (T-BAT H 5.8 V3)

 BMS x 1	 Power cable (+) x 1 (2 m)  Power cable (-) x 1 (2 m)	 BMS communication cable x 1 (2 m)	 Series-connected plug x 1
 Cover plate x 2	 M6x14 external hexagon combination bolt x 2  Wall bracket x 1	 Expansion bolt (M8) x 2	 Ring terminal x 2
 Disassembling tool x 1  Rotation wrench x 1	 Document	 Guard ring x 4	

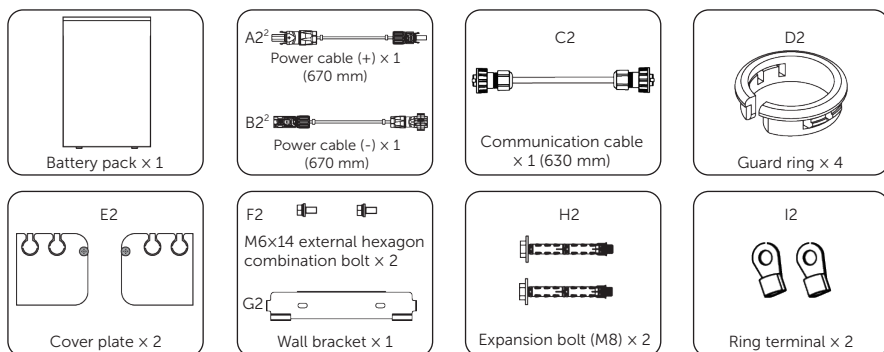
BMS (T-BAT H 5.8H V3)

 BMS x 1	 Power cable (+) x 1 (2 m)  Power cable (-) x 1 (2 m)	 BMS communication cable x 1 (2 m)	 Series-connected plug x 1
 Cover plate x 2	 M6x14 external hexagon combination bolt x 2  Wall bracket x 1	 Expansion bolt (M8) x 2	 Ring terminal x 2
 Disassembling tool x 1  Rotation wrench x 1	 Document	 Guard ring x 4	 Heat port short-circuit plug x 1

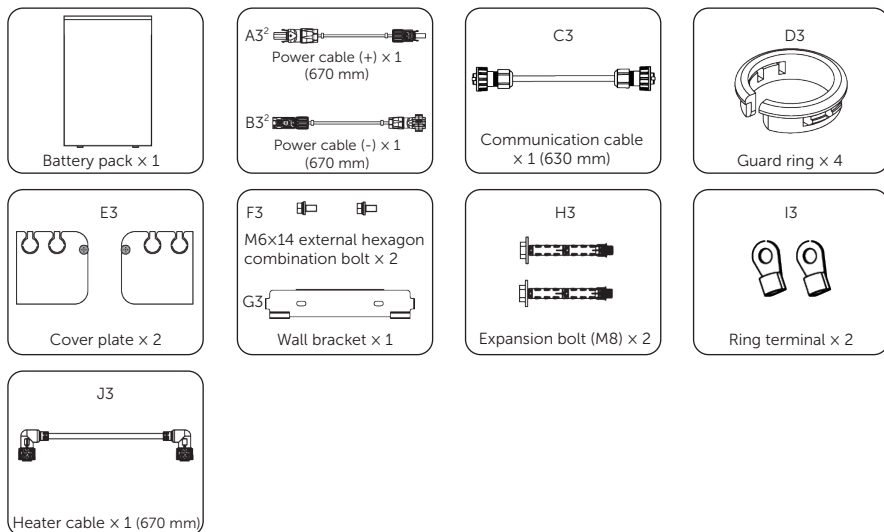
NOTICE!

- ¹⁾ The connector on one end of the power cable, connecting battery and inverter, is delivered with the inverter's kit. Both the power cables meet the requirements of B2ca.
- For Australia, part marked with * are not included in the accessory kit. Please refer to the actual delivery.

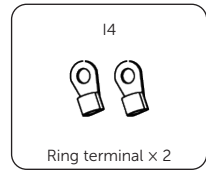
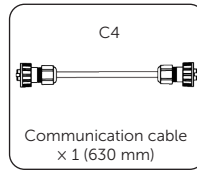
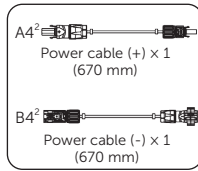
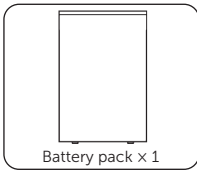
Battery pack (HV11550 V3)



Battery pack (HV11550H V3)



Battery pack (HV11550-A V3)



NOTICE!

- ^{"2"} The cable is used to connect BMS and one battery pack or to connect two battery packs.
- Battery pack (HV11550-A V3) is delivered to Australia.

6 Installation and Wiring for Single BMS

6.1 Installation Procedure about Single BMS

⚠ WARNING!

- Only the qualified personnel can perform the mechanical installation following the local standards and requirements.
- Check the existing power cables or other piping in the wall to prevent electric shock or other damage.
- Use insulated tools and wear personal protective equipment (PPE) during installation and maintenance.

NOTICE!

- Before installing the device, connect the PE cable first. For details, see "[PE Connection](#)".
- Please ensure that the thickness of any part of the wall is not less than 100 mm.
- In addition to wall mounting and floor mounting, any alternative installation method must be carefully selected based on actual on-site conditions.

Wall mounting

Step 1: Attach the wall bracket (part G/G1) to the wall. Use a spirit level to level the bracket: observe the bubble of the spirit level and adjust the bracket so that the bubble stays in the center position. Then mark the holes (2 holes).

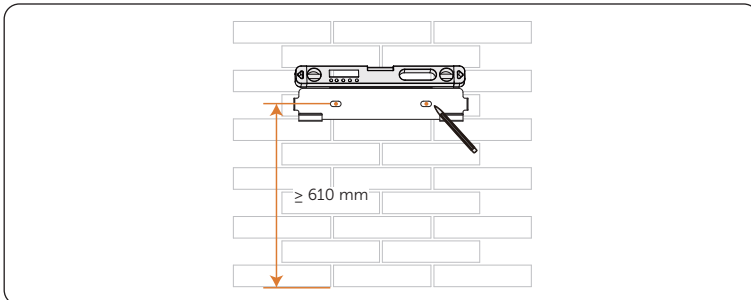


Figure 6-1 Marking holes

- Step 2:** Remove the bracket (part G/G1) and drill holes with a $\varnothing 10$ drill bit according to the hole markings. Make sure the holes are deep enough (at least 50 mm).

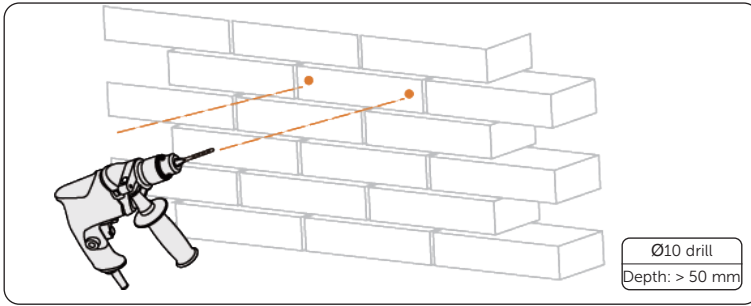


Figure 6-2 Drilling holes

- Step 3:** Insert the M8 expansion bolts (part H/H1) through the holes.

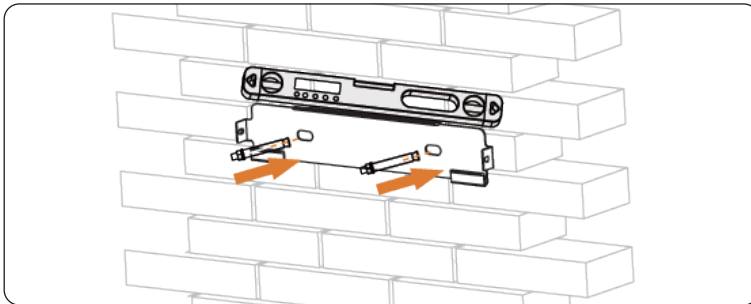


Figure 6-3 Inserting the M8 expansion bolts

- Step 4:** Tighten the M8 expansion bolts (part H/H1) counterclockwise by torque wrench to secure the bracket to the wall (torque: 15 ± 1 N·m).

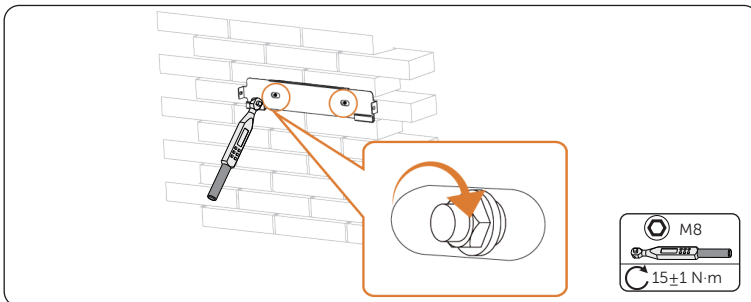


Figure 6-4 Tightening the M8 expansion bolts

Step 5: Lift up the device and hang it over the wall bracket.

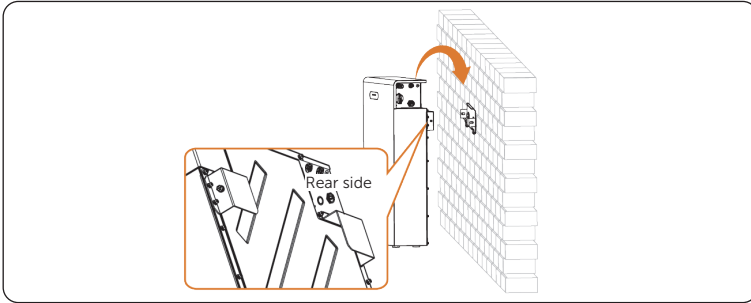


Figure 6-5 Lifting up the device

Step 6: Tighten the M6 combination screws on both sides to secure the device (torque: $3 \pm 0.3 \text{ N}\cdot\text{m}$).

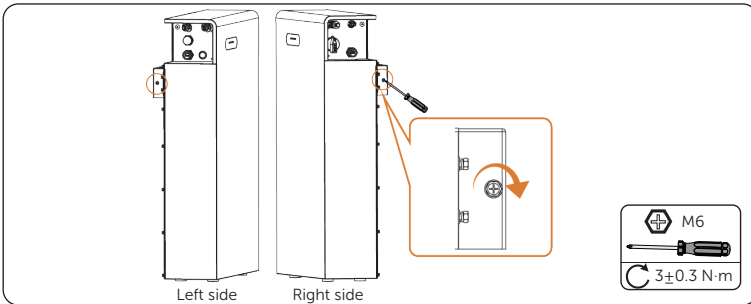


Figure 6-6 Securing the device

Floor mounting

Step 1: Attach the wall bracket (part G/G1) to the wall. Use a spirit level to level the bracket: observe the bubble of the spirit level and adjust the bracket so that the bubble stays in the center position. Then mark the holes (2 holes).

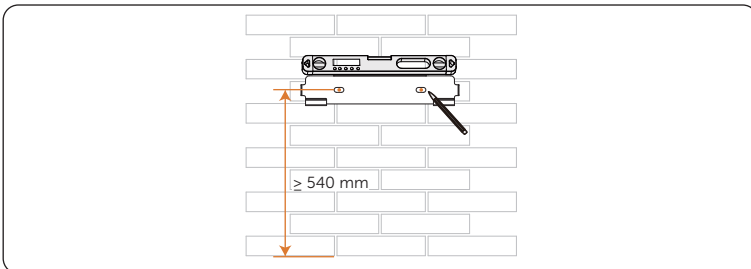


Figure 6-7 Marking holes

- Step 2:** Remove the bracket (part G/G1) and drill holes with a $\varnothing 10$ drill bit according to the hole markings. Make sure the holes are deep enough (at least 50 mm).

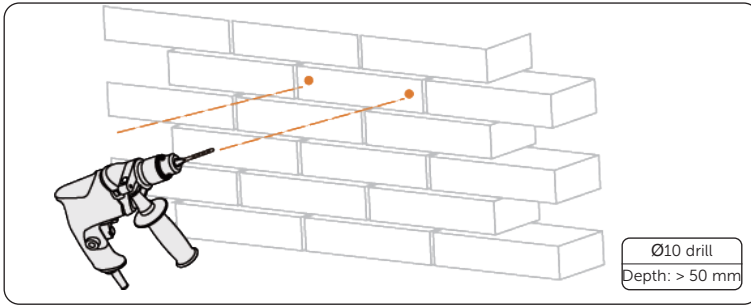


Figure 6-8 Drilling holes

- Step 3:** Insert the M8 expansion bolts (part H/H1) through the holes.

