SOLAX



TB-LD160
TB-LD143

User Manual

Version 2.0

www.solaxpower.com

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About This Manual

Scope of Validity

This manual is an integral part of the battery system. 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 system model.

- TB-LD143
- TB-LD160

Model description

TB-LD143
TB-LD160



No.	Definition	Description
1	L	Grid grade: low-voltage system
2	D	Detached
3	143/160	Battery capacity: 14.3 kWh or 16 kWh

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;
- A low-voltage operator is required to obtain any Certifications for Low-voltage Electrician.

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 2.0 (2026-09-16)

Updated "Scope of Validity", "1.2 Battery Safety", "Weight and dimension", "2.6 LCD Screen", "2.7 Label", "5.1 Unpacking", "7 Electrical Wiring", "8.2 Cable Connection", "10.2.2 Device Networking", "11.2 Troubleshooting".

Version 1.0 (2026-07-15)

Updated "2.2.1 System Introduction", "2.4 Black Start", "2.7 Label", "7 Electrical Wiring", "8.2 Cable Connection", "9.2 Power on the System", "9.3 Power off the System", "10.2 Operation Guide on SolaXCloud App", and "12.1 Disassembly of Cables".

Version 0.0 (2025-06-13)

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 use SolaX lithium battery in Lead-acid mode. Lead-acid mode not only reduce the lifespan of lithium batteries, but may also cause safety issues under extreme conditions. Any consequences arising from the use of lead-acid mode shall be borne by users themselves, and SolaX will not provide warranty!
- 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 batteries of different brands. Only compatible models that are stated in the user manual can be mixed. 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.

WARNING!

- 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.
- 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 IP40 ingress protection, which allows it to be installed only indoors.

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!

In case the battery pack leaks electrolyte or other chemical materials, or generates gas due to leakage, avoid contact with any leaked substances. If accidentally contacted, 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 15 minutes, and seek medical attention;
- In case of contact with skin: Wash the contacted 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 pack is installed, please do as follows:

- In case the battery pack is charging when a fire breaks out, and if it is safe to do so, disconnect the battery pack circuit breaker to cut off the power supply;
- In case the battery pack is not on fire yet, use a Class ABC fire extinguisher or a carbon dioxide extinguisher to extinguish the fire;
- In case the battery pack is heated above 302°F/150°C, it might catch fire. Do not approach and keep away from it;
- In case the battery pack catches fire, do not attempt to extinguish the fire and evacuate immediately.

Effective ways to deal with accidents:

- In case a battery pack is submerged, do not use it again, and contact qualified personnel for assistance;
- In case a battery pack is damaged, stop using it at once. Place the damaged pack in a separate place, and contact the local fire department or qualified personnel for treatment;
- If you suspect a battery pack is damaged, contact SolaX immediately for assistance.

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 "13 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 grounding 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 grounding 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

The TB-LD160 and TB-LD143 are advanced energy storage systems, having the characteristics of high reliability and convenient control. Characteristics are shown as follows:

- Premium $LiFePO_4$ cells and high-efficiency processors;
- IP40 Protection Level and Protection Class I for reliable and safe operation;
- User-friendly LCD touchscreen for intuitive and easy interaction;
- Remote fault diagnostics and updates;
- Supports floor mounting;
- Expandable to 16 units in parallel;
- CTP (Cell-to-Pack) design maximizes space and energy density for superior performance.

2.2 Product Appearance

2.2.1 System Introduction

System appearance

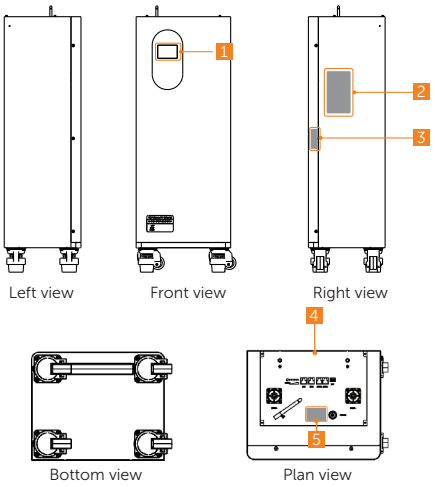


Figure 2-1 Appearance

Table 2-1 Description

No.	Item	Description
1	LCD screen	Display the information of the battery. For details, please refer to "2.6 LCD Screen".
2	Performance label	Identify the device type, serial number, parameters, certification, etc. For details, please refer to "2.7 Label".
3	Void label	Keep it sealed, and do not tear it off. For details, please refer to "2.7 Label".
4	Electrical connection area	Include BAT+/BAT- ports, communication ports, grounding ports and antenna; the POWER button and Indicator panel. For details, please refer to "2.2.2 Parts Introduction".
5	Power button label	Describe how to power on, power off, and black start.

Weight and dimension

Table 2-2 Weight and dimension

Model	TB-LD160	TB-LD143
Width (mm)	356	
Height (mm)	953	
Depth (mm)	289	
Net weight (kg)	121 ± 1	117 ± 1

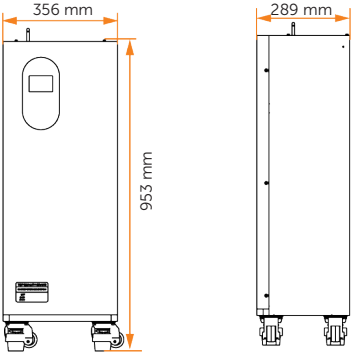


Figure 2-2 Dimension

2.2.2 Parts Introduction

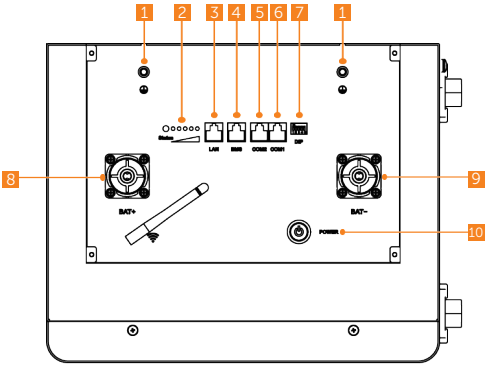


Figure 2-3 Introduction of electrical connection area

Table 2-3 Introduction of electrical connection area

NO.	Item	Description
1	Grounding port	To connect to the grounding port of the inverter or the next battery pack.
2	Indicator panel	Show the operating status and remaining capacity of the battery. Please refer to "2.3 Indicator Panel" for details.
3	LAN port	Communication port: to connect Ethernet cable.
4	BMS port	Communication port: to connect to **BMS** port on the inverter.
5	COM2 port	Communication port: to connect to **COM1** port on the next battery pack.
6	COM1 port	Communication port: to connect to **COM2** port on the previous battery pack.
7	DIP switch	Please refer to "2.5 DIP Switch" for details.
8	BAT+ port	Positive power port: to connect to **BAT+** port of the inverter or the combiner box.
9	BAT- port	Negative power port: to connect to **BAT-** port of the inverter or the combiner box.
10	POWER button	To start/shut down system.

2.3 Indicator Panel

The battery pack is equipped with a tri-colour status light (yellow/green/red) to show its operating status and five single-colour SOC power indicators (yellow) to show the current battery percentage.

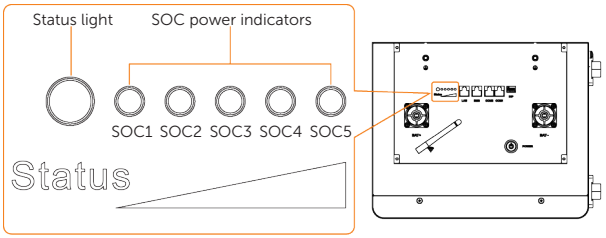


Figure 2-4 Indicators

Table 2-4 Information on indicators

Status light	Indication
Yellow flash every 0.8 second	Black start[1]
Solid yellow	Self test
Solid green	Standby
Green flash every 1 second	Charging[2]
Green flash every 1 second	Discharging[3]
Solid yellow to off	Shut down
Red, yellow and green flash in turns	Upgrade
Red flash every 3 seconds	Fault power off
Green flash every 3 seconds	Normal power off

[1] The battery system will assign each battery pack in a communication loop a unique address (battery number) during this state.
[2] The SOC power indicators will flash yellow, please refer to "SOC power indicators information while charging".
[3] The SOC power indicators will be solid yellow, please refer to "SOC power indicators information while discharging".

SOC power indicators information while charging

When the battery is charging, SOC power indicators information is shown as follows:

Table 2-5 SOC power indicators information while charging

SOC value	SOC1	SOC2	SOC3	SOC4	SOC5
SOC≥80%	Flash	Flash	Flash	Flash	Flash
SOC≥60%	Flash	Flash	Flash	Flash	Off
SOC≥40%	Flash	Flash	Flash	Off	Off
SOC≥20%	Flash	Flash	Off	Off	Off
SOC>0%	Flash	Off	Off	Off	Off
SOC=0%	Off	Off	Off	Off	Off

SOC power indicators information while discharging

When the battery is discharging, SOC power indicators information is shown as follows:

Table 2-6 SOC power indicators information while discharging

SOC value	SOC1	SOC2	SOC3	SOC4	SOC5
SOC≥80%	Solid	Solid	Solid	Solid	Solid
SOC≥60%	Solid	Solid	Solid	Solid	Off
SOC≥40%	Solid	Solid	Solid	Off	Off
SOC≥20%	Solid	Solid	Off	Off	Off
SOC>0%	Solid	Off	Off	Off	Off
SOC=0%	Off	Off	Off	Off	Off

2.4 Black Start

WARNING!

- Except for the following two circumstances, do not use black start.
  - » The after-sales personnel checks the problem.
  - » The inverter is not turned on and requires the battery to supply power to it.

