SOLAX



LD16 / LD14

LD16 / LD16-S / LD16-E / LD16-ME / LD14-ME

User Manual

Version 1.0

www.solaxpower.com

LD16 / LD16-S

LD16-E / LD16-ME / LD14-ME

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 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.

- LD14-ME
- LD16
- LD16-S
- LD16-E
- LD16-ME

Model description



No.	Definition	Description
1	L	Grid grade: low-voltage system
2	D	Detached
3	14/16	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, device damage, power generation loss or unanticipated results.
NOTICE!	Provides tips for the optimal operation of the product.

Change History

Version 0.0 (2026-09-16)

Updated the cover page.

Version 0.0 (2026-09-01)

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 IP65 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!

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 "12 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 LD16 and LD14 series 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;
- IP65 Protection Level and Protection Class I for reliable and safe operation;
- 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

Here takes LD16 and LD16-S as an example, other models are similar.

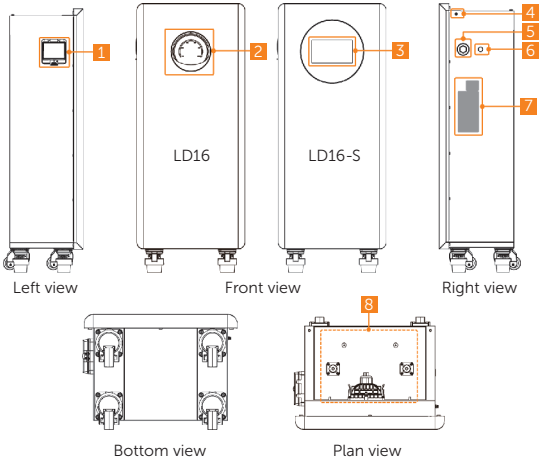


Figure 2-1 Appearance

Table 2-1 Description

No.	Item	Description
1	Breaker	An electrical switch that protects from equipment damage. For details, refer to "8 System Commissioning".
2	LED indicators (only available for LD16 / LD16-E / LD16-ME / LD14-ME)	Display the information of the battery. For details, refer to "2.3 LED Indicator".
3	LCD screen (only available for LD16-S)	Display the information of the battery. For details, refer to "2.4 LCD Screen".
4	Wi-Fi port (only usable for LD16 / LD16-S)	Wi-Fi antenna connection. For details, refer to "6.5 Installing Wi-Fi Antenna (for LD16 / LD16-S)"
5	Breather vent	To prevent explosion which is caused by high internal air pressure. Keep it fixed, otherwise liquid might seep into the device.
6	Power button	For system power control. For details, refer to "8 System Commissioning".
7	Label	The power button label describes how to power on, power off, and black start. The performance label describes the device type, serial number, name, address of importer, etc. Refer to "2.5 Label" for details.
8	Electrical connection area	Including battery +/- ports, communication ports, and grounding points. For details, refer to "2.2.2 Parts Introduction".

Weight and dimension

Table 2-2 Weight and dimension

Model	LD16	LD16-S	LD14-ME	LD16-ME	LD16-E
Width (mm)	406				409
Height (mm)	1008				1010
Depth (mm)	281				277
Net weight (kg)	118 (±1)		118.5 (±1)	120 (±1)	123 (±1)

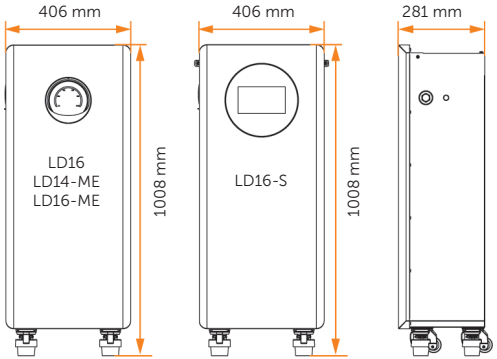


Figure 2-2 Dimensions of LD16 / LD16-S / LD14-ME / LD16-ME

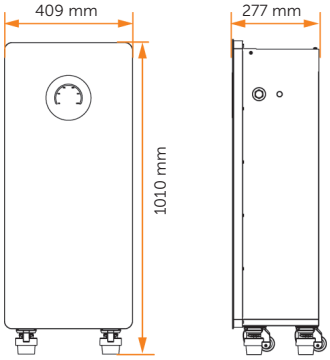


Figure 2-3 Dimensions of LD16-E

2.2.2 Parts Introduction

Here takes LD16 / LD16-S as an example, other models are similar.

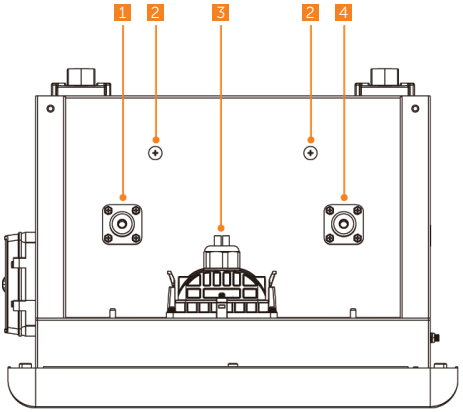


Figure 2-4 Introduction of electrical connection area

Table 2-3 Introduction of electrical connection area

No.	Item	Description
1	**BAT+** port	Positive power port: to connect to the **BAT+** port of the inverter or combiner box.
2	Grounding points	To connect to the grounding cable.
3	Communication ports	**BMS**: Connect to the **BMS** port of the inverter. **COM A** or **COM B**: Connect to the next battery pack. For details about the connection order, refer to "Table 7-3 Cable connection".
4	**BAT-** port	Negative power port: to connect to the **BAT-** port of the inverter or combiner box.

2.3 LED Indicator

The LED indicator shows the working status and battery percentage.

- LED indicators are equipped for LD16 / LD16-E / LD16-ME / LD14-ME. Here takes LD16 as an example, other models are similar.
- If the LED indicator is not used for over 5 minutes, it will automatically enter standby mode. You can reactivate it by pressing the touch key.
- If all indicators are extinguished before shutting down the system, press and hold the **POWER** button for 3 seconds. This action will first illuminate the indicators to confirm system responsiveness before initiating shut-down.
- You can press the touch key 0.5 seconds to turn on/off all indicators.

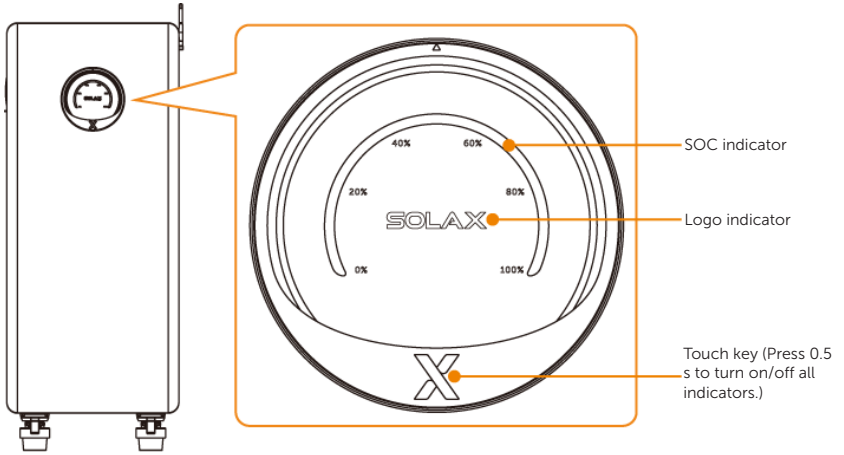
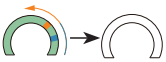
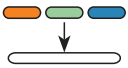


Figure 2-5 LED indicator

Table 2-4 Working status description

Indication	SOC indicator	Logo indicator	Description
Start up			SOC indicator: a solid green semi-ring with a spinning orange and blue light strip clockwise over the top Logo indicator: flashing blue, green and orange light alternative
Shut down			SOC indicator: a solid green semi-ring with a spinning orange and blue light strip anti-clockwise over the top to off Logo indicator: flashing orange, green and blue light alternative to off
Standby			SOC indicator: a solid green semi-ring with a solid blue battery capacity light over it Logo indicator: dark orange > baby orange > dark orange
Charging			SOC indicator: a solid green semi-ring with a solid blue battery capacity light over it and the orange light strip clockwise over the top Logo indicator: a solid orange light

Indication	SOC indicator	Logo indicator	Description
Discharging			SOC indicator: a solid green semi-ring with a solid blue battery capacity light over it and the orange light strip anti-clockwise over the top Logo indicator: a solid orange light
Fault			SOC indicator: a solid green semi-ring with a solid blue battery capacity light over it Logo indicator: flashing red light

Note: Except for following indications (start-up, shut-down and fault), the SOC indicator in other states shows according to the actual battery capacity.

Table 2-5 SOC description during standby

SOC state	Light state	SOC state	Light state	SOC state	Light state
SOC = 0%		41% < SOC ≤ 60%		SOC = 100%	
0% < SOC ≤ 20%		61% < SOC ≤ 80%			
21% < SOC ≤ 40%		81% < SOC < 100%			

2.4 LCD Screen

LD16-S is equipped with an LCD touchscreen to show the operating status and the related information of the battery.

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 screen will display the main menu.

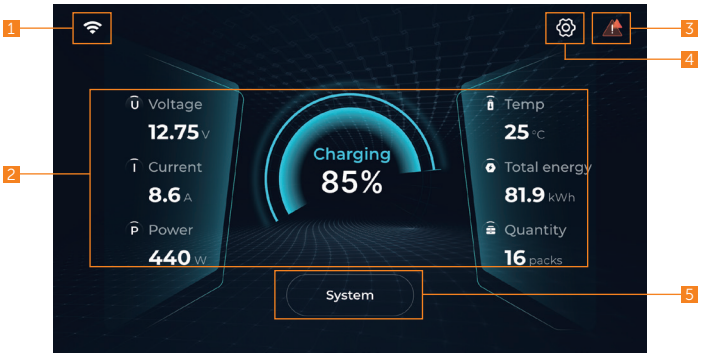


Figure 2-6 Main menu

Table 2-6 Introduction of main menu

No.	Item	Description
1	Wi-Fi connection status	This function is only available for LD16-S. You can view the Wi-Fi connection status, and tap the icon to turn on or turn off the Wi-Fi connection.
2	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.
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	Secondary menu entry	Enter password correctly, you can enter the secondary menu for more information.
5	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.