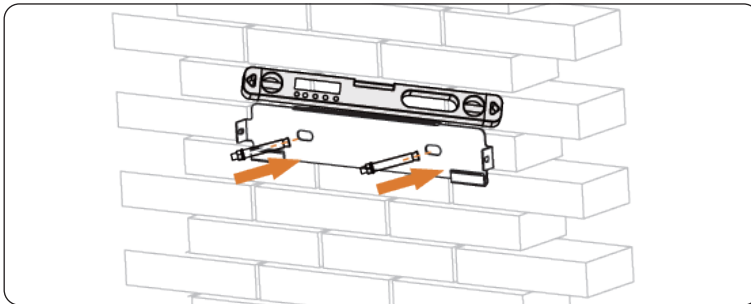


Figure 6-9 Inserting the M8 expansion bolts

- Step 4:** Tighten the M8 expansion bolts (part H/H1) counterclockwise by torque wrench to secure the bracket to the wall (torque: 15 ± 1 N·m).

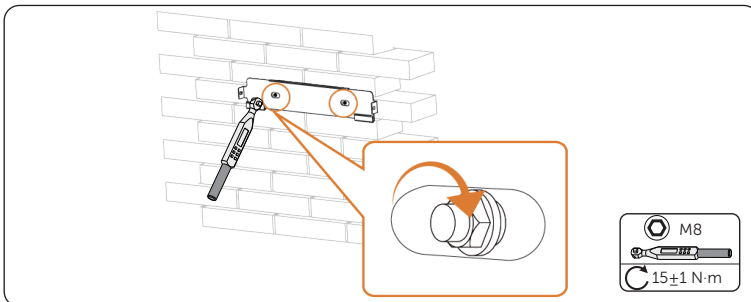


Figure 6-10 Tightening the M8 expansion bolts

Step 5: Lift up the device and hang it over the wall bracket.

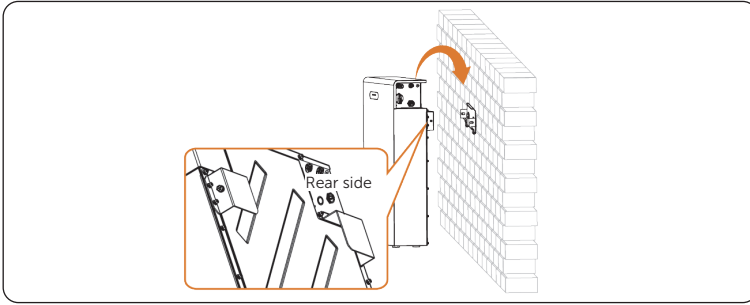


Figure 6-11 Lifting up the device

Step 6: Tighten the M6 combination screws on both sides to secure the device (torque: $3 \pm 0.3 \text{ N}\cdot\text{m}$).

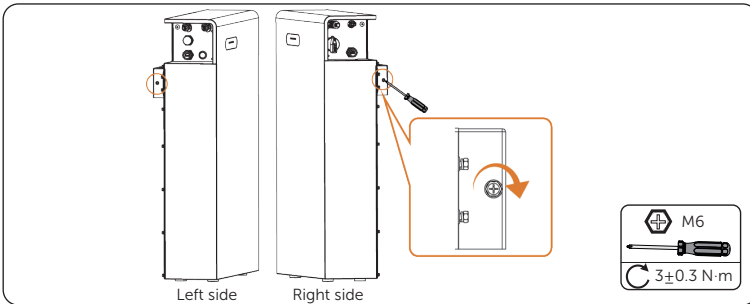


Figure 6-12 Securing the device

Step 7: (Optional) To prevent moisture accumulation, it is recommended to place a 30–40 mm cushion (foam or other similar materials) beneath the battery.

6.2 Electrical Wiring for Single BMS

CAUTION!

- Please give the cables a health check before connection.

NOTICE!

- Please refer to “[2.2.2 Parts Introduction](#)” for the positions of wiring ports for general model and Australian model.

The wiring diagram depicting the connections between the inverter and BMS is shown in the following figure:

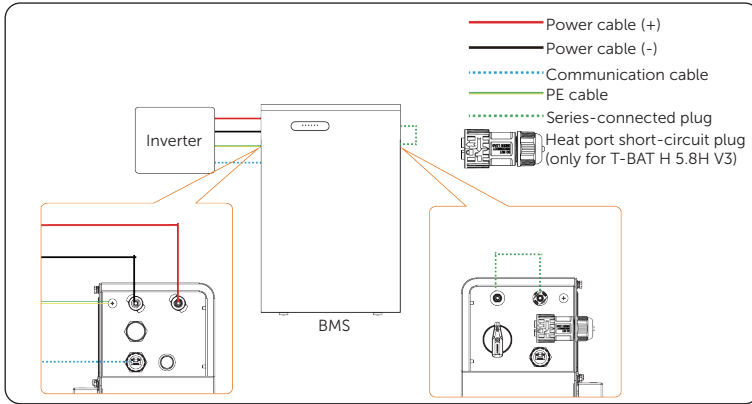


Figure 6-13 Wiring diagram

6.2.1 PE Connection

! DANGER!

- Make sure that the electricity is turned off before wiring.
- Make sure that the PE cable is securely connected.
- Failure to follow these instructions can result in death or serious injury.

NOTICE!

- The wire size of 6 mm^2 for PE cable is recommended.
- The PE cable should be prepared by the users themselves.

Step 1: Strip the cable jacket about 8 to 10 mm from the end.

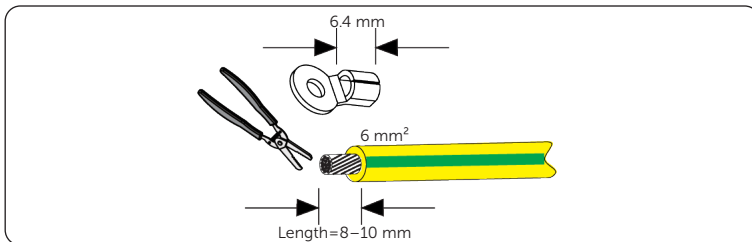


Figure 6-14 Stripping cable jacket

NOTICE!

- Use controlled motion to strip the insulation down the wire, to prevent damage to the wires.
- Make sure that the insulation layer has been stripped to a sufficient length so that the center conductor is fully exposed without any damage or nicks. In addition, make sure that no extra insulation remains beyond the connector once it's crimped on.

Step 2: Cut the heat-shrink tubing to about 28 to 30 mm length, carefully slide it onto the end of the cable, and then carefully slip the wires all the way into the ring terminal (part I/I1).

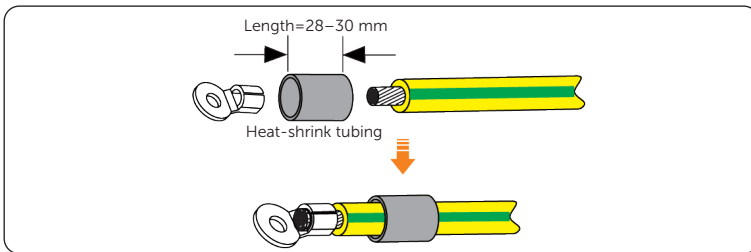


Figure 6-15 Cutting heat-shrink tubing

Step 3: Crimp the terminal, and heat the heat-shrink tubing after it wraps the end of terminal.

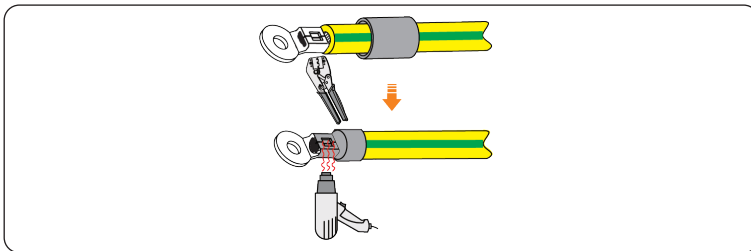


Figure 6-16 Crimping and heating

NOTICE!

- Do not place the conductor insulation into the terminal.
- Do not damage the conductor insulation while crimping.
- Move the heat gun back and forth slowly to distribute the heat evenly across the surface of heat shrink tubing.

Step 4: Unscrew the M5 screw on the device, connect the assembled PE cable to the grounding point, and then tighten M5 screw (torque: 1 ± 0.1 N·m).

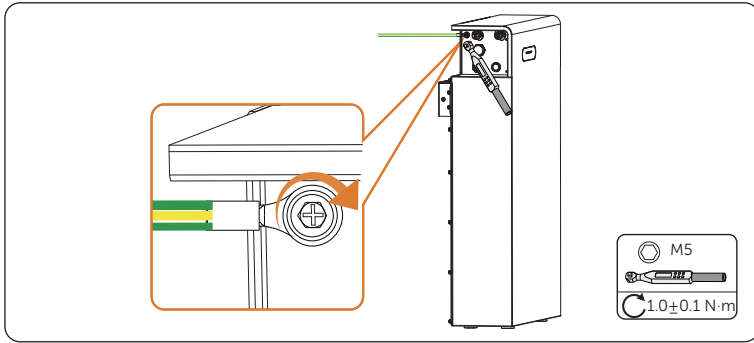


Figure 6-17 Tightening M5 screw

Step 5: Connect the other end of the PE cable to the inverter.

NOTICE!

- For the PE connection to inverter, refer to the inverter's user manual.

6.2.2 Power Cable Connection

WARNING!

- Only the qualified personnel can perform the wiring.
- Follow this manual to wire connection. The device damage caused by incorrect cabling is not in the scope of warranty.
- Make sure that the electricity is turned off before wiring the BMS to the inverter.

CAUTION!

- Use insulated tools and wear individual protective tools when connecting cables.

NOTICE!

- Waterproof cap must be put on the unconnected port.
- Don't violently remove the cables when they are connected.

- Step 1:** Ensure that the waterproof cap must be put on the unconnected communication port. (Optional) for T-BAT H 5.8H V3, remove the waterproof cap of the **HEAT** port, and use the heat port short-circuit plug (part N1) to block the **HEAT** port.

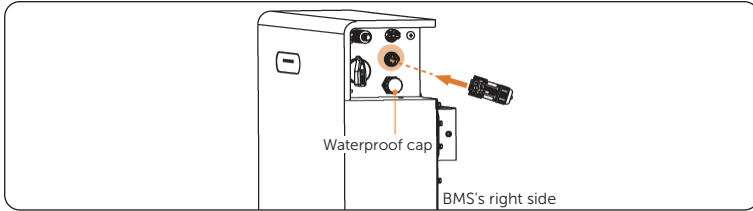


Figure 6-18 Connecting the heat port short-circuit plug

- Step 2:** Connect the series-connected plug (part D/D1) to the - and YPLUG ports of the BMS.

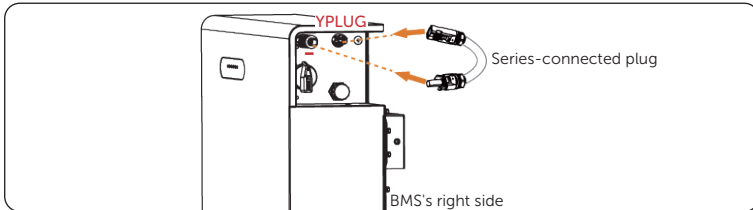


Figure 6-19 Connecting the series-connected plug

- Step 3:** Plug the positive power cable (part A/A1) to the **BAT+** ports of BMS and inverter. Plug the negative power (part B/B1) to the **BAT-** ports of the BMS and inverter.

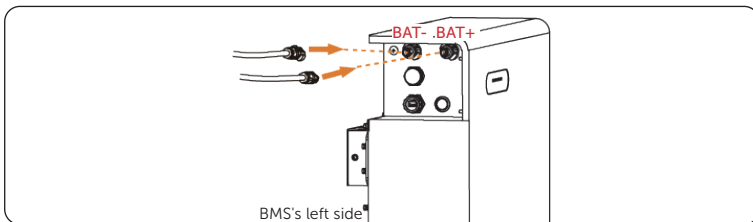


Figure 6-20 Connecting the power cable

NOTICE!

- For the power cable connection to inverter, refer to the inverter's user manual.

6.2.3 Communication Connection

NOTICE!

- Process the communication cable following step 1–4 if you need to change its length according to the actual situation.