The equipment 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. The startup procedure is as follows:

Press and hold the **POWER** button of leader battery pack for 5 seconds. See the following table and figure for the changes of status and SOC lights.

Table 2-7 Description of status light

	Solid yellow	Flash yellow	Flash green	Flash green	Flash green
Status light					
Process	Start self test	End self test and Start address assignment	End address assignment	Start black start	End black start

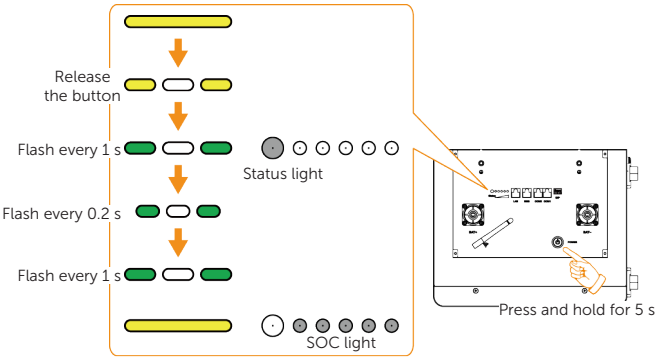


Figure 2-5 Process of black start

2.5 DIP Switch

A DIP Switch is a set of small manual electronic switches that are designed to be packaged with other circuits. It is currently equipped with the battery pack.

The location of the **DIP** switch and the factory defaults are shown as below.

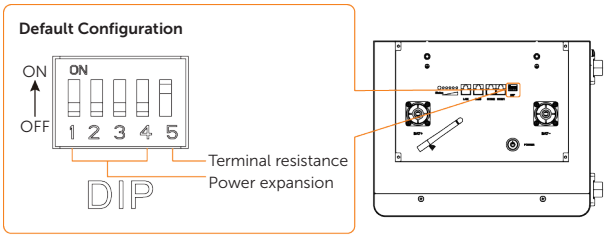


Figure 2-6 DIP switch

There are two circumstances, with details below:

- If there is only one battery pack, keep the **DIP** switch as factory defaults (switch 5 in **ON** position).
- If the system is in parallel with two or more battery packs,
  - » For power expansion,
    If you connect the system to SolaX inverter, keep the **DIP** switch of all battery packs by default. You can set it via the inverter screen. For details, see the user manual of inverter.
    If you connect the system to the third-party inverter, keep the **DIP** switch 5 in **ON** position and flip the **DIP** switch 1–4 to **ON** position on the leader battery pack (the one connects to inverter). Keep the **DIP** switch of follower battery packs as by default.
  - » For capacity expansion, keep the **DIP** switch of all battery packs by default.

NOTICE!
• Please prepare a small flat-head screwdriver, and use it to adjust the **DIP** switch. Do not use a pencil. Graphite from the pencil is conductive and may damage the DIP switch.

2.6 LCD Screen

The device is equipped with an LCD (3.5-inch) screen to show the operating status and the related information of the battery. The screen will turn off 15 seconds after no operation.

NOTICE!
• The figures of screen display in this section are only taken as examples. Interfaces may vary in different operation status, and the actual interface display shall be prevail in that case.

Main menu

When the battery starts up successfully, the LCD screen will display the main menu.

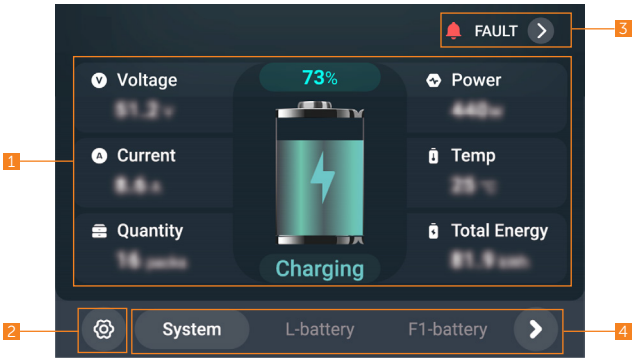


Figure 2-7 Main menu

No.	Item	Description
1	Battery realtime information	Display the voltage, current, realtime power, temperature, total energy, SOC and state of the battery. • **Quantity**: Number of batteries online. Only the **System** page displays the actual data.
2	Secondary menu entry	Enter password correctly, you can enter the secondary menu for more information.
3	Fault alarm (if any)	The fault alarm icon appears only when fault occurs. Tap the icon to jump to the detailed fault information page.
4	System or battery pack selection	When there is only one battery pack in the system, only **System** and **L-battery** are selectable. When there are two or more battery packs, **System**, **L-battery** and **Fn-battery** are selectable. • **System**: The battery system that contains the leader battery pack and follower battery pack(s). • **L-battery**: The leader battery pack. • **Fn-battery**: The follower battery pack, and the **n** (in **Fn-battery**) represents a sequence number of a follower battery pack.

Enter password

If you want to enter the secondary menu for more detailed technical data, you need to enter the password on the following page.

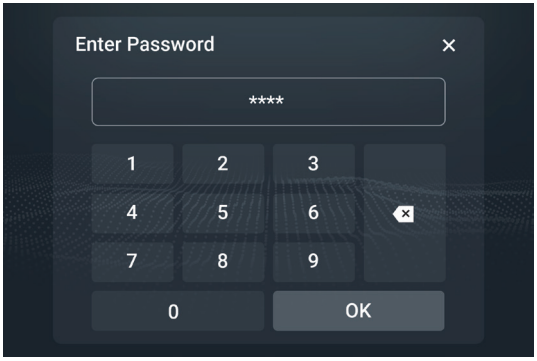


Figure 2-8 Enter password

The default user password is **0000**. After entering the password correctly, you can enter the secondary menu:

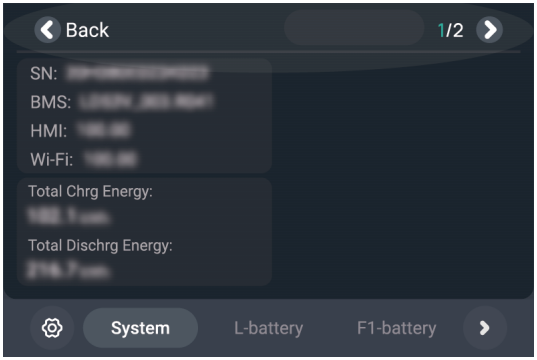


Figure 2-9 Secondary menu

Touch the upper right corner for next page, and reset the password. You can proceed to reset the time for password verification. Generally, there is no need to enter the password within 15 minutes after password verification. However, if you touch **Reset Password Time**, the screen will return to the main menu and need to enter the password again for secondary menu.

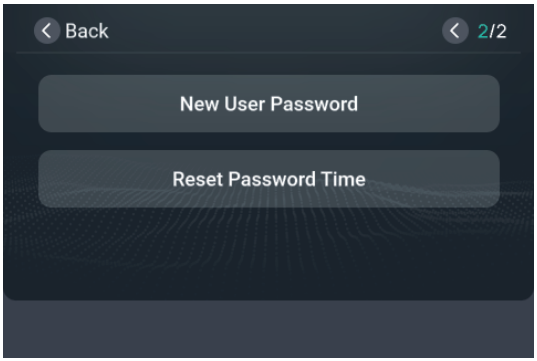


Figure 2-10 Password related options

NOTICE!

- Please reset the default user password, and we recommend you to reset your password regularly.
- More detailed technical information can be accessed under the permissions of installer password. Get the installer password from the dealer, and do not share it with an unauthorized person.

Fault

Touch the fault icon on the menu page, you can enter the fault information page.

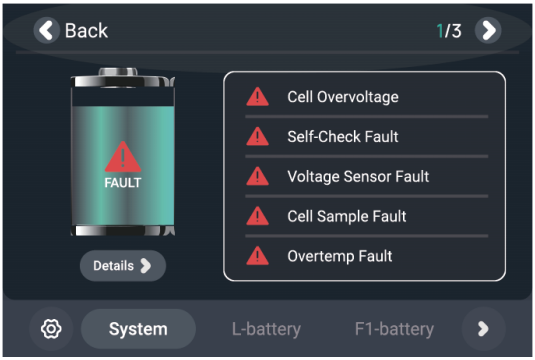


Figure 2-11 Fault page

It displays the latest fault information of the battery, with five records on one page. The options only contain battery packs with error. Touch the specific option to review the information. Please refer to "11.2 Troubleshooting" for corresponding solutions.

Only System page has the **Details** option, tap to enter the faulty battery array page. On this page, all battery packs will be displayed. If the specific battery pack has no fault, the icon will be green while with fault it would be red. Touch the red icon of faulty battery pack, you can see the detailed information.

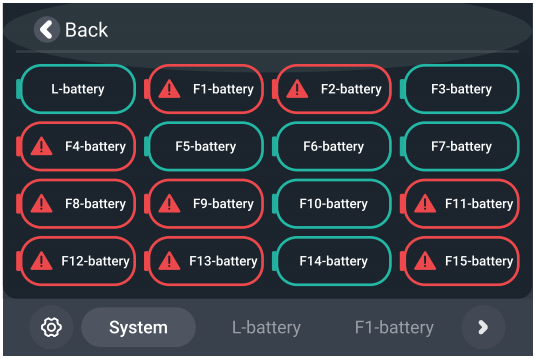


Figure 2-12 Faulty battery array page

Assigning address

When the system is in the initial startup or black start status, the system will assign address for the battery packs and display the process. After that, it will display **Address assignment completed** and then redirects to the main menu.