Wi-Fi setting

This function is only available for LD16-S. Tap at the upper left corner of the main menu to set it.

- When there is only one battery pack, it will be displayed as below, and you can tap it to turn on or off Wi-Fi.

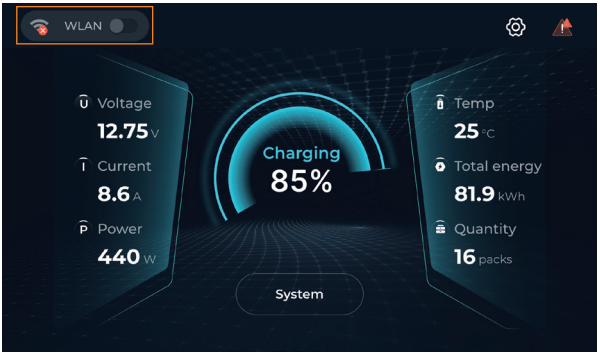


Figure 2-7 Wi-Fi setting (single battery pack)

- When two or more battery packs are connected, it will enter a new Wi-Fi array page as below. Tap each icon to turn on or off Wi-Fi of the specific battery pack.

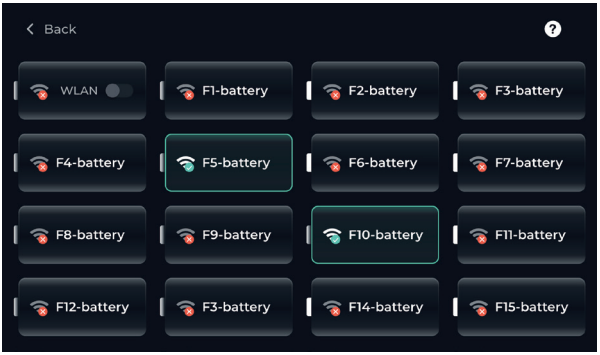


Figure 2-8 Wi-Fi setting (two or more battery packs)

NOTICE!

- When two or more battery packs are connected, the Wi-Fi setting can only be done on the leader battery pack, and you can only view connection status through other follower battery packs.

Secondary menu setting

Tap at the upper right corner of the main menu to enter the secondary menu. Password is required before entering the secondary menu. The default user password is **0000**. Please reset the default user password, and we recommend you to reset your password regularly.

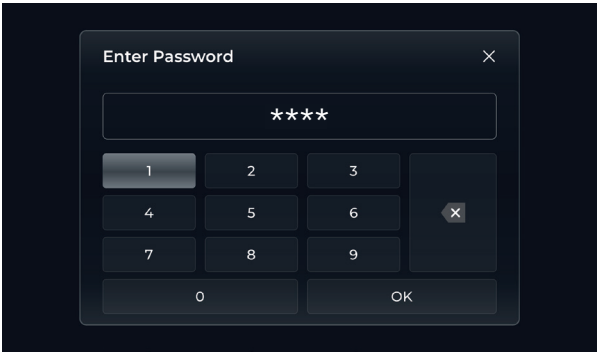


Figure 2-9 Enter password

- Viewing system/battery pack information

After entering the secondary menu, the system/battery pack information will be displayed at the first page. You can tap **System**/**L-battery** /**Fn battery** at the bottom to switch.

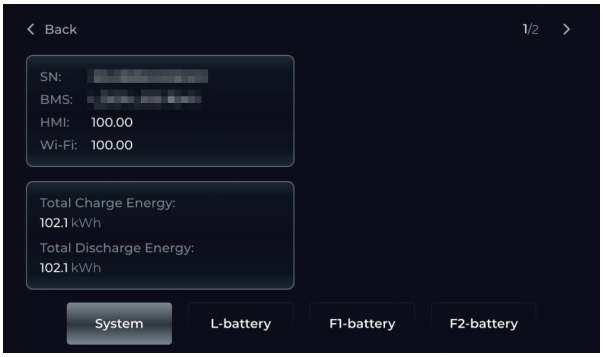


Figure 2-10 Viewing system/battery pack information

- Setting language

Tap the upper right corner to enter the second page, then tap **Language** to switch system language.

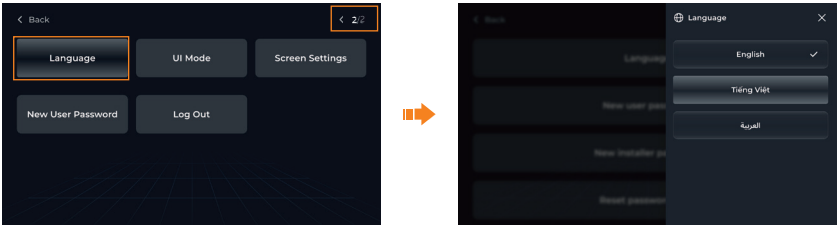


Figure 2-11 Setting language

- Setting UI mode

Tap the upper right corner to enter the second page, then tap **UI Mode** to switch system UI (user interface) to **Dark** or **Light**.

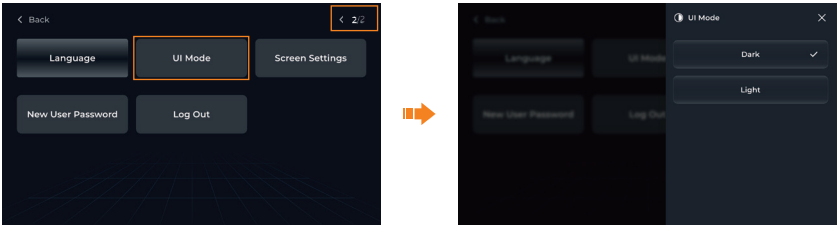


Figure 2-12 Setting UI mode

- Setting screen off time and brightness

Tap the upper right corner to enter the second page, then tap **Screen Settings** to set the time to turn off screen (without operation) and adjust screen brightness.

The default time to turn off screen is 10 seconds.

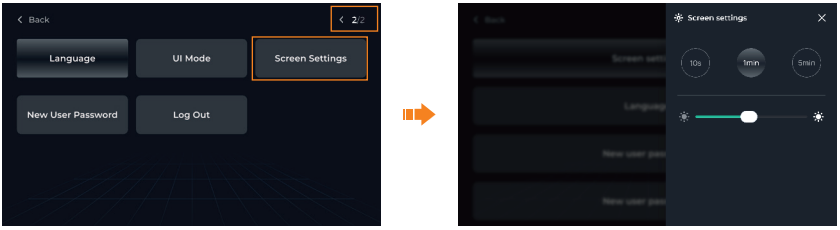


Figure 2-13 Screen settings

- Setting password

Tap the upper right corner to enter the second page, then tap **New User Password** to reset your password.



Figure 2-14 Setting language/password

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.

- Logging out

After you have logged in the system secondary menu with password, the default authorized time is 15 minutes. You can tap **Log Out** at the third page to immediately log out.

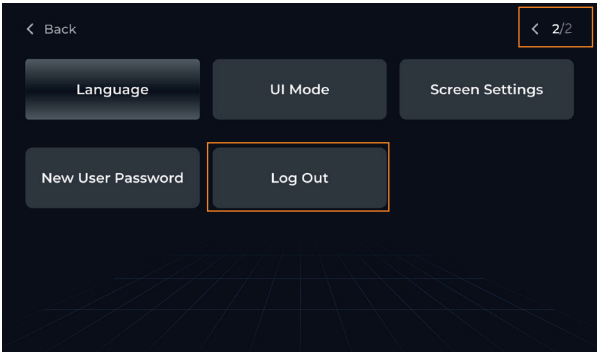


Figure 2-15 Logging out

Fault

Tap  at the upper right corner of main menu to enter the fault information page.

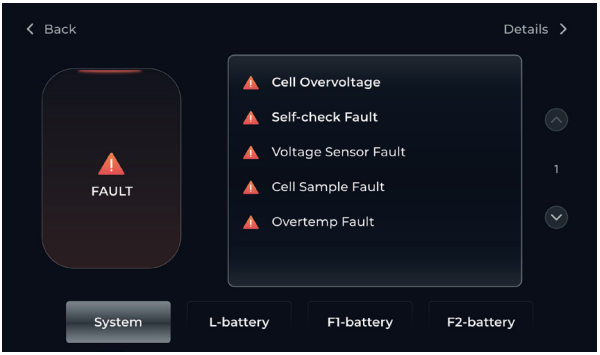


Figure 2-16 Fault page

It displays the latest fault information of the battery, with five records on one page. The options only contain battery packs with error. Tap the specific option to view the information. Please refer to "10.2 Troubleshooting" for corresponding solutions.

Tap **Details** 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. Tap the red icon of faulty battery pack, you can see the detailed information.



Figure 2-17 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.

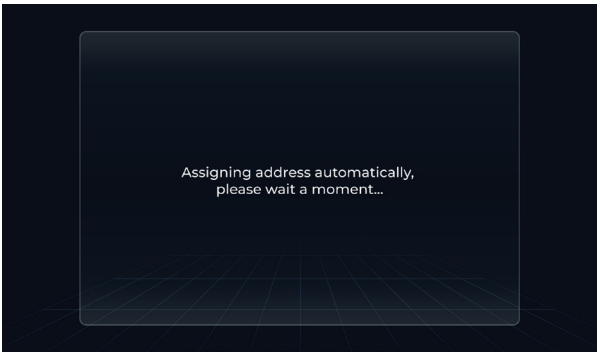


Figure 2-18 Assigning address

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.