The pin assignment is shown as follows:

Table 6-1 Pin assignment

PIN	1	2	3	4	5	6	7	8
BMS	/	GND	/	BMS_H	BMS_L	/	RS485A	RS485B

The wire sequence is shown as follows:

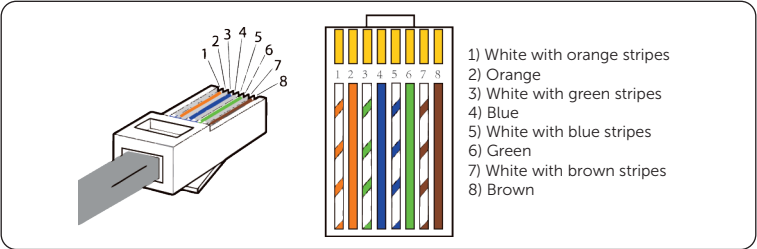


Figure 6-21 Wire sequence

Step 1: Rotate anti-clockwise to unscrew the waterproof cap of the communication cable (part C/C1), and strip the cable jacket about 15 mm down from the end.

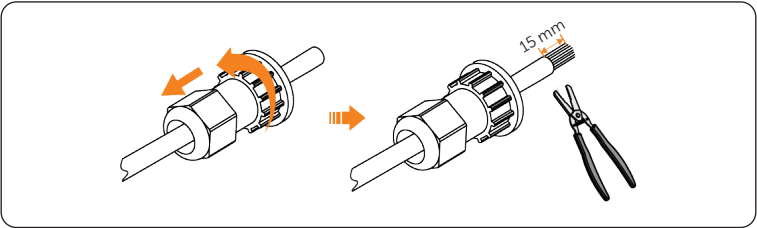


Figure 6-22 Stripping cable jacket

- Step 2:** Thread the cable through the waterproof cap, and carefully insert the wires all the way into the RJ45 connector, making sure that each wire passes through the appropriate guides inside the connector.
- Step 3:** Push the RJ45 inside the crimping tool and squeeze the crimper all the way down.

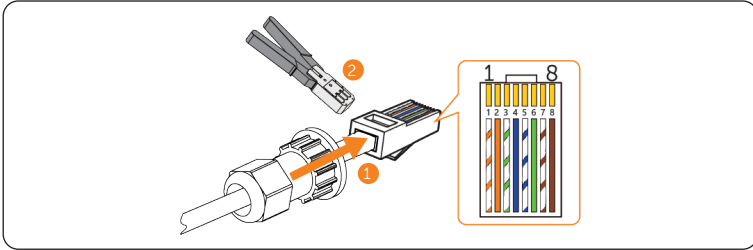


Figure 6-23 Crimping RJ45

- Step 4:** Rotate clockwise to tightening the waterproof cap after connecting to the inverter.

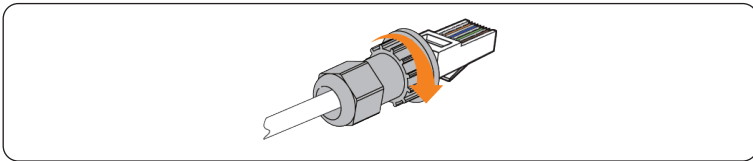


Figure 6-24 Rotating waterproof cap

- Step 5:** Connect the communication cable (part C/C1) to the **BMS** port on the left side of BMS and clockwise the rotation wrench (part K/K1) to tighten it. Remember remove the rotation wrench after tightening.

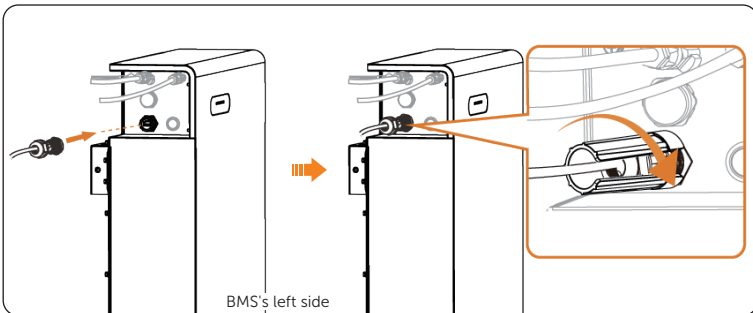


Figure 6-25 Connecting the communication cable

Step 6: Connect the other end of the communication cable to the inverter.

NOTICE!

- For the communication cable connection to inverter, refer to the inverter's user manual.

6.2.4 Installation of Cover Plate

NOTICE!

- Installation of cover plates is not required for Australian model.

Step 1: Cover plates need to be installed on both sides of the BMS. For the BMS's left side, put all the cables into the guard ring (part M/M1) and clamp the cables into the cover plate (part E/E1); for the BMS's right side, follow step 2 to install the cover plate directly.

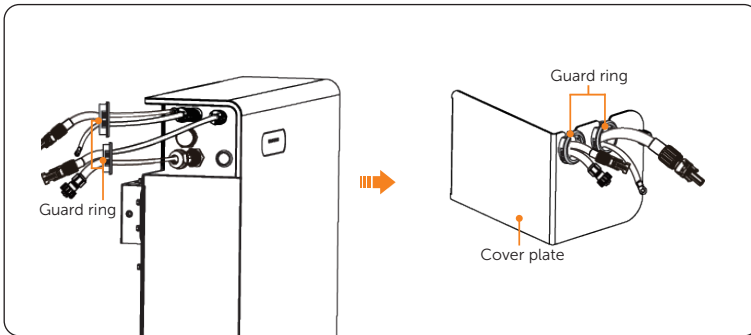


Figure 6-26 Processing the cables

Step 2: Secure the cover plates (part E/E1) on both sides of the BMS using M4 screws tightened manually in a clockwise direction.

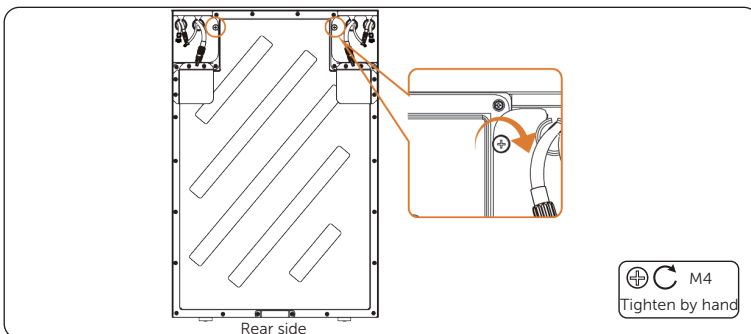


Figure 6-27 Fixing the cover plates

7 Installation and Wiring for One BMS and Multiple Battery Packs

7.1 Installation Procedure for One BMS and Multiple Battery Packs



WARNING!

- Only the qualified personnel can perform the mechanical installation following the local standards and requirements.
- Check the existing power cables or other piping in the wall to prevent electric shock or other damage.
- Use insulated tools and wear personal protective device (PPE) during installation and maintenance.

NOTICE!

- Before installing the device, connect the PE cable first. For details, see "[PE Connection](#)".
- Please ensure that the thickness of any part of the wall is not less than 100 mm.
- In addition to wall mounting and floor mounting, any alternative installation method must be carefully selected based on actual on-site conditions.
- To make sure the normal operation of heating function, it is recommended that BMS with heating function should be used together with battery pack with heating function, so as the BMS without heating function should be used together with battery pack without heating function.
- T-BAT H 5.8 V3, T-BAT H 5.8H V3, HV11550 V3, HV11550H V3 and HV11550-A V3 cannot be used with T-BAT-Charger or BMS Parallel Box-II G2.

NOTICE!

- It is not recommended to pair different models (T-BAT H 5.8/V2/(H)V3 and HV11550/V2/(H)V3 or HV11550-A V3) of batteries. However, if used, please strictly follow the compatibility table below for pairing:

Compatibility between BMS and battery pack	HV11550	HV11550 V2	HV11550 V3	HV11550H V3	HV11550-A V3
T-BAT H 5.8	√ (up to three battery pack)	√ (up to three battery pack) * HV11550 V2's program version cannot be upgraded.	×	×	×
T-BAT H 5.8 V2	√ (up to three battery pack) * HV11550's program version can be upgraded.	√ (up to three battery pack)	√ (up to three battery pack) *Only when T-BAT H 5.8 V2 upgrades to the latest program version of V3 (cannot rollback to V2 program version).		
T-BAT H 5.8 V3	√ (up to five battery pack) *Avoid configuring HV11550/HV11550 V2 as the fourth or fifth battery pack when pairing with four or five battery packs.		√ (up to five battery pack)		
T-BAT H 5.8H V3					

Wall mounting

- Step 1:** Attach the wall bracket (part G/G1/G2/G3) to the wall. Use a spirit level to level the bracket: observe the bubble of the spirit level and adjust the bracket so that the bubble stays in the center position. Then mark the holes (2 holes).

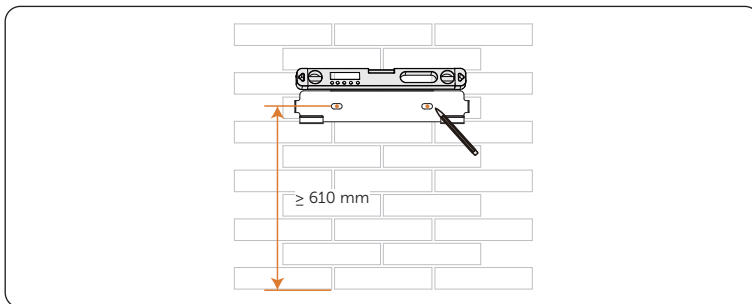


Figure 7-1 Marking holes

Step 2: Remove the bracket (part G/G1/G2/G3) and drill holes with a $\varnothing 10$ drill bit according to the hole markings. Make sure the holes are deep enough (at least 50 mm).

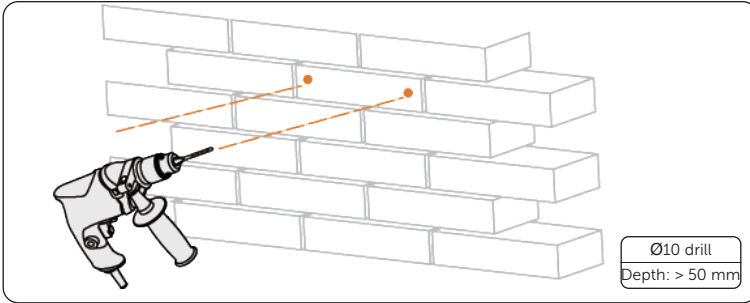


Figure 7-2 Drilling holes

Step 3: Insert the M8 expansion bolts (part H/H1/H2/H3) through the holes.

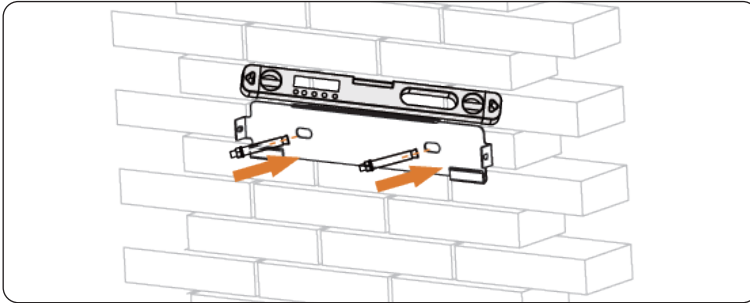


Figure 7-3 Inserting the M8 expansion bolts

Step 4: Tighten the M8 expansion bolts (part H/H1/H2/H3) counterclockwise by torque wrench to secure the bracket to the wall (torque: 15 ± 1 N·m).

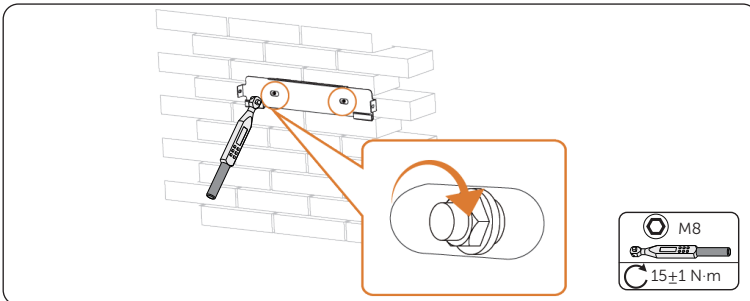


Figure 7-4 Tightening the M8 expansion bolts

Step 5: Lift up the device and hang it over the wall bracket.

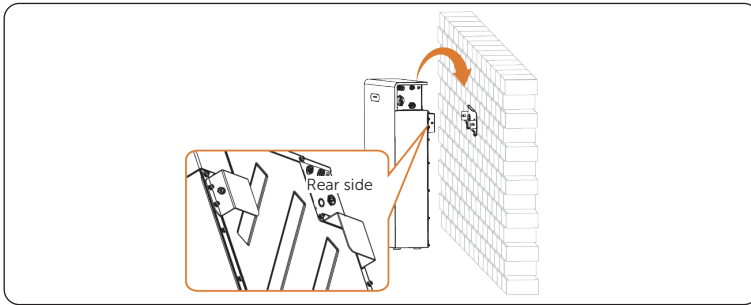


Figure 7-5 Lifting up the device

Step 6: Tighten the M6 combination screws on both sides to secure the device (torque: $3 \pm 0.3 \text{ N}\cdot\text{m}$). Ensure that the distance of every two devices is between 240 and 320 mm (rec. 280 mm).