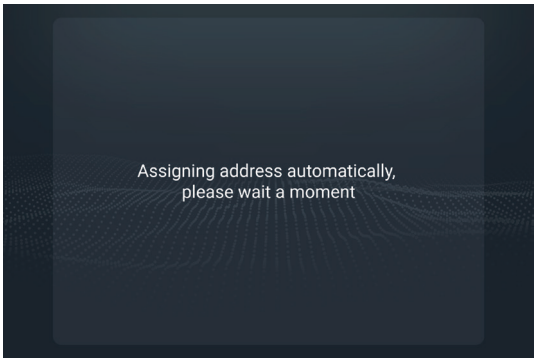


Figure 2-13 Assigning address

Upgrade

When the system is upgrading, the screen will switch to upgrade page, the upgrade process bar and percentage will be displayed. After the upgrading process, it will display the upgrade is successful or failed and redirects to the main menu five seconds later.

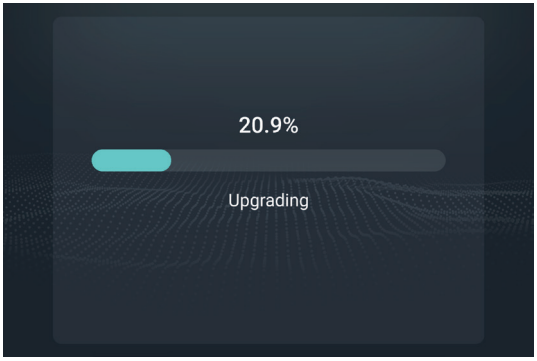


Figure 2-14 Upgrading

2.7 Label

Some kinds of labels that contain various technique data or detailed information are pasted on the battery pack. For example, the performance label consists of the following parts:

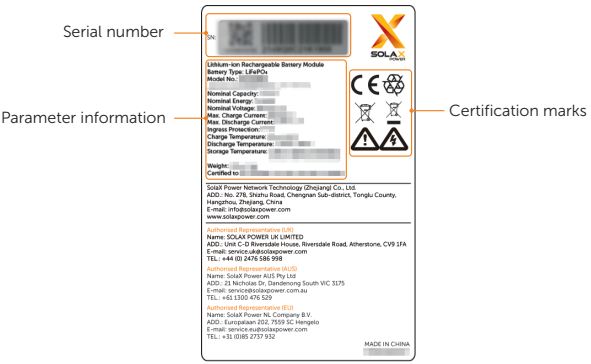


Figure 2-15 System performance label

32-base nomenclature

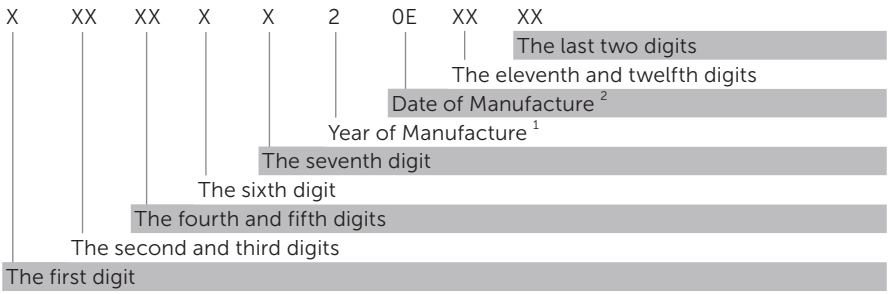


Figure 2-16 Explanation of SN

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.

Void label

The void label is located on the right side of the battery pack. It covers one screw to prevent unauthorized repairs of the battery pack. When the void label is removed, "VOID" texts will be left on the surface. Please keep the void label sealed, and do not remove it, otherwise, the warranty of your product will be affected!

2.8 Explanation of Symbols and Icons

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

Table 2-8 Explanation of symbols and icons

Symbol and Icon	Description
	CE mark of conformity.
	Protective grounding point.
	The battery module may explode. The rechargeable battery can become hot during operation. Avoid touch during operation.
	Danger, electric shock. Do not touch the device after it is powered on. Otherwise, an electric shock may occur.
	Danger. Due to possible risks, do not touch the device after it is powered on.
	Observe enclosed documentation.
	The device cannot be disposed together with the household waste.
	The device cannot be disposed together with the 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 device from open flames or ignition sources.

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 battery must be transported in its original packaging. SolaX will not be held responsible for any damage to the battery caused by improper transporation or by transporation 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: 1. Avoiding direct sunlight and keeping out of rain; 2. Dry and well-ventilated; 3. Keeping away from heat and fire sources; 4. Keeping away from radiation; 5. Keeping away from chemicals; 6. Keeping away from dust and metal conductive dust; 7. 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 5% and 95%.
- It is recommended to store the battery in a temperature range of -20°C to +60°C.

Table 3-1 Storage temperature and recharge frequency

Storage temperature range	Recharge frequency
+30°C to +60°C	Once every 6 months.
-20°C to +30°C	Once 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 operating ambient temperature for the battery is between -20°C and +55°C. • The discharge current will be reduced when the temperature of the battery cell is between -20°C and +5°C or between +45°C and +55°C. And the charge current will be reduced when the temperature of the battery cell is between 0°C and +20°C or between +45°C and +55°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 IP40 enclosure, the battery can be used only indoors;
- The installation site shall be convenient for wiring connection, operation and maintenance;
- During the planning phase, please consider the space for capacity expansion or power expansion 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: -20°C to +55°C;
- Relative humidity: 5–95%RH
- Altitude: Below 3000 meters;
- Good ventilation;
- Keep away from combustibles;
- Keep away from other antennas;
- Keep away from inflammable and explosive materials;
- Keep away from corrosive substances.

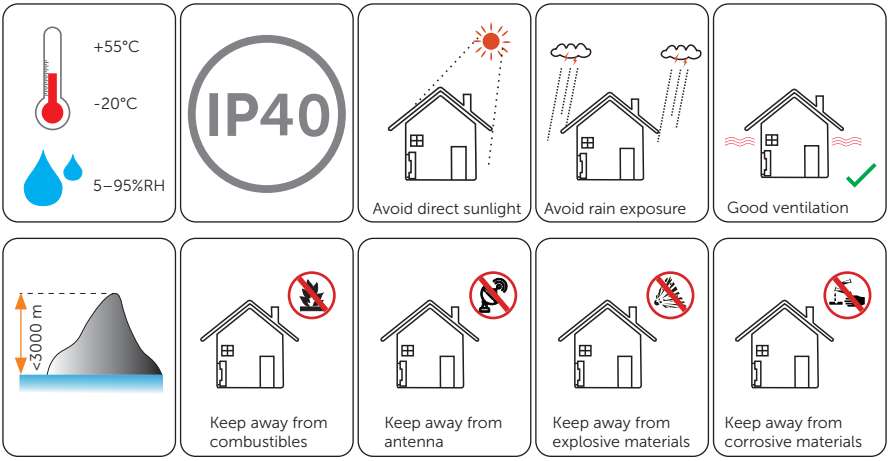


Figure 4-1 Environment requirements

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 non-combustible 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;
- Please ensure that the thickness of any part of the wall is no less than 100 mm;
- The product must not be installed on the wood wall.
- Do not use the battery pack while you are moving it.

- To move the battery pack, please follow the direction instruction on its label.

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. Regardless of the installation options and number of battery packs,

- A distance between 200 and 300 mm wide shall be provided from the wall to the edge of the battery pack.
- A distance between 400 and 600 mm wide shall be provided from the left side edge of a battery pack to the right side edge of the neighbouring battery packs.

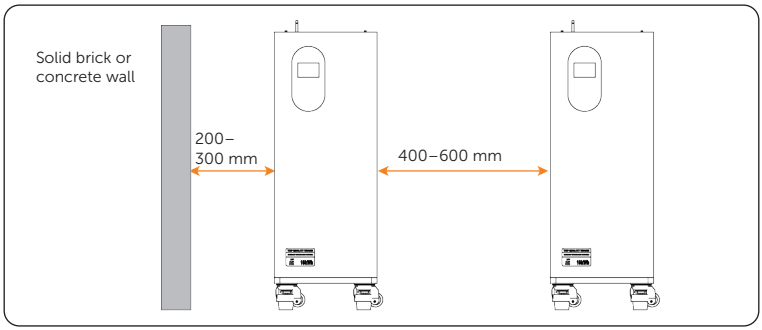


Figure 4-2 Installation clearance

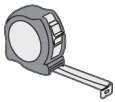
4.2 Tools Requirement

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

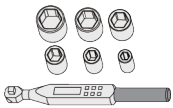
Installation tools

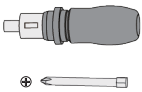

Hammer drill
(drill bit: Ø8/10 mm)

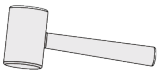

Marker


Measuring tape

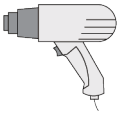

Utility knife


Torque wrench
(including M6/M8 wrench)


Torque screwdriver
(Phillips head: M5/M6)


Rubber mallet

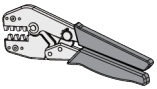

Wire stripper

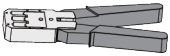

Heat gun

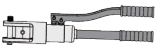

Heat shrink tubing

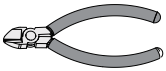

Spirit level


Vacuum cleaner


Crimping tool for
R-type terminal


Crimping tool for RJ45


Hydraulic wire crimper

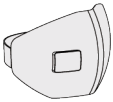

Diagonal plier

Personal protective device


Safety gloves


Safety boots


Safety goggles


Anti-dust mask

4.3 Additionally Required Materials

Table 4-1 Additionally required wires

No.	Required material		Type	Conductor cross-section
1	Additional PE cable		Conventional yellow and green wire	25 mm^2 / 4 AWG
2	Ethernet cable (Optional)		CAT-5	/
3	Ethernet cable connector (Optional)		RJ45 plug	/

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.
- Pay attention to the weight of the battery pack. Carry the battery pack by 4 people.
- Use a crowbar to unpack the battery pack according to following figures.