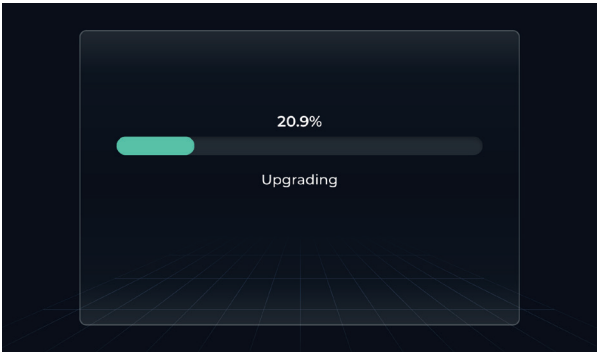


Figure 2-19 Upgrading

2.5 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:

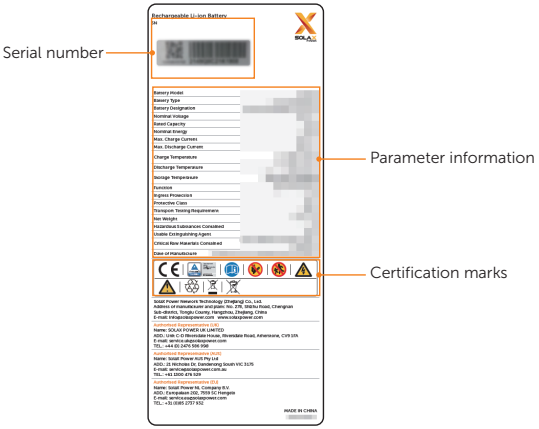


Figure 2-20 System performance label

Notice!

- The SN in the above figure is an example. Please be subjected to the actual device you received.

Serial number

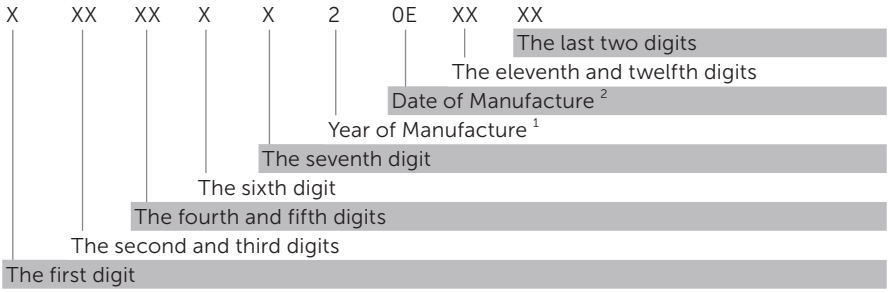


Figure 2-21 Explanation of SN

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 2-7 Explanation of symbols and icons

Symbol and icon	Description
	CE mark of conformity.
	TUV certification.
	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 4% and 100%.
- 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. • If a heating module is equipped in the battery, it will be activated to heat the battery at a low operating environment. The operating ambient temperature for the battery with/without heating module is between -30°C and +55°C/-20°C and +55°C, respectively. The energy efficiency of the system with the heating module will be reduced for a short time due to rechargeable power consumption while heating. • The discharge current will be reduced when the temperature of the battery cell is between -20°C and +10°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;
- The installation site shall be convenient for wiring connection, operation and maintenance;
- During the planning phase, please consider the space for parallel connection 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 to 55°C;
- Relative humidity: 4–100%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.

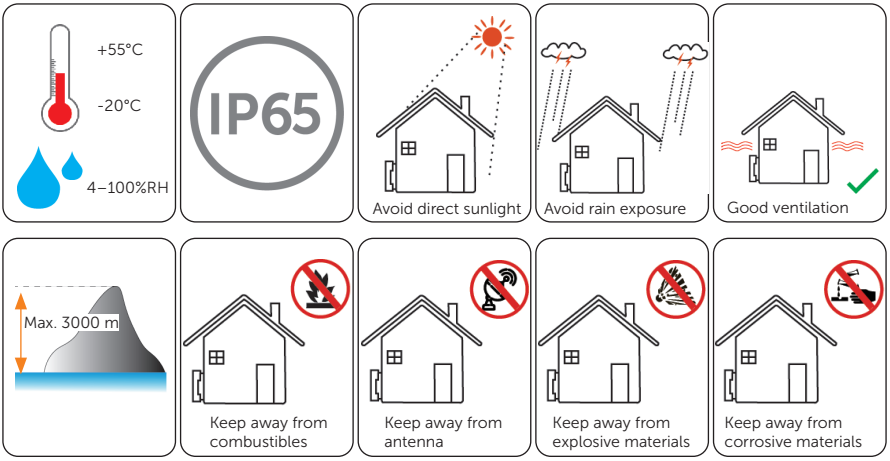


Figure 4-1 Environment requirements

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.
- Must power off the battery pack before moving.
- 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 between battery packs.
- The clearance requirement of each model is the same. The figure below is an example.

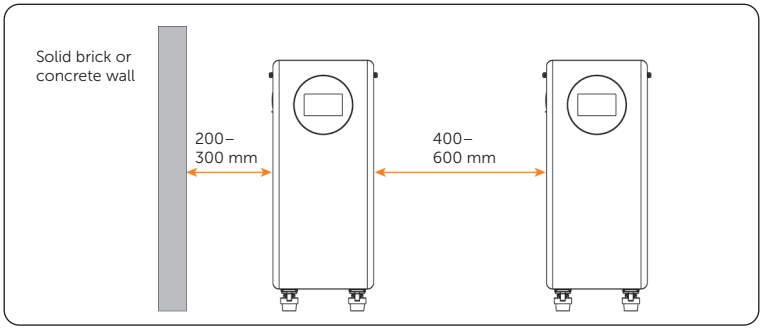


Figure 4-2 Installation clearance

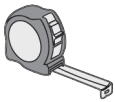
4.2 Tools Requirement

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

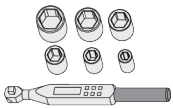
Installation tools

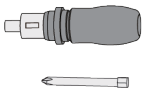

Hammer drill
(drill bit: Ø8/10 mm)

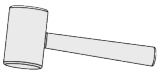

Marker


Measuring tape

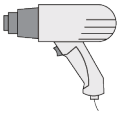

Utility knife


Torque wrench
(including M6/M8 wrench)


Torque screwdriver
(Phillips head: M5/M6)


Rubber mallet

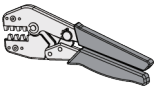

Wire stripper

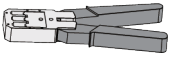

Heat gun

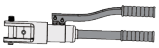

Heat shrink tubing
(Ø15 mm and Ø20 mm)

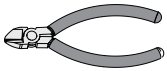

Spirit level


Vacuum cleaner


Crimping tool for
R-type terminal


Crimping tool for RJ45


Hydraulic wire crimper

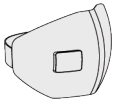

Diagonal plier

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 grounding cable		Conventional yellow and green wire	25 mm^2 or 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. The figure below is an example. The unpacking steps of each model are the same.

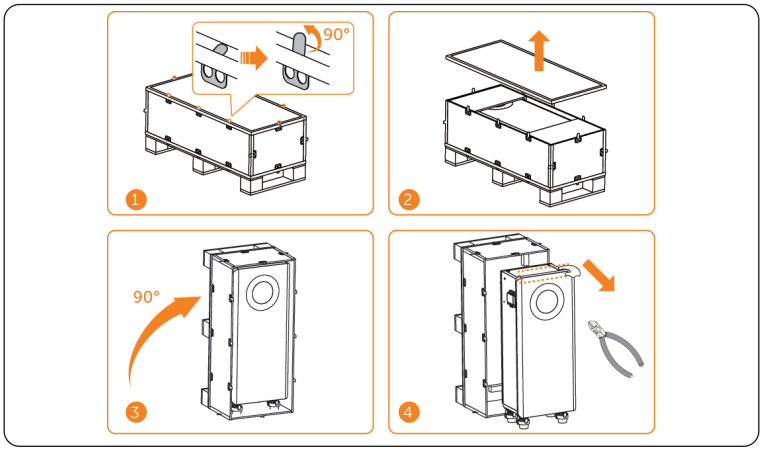


Figure 5-1 Unpacking the battery pack

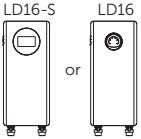
- Wear protective gloves when carrying the equipment by hand to prevent injuries.
- Be careful when dealing with all package materials which may be reused for storage and relocation of the rechargeable battery in the future.
- Upon opening the package, check whether the appearance of the rechargeable 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

NOTICE!

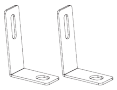
- The device is available in two configurations: model LD16 / LD16-E / LD16-ME / LD14-ME featuring LED indicators and model LD16-S featuring an LCD touchscreen panel.
- Please be subjected to the device you received.

5.2.1 LD16 / LD16-S



Battery pack × 1

A


L-shaped bracket × 2

B


M5 screw × 6

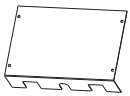
C


Expansion tube × 4

D


Self-tapping screw × 4

E


Top cover × 1

F


Communication cable (1500 mm) × 1

G


Ring terminal (for grounding cable) × 2

H


Ring terminal (for power cable) × 2

I1


Power cable (+) (1500 mm) × 1

J1


Power cable (-) (1500 mm) × 1

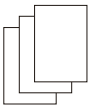
K


M8 screw × 4

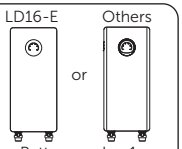
L


Wi-Fi antenna × 1

M1

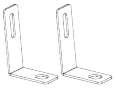

Document

5.2.2 LD16-E / LD16-ME / LD14-ME



Battery pack × 1

A


L-shaped bracket × 2

B


M5 screw × 6

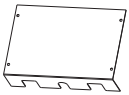
C


Expansion tube × 4

D


Self-tapping screw × 4

E


Top cover × 1

F


Communication cable (1500 mm) × 1

G


Ring terminal (for grounding cable) × 2

H


Ring terminal (for power cable) × 2

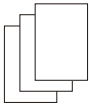
I2


Power cable (+) (1500 mm) × 1

J2


Power cable (-) (1500 mm) × 1

M2


Document

6 Installation and Wiring

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.
- 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.

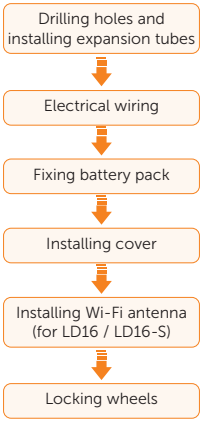


Figure 6-2 Installation sequence

6.1 Drilling Holes and Installing Expansion Tubes

The installation steps of each model are similar. Here takes LD16-S as an example, other models are similar.