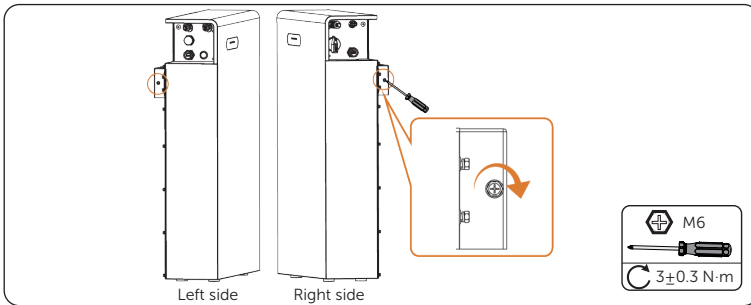


Figure 7-6 Securing the device

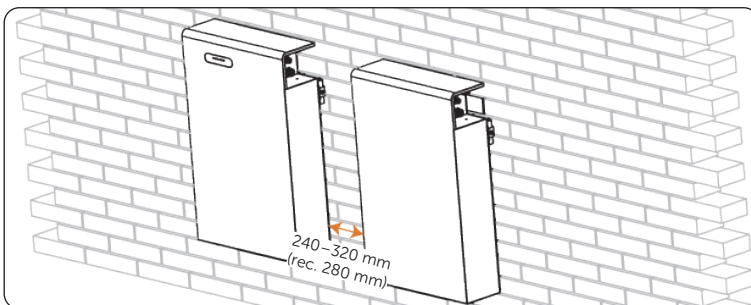


Figure 7-7 Recommended distance

Floor mounting

Step 1: Attach the wall bracket (part G/G1/G2/G3) to the wall. Use a spirit level to level the bracket: observe the bubble of the spirit level and adjust the bracket so that the bubble stays in the center position. Then mark the holes (2 holes).

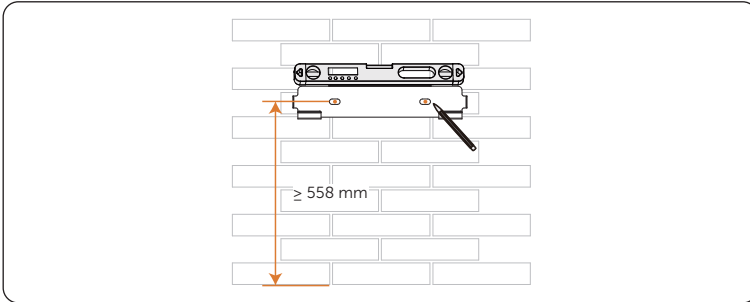


Figure 7-8 Marking holes

Step 2: Remove the bracket (part G/G1/G2/G3) and drill holes with a Ø10 drill bit according to the hole markings. Make sure the holes are deep enough (at least 50 mm).

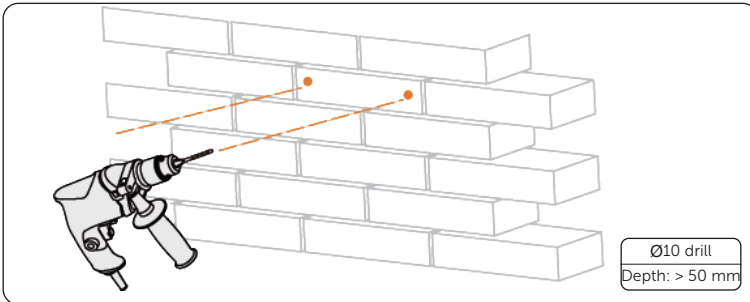


Figure 7-9 Drilling holes

Step 3: Insert the M8 expansion bolts (part H/H1/H2/H3) through the holes.

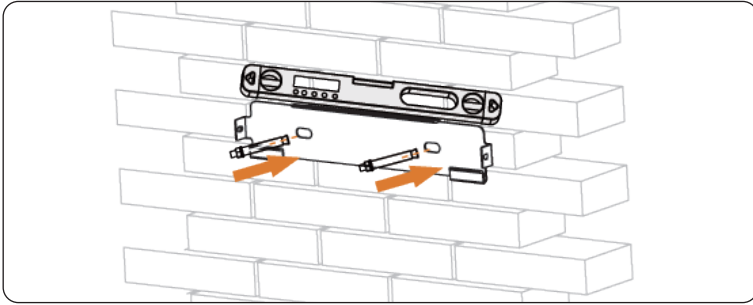


Figure 7-10 Inserting the M8 expansion bolts

Step 4: Tighten the M8 expansion bolts (part H/H1/H2/H3) counterclockwise by torque wrench to secure the bracket to the wall (torque: 15 ± 1 N·m).

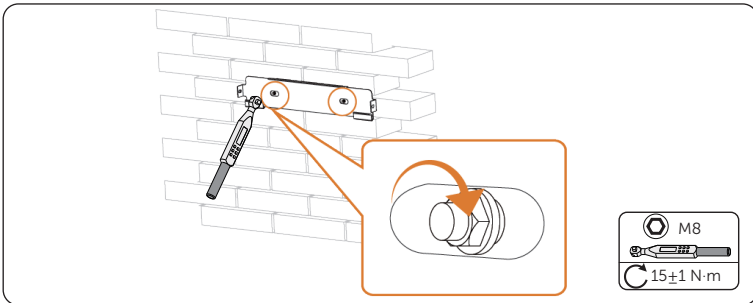


Figure 7-11 Tightening the M8 expansion bolts

Step 5: Lift up the device and hang it over the wall bracket.

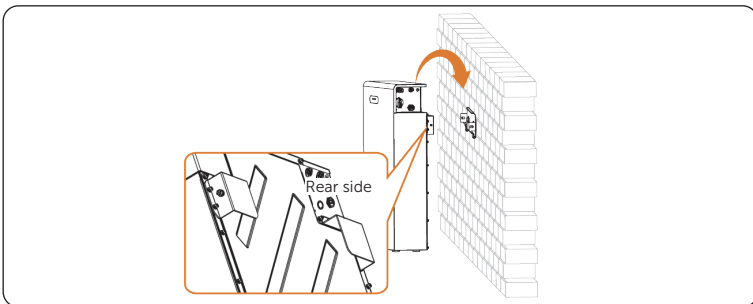


Figure 7-12 Lifting up the device

Step 6: Tighten the M6 combination screws on both sides to secure the device (torque: $3 \pm 0.3 \text{ N}\cdot\text{m}$). Ensure that the distance of every two devices is between 240 and 320 mm (rec. 280 mm).

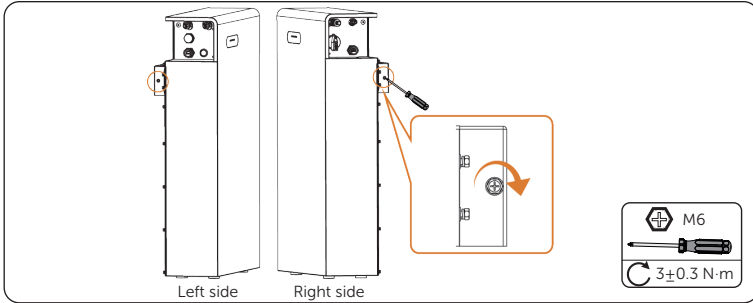


Figure 7-13 Securing the device

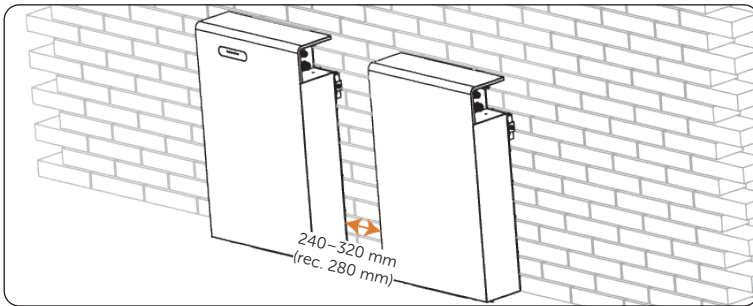


Figure 7-14 Recommended distance

Step 7: (Optional) To prevent moisture accumulation, it is recommended to place a 30–40 mm cushion (foam or other similar materials) beneath the battery.

7.2 Electrical Wiring for One BMS and Multiple Battery Packs



- It's important to give the cables a health check before connection.

NOTICE!

- Please refer to “[2.2.2 Parts Introduction](#)” for the positions of wiring ports for general model and Australian model.

One BMS can connect up to five battery packs. The wiring diagram depicting the connections between the inverter, BMS and battery packs is shown in the following figure:

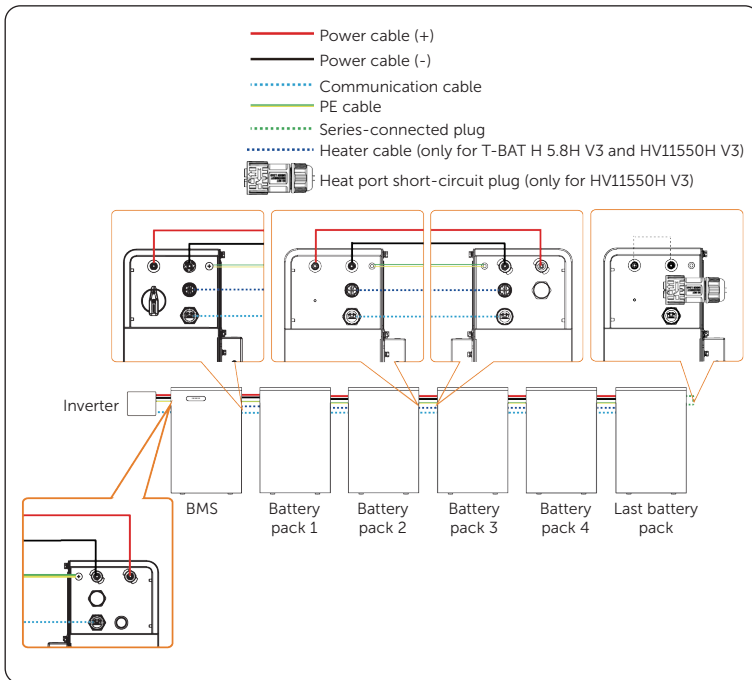


Figure 7-15 Wiring diagram

7.2.1 PE Connection



- Make sure that the electricity is turned off before wiring.
- Make sure that the PE cable is securely connected.
- Failure to follow these instructions can result in death or serious injury.

NOTICE!

- The wire size of 6 mm² for PE cable is recommended.
- The PE cable should be prepared by the users themselves.

Step 1: Strip the cable jacket about 8 to 10 mm from the end.

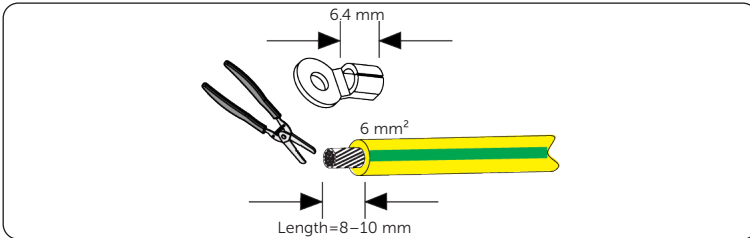


Figure 7-16 Stripping cable jacket

NOTICE!

- It's necessary to use controlled motion to strip the insulation down the wire, to prevent damage to the wires.
- Make sure that the insulation layer has been stripped to a sufficient length so that the center conductor is fully exposed without any damage or nicks. In addition, make sure that no extra insulation remains beyond the connector once it's crimped on.

Step 2: Cut the heat-shrink tubing to about 28 to 30 mm length, carefully slide it on the end of the cable, and then carefully slip the wires all the way into the ring terminal (part I/11/12/13/14).

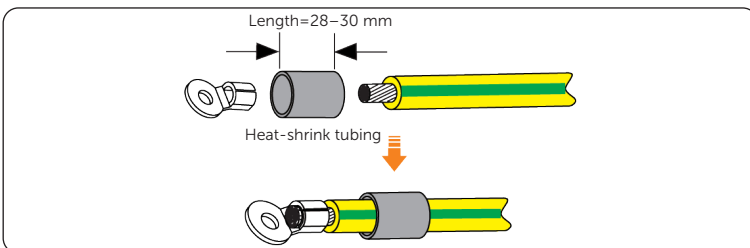


Figure 7-17 Cutting heat-shrink tubing

Step 3: Crimp the terminal, and heat the heat-shrink tubing after it wraps the end of terminal.