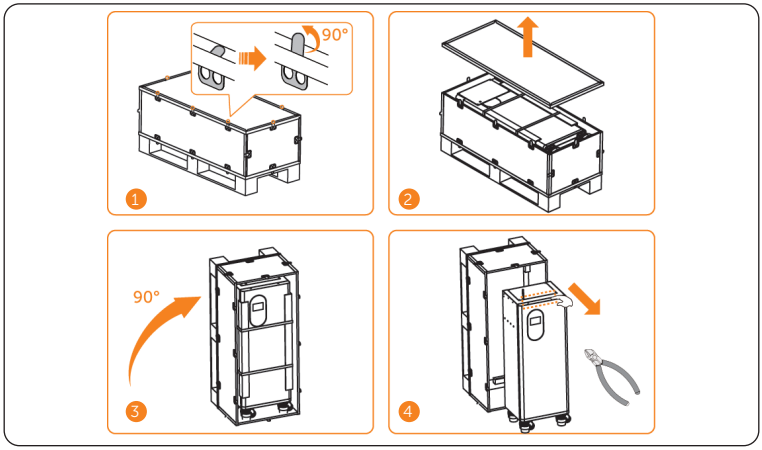
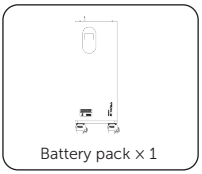


Figure 5-1 Unpacking the battery pack

- Wear protective gloves when carrying the equipment by hand to prevent injuries.
- 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


Battery pack × 1

A


L-shaped bracket × 2

B


M5 screw × 8

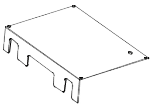
C


Expansion bolt × 4

D


Self-tapping screw × 4

E


Top cover × 1

F


M8 screw × 4

G


Power cable (-) (1500 mm) × 1

H


Power cable (+) (1500 mm) × 1

I


Communication cable (1500 mm) × 1

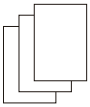
J


Ring terminal (for PE cable) × 2

K


Ring terminal (for power cable) × 2

L


Document

6 Mechanical Installation

WARNING!

- The battery must be powered off during the entire installation process.
- 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.

CAUTION!

- Pay attention to the weight of the device at all times during transportation and installation, as improper lifting or dropping of the device may cause personal injury.

NOTICE!

- Please ensure that the occupied floor area's bearing capacity for the device is over four times the total weight.
- Please ensure that the thickness of any part of the wall is ≥ 100 mm;
- The product must not be installed on the wood wall.

Step 1: Attach the L-shaped brackets to both sides of the battery pack with M5 screws, but do not tighten fully.

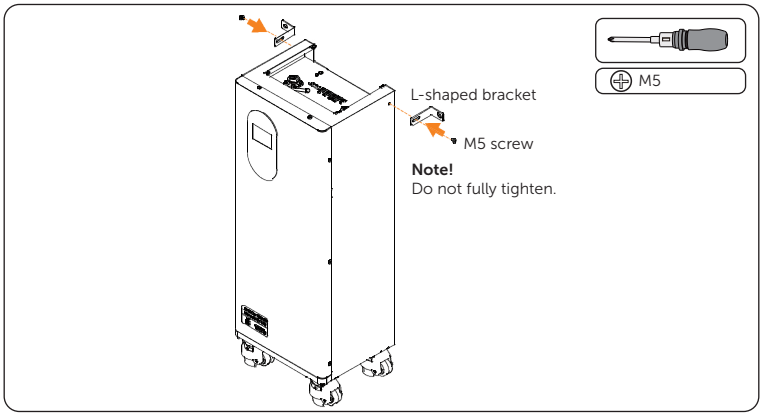


Figure 6-2 Attaching the L-shaped brackets

Step 2: Locate the L-shaped brackets against the wall.

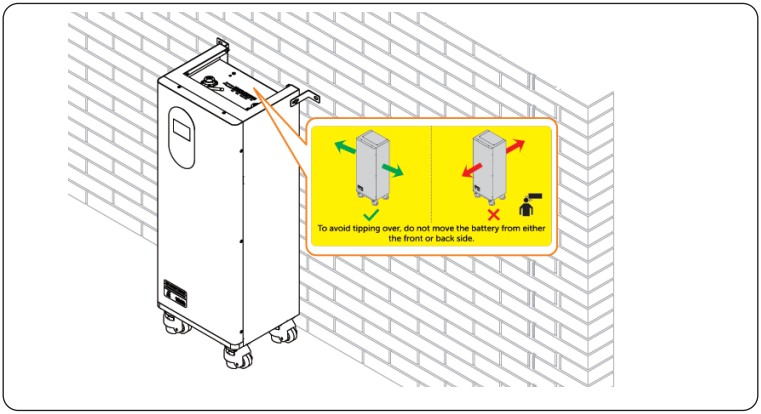


Figure 6-3 Locating the battery pack against the wall

NOTICE!

- Push sideways (left and right) only. Avoid front and back movements to prevent the battery from falling over.

Step 3: Draw two circles along the inner ring on each side of the L-shaped bracket. Then gently move the battery pack aside.

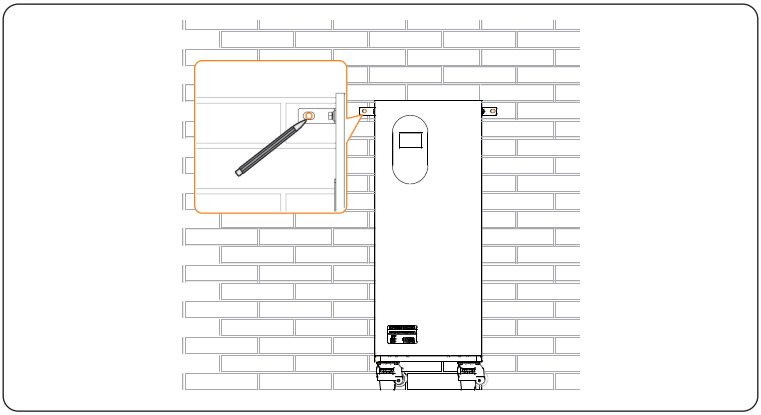


Figure 6-4 Drawing circles

Step 4: Use a hammer drill (Ø8 mm) to drill two holes at the circles in the concrete wall (or solid brick wall). The depth of both holes should be more than 60 mm. Then use a hammer drill (Ø10 mm)to expand both holes.

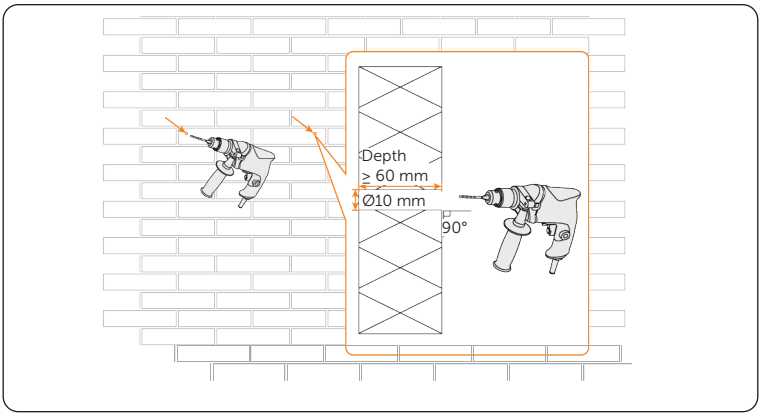


Figure 6-5 Drilling holes

NOTICE!

- Use the package bag of the battery pack or other materials to fully cover it to prevent dust during drilling.
- To prevent angled holes from being drilled, use a Ø8 mm drill to drill holes first, and then change to a Ø10 mm drill.
- Please clean the dust on the wall and foundation timely after drilling.

Step 5: Use a rubber mallet to insert two expansion bolts in to the wall. Ensure that both expansion bolts are entirely driven into the wall. (Expansion bolt: 2 pieces)

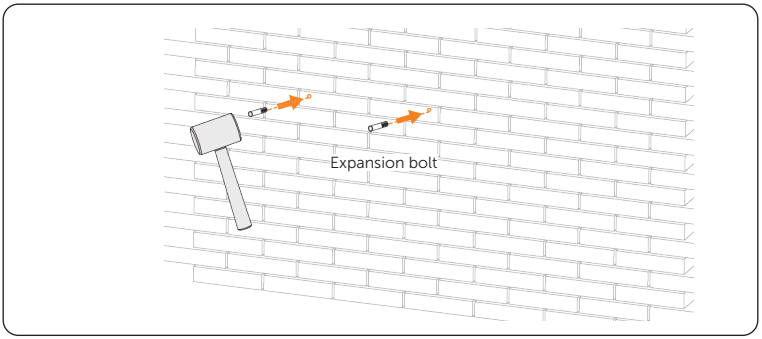


Figure 6-6 Inserting expansion bolts

Step 6: Gently move the battery pack against the wall, and align L-shaped brackets with the drilled holes. Correctly insert and tighten the self-tapping screws, and secure both L-shaped brackets to the wall (Tightening torque: 6–8 N·m). Fully tighten M5 screws on both sides (Tightening torque: 3±0.3 N·m).

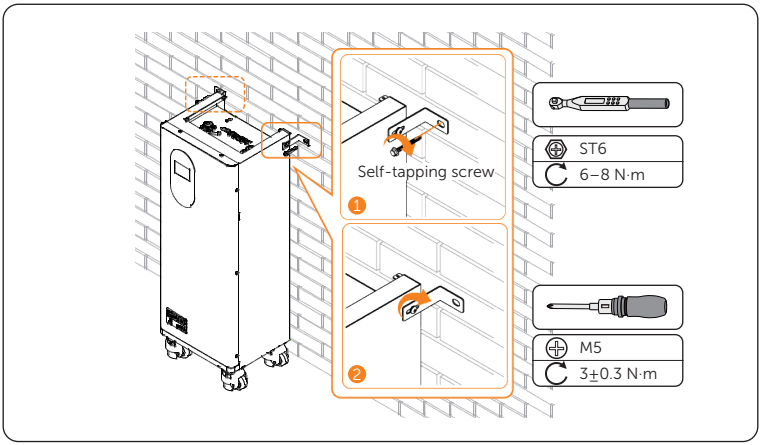


Figure 6-7 Tightening self-tapping screws and M5 screws

Step 7: If two or more battery packs are to be installed, repeat steps 1 to 6 to install the second battery pack, as well as the remaining battery packs.