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

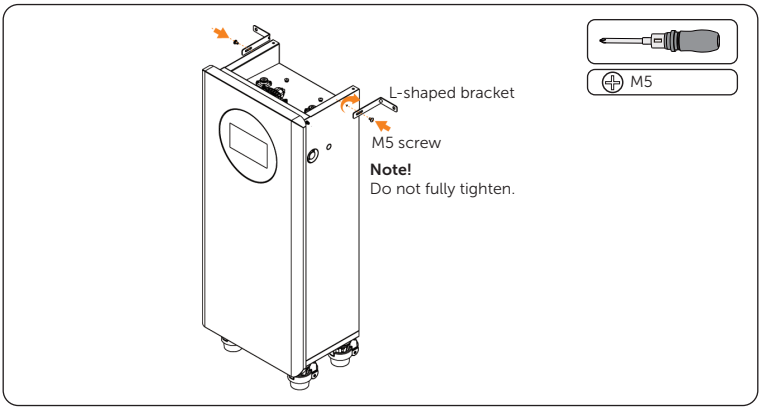


Figure 6-3 Attaching the L-shaped brackets

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

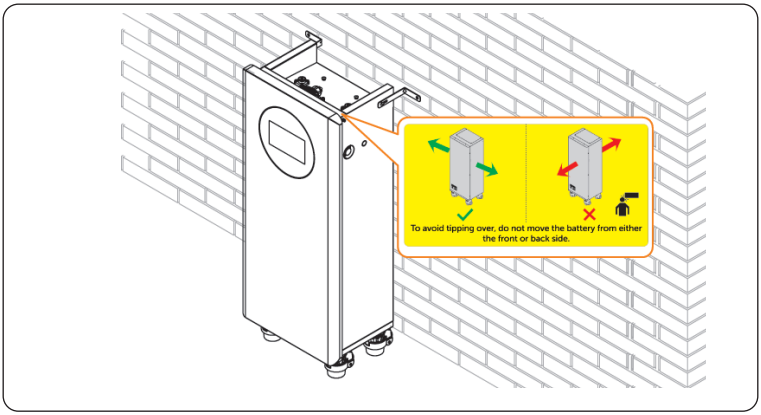


Figure 6-4 Locating the battery pack against the wall

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 brackets. Then gently move the battery pack aside.

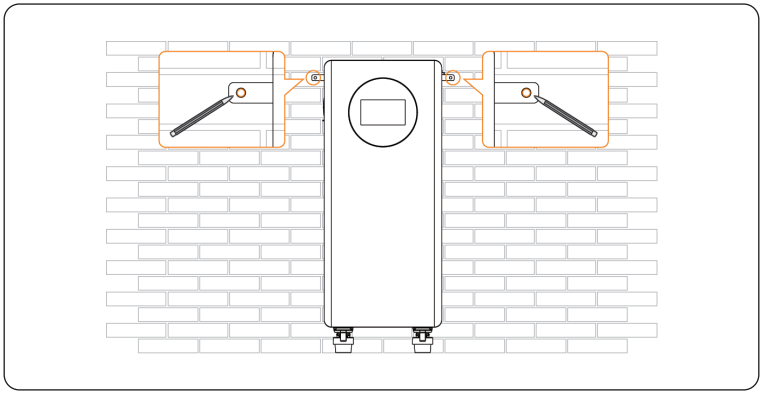


Figure 6-5 Drawing circles

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.

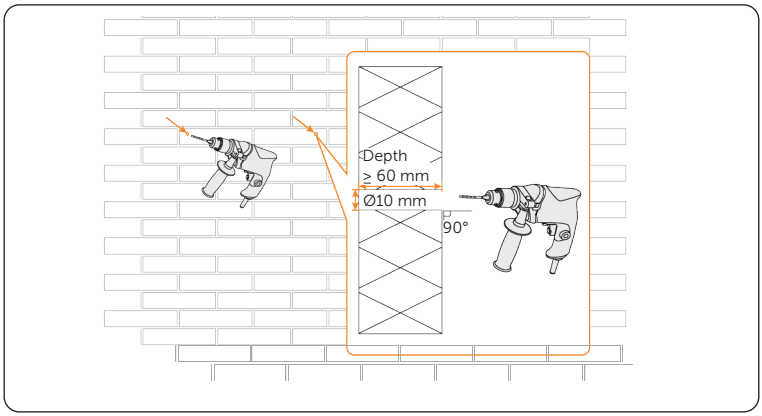


Figure 6-6 Drilling holes

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 (part C) in to the wall. Ensure that both expansion bolts are entirely driven into the wall. (Expansion bolt: 2 pieces)

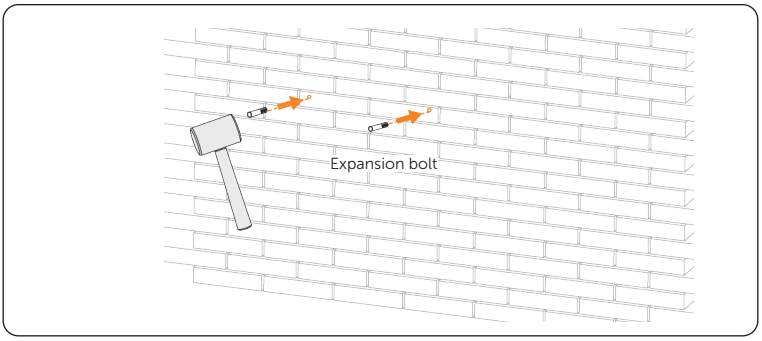


Figure 6-7 Inserting expansion bolts

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

6.2 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 for cable connection. The device damage caused by incorrect wiring 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 are shown in the following figure. Here takes LD16-S as an example, other models are similar.

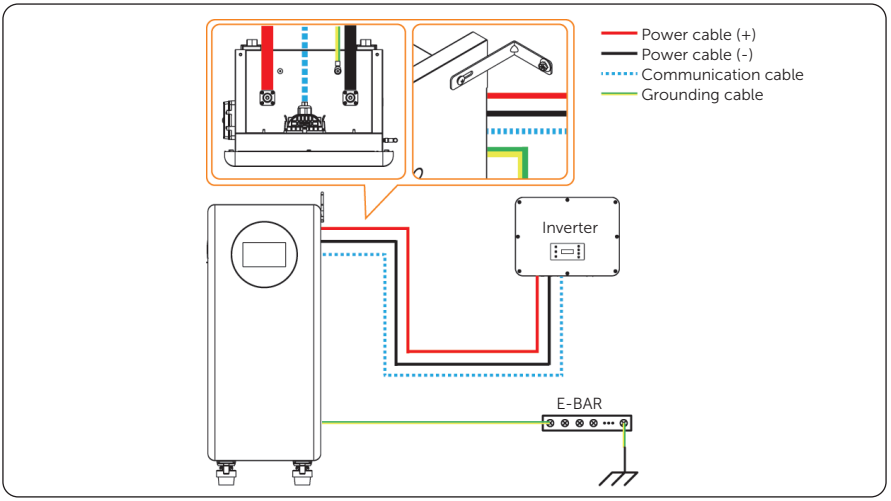


Figure 6-1 Wiring diagram

Table 6-1 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 ⏚ port of the battery pack to a public earth bar (E-BAR). Please refer to "4.3 Additionally Required Materials" for material details.

NOTICE!

- For wiring with two or more battery packs, please refer to "7 Parallel Connection".

6.2.1 Grounding Connection

DANGER!

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

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

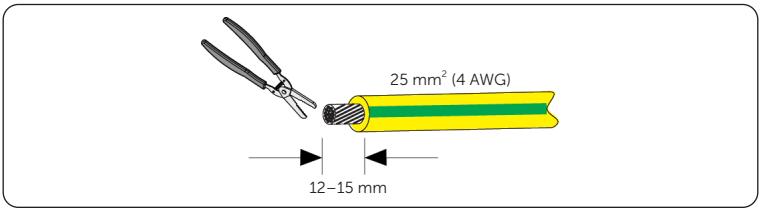


Figure 6-2 Stripping cable jacket

NOTICE!

- It is 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 (Ø15 mm) 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 G).

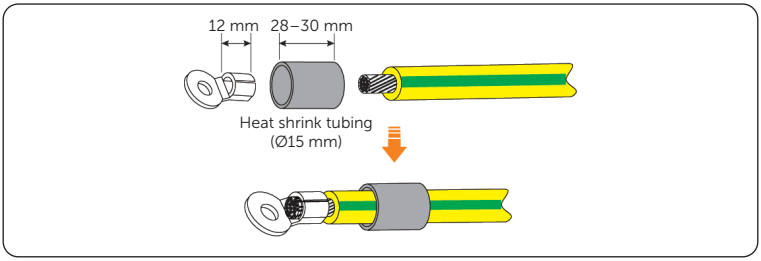


Figure 6-3 Cutting heat shrink tubing

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

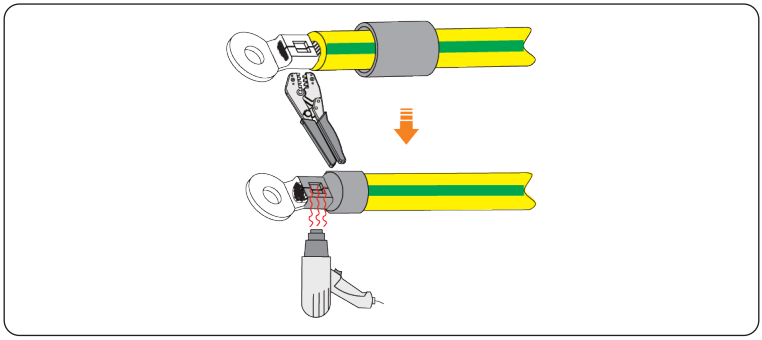


Figure 6-4 Crimping and heating

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 either M5 screw, and connect the assembled grounding cable to the grounding point of the battery pack, then tighten the M5 screw (tightening torque: 3.0±0.3 N·m).