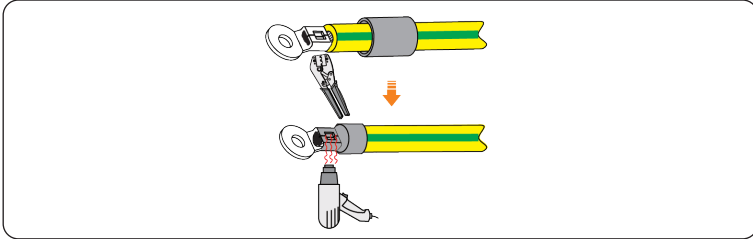


Figure 7-18 Crimping and heating

NOTICE!

- Do not place the conductor insulation into the terminal.
- Do not damage the conductor insulation while crimping.
- Move the heat gun back and forth slowly to distribute the heat evenly across the surface of heat shrink tubing.

Step 4: Unscrew the M5 screw on the device, connect the assembled PE cable to the grounding point, and then tighten M5 screw (torque: $1 \pm 0.1 \text{ N}\cdot\text{m}$).

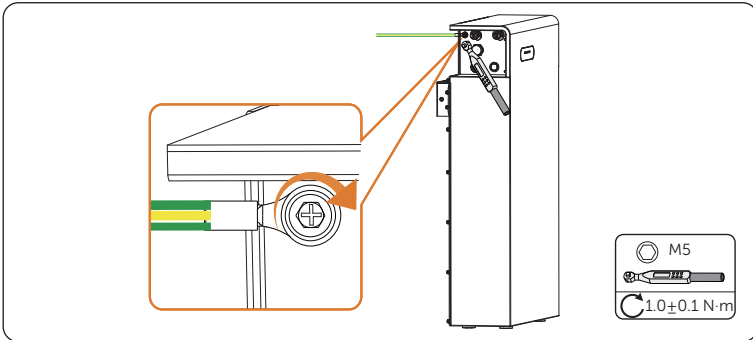


Figure 7-19 Tightening M5 screw

Step 5: Following the step 1 to step 3 to process all the PE cables and follow the step 4 to connect the PE cable between the BMS and battery pack or between battery packs. Meanwhile connect the other end of the PE cable to the inverter.

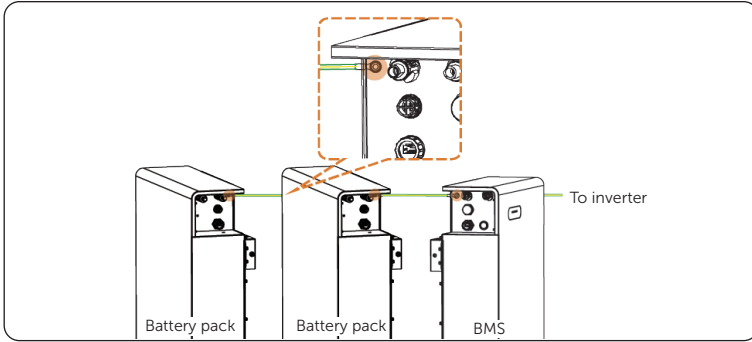


Figure 7-20 PE connection

NOTICE!

- For the PE connection to inverter, refer to the inverter's user manual.

7.2.2 Heater Cable Connection

NOTICE!

- Only T-BAT H 5.8H V3 and HV11550H V3 can be connected with the heater cable, and the heater cable shall be connected before the power cable and communication cable.
- Remove all the waterproof caps of HEAT ports before connecting heater cable or heat port short-circuit plug.

Step 1: Connect the heater cable (part J3) to the HEAT ports of the BMS and first battery pack.

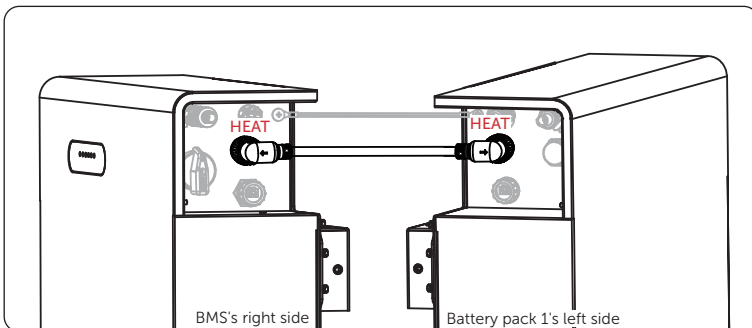


Figure 7-21 Connecting the heater cable

- Step 2:** Connect the heater cable (part J3) to the **HEAT** ports of the first and second battery packs. Please repeat this step if there are more battery packs to connect.

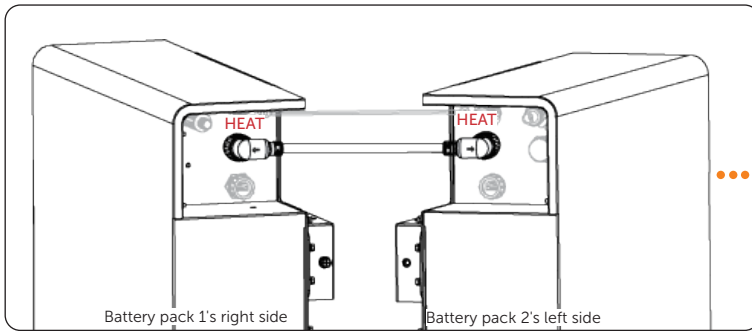


Figure 7-22 Connecting the heater cable

- Step 3:** Use the heat port short-circuit plug (part N1) to block the unconnected **HEAT** port of the last battery pack.

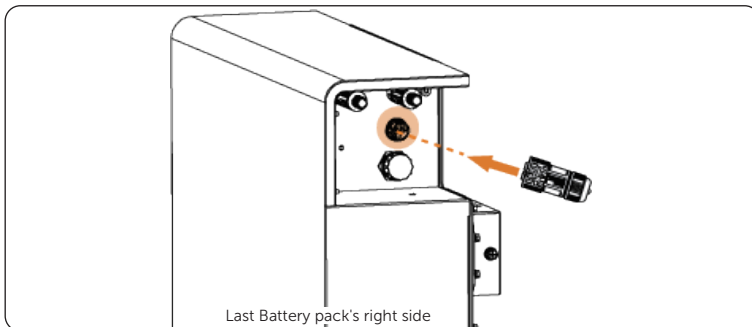


Figure 7-23 Connecting the heat port short-circuit plug

7.2.3 Power Cable Connection

WARNING!

- Only the qualified personnel can perform the wiring.
- Follow this manual to wire connection. The device damage caused by incorrect cabling is not in the scope of warranty.
- Make sure that the electricity is turned off before wiring the BMS to the inverter.

CAUTION!

- Use insulated tools and wear individual protective tools when connecting cables.

NOTICE!

- Waterproof cap must be put on the unconnected port.
- Don't violently remove the cables when they are connected.

- Step 1:** Connect the positive power cable (part A2/A3/A4) to the - port on the right side of the BMS and + port on the left side of the first battery pack.
- Step 2:** Connect the negative power cable (part B2/B3/B4) to the YPLUG port on the right side of the BMS and XPLUG port on the left side of the first battery pack.

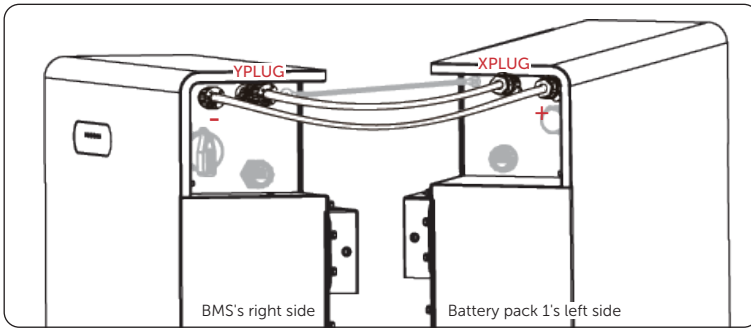


Figure 7-24 Power cable connection between the BMS and battery pack

- Step 3:** Connect the positive power cable (part A2/A3/A4) to the - port on the right side of the first battery pack and + port on the left side of the next battery pack. Please repeat this step if there are more battery packs to connect.
- Step 4:** Connect the negative power cable (part B2/B3/B4) to the YPLUG port on the right side of the battery pack and XPLUG port on the left side of the next battery pack. Please repeat this step if there are more battery packs to connect.

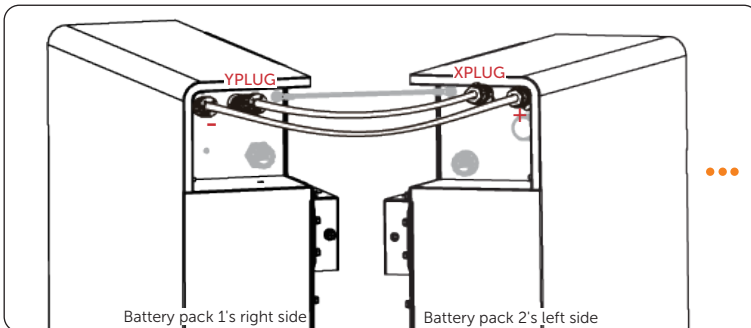


Figure 7-25 Power cable connection between battery packs

- Step 5:** Connect the series-connected plug (part D/D1) to the - and YPLUG ports of the last battery pack. Meanwhile, ensure that the waterproof cap must be put on the unconnected communication port.

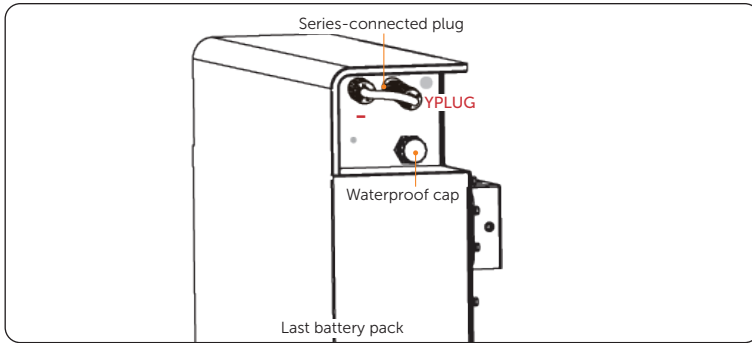


Figure 7-26 Connecting the series-connected plug

- Step 6:** Plug the positive power cable (part A/A1) to the BAT+ ports of BMS and inverter. Plug the negative power cable (part B/B1) to the BAT- ports of the BMS and inverter.

NOTICE!

- Don't violently remove the cables when they are locked.
- For the power cable connection to inverter, refer to the inverter's user manual.

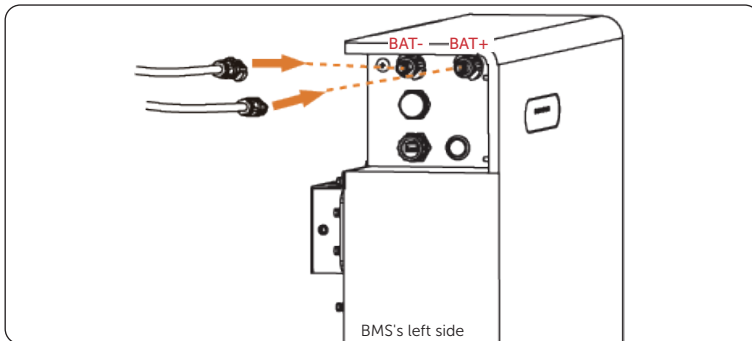


Figure 7-27 Connecting the power cable

7.2.4 Communication Connection

Communication connection between the BMS and battery packs

NOTICE!

- Process the communication cable following step 1–4 if you need to change its length according to the actual situation.

The pin assignment is shown as follows:

Table 7-1 Pin assignment

PIN	1	2	3	4	5	6	7	8
COM1	VCC_485	GND_485	RS485B	N-	P+	RS485A	VCC_485_2	GND_485
COM2	VCC_485	GND_485	RS485B	N-	P+	RS485A	VCC_485_2	GND_485

The wire sequence is shown as follows:

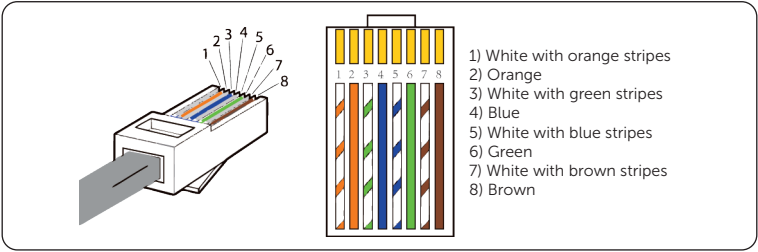


Figure 7-28 Wire sequence

Step 1: Rotate anti-clockwise to unscrew the waterproof cap of the communication cable (part C2/C3/C4), and strip the cable jacket about 15 mm down from the end.