NOTICE!

- A distance between 400 and 600 mm wide shall be reserved from the left side edge of a battery pack to the right side edge of the neighbouring battery pack.
- Up to 16 battery packs can be installed in a straight line.

7 Electrical Wiring

DANGER!

- Make sure that the battery and inverter are shut down before wiring.

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

CAUTION!

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

Cables between the battery pack and inverter, as shown in the following figure.

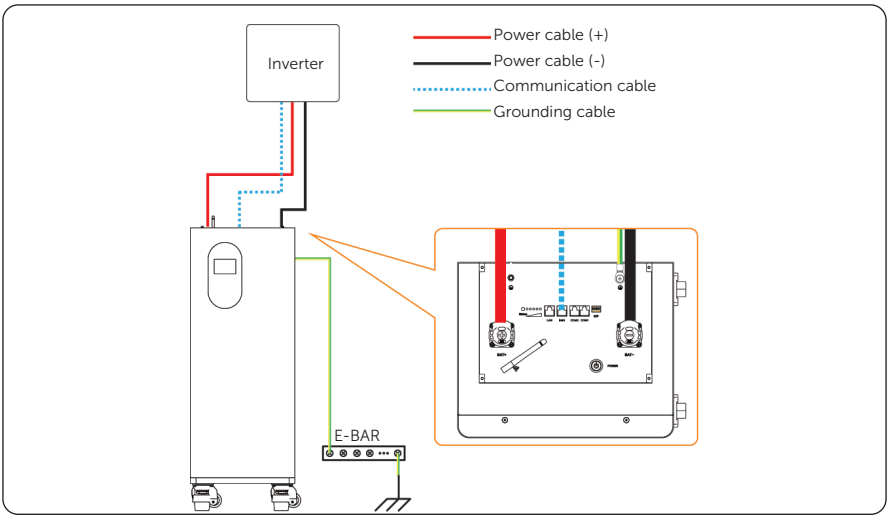


Figure 7-1 Wiring diagram

Regarding the cables shown in the Figure 7-1, see the following table.

Table 7-1 Cable information

Cable	Length	Description
Power cable (+) (standard)	1500 mm	**BAT+** port of battery pack to **BAT+** port of inverter.
Power cable (-) (standard)	1500 mm	**BAT-** port of battery pack to **BAT-** port of inverter.
Communication cable (standard)	1500 mm	**BMS** port of battery pack to **BMS** port of inverter.
Grounding cable	/	/	Independently ground ⏚ point of the battery pack to a public earth bar (E-BAR). Please refer to "4.3 Additionally Required Materials" for details.

NOTICE!

- The end of cables that will be connected to inverters are bare upon delivery with the battery, and need external connector for connecting inverters.

NOTICE!

- For wiring with two or more battery packs, please refer to "8 Capacity and Power Expansion".

7.1 PE Connection

DANGER!

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

The steps for making PE connection are shown as follows:

Step 1: Strip the cable jacket about 12 to 15 mm from the end.

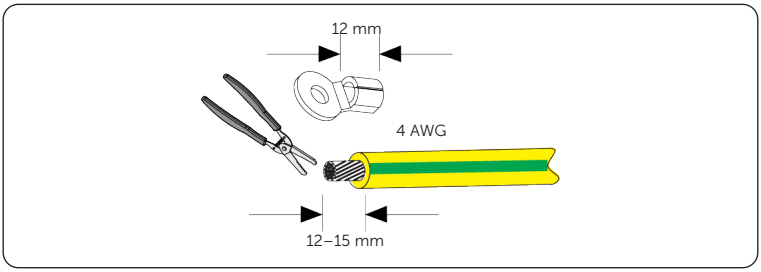


Figure 7-2 Stripping cable jacket

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 onto the end of the cable, and then carefully slip the wires all the way into the ring terminal .

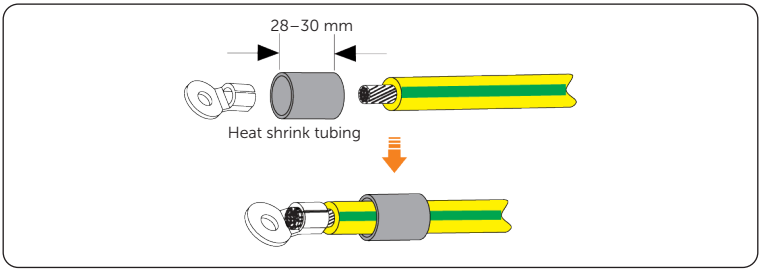


Figure 7-3 Cutting heat shrink tubing

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

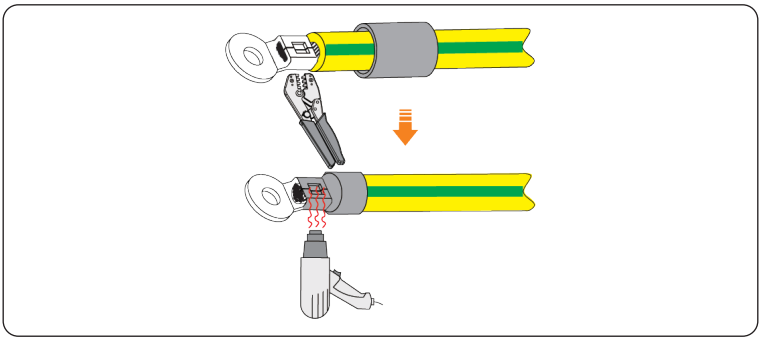


Figure 7-4 Crimping and heating

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, connect the assembled PE cable to the grounding port of the battery pack, and then tighten M5 screw. (Tightening torque: 3.0±0.3 N·m). There are two grounding port on the battery pack, connect based on your actual need.

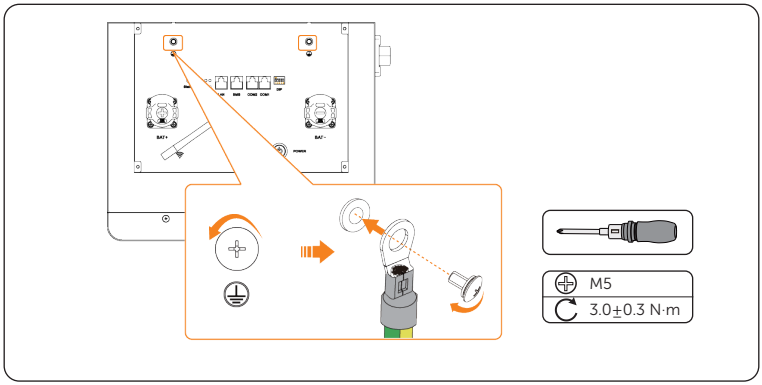


Figure 7-5 Connecting PE cable and tightening M5 screw

7.2 Communication Connection

Pin assignment

The wire sequence is shown as follows:

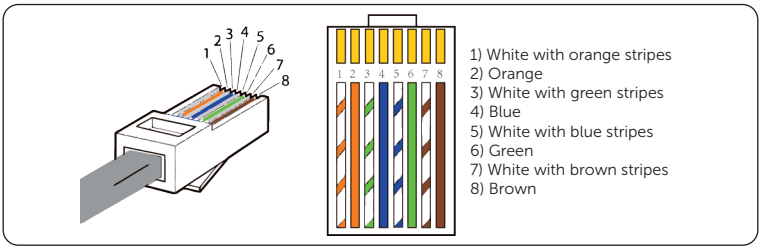


Figure 7-6 Wire sequence

The pin assignment of **BMS**, **COM1** and **COM2** ports is shown as follows:

Table 7-2 BMS port pin assignment

Pin	1	2	3	4	5	6	7	8
BMS	RS485B	RS485A	GND	CAN-H	CAN-L	/	LEADER-IN	/

Table 7-3 COM1 port pin assignment

Pin	1	2	3	4	5	6	7	8
COM 1	Up out	GND	Wake up	CAN-H	CAN-L	Up in	/	GND

Table 7-4 COM2 port pin assignment

Pin	1	2	3	4	5	6	7	8
COM 2	Next in	GND	Wake up	CAN-H	CAN-L	Next out	/	GND

NOTICE!

- Communication cable is applicable for **BMS**, **COM1** and **COM2** ports. If Ethernet connection is needed, please prepare Ethernet cable to connect on **LAN** port according to your needs.
- When you need to make communication cable(s) on your own, please strictly follow the pin definitions.

Connection procedure

WARNING!

- To ensure normal operation between the battery pack and inverter, make sure that the **BMS** port on the battery pack connects to **BMS** port on the inverter pin-to-pin.
- In order to protect terminals, only remove the waterproof cap as needed, and keep the unused waterproof caps on terminals.

The connection procedure for **BMS**, **COM1**, **COM2** and **LAN** ports are basically the same. Here take **BMS** port as an example in the following figure.

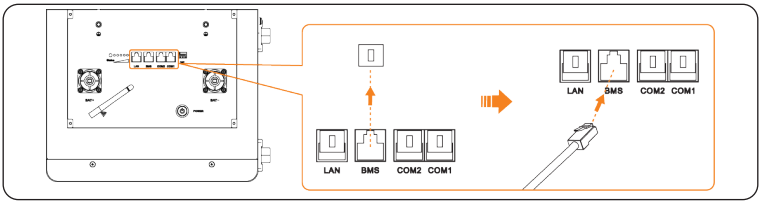


Figure 7-7 Connecting communication cable (an example)

7.3 Power Cable Connection

WARNING!