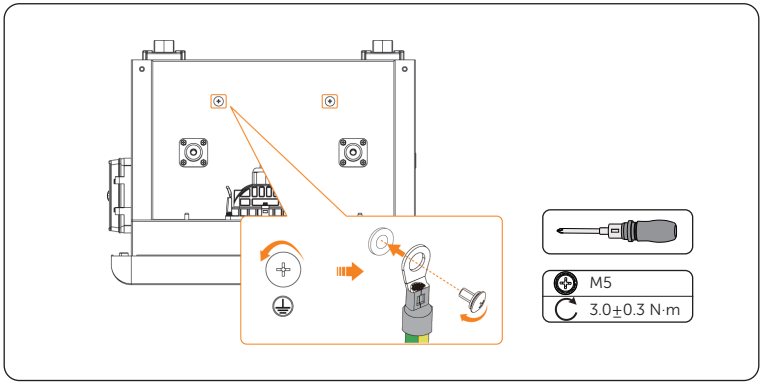


Figure 6-5 Connecting grounding cable and tightening M5 screw

6.2.2 Communication Connection

Pin assignment

The wire sequence is shown as follows:

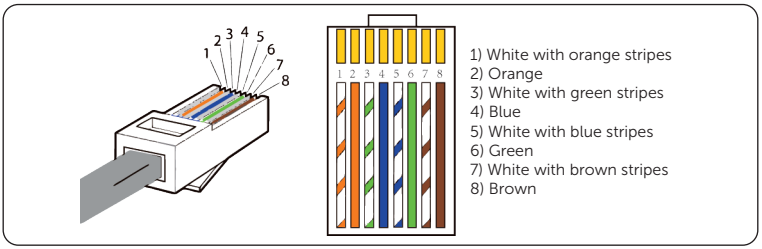


Figure 6-6 Wire sequence

The pin assignment of **BMS**, **COM A** and **COM B** ports is shown as follows:

Table 6-2 BMS port pin assignment

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

Table 6-3 COM A port pin assignment

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

Table 6-4 COM B port pin assignment

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

NOTICE!

- Communication cable is applicable for **BMS**, **COM A** and **COM B** ports. If Ethernet is needed, please use Wi-Fi function (only available for LD16 and LD16-S) or the Ethernet function of the connected inverter.
- When you need to make communication cable(s) on your own, please strictly follow the pin definitions.

Cable connection

The connection steps of each communication port are similar. Here takes one port as an example. For details about port connection sequence, refer to "Table 7-3 Cable connection".

Step 1: Press both bottons on the connector enclosure.

Step 2: Pull out the connector enclosure.

Step 3: Anti-clockwise loosen the swivel nut.

Step 4: Pull out rubber stopper(s) as needed. Keep the unused one(s) sealed.

Step 5: Thread the communication cable (part F) through the swivel nut, cable support sleeve, and connector enclosure in sequence. Then insert the cable into the port.

Step 6: Re-install the connector enclosure, and tighten the screw to secure it.

Step 7: Clockwise tighten the swivel nut.

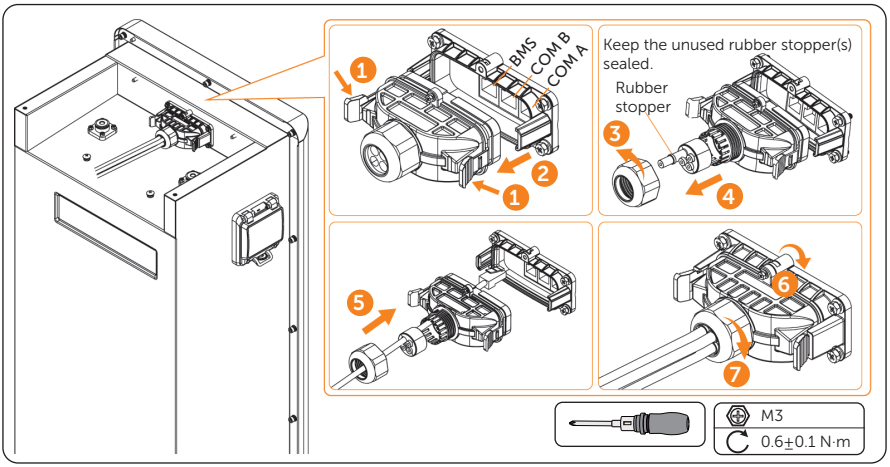


Figure 6-7 Connecting communication cable

6.2.3 Power Cable Connection

WARNING!

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

NOTICE!

- For the power cable (part I1/I2/J1/J2) from the packing list, one end of it is already crimped for connecting the battery pack, you have to crimp another end of it for connecting another device.
- The ring terminals (part H) 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 (part J1/J2) into appropriate length with care based on the actual installation distance. And then strip the cable jacket about 19 mm from the end.

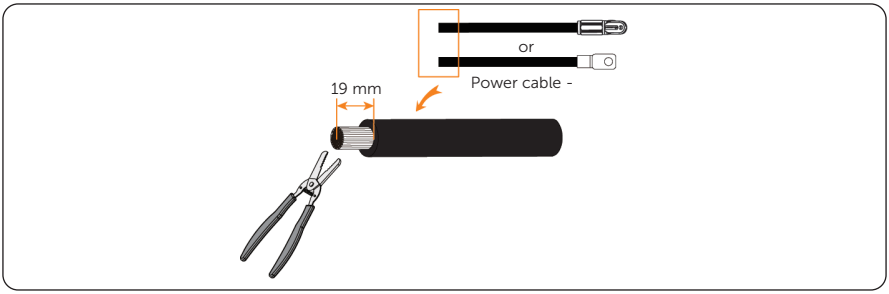


Figure 6-8 Stripping power cable

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 50 mm^2 (1/0 AWG).

Step 2: Cut the heat shrink tubing (Ø20 mm) to about 25–30 mm long, slide it onto the end of the cable, and then slip the cable all the way into the ring terminal.

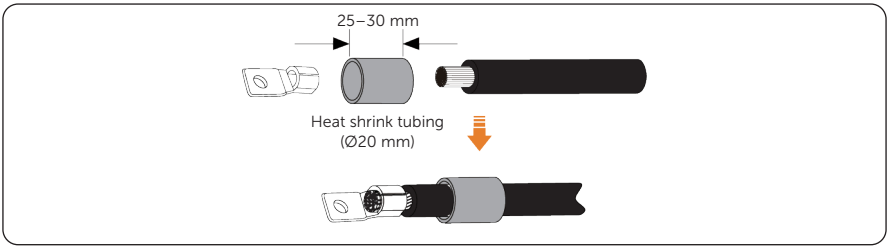


Figure 6-9 Installing heat shrinking tubing

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.

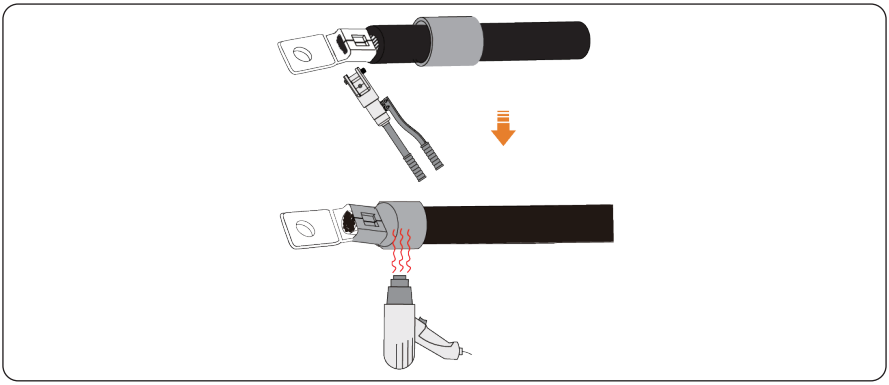


Figure 6-10 Crimping and heating terminal

NOTICE!

- Properly place the ring terminal into the hydraulic wire crimper.

Step 4: Make the positive power cable (part I1/I2) according to above steps.

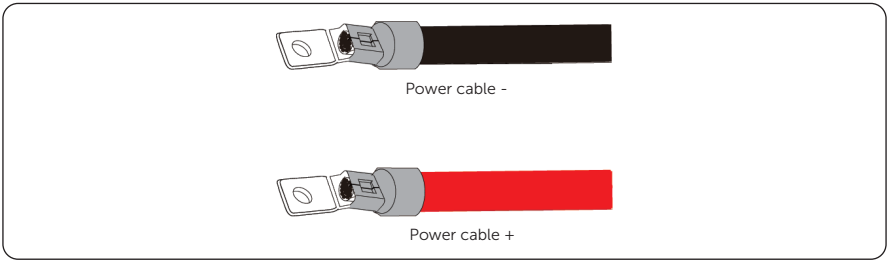


Figure 6-11 Making the positive cable

Step 5: Connect power cables to the battery pack. The connection steps of LD16 / LD16-S are different with LD16-E / LD16-ME / LD14-ME.

- For LD16 / LD16-S:
  a. Remove protective cases on **BAT+** and **BAT-** ports according to the arrow direction.
  b. Use the M8 screws (part K) to secure the negative power cable on **BAT-** port first, then secure the positive power cable on **BAT+** port (tightening torque: 7±0.5 N·m).
  c. Re-install protective cases on **BAT+** and **BAT-** ports.

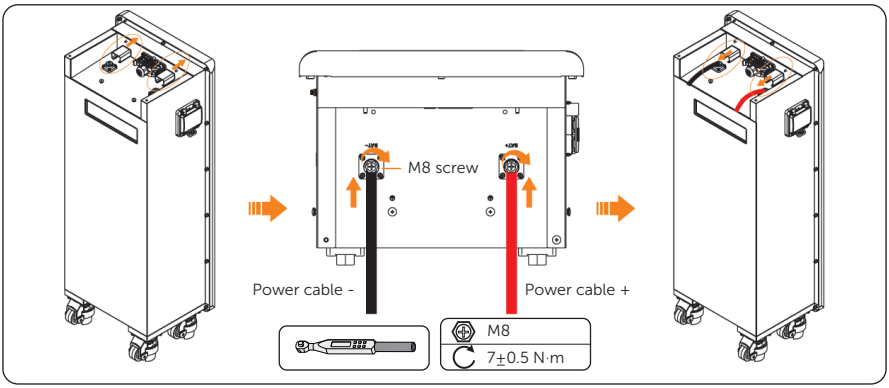


Figure 6-12 Connecting power cables of LD16 / LD16-S

- For LD16-E / LD16-ME / LD14-ME:
  a. Align and insert the negative power cable terminal into **BAT-** port.
  b. Align and insert the positive power cable terminal into **BAT+** port.