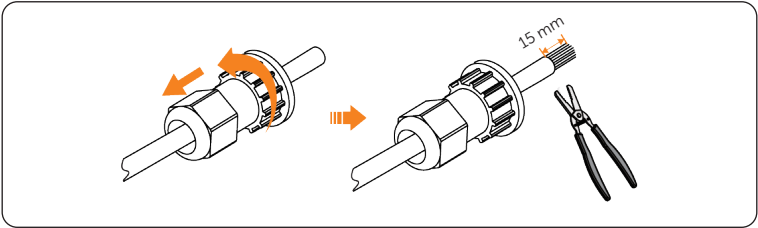


Figure 7-29 Stripping cable jacket

- Step 2:** Thread the cable through the waterproof cap, and carefully insert the wires all the way into the RS485 connector, making sure that each wire passes through the appropriate guides inside the connector.
- Step 3:** Push the RS485 inside the crimping tool and squeeze the crimper all the way down.

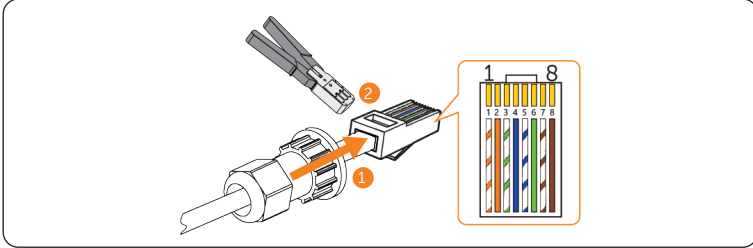


Figure 7-30 Crimping RJ45

- Step 4:** Rotate clockwise to tightening the waterproof cap after connecting to the inverter.

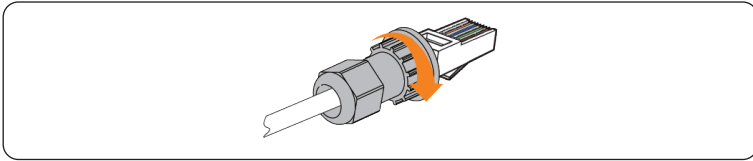


Figure 7-31 Rotating waterproof cap

- Step 5:** Connect the communication cable (part C2/C3/C4) to the **COM2** port (RS485 II port for T-BAT H 5.8 or T-BAT H 5.8 V2) on the right side of BMS and the **COM1** port (RS485 I port for HV11550 or HV11550 V2) on the left side of the first battery pack.

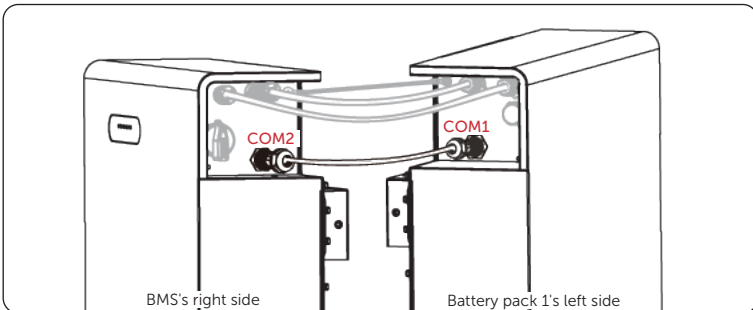


Figure 7-32 Connecting communication cable

Step 6: Connect the communication cable (part C2/C3/C4) to the **COM2 (RS485 II)** port for HV11550 or HV11550 V2) port on the right side of the first battery pack and the **COM1 (RS485 I)** port (RS485 I port for HV11550 or HV11550 V2) on the left side of the next battery pack. Please repeat this step if there are more battery packs to connect.

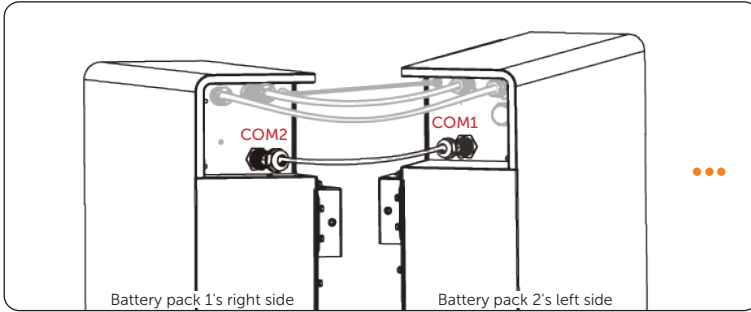


Figure 7-33 Connecting communication cable

Step 7: Clockwise the rotation wrench (part K/K1) to tighten all the communication cables. Remember remove the rotation wrench after tightening.

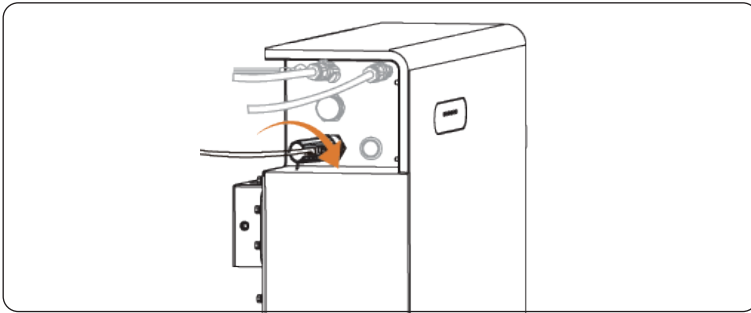


Figure 7-34 Tightening communication cable

Communication connection between the BMS and inverter

NOTICE!

- Process the communication cable following step 1–4 if you need to change its length according to the actual situation.

The pin assignment is shown as follows:

Table 7-2 Pin assignment

PIN	1	2	3	4	5	6	7	8
BMS	/	GND	/	BMS_H	BMS_L	/	RS485A	RS485B

The wire sequence is shown as follows:

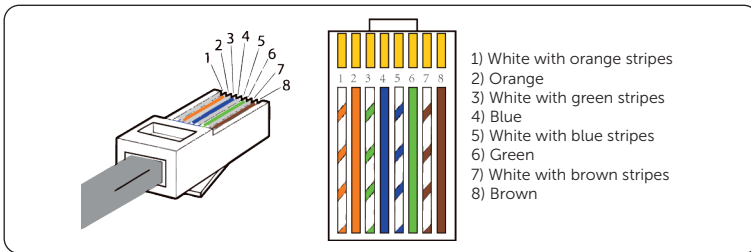


Figure 7-35 Wire sequence

Step 1: Rotate anti-clockwise to unscrew the waterproof cap of the communication cable (part C/C1), and strip the cable jacket about 15 mm down from the end.

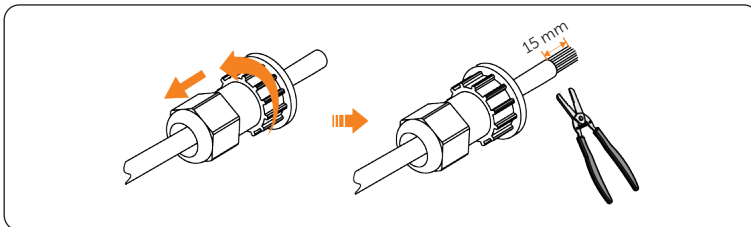


Figure 7-36 Stripping cable jacket

Step 2: Thread the cable through the waterproof cap, and carefully insert the wires all the way into the RJ45 connector, making sure that each wire passes through the appropriate guides inside the connector.

Step 3: Push the RJ45 inside the crimping tool and squeeze the crimper all the way down.

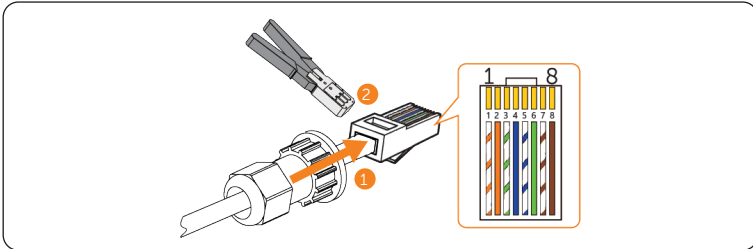


Figure 7-37 Crimping RJ45

Step 4: Rotate clockwise to tightening the waterproof cap after connecting to the inverter.

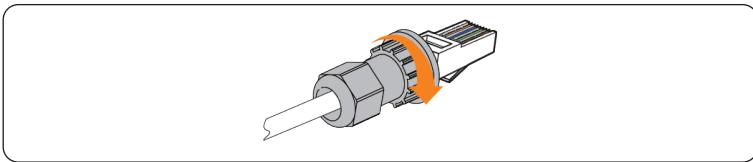


Figure 7-38 Rotating waterproof cap

Step 5: Connect the communication cable (part C/C1) to the **BMS** port on the left side of BMS and clockwise the rotation wrench (part K/K1) to tighten it. Remember remove the rotation wrench after tightening.

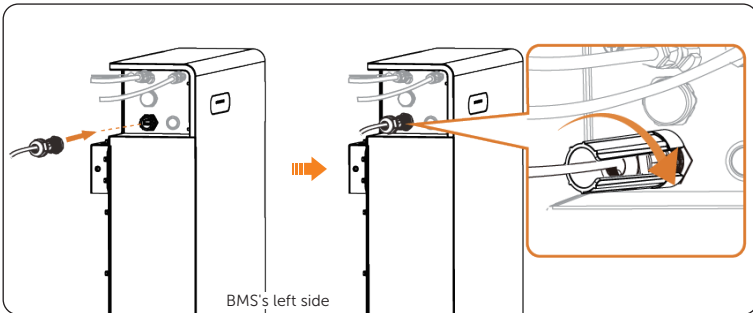


Figure 7-39 Connecting the communication cable

Step 6: Connect the other end of the communication cable to the inverter.

NOTICE!

- For the communication cable connection to inverter, refer to the inverter's user manual.

7.2.5 Installation of Cover Plate

NOTICE!

- Installation of cover plates is not required for Australian model.
- The installation steps are available for both BMS and battery pack.

Step 1: Cover plates need to be installed on both sides of the device. Apart from the last battery pack's right side, put all the cables into the guard ring (part M/M1/D2/D3) and clamp the cables into the cover plate (part E/E1/E2/E3); for the last battery pack's right side, follow step 2 to install the cover plate directly.

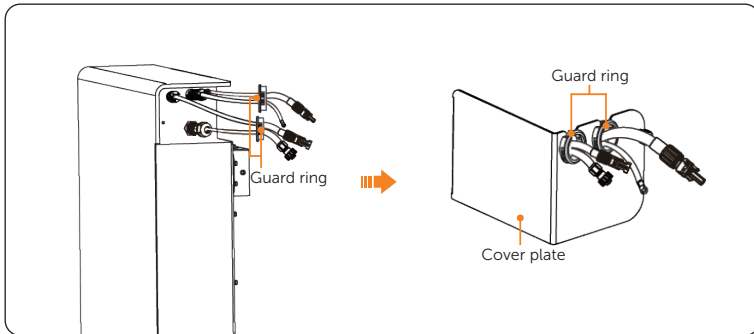


Figure 7-40 Processing the cables

Step 2: Secure the cover plates (part E/E1/E2/E3) on both sides of the device using M4 screws tightened manually in a clockwise direction.

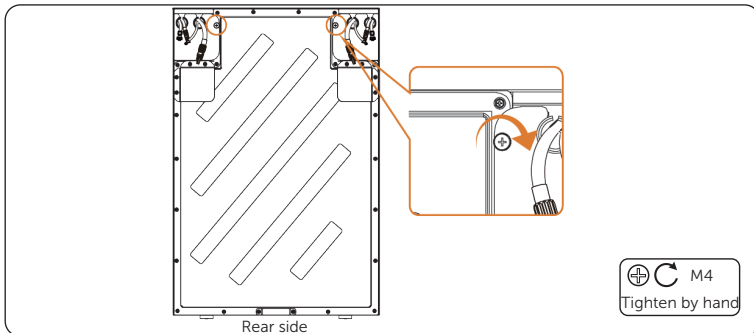


Figure 7-41 Fixing the cover plates

Step 3: Repeat the step1–step2 to install all the devices' cover plates.