- Cable connection order: Negative power cable → positive power cable.

NOTICE!

- Power cables (Part G&H) are delivered with the battery pack with ring terminal installed on one end (for connecting battery side), and you need to install ring terminal for power cable on the other end before connecting power cables.
- The ring terminals (Part K) from the accompanied accessory of the battery pack may not be compatible with your inverter. You can use ring terminals delivered with the inverter or self-prepared ring terminal according to the actual need. When preparing ring terminals by yourself, please strictly follow the local regulations.

Step 1: Cut the negative power cable into appropriate length with care based on the actual installation distance. And then strip the cable jacket about 10 mm from the end.

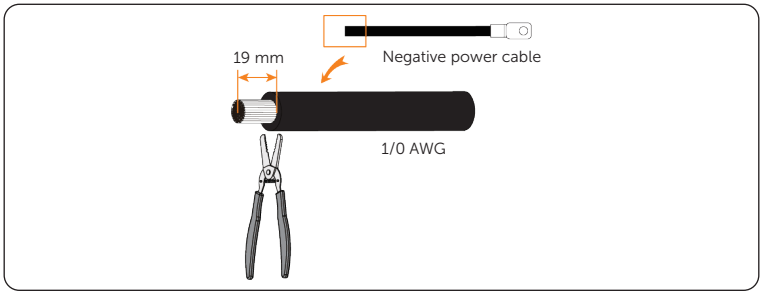


Figure 7-8 Stripping power cable

NOTICE!

- DO NOT damage the conductor while sliding the jacket off the power cable end.
- The wire size of the power cable delivered with the device is 1/0 AWG.

Step 2: Cut the heat shrink tubing to about 15–20 mm long, slide it onto the end of the cable, and then slip the cable all the way into the ring terminal.

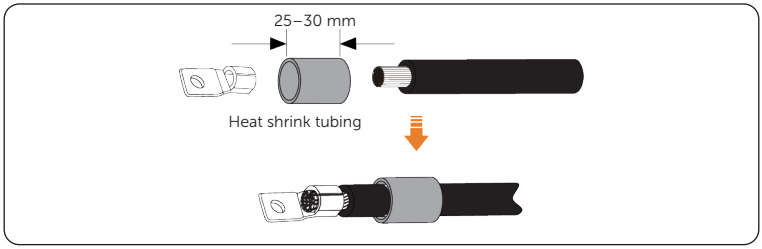


Figure 7-9 Installing heat shrinking tubing

Step 3: Crimp the terminal, and pull the heat shrink tubing over the ring terminal and use a heat gun to shrink it so that it can be firmly contacted with the terminal.

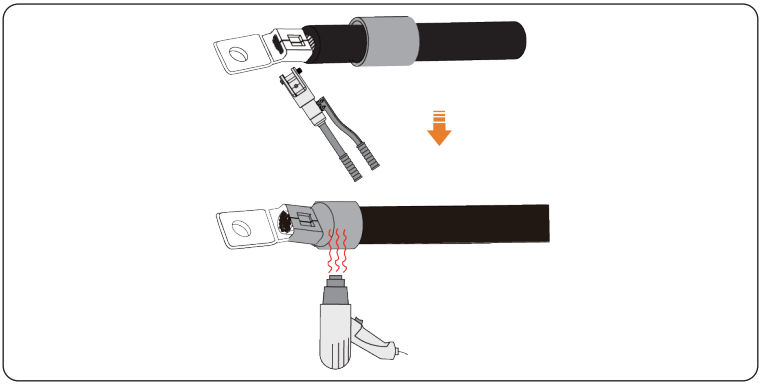


Figure 7-10 Crimping and heating terminal

NOTICE!
• Properly place the ring terminal into the hydraulic wire crimper.

Step 4: Make the positive power cable according to above steps.

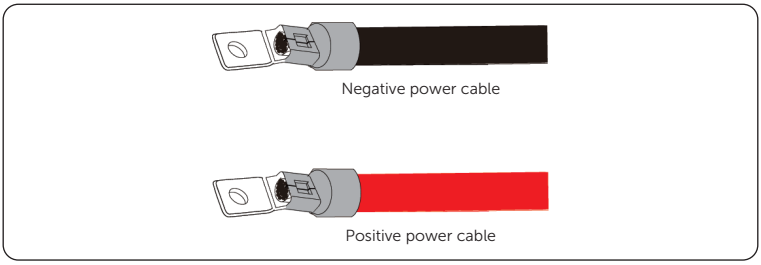


Figure 7-11 Making the positive cable

Step 5: Remove the terminal caps on the **BAT+** and **BAT-** ports, then align the power cables with the ports.

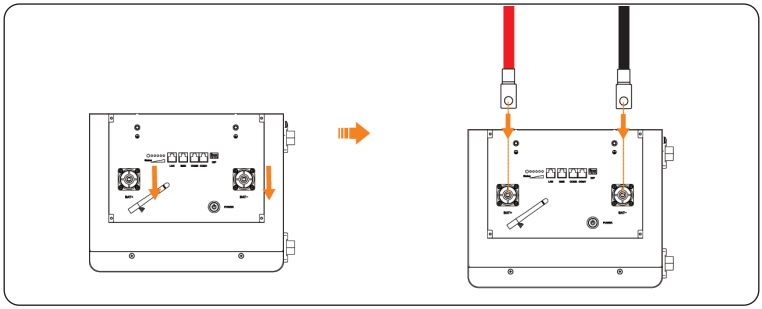


Figure 7-12 Connecting power cables

Step 6: Secure the power cables with M8*16 screws (Part F) (Tightening torque: 7±0.5 N·m). Then re-install the terminal caps on the ports.

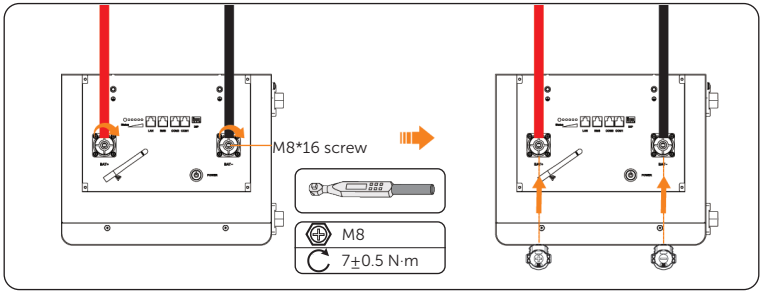


Figure 7-13 Securing power cables

NOTICE!
• For connection on the inverter side or on the combiner box side (if two or more battery packs are connected), please refer to the corresponding user manual.

8 Capacity and Power Expansion

DANGER!

- Wear PPE and use insulated tools to avoid electric shocks or short circuits when increasing number of battery packs.

NOTICE!

- For capacity or power expansion, you may have to dismantle the inverter or the battery. In that case, please strictly follow the corresponding user manual to remove or install.
- Please confirm that there is enough space to increase battery packs.
- Please make sure that the ground and wall where the additional battery packs will be installed can bear the weight.

8.1 Materials Requirements

The battery packs can be connected in parallel to realize capacity or power expansion by installing a combiner box. The combiner box should be prepared by yourself. Please prepare it and its related materials based on your actual need.

Requirements for copper bar of combiner box

The combiner box should at least consist of positive and negative copper bars suitable for the connection, which meet the following requirements:

- The recommended distance between the positive and negative copper bars is greater than 20 mm.
- The recommended distance between wiring holes on the copper bars is greater than 40 mm.
- The copper bars should comply to the local regulations. For example, to the capacity expansion with 6 battery packs, the recommended cross-sectional area for the copper bars is 250 (50*5) mm^2.

Requirements for power cables

In addition to power cables included in accessories kit, you may need to provide additional power cables.

- Take the total currents into consideration. Suitable power cables according to different currents are listed as follows as examples:

Table 8-1 Power cables for parallel connection

No.	Current (A)	Cross-sectional area (mm^2)
1	200	≥50
2	250	≥70
3	300	≥95
4	400	≥120

- The recommended length of the positive and negative power cables is less than 3 m. The length of all power cables should be consistent.
- For the power cables connecting on the battery side, KST TLK50-8 terminals are recommended for crimping.

8.2 Cable Connection

The system wiring diagram for capacity or power expansion is basically the same. Please install and connect the battery packs, inverter and combiner box as shown below.

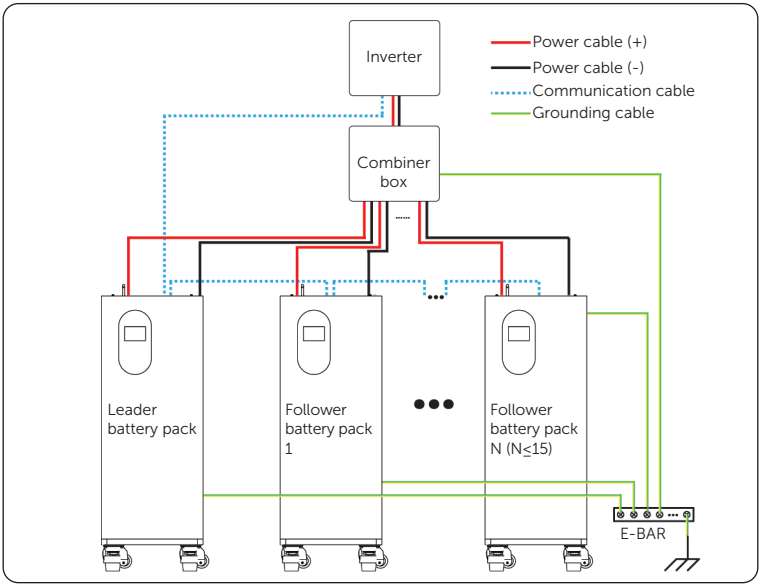


Figure 8-1 Wiring diagram for capacity expansion or power expansion

Table 8-2 Cable connection information

Cable	Source	Description
Power cable (+)	Standard	**BAT+** port of battery pack to **BAT+** port of combiner box.
Power cable (-)	Standard	**BAT-** port of battery pack to **BAT-** port of combiner box.
Power cable (+)	Self-prepared	**BAT+** port of combiner box to **BAT+** port of inverter.
Power cable (-)	Self-prepared	**BAT-** port of combiner box to **BAT-** port of inverter.
Communication cable	Standard	**BMS** port of leader battery pack to **BMS** port of inverter.
Communication cable	Standard	**COM2** port of battery pack to **COM1** port of next battery pack.
Grounding cable	Self-prepared	Independently ground ⏚ port of each battery pack to a public earth bar (E-BAR).