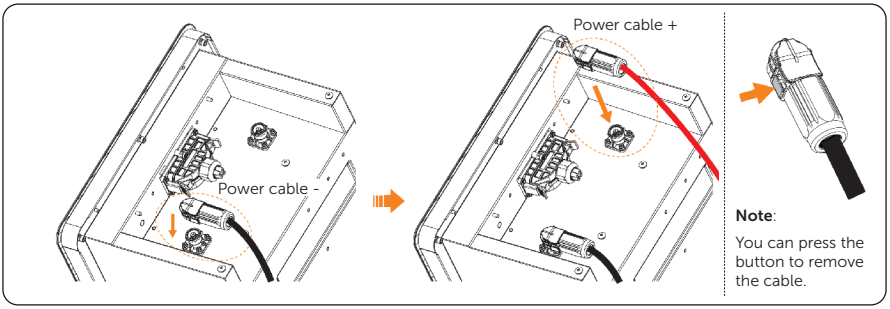


Figure 6-13 Connecting power cables of LD16-E / LD16-ME / LD14-ME

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.

6.3 Fixing Battery Pack

NOTICE!

- Here takes LD16-S as an example, other models are similar.
- All cables shall pass through the back, and pass underneath the L-shaped bracket.
- It is recommended to keep the maximum distance to the wall.

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 (part D), 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).

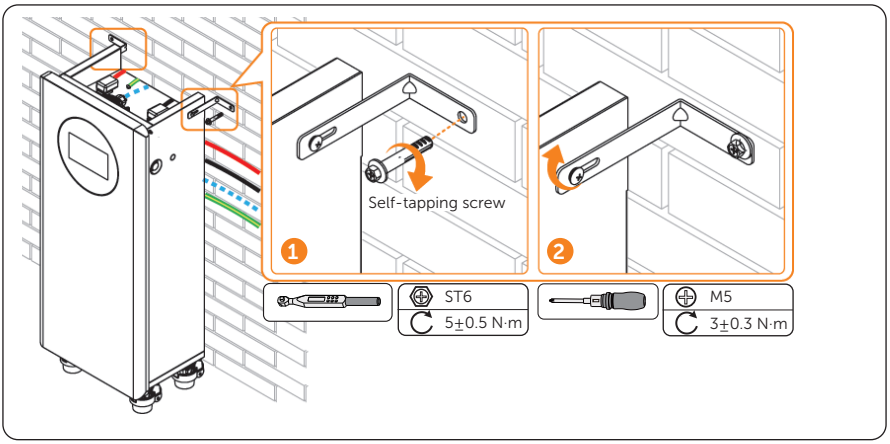


Figure 6-14 Tightening self-tapping screws and M5 screws

6.4 Installing Cover

NOTICE!

- Here takes LD16-S as an example, other models are similar.
- All cables shall pass through the back.

Step 1: Place the cover (part E) on the top of the battery pack.

Step 2: Push the cover towards the front of the battery pack.

Step 3: Align the cover with the screw holes of battery pack, and use M5 screws (part B) to secure cover (tightening torque: 2±0.2 N·m).

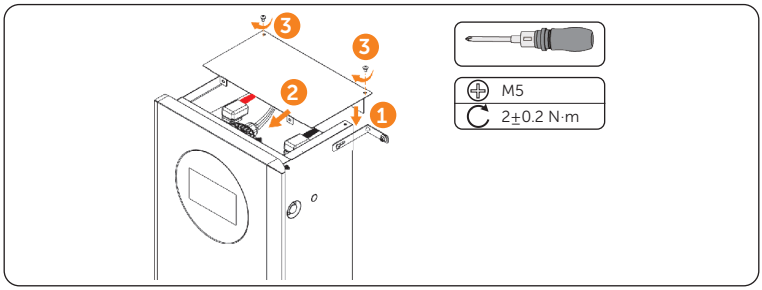


Figure 6-15 Installing the top cover

6.5 Installing Wi-Fi Antenna (for LD16 / LD16-S)

Wi-Fi is only available for LD16 / LD16-S. Here takes LD16-S as an example, other models are similar. Rotate the Wi-Fi antenna (part L) into the Wi-Fi port, and adjust it to be vertical.

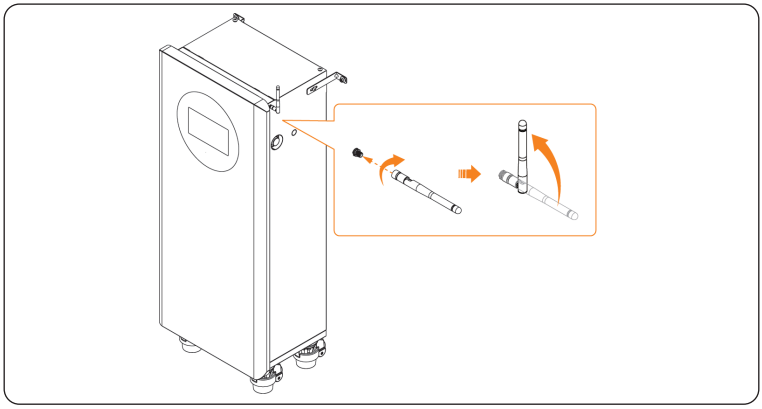


Figure 6-16 Installing Wi-Fi antenna

6.6 Locking Wheels

Lock four wheels to prevent the battery pack from moving.

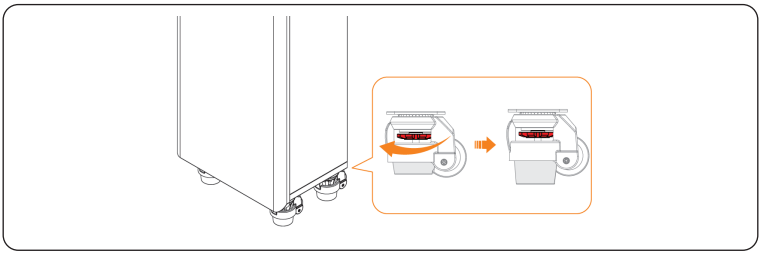


Figure 6-17 Locking four wheels

7 Parallel Connection

DANGER!

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

NOTICE!

- For parallel connection, 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.

7.1 Materials Requirements

The battery packs can be connected in parallel 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

As shown in the figure, the combiner box should meet 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, when 6 battery packs are connected in parallel, the recommended cross-sectional area for the copper bars is 250 (50*5) mm^2.

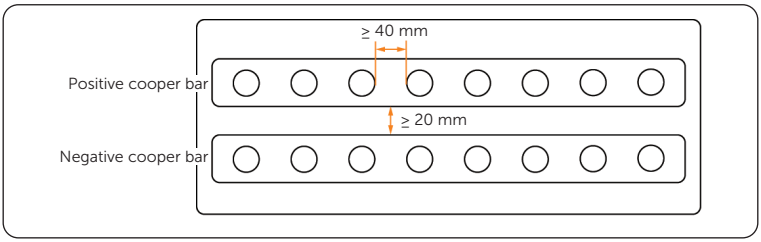


Figure 7-18 Requirements on cooper bars

NOTICE!

- The figure above is for reference only. The combiner box shall be subject to the actual situations.
- Make sure that the combiner box is well waterproofed and keep copper bars dry.

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 7-1 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

Table 7-2 Recommended cable length and ring terminal

	Length of power cable (+)	Length of power cable (-)	Ring terminal
Battery side	< 3 m	< 3 m	KST TLK50-8
Inverter side	According to the specification of inverter		

WARNING!

- The length of all power cables should be consistent.

7.2 Cable Connection

The system wiring diagram of each model is similar. Here takes LD16-S as an example, other models are similar. Install and connect the battery packs, inverter and combiner box as shown below.

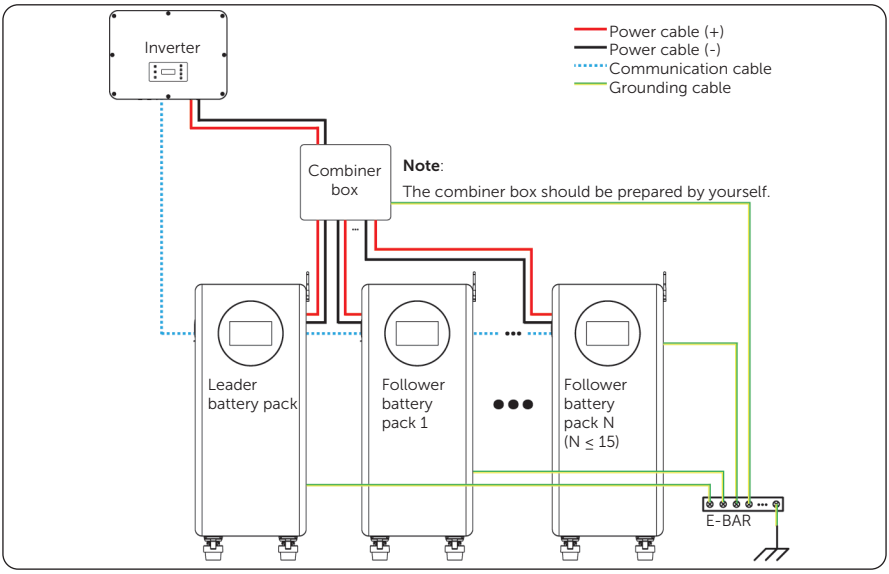


Figure 7-1 Wiring diagram for parallel connection

Table 7-3 Cable connection

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 for **BMS**	Standard	**BMS** port of leader battery pack to **BMS** port of inverter
Communication cable for **COM A** or **COM B**	Standard	LD16 / LD16-S: **COM A** to **COM B** or **COM 2**. **COM B** to **COM A** or **COM 1**. LD16-E / LD16-ME / LD14-ME: **COM A** to **COM B**.
Grounding cable	Self-prepared	Independently ground ⏚ port of each battery pack to a public earth bar (E-BAR). Please refer to "4.3 Additionally Required Materials" for material details.

NOTICE!