8 System Commissioning



- Wear PPE and use insulated tools to avoid electric shocks or short circuits.

8.1 Checking before Power-on

- Check whether the device is installed correctly and securely.
- Make sure that the breaker is at "OFF" position.
- All cables and plugs are connected correctly and securely, inability to remove plug confirms full insertion.
 - » For single BMS, check whether the series-connected plug between its - and YPLUG ports is connected correctly; check whether the heat port short-circuit plug blocks the unconnected HEAT port correctly (only for T-BAT H 5.8H V3).
 - » For one BMS with multiple battery packs, check whether the series-connected plug between the last battery pack's - and YPLUG ports is connected correctly; check whether the heat port short-circuit plug blocks the unconnected HEAT port of the last battery pack correctly (only for T-BAT H 5.8H V3 and HV11550H V3).
- All unconnected port are covered.
- The installation space is proper, and the installation environment is clean and tidy.

8.2 Power-on

Step 1: (Optional) For general model, unscrew the M4 screw counterclockwise to remove the cover plates (part E/E1) on both sides of BMS.

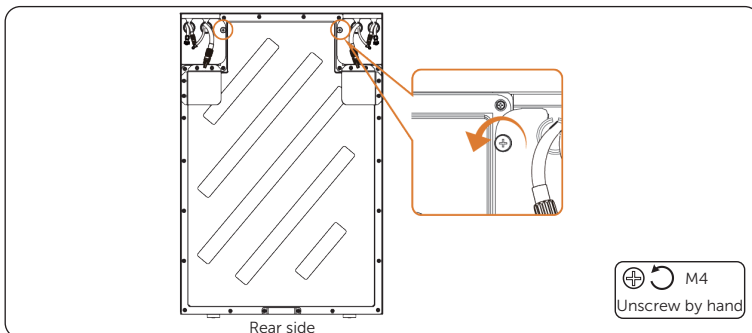


Figure 8-1 Removing the cover plates

Step 2: Turn on the switch on the right side of BMS.

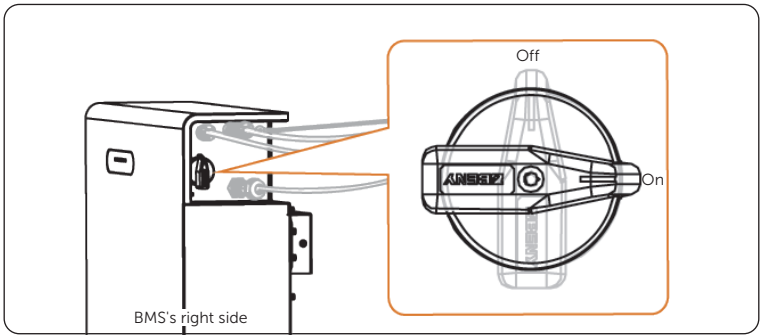


Figure 8-2 Turning on the switch

Step 3: (Optional) For Australian model, turn on the switch on the right side of battery pack.

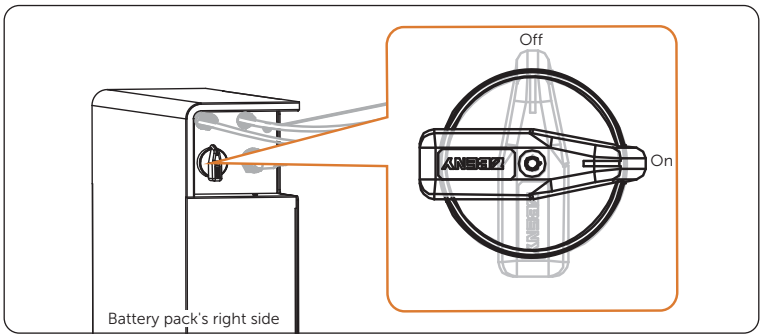


Figure 8-3 Turning on the switch

Step 4: Press the power button on the left side of BMS for about 3 s. The Status indicator will flash red and green alternately and then remain on green.

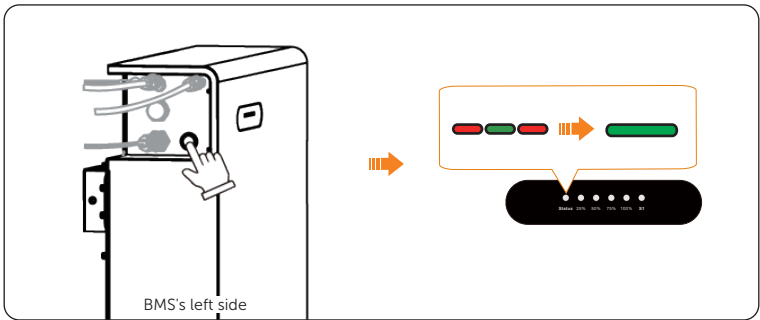


Figure 8-4 Powering-on

NOTICE!

- A system problem may be encountered while pressing the button frequently. The user may need to wait at least 10 seconds and then try again.

8.3 Power-off

WARNING!

- Do not touch the battery until it has been turned off for at least 5 mins. Otherwise, the residual power or heat will cause electric shocks or personal injuries.

Step 1: (Optional) For general model, unscrew the M4 screw counterclockwise to remove the cover plates (part E/E1) on both sides of BMS.

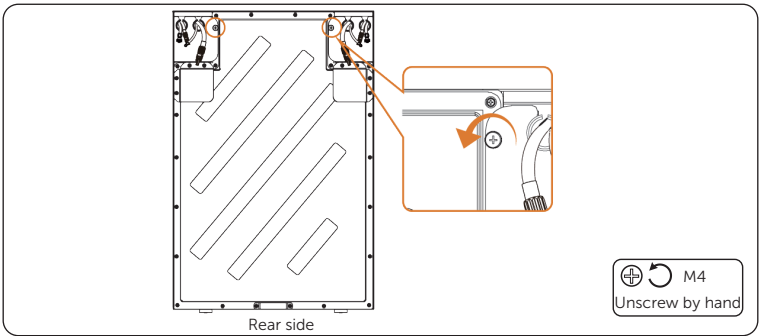


Figure 8-5 Removing the cover plates

Step 2: Press the power button on the left side of BMS for 3–5 s. All the indicators will light off.

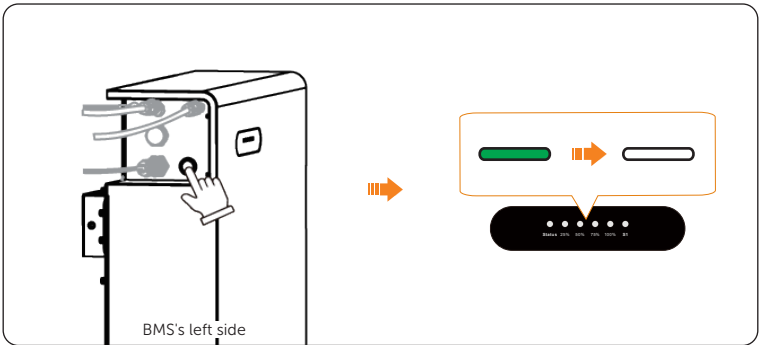


Figure 8-6 Powering-off

9 Troubleshooting and Maintenance

9.1 Maintenance

Regular maintenance is required for the device. The table below lists the operational maintenance for expressing the optimum device performance. More frequent maintenance service is needed in the worse work environment. Please make records of the maintenance.

 **WARNING!**

- Only qualified person can perform the maintenance for the device.
- Wear PPE before conducting maintenance.

 **CAUTION!**

- The system must be powered off before conducting maintenance works, for instance, system cleaning, electrical connections, PE cable checks.

Table 9-1 Maintenance list

Check item	Description	Period
Running status of the system	• Check whether there is any damage or deformation to the device. • Check whether there are any abnormal noise in the running system.	Every 6 months
Electrical connections	• Check whether the cables are fastened securely. If not, please tighten them again according to the torque written in the document. • Check there is any damage to the cables, especially the cable jacket connecting with the metal parts. • Check whether the unconnected ports are covered.	The first maintenance should be scheduled within half a year after the first commissioning, and then check them every 6–12 months.
PE cable checks	• Check whether the PE cable is firmly attached.	The first maintenance should be scheduled within half a year after the first commissioning, and then check them every 6–12 months.

9.2 Troubleshooting

This section lists the possible problems with the device, and provides information and procedures for identifying and resolving them. In case of any errors, users can:

- Log in the cloud platform (www.solaxcloud.com) to check for the warnings or error messages, and then solve it according to the following table;
- Check for the warnings or error messages through the inverter.

For further assistance, contact SolaX Customer Service. Please provide the model and SN of the device, and be prepared to describe the system installation details.

Table 9-2 Troubleshooting information

Error code	Fault	Description	Diagnosis & solution
1	Internal communication fault	Abnormal communication between the battery pack and BMS	• Contact the company's after-sales personnel.
2	Out communication fault	Abnormal communication between the battery and inverter	• Check the connection of the communication cable between the inverter and the battery. • Contact the company's after-sales personnel.
3	Cell overvoltage	Battery cell overvoltage	• Contact the company's after-sales personnel.
4	Overvoltage of total voltage	Overvoltage of battery's total voltage	• Contact the company's after-sales personnel.
5	Cell undervoltage	Battery cell undervoltage	• Contact the company's after-sales personnel.
6	Undervoltage of total voltage	Undervoltage of battery's total voltage	• Contact the company's after-sales personnel.
7	Charge overcurrent	Charge overcurrent of battery pack	• Contact the company's after-sales personnel.
8	Discharge overcurrent	Discharge overcurrent of battery pack	• Contact the company's after-sales personnel.
9	High temperature	High temperature of battery pack	• Contact the company's after-sales personnel.
10	Low temperature	Low temperature of battery pack	• Contact the company's after-sales personnel.
11	Insulation fault	Low insulation resistance	• Contact the company's after-sales personnel.

Error code	Fault	Description	Diagnosis & solution
12	Voltage sensor fault	Voltage sampling fault of the BMS	• Contact the company's after-sales personnel.
13	Cell temperature fault	Temperature sampling fault of the BMS	• Contact the company's after-sales personnel.
14	Current sensor fault	Current sampling fault of the BMS	• Contact the company's after-sales personnel.
15	Relay fault	Relay contact adhesion	• Contact the company's after-sales personnel.
16	Precharge fault	Precharge fault of the battery pack	• Contact the company's after-sales personnel.
17	Breaker fault	Breaker is not closed	• Check the closing status of the breaker; • Contact the company's after-sales personnel.
18	Selfcheck fault	Selfcheck fault	• Contact the company's after-sales personnel.

10 Decommissioning

10.1 Disassembly of Cables

WARNING!

- Only the qualified personnel can perform disassembly of cables.
- To avoid electric shocks, use insulated tools and wear individual protective tools when disassembly of cables.
- Disassembly of cables are the same for both BMS and battery pack.

Step 1: Please check that the inverter and BMS have been shut down.

Step 2: (Optional) For general model, unscrew the M4 screw counterclockwise to remove the cover plates on both sides of the device.

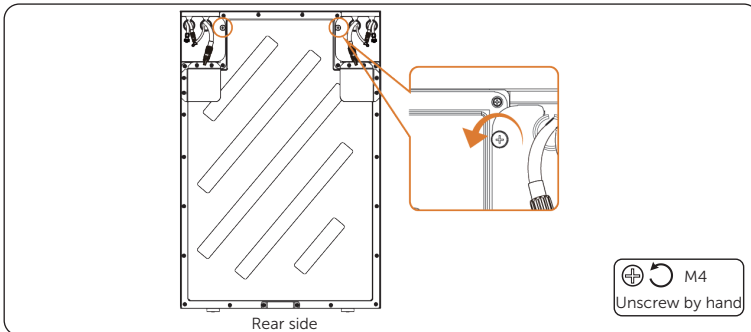


Figure 10-1 Removing the cover plates

- Step 3:** Take all the cables out of the cover plates and guard rings.
- Step 4:** Insert two slot type screwdrivers together into the terminal groove of power cable to disassemble the power cable. Repeat the operation to disassemble all the power cables.

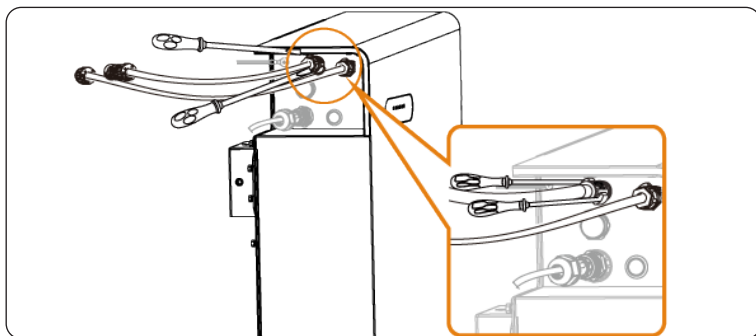


Figure 10-2 Disassembling the power cable

- Step 5:** Anticlockwise the rotation wrench to loosen the communication cable, and then disassemble it. Remember remove the rotation wrench after loosening. Use the waterproof caps to block the COM1/COM2 port.