NOTICE!

- If you want to increase a battery pack to the existing system to achieve capacity or power expansion, please make sure to shut down the system and disassemble cables as described in "12 Decommissioning".
- For the installation of the battery packs, please refer to "6 Mechanical Installation".

NOTICE!

- Please connect cables properly, and do not cross or wrap the cables together.
- For the specific wiring procedures, please refer to "7 Electrical Wiring".

8.3 DIP Switch Setting

To achieve capacity or power expansion successfully, the DIP switch should be correctly set:

- For power expansion,
  - » If you connect the system to SolaX inverter, keep the **DIP** switch of all battery packs as by default. You could set it via the inverter screen. For details, see the user manual of inverter.
  - » If you connect the system to the third-party inverter, keep the **DIP** switch 5 in **ON** position and flip the **DIP** switch 1–4 to **ON** position on the leader battery pack (the one connects to inverter). Keep the **DIP** switch of follower battery packs as by default.
- For capacity expansion, keep the **DIP** switch of all battery packs as by default.

9 System Commissioning

9.1 Checking before Power-on

- Check whether the device is installed correctly and securely;
- All cables are connected correctly and securely;
- All unconnected port are covered;
- The installation space is proper, and the installation environment is clean and tidy.

NOTICE!
• When power on or power off the system, please operate on the battery pack that connectes with the inverter.

9.2 Power on the System

Initial Startup

Powering on the system for the first time after receiving the package, adding or removing battery packs in the system.

Step 1: Press and hold the **POWER** button for five seconds. The **Status** light will be changed from flashing yellow to flashing green, and then to solid green.

Table 9-1 Description of Status light when initial startup

	Solid yellow	Flash yellow	Flash green
Status light			
	Start self test	End self test and Start address assignment	End address assignment and power on

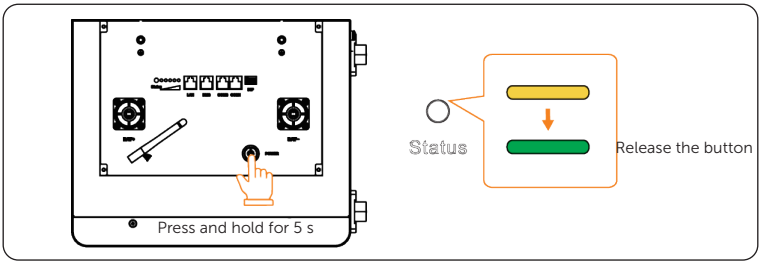


Figure 9-1 Initial startup

Step 2: (Only for third party inverters) Press the **POWER** button once more to make sure the battery pack system can communicate with the third-party inverter normally.

Step 3: Adjust the antenna based on actual need (It is recommended to keep it vertical).

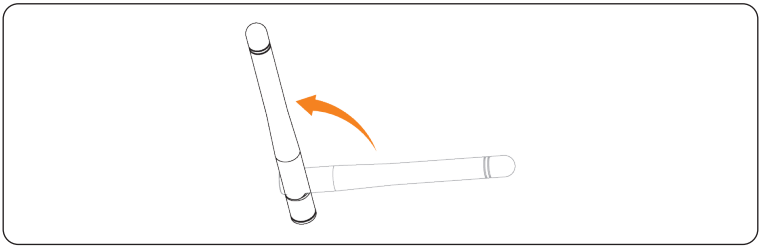


Figure 9-2 Adjusting the antenna

Step 4: Align the top cover with the screw holes and the antenna of the battery pack, then secure it with the M5 screws (Part B).

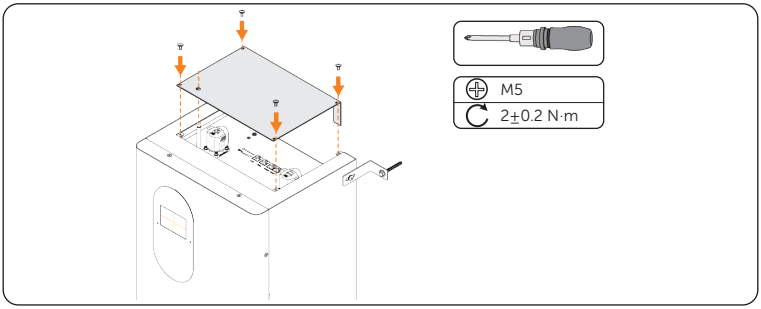


Figure 9-3 Installing the top cover

Step 5: Lock four wheels to prevent the battery from moving.

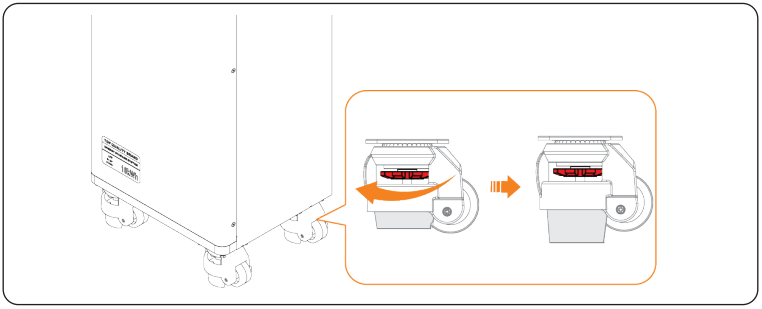


Figure 9-4 Locking four wheels

Subsequent Power-on

Power on the system after it has been previously shut down.

NOTICE!
• For third-party inverters, the inverter should be included in *PYLON CANBUS Protocol* or *PYLON 485 Protocol* and you must press the **POWER** button once more to ensure the battery pack is successfully powered on.

Step 1: Unscrew the screws on the top cover counter-clockwise and remove the top cover.

Step 2: Press and hold the **POWER** button for one second. The **Status** light will turn from solid yellow to solid green.

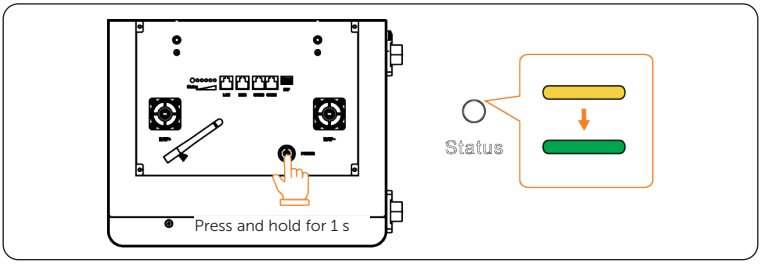


Figure 9-5 Subsequent startup

Step 3: (Only for third party inverters) Press the **POWER** button once more to make sure the battery pack is normally powered on. The **Status** light will flash green every one second.

Step 4: Install the top cover back on the battery pack.

9.3 Power off the System

WARNING!

- The device may still have power and heat after powering off, which may cause electric shock and personal injuries. Therefore, please allow it to cool for at least five minutes and wear PPE before conducting maintenance.

NOTICE!

- If you press the **POWER** button frequently, a system problem might occur. Hence, you should wait at least 10 seconds and then try again.

Step 1: Please check that the inverter has been shut down.

Step 2: Unscrew the screws on the top cover counter-clockwise and remove the top cover.

Step 3: Press and hold the **POWER** button for 3 seconds. The **Status** light and all SOC power indicators will be off.

Step 4: Install the top cover back on the battery pack.

10 Operation on SolaX App and Web

10.1 Introduction of SolaXCloud

SolaxCloud is an intelligent management platform for home energy, which integrates energy efficiency monitoring, device management, data security communication and other integrated capabilities. While managing your home energy device, it helps you optimize the efficiency of electricity consumption and improve the revenue of power generation.

NOTICE!
• You can scan the QR code on the performance label to check more device information. If the scan fails, you can manually input the SN number for checking.

10.2 Operation Guide on SolaXCloud App

10.2.1 Downloading and Installing App

Method 1: Scan the QR code below to download the SolaXCloud App.

The QR code is also available on the login page of our official website (www.solaxcloud.com).

Figure 10-1 QR code

Method 2: Search for **SolaXCloud** in App Store or Google Play, and then download the App.

10.2.2 Device Networking

After downloading the SolaXCloud App, tap **More** > **Language** to set your preferred language on the login page.

To complete device networking, do as follows:

Step 1: Create an account with your email.

Step 2: Log in with your account.

Step 3: Add plant. If you have created a plant for your inverter which the battery works with, skip this step and go to Step 4 directly to add the device to the already existed plant.

Step 4: Add the device (battery) to the plant and complete networking via WiFi to connect to the SolaXCloud.

Step 5: Return to the homepage, tap **Device** in the bottom navigation bar to view details of the battery.

Step 6: Select **Me** > **Notification Settings** > **Alarm**, enable **Alarm**. Then an alarm will automatically pops up on your phone when an error occurs. For details, you may tap in the upper right corner of the homepage for current and historical alarms.