- If you want to increase a battery pack to the existing system, please make sure to shut down the system and disassemble cables as described in "11 Decommissioning".
- For the installation of the battery packs, please refer to "6 Installation and Wiring".
- TB-LD160, LD16, and LD16-S can be connected in parallel, and the leader battery pack must be LD16 or LD16-S.
- LD16-E and LD16-ME can be connected in parallel.
- LD14-ME cannot be connected with other battery models for parallel connection.

NOTICE!

- Please connect cables properly, and do not cross or wrap the cables together.
- For the specific wiring procedures, please refer to "6.2 Electrical Wiring".

8 System Commissioning

8.1 Checking before Power-on

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

8.2 Power-on

Initial startup

Initial startup means the battery system is powered on for the first time.

NOTICE!
• If battery packs are connected in parallel, the leader battery pack is the one that connects with the inverter. • If the number or order of battery packs in the system is changed, please perform the initial startup steps again. • The third-party inverter should be included in *PYLON CANBUS Protocol* or *PYLON 485 Protocol*.

Step 1: Turn on each breaker of battery pack.

a. Anti-clockwise loosen both screws, and press the latch.

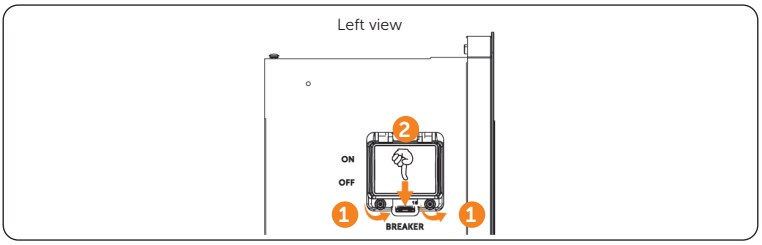


Figure 8-1 Loosen screws

b. Open the cover, and flip up the switch to turn on the breaker.

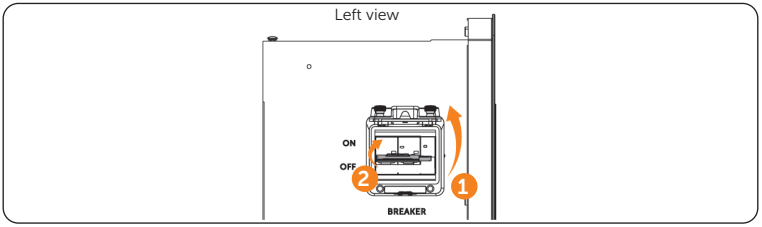


Figure 8-2 Turning on the breaker

c. Close the cover, and clockwise tighten both screws.

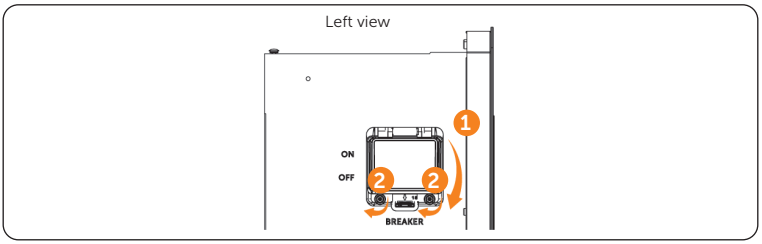


Figure 8-3 Tighten screws

Step 2: Press and hold the **POWER** button (of the leader battery pack) for five seconds.

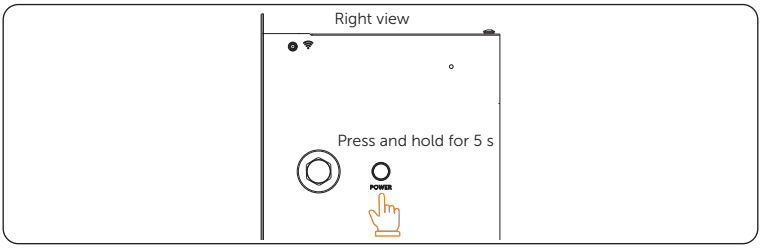


Figure 8-4 Pressing the power button for five seconds

Step 3: If a third party inverter is connected, press the **POWER** button (of the leader battery pack) once more.

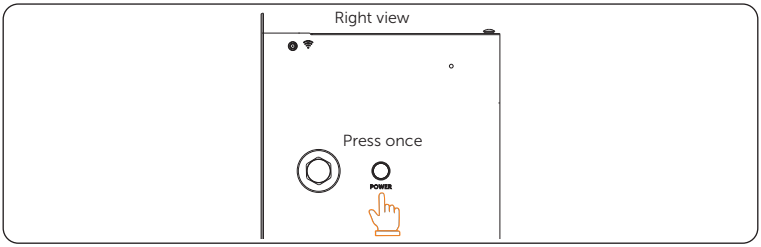


Figure 8-5 Pressing the power button once more (for third party inverter)

During initial startup process:

- LD16-S: The LCD screen will show address assigning progress.

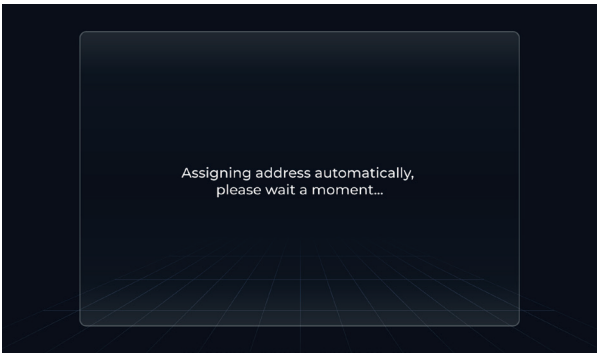


Figure 8-6 LCD screen

- LD16 / LD16-E / LD16-ME / LD14-ME: The LED indicator will turn from clockwise spinning to blue and green flashing.

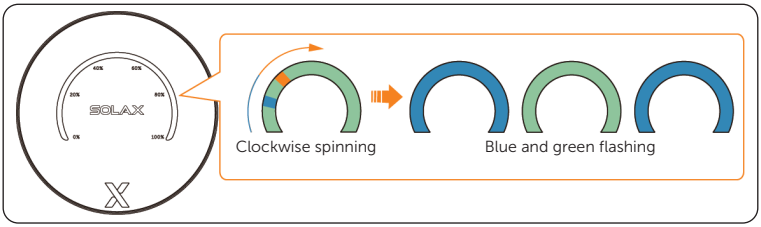


Figure 8-7 LED indicator

Subsequent power-on

Subsequent power-on means it is not the first time to power on the battery system, in other words, initial startup steps have previously been performed.

NOTICE!

- If battery packs are connected in parallel, the leader battery pack is the one that connects with the inverter.
- For third-party inverters, the inverter should be included in *PYLON CANBUS Protocol* or *PYLON 485 Protocol*.

Step 1: Turn on each breaker of battery pack.

a. Anti-clockwise loosen both screws, and press the latch.

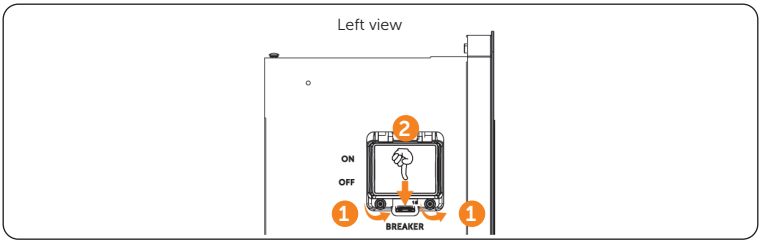


Figure 8-8 Loosen screws

b. Open the cover, and flip up the switch to turn on the breaker.

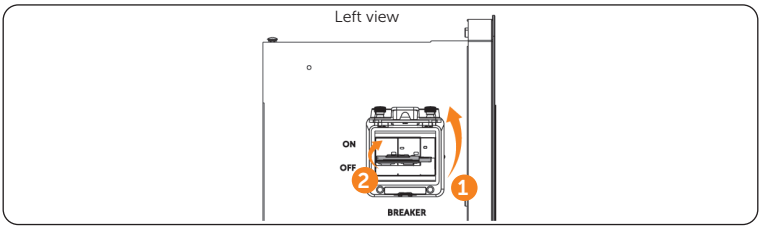


Figure 8-9 Turning on the breaker

c. Close the cover, and clockwise tighten both screws.

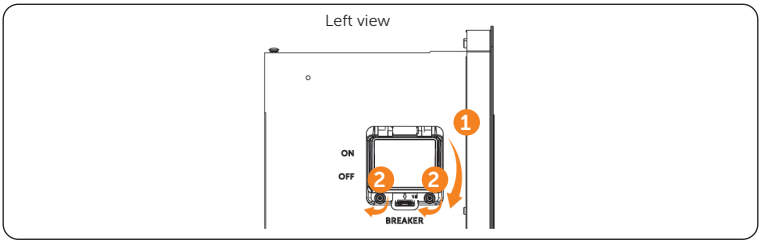


Figure 8-10 Tighten screws

Step 2: Press and hold the **POWER** button (of the leader battery pack) for one second.

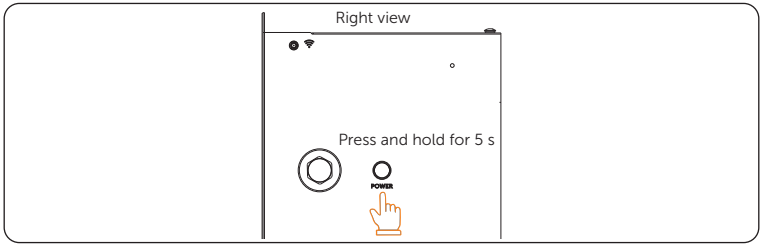


Figure 8-11 Pressing the power button for five seconds

Step 3: If a third party inverter is connected, press the **POWER** button (of the leader battery pack) once more.

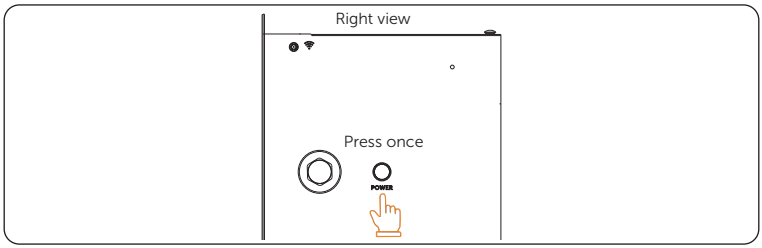


Figure 8-12 Pressing the power button

During subsequent power-on process:

- LD16-S: The LCD screen will be lighted up.
- LD16 / LD16-E / LD16-ME / LD14-ME: The LED indicator will be clockwise spinning.