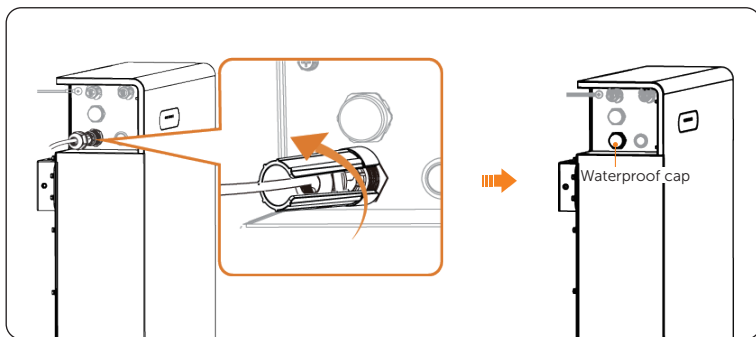


Figure 10-3 Disassembling the communication cable

Step 6: (If any) Unlock the terminal of the heater cable clockwise, and then disassemble it. Use the waterproof caps to block the HEAT port.

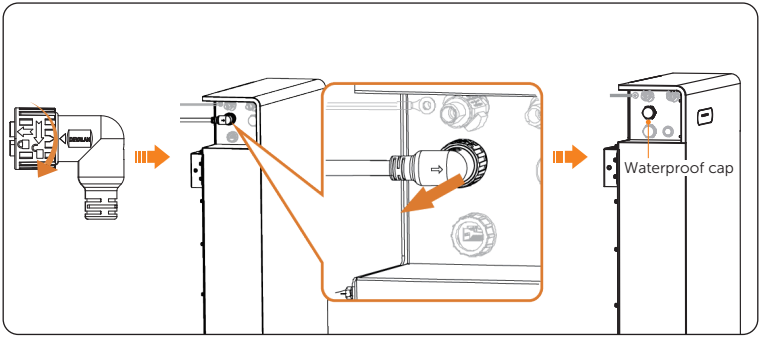


Figure 10-4 Disassembling the heater cable

Step 7: (If any) Remove the heat port short-circuit plug (part N1) on the HEAT port and use the waterproof caps to block the HEAT port.

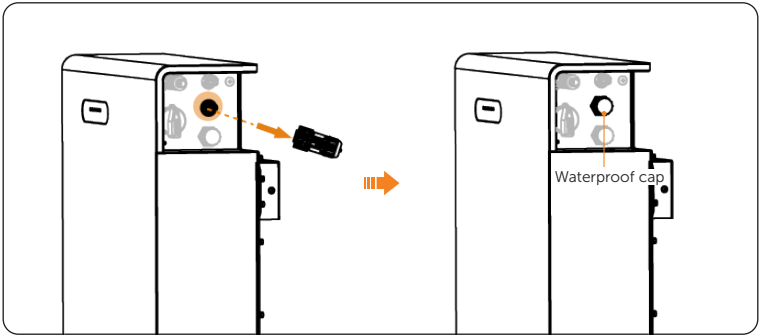


Figure 10-5 Removing the heat port short-circuit plug

- Step 8:** Insert the disassembling tool into the terminal groove of the series-connected plug, pull the series-connected plug outwards. Repeat the operation to disassemble another terminal.

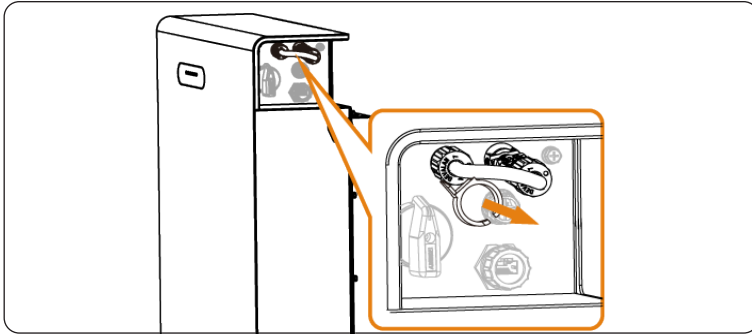


Figure 10-6 Disassembling the series-connected plug

- Step 9:** Unscrew the M5 screws on both sides of the device to disassemble the PE cables.

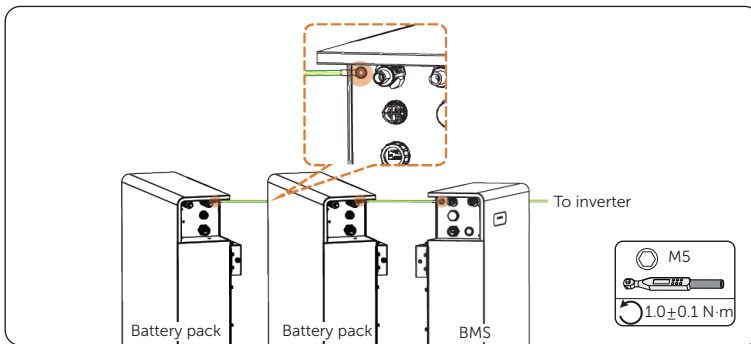


Figure 10-7 Disassembling the PE cables

10.2 Packing

- Load the BMS and battery packs into the original packing material if possible.
- If the original packing material is not available, you can also use the packing material which meets the following requirements:
 - » Suitable for the weight of product;
 - » Easy to carry;
 - » Be capable of being closed completely.

11 Technical Data

• Configuration list

No.	Model	BMS	Battery pack	Nominal energy [kWh]	Operating voltage [V]
1	T-BAT H 5.8 V3	T-BAT H 5.8 V3 × 1	/	5.8	100–130
2	T-BAT H 11.5 V3	T-BAT H 5.8 V3 × 1	HV11550 V3/ HV11550-A V3 × 1	11.5	200–260
3	T-BAT H 17.3 V3	T-BAT H 5.8 V3 × 1	HV11550 V3/ HV11550-A V3 × 2	17.3	300–390
4	T-BAT H 23 V3	T-BAT H 5.8 V3 × 1	HV11550 V3/ HV11550-A V3 × 3	23.0	400–520
5	T-BAT H 28.8 V3	T-BAT H 5.8 V3 × 1	HV11550 V3/ HV11550-A V3 × 4	28.8	500–650
6	T-BAT H 34.6 V3	T-BAT H 5.8 V3 × 1	HV11550 V3/ HV11550-A V3 × 5	34.6	600–750
7	T-BAT H 5.8H V3	T-BAT H 5.8H V3 × 1	/	5.8	100–130
8	T-BAT H 11.5H V3	T-BAT H 5.8H V3 × 1	HV11550H V3 × 1	11.5	200–260
9	T-BAT H 17.3H V3	T-BAT H 5.8H V3 × 1	HV11550H V3 × 2	17.3	300–390
10	T-BAT H 23H V3	T-BAT H 5.8H V3 × 1	HV11550H V3 × 3	23.0	400–520
11	T-BAT H 28.8H V3	T-BAT H 5.8H V3 × 1	HV11550H V3 × 4	28.8	500–650
12	T-BAT H 34.6H V3	T-BAT H 5.8H V3 × 1	HV11550H V3 × 5	34.6	600–750

• General

Model	T-BAT H 5.8 V3/T-BAT H 5.8H V3	T-BAT H 11.5 V3/T-BAT H 11.5H V3	T-BAT H 17.3 V3/T-BAT H 17.3H V3	T-BAT H 23 V3/T-BAT H 23H V3	T-BAT H 28.8 V3/T-BAT H 28.8H V3	T-BAT H 34.6 V3/T-BAT H 34.6H V3
Nominal voltage [d.c. V]	115.2	230.4	345.6	460.8	576	691.2
Operating voltage range [d.c. V]	100–130	200–260	300–390	400–520	500–650	600–750
Rated capacity [Ah]	50					
Nominal energy [kWh]	5.8	11.5	17.3	23.0	28.8	34.6
Usable energy (95% DOD) [kWh] ⁽¹⁾	5.5	10.9	16.4	21.9	27.4	32.9
Rated power [kW]	2.9	5.8	8.6	11.5	14.4	17.3
Max. power [kW]	4	8.1	12.1	16.1	20.2	24.2
Recommend charge/ discharge current [d.c. A]	25					
Max. charge/discharge current [d.c. A] ⁽²⁾	35					
Max. short circuit current [d.c. A]	2082	3183	3862	4324	4658	4908

Model	T-BAT H 5.8 V3/T-BAT H 5.8H V3	T-BAT H 11.5 V3/T-BAT H 11.5H V3	T-BAT H 17.3 V3/T-BAT H 17.3H V3	T-BAT H 23 V3/T-BAT H 23H V3	T-BAT H 28.8 V3/T-BAT H 28.8H V3	T-BAT H 34.6 V3/T-BAT H 34.6H V3
Depth of discharge [%]	95					
Cycle life (95% DOD) ⁽³⁾	> 6000 cycles					

• Environmental requirements

Model	T-BAT H 5.8 V3/T-BAT H 5.8H V3	T-BAT H 11.5 V3/T-BAT H 11.5H V3	T-BAT H 17.3 V3/T-BAT H 17.3H V3	T-BAT H 23 V3/T-BAT 23H V3	T-BAT H 28.8 V3/T-BAT H 28.8H V3	T-BAT H 34.6 V3/T-BAT H 34.6H V3
Charge temperature [°C]	0 to +55 (off heating function) -30 to +55 (on heating function) ⁽⁴⁾					
Discharge temperature [°C]	-30 to +55 ⁽⁴⁾					
Cooling concept	Natural					
Storage temperature [°C]	-20 to +30 (12 months); +30 to +55 (6 months)					
Relative humidity [%]	4–100 (condensing)					
Max. operating altitude [m]	2000					
Installation type	Wall mounting/Floor mounting					
Ingress protection	IP66					
Environment	Outdoor/Indoor					

• General information (BMS)

Model	T-BAT H 5.8 V3/T-BAT H 5.8H V3
Battery type	LFP
Number of modules	1
Module capacity [kWh]	5.8
Dimensions (W×H×D) [mm]	474×715×150
Net weight [kg]	61.5 ± 1
BMS software version	V2.01

• General information (battery pack)

Model	HV11550 V3/HV11550H V3/HV11550-A V3
Battery type	LFP
Number of modules	1–5
Module capacity [kWh]	5.8
Dimensions (WxHxD) [mm]	474x715x150
Net weight [kg]	59.5 ± 1
Battery pack software version	V2.01

• Communication interfaces

Model	T-BAT H 5.8 V3/T-BAT H 5.8H V3	T-BAT H 11.5 V3/T-BAT H 11.5H V3	T-BAT H 17.3 V3/T-BAT H 17.3H V3	T-BAT H 23 V3/T-BAT H 23H V3	T-BAT H 28.8 V3/T-BAT H 28.8H V3	T-BAT H 34.6 V3/T-BAT H 34.6H V3
Communication interfaces	CAN 2.0 + RS485					

• Standard

Model	T-BAT H 5.8 V3/T-BAT H 5.8H V3	T-BAT H 11.5 V3/T-BAT H 11.5H V3	T-BAT H 17.3 V3/T-BAT H 17.3H V3	T-BAT H 23 V3/T-BAT H 23H V3	T-BAT H 28.8 V3/T-BAT H 28.8H V3	T-BAT H 34.6 V3/T-BAT H 34.6H V3
UN number	UN3840					
Hazardous materials classification	Class 9					
Transport testing requirement	UN38.3					
Certifications	IEC 62619/EN 62619/IEC62040/SA TS 5398/IEC62477 ⁽⁵⁾					

* Note:

- (1) Test conditions: 95% DOD, 0.2C charge & discharge @+25°C.
- (2) Current is affected by the number of batteries connected in parallel as well as temperature and SOC.
- (3) Test conditions: 25°C±2°C, 0.5C charge & discharge, 70%EOL.
- (4) - Discharge: In case of battery cell's temperature range of -20 to +10°C and +45 to +55°C, the discharge current will be reduced;
 - Charge: In case of battery cell's temperature range of 0 to +25°C and +45 to +55°C, the charge current will be reduced.
 - Product charge or discharge power depends on the actual temperature of battery pack.
 - The battery can only be discharged and can not be charged when the battery cell's temperature range is between -20°C and 0°C.
- (5) The certifications are only for reference. Please be subject to the actual symbols on the device.



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