For more instructions on the SolaXCloud App, scan the QR code below or go to **Service** > **Help Center** > **User Manual** in the App. View the user manual online or download it in PDF format.

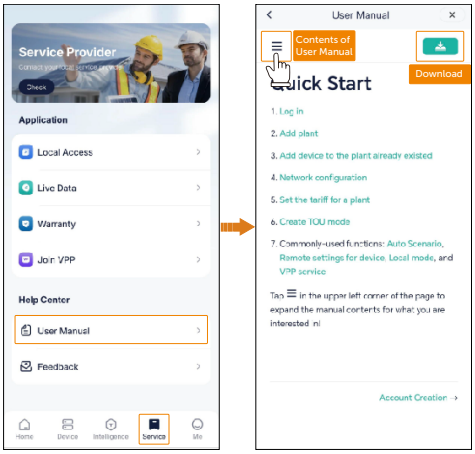


Figure 10-2 SolaXCloud user manual

10.3 Operations on SolaXCloud Web Page

Open a browser and enter www.solaxcloud.com to complete registration, login, add site and other related operations according to the guide.

11 Troubleshooting and Maintenance

11.1 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, grounding cable checks.

Table 11-1 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 whether 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.
Grounding cable checks	• Check whether the grounding 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.

11.2 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:

- Check for the warnings or error messages on the LCD screen of the device;
- 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 11-2 Troubleshooting information

Fault	Fault message shown on LCD touchscreen	Description	Diagnosis & Solution
UCellOverFault	Cell Overvoltage	Battery cell overvoltage	Battery cell overvoltage: • Contact the company's after-sales personnel.
UCellLowFault	Cell Undervoltage	Battery cell undervoltage	Battery cell undervoltage: • Contact the company's after-sales personnel.
UCellDiffFault	/	Excessive cell voltage difference	Battery cell undervoltage: • Contact the company's after-sales personnel.
HVBOverFault	HVB Overvoltage	Overvoltage of battery's total voltage	Overvoltage of battery's total voltage: • Contact the company's after-sales personnel.
HVBLowFault	HVB Undervoltage	Undervoltage of battery's total voltage	Undervoltage of battery's total voltage: • Battery is force to charge through inverter; • Contact the company's after-sales personnel.
TempOverFault	Overtemp Fault	High temperature of battery pack	The temperature of battery pack is too high: • It is suggested to shut down the device, and then restart it after it returns to normal temperature; • Contact the company's after-sales personnel.
SelfCheckFault	Self-check Fault	Self check fault of the battery	Self check fault of the battery: • Restart the leader battery; • Contact the company's after-sales personnel.
PosRlyAdhFault	Main Relay Stuck (+)	Main positive relay contact adhesion	Main positive relay contact adhesion: • Restart the leader battery; • Contact the company's after-sales personnel.

Fault	Fault message shown on LCD touchscreen	Description	Diagnosis & Solution
PosRlyOPEN/MOS Fault	MOS Overtemp Fault	Main positive relay fault or MOS high temperature	Main positive relay fault or MOS high temperature: • Restart the leader battery; • Contact the company's after-sales personnel.
NegRlyAdhFault	/	Main negative relay contact adhesion	Main negative relay contact adhesion: • Restart the leader battery; • Contact the company's after-sales personnel.
NegRlyOpenFault	Main Relay Open (-)	Main negative relay open circuit	Main negative relay open circuit: • Restart the leader battery; • Contact the company's after-sales personnel.
PreChgFailFault	Precharge Fail	Precharge fault of the battery pack	Precharge fault of the battery pack: • Check the wires between the leader battery and inverter are connected properly; • Contact the company's after-sales personnel.
CellSampleFault	Cell Sample Fault	Cell sampling fault	Cell sampling fault: • Restart the leader battery; • Contact the company's after-sales personnel.
TempSampleFault	Temp Sample Fault	Temperature sampling fault of battery pack	Cell temperature sampling fault of the battery pack: • Restart the leader battery; • Contact the company's after-sales personnel.
SysFault	System Fault	Battery system fault	Battery system fault: • Check the breaker; • Contact the company's after-sales personnel.
DsgOverFault	Dischrg Overcurrent	Discharge overcurrent of battery pack	Discharge overcurrent of battery pack: • Restart the leader battery; • Contact the company's after-sales personnel.
ChgOverFault	Chrg Overcurrent	Charge overcurrent of battery pack	Charge overcurrent of battery pack: Restart the leader battery; Contact the company's after-sales personnel.
AFEComFault	AFE Comm Fault	AFE communication failure	AFE self-protection failure Contact the company's after-sales personnel.
InvComFault	/	External network communication fault	External network communication fault: Contact the company's after-sales personnel.

Fault	Fault message shown on LCD touchscreen	Description	Diagnosis & Solution
MidComFault	Mid Comm Fault	Intermediate network communication fault	Intermediate network communication fault: • Contact the company's after-sales personnel.
VoltSensorFault	Voltage Sensor Fault	Voltage sensor fault	Voltage sampling fault of the battery pack: • Restart the leader battery; • Contact the company's after-sales personnel.
IDRepetFault	ID Duplicate	ID duplication fault	ID duplication fault: • Contact the company's after-sales personnel.
TempLowFault	Low Temp Fault	Low temperature of battery pack	The temperature of battery pack is too low: • It is suggested to shut down the device, and then restart it after it returns to normal temperature; • Contact the company's after-sales personnel.
CurrSensorFlt	Current Sensor Fault	Current sensor fault	Current sensor fault: • Contact the company's after-sales personnel.
LineFlt	Power Line Open	Disconnection of power cable	Disconnection of power cable: • Check the power cable; • Contact the company's after-sales personnel.
FlashFlt	Flash Error	Flash fault	Flash fault: • Contact the company's after-sales personnel.
AFEProtectFlt	AFE Protect Fault	AFE self-protection failure	AFE self-protection failure: • Contact the company's after-sales personnel.
ChgReqFlt	Charge Request Fault	Failure respond to charging request	Failure respond to charging request: • Restart the leader battery or inverter; • Contact the company's after-sales personnel.
InsFlt	Insulation Fault	Insulation resistance	Insulation resistance" • Contact the company's after-sales personnel.
MCBFlt	MCB Fault	Breaker disconnection or breaker trouble	Breaker disconnection or breaker trouble: • Power down the device, turn on the breaker, and then power on the system; • If it still shows the breaker fault, please contact the after-sales personnel of our company.
CODetectorFault	CO Detector Fault	High CO inside the battery	High CO inside the battery: • Shut down the device. • Contact the company's after-sales personnel.

Fault	Fault message shown on LCD touchscreen	Description	Diagnosis & Solution
HeatFail	Heat Fail	Heating function failure	Heating function failure: • Contact the company's after-sales personnel.
/	* WiFi Comm Fault	Wi-Fi communication failure	Wi-Fi communication failure: • Contact the company's after-sales personnel.
/	* 485 Comm Fault	485 communication failure	485 communication failure: • Power down the system, then check that the 485 wiring configuration at the **BMS** port conforms to the specifications outlined in the user manual. • Contact the company's after-sales personnel.

12 Decommissioning

12.1 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.

NOTICE!

- Take one battery pack for instance.

Step 1: Check that the inverter has been shut down.

Step 2: Unscrew the M5 screws on the top cover counter-clockwise, and take down the cover.

Step 3: Press and hold the **POWER** button for 3 seconds. Then wait until the **Status** light and all **SOC** power indicators are off.

Step 4: Make sure that the AC supply for inverter has been cut off.

Step 5: Remove the terminal caps and M8*16 screws on **BAT+** and **BAT-** ports to unplug power cables.

Step 6: Unplug the communication cable(s) and reinstall the waterproof cap(s).

Step 7: Unscrew the M5 screw to disassemble the grounding cable.

12.2 Packing

- Load the battery pack 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.

12.3 Disposing of the Rechargeable Battery

Properly dispose of the rechargeable battery or accessories in accordance with local regulations on the disposal of electronic waste.

13 Technical Data

Battery pack	TB-LD160	TB-LD143
Nominal Voltage (d.c. V)	51.2	
Operating Voltage Range (d.c. V)	42.4–57.6	
Nominal Capacity (Ah)	314	280
Nominal Energy (kWh)	16	14.3
Usable Energy 95% DOD (kWh) [1]	15.2	13.5
Rated Power (kW)	7.9	7.1
Max. Power (kW)	11.3	11.5
Peak Output Power	15.9 kW, 10 s	14.3 kW, 10 s
Recommend Charge/Discharge Current (d.c. A)	155	140
Max. Charge/Discharge Current (d.c. A) [2]	155/220	140/225
Max. Short Circuit Current (d.c. A)	310 (10 s, 25°C)	280 (10 s, 25°C)
Depth of Discharge	95%	
Cycle Life (95% DOD)[3]	> 8000 cycles	
Charge Temperature	0°C to 55°C	
Discharge Temperature	-20°C to 55°C	
Cooling Concept	Natural cooling	
Storage Temperature	30°C to 60°C (6 months), -20°C to 30°C (12 months)	
Relative Humidity	5–95% RH (non-condensing)	
Max. Operating Altitude	3000 m	
Installation Type	Floor mounting	
Ingress Protection	IP40	
Environment	Indoor	
Display	Indicators/LCD	
Communication Interfaces	CAN2.0/RS485	
Hazardous Materials Classification	Class 9	
Transport Testing Requirement	UN38.3	
Protection Class	Class I	
Certifications	IEC 62619, CE-LVD, CE-EMC	

NOTICE!

1 DC Usable Energy, test conditions: 95% DOD, 0.5C charge & discharge at 25°C. System usable energy may vary due to system configuration parameters.

2 Current is affected by the number of batteries connected in parallel as well as temperature and SOC.

3 25°C ± 2°C, 0.5C charge & discharge, 70% EOL.

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