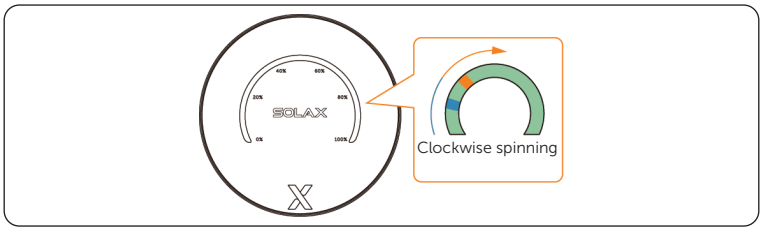


Figure 8-13 LED indicator

8.3 Power-off

WARNING!

- Shut down the inverter before powering off the battery.
- 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 battery packs are connected in parallel, the leader battery pack is the one that connects with the inverter.
- 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: Turn on each breaker of battery pack.

a. Anti-clockwise loosen both screws, and press the latch.

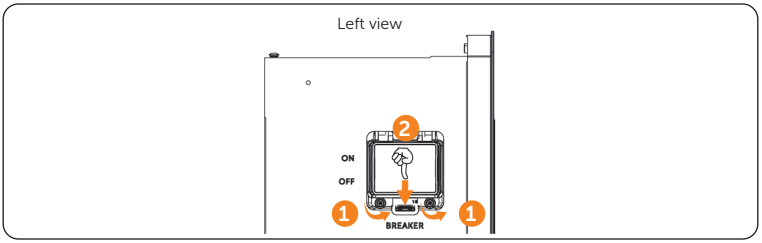


Figure 8-14 Loosen screws

b. Open the cover, and flip down the switch to turn off the breaker.

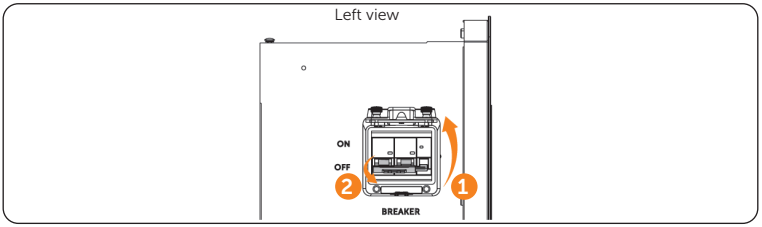


Figure 8-15 Turning off the breaker

c. Close the cover, and clockwise tighten both screws.

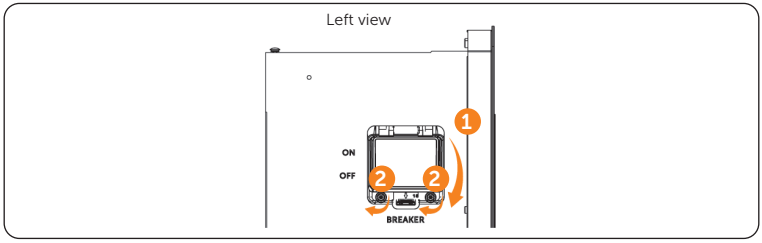


Figure 8-16 Tighten screws

Step 2: Press and hold the **POWER** button (of the leader battery pack) for three seconds.

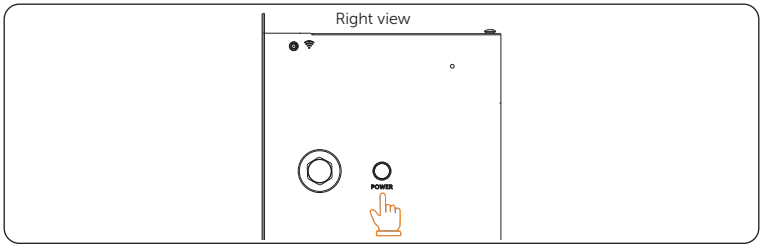


Figure 8-17 Pressing the power button for three seconds

During power-off process:

- LD16-S: The LCD screen will firstly display **Shutting down**, and then be off.
- LD16 / LD16-E / LD16-ME / LD14-ME: The LED indicator will turn from anti-clockwise spinning to off.

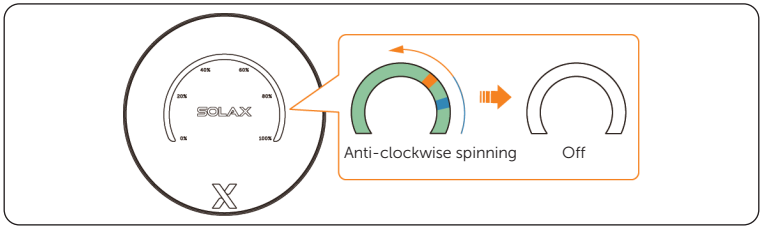


Figure 8-18 LED indicator

9 Operations on SolaX App and Web

9.1 Introduction of SolaXCloud

SolaXCloud is an intelligent management platform designed for installers, distributors, and end users. It integrates plant creation, real-data monitoring, and device remote settings into one. With it, you can manage your home energy remotely and easily.

9.2 Operation Guide on SolaXCloud App

9.2.1 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 9-1 QR code

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

9.2.2 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.

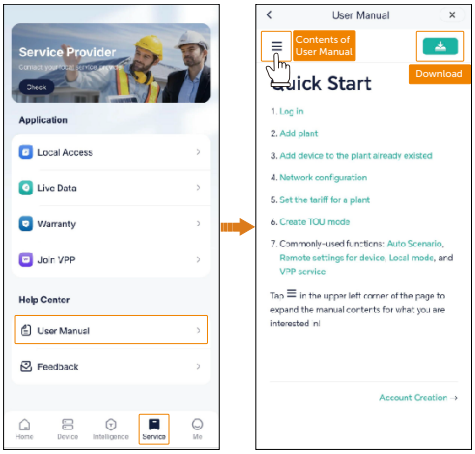


Figure 9-2 SolaXCloud user manual

9.3 Operations on SolaXCloud Web Page

Open a browser and enter "www.solaxcloud.com" to complete registration and login. Go to **Services** > **Help Center** > **Documents** for the user manual. Complete plant creation, device adding and other operations according to the manual. Note that SolaXCloud website does not support device networking.

10 Troubleshooting and Maintenance

10.1 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 10-1 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.

10.2 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 falt messages on the LCD screen (for LD16-S), SolaXCloud app, or web page, and then solve them according to the following table;
- Check for the falt codes 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 10-2 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.

11 Decommissioning

11.1 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: Make sure that the inverter has been shut down and the AC supply for inverter has been cut off.

Step 2: Power off the battery pack. For details, refer to "8.3 Power-off".

Step 3: Unscrew self-tapping screws of both L-shaped brackets on the wall.

Step 4: For LD16 / LD16-S, remove the Wi-Fi antenna. Refer to "6.5 Installing Wi-Fi Antenna (for LD16 / LD16-S)" for details, and the steps are opposite.

Step 5: Remove the top cover. Refer to "6.4 Installing Cover" for details, and the steps are opposite.

Step 6: Unlock four wheels. Refer to "6.6 Locking Wheels" for details, and the steps are opposite.

Step 7: Remove power cable on **BAT-** port first, then remove power cable on **BAT+** port. Refer to "6.2.3 Power Cable Connection" for details.

Step 8: Remove communication cable(s). Refer to "Cable connection" for details, and the steps are opposite.

Step 9: Remove grounding cable(s). Refer to "6.2.1 Grounding Connection" for details, and the steps are opposite.

11.2 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.

11.3 Disposing of the Rechargeable Battery

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

12 Technical Data

General information

Battery model	LD16	LD16-S	LD16-ME	LD16-E	LD14-ME
Battery type	LFP				
Scalability	Max. 16 pcs in parallel				
Nominal voltage	51.2 d.c. V				
Operating voltage range	42.4–57.6 d.c. V				
Rated capacity	314 Ah				280 Ah
Nominal energy	16 kWh				14.3 kWh
Depth of discharge DOD	95%				
Usable energy (95% DOD)[1]	15.2 kWh				13.6 kWh
Rated charge/discharge power	7.9/7.9 kW				7.1/7.1 kW
Max. charge/discharge power	7.9/10.7 kW		7.9/10.2 kW		7.1/10.2 kW
Peak output power	32.1 kW, 3 s				28.6 kW, 3 s
Recommend charge/discharge current	155/155 d.c. A				140/140 d.c. A
Max. charge/discharge current[2]	155/210 d.c. A		155/200 d.c. A		140/200 d.c. A
Cycle life (95% DOD)[3]	> 8000 cycles				
Dimensions (W × H × D)	406 × 1008 × 281 mm			409 × 1010 × 277 mm	406 × 1008 × 281 mm
Net weight	118 (±1) kg		120 (±1) kg	123 (±1) kg	118.5 (±1) kg

Environment limit

Battery model	LD16	LD16-S	LD16-ME	LD16-E	LD14-ME
Charge temperature	0°C to +55°C		0°C to +55°C or -20°C to +55°C*		-20°C to +55°C
Discharge temperature	-20°C to +55°C				
Cooling concept	Natural cooling				
Storage temperature	-20°C to +30°C (12 months), +30°C to +60°C (6 months)				
Relative humidity	4–100% RH (condensing)				
Max. operating altitude	3000 m				
Installation type	Floor mounting				
Ingress protection	IP65				
Environment	Outdoor/indoor				

Communication

Battery model	LD16	LD16-S	LD16-ME	LD16-E	LD14-ME
Display	LED	LCD	LED		
Communication interfaces	CAN2.0/RS485				

Standard

Battery model	LD16	LD16-S	LD16-ME	LD16-E	LD14-ME
Hazardous materials classification	Class 9				
Transport testing requirement	UN38.3				
Protection class	Class I				
Certifications	IEC 62619, IEC 63056, IEC 60730, CE-LVD, CE-EMC				

NOTICE!

1. Test conditions: 95% DOD, 0.5C charge & discharge at +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. An asterisk * denotes that the battery is equipped with a heating function.

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