LEAPTON SOLAR

EL-A05

User Manual

RECHARGEABLE LITHIUM ION BATTERY SYSTEM

Version: 2025 V3

Contents

Contents

Purpose

This document describes the EL-A05 battery (also referred to as product, equipment or energy storage) in terms of its overview, application scenarios, installation and commissioning, system maintenance, and technical specifications.

Target Audience

This document is intended for:

- Sales engineers
- System engineers
- Technical support engineers
- End users

Symbol Definition

Symbol	Description
⚠ DANGER	Indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
⚠ WARNING	Indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
⚠ CAUTION	Indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.
NOTICE	Indicates warning information about device or environment security which, if not avoided, could result in equipment damage, data loss, performance deterioration, or unanticipated results. NOTICE is used to address practices not related to personal injury.

1 Safety Precaution

Please strictly follow these safety instructions in the user manual during the operation.

General Disclaimer

NOTICE

The products are designed and tested strictly to comply with related safety rules. Read and follow all the safety instructions and cautions before any operations. Improper operation might cause personal injury or property damage as the products are electrical equipment.

1.1 General Safety

NOTICE

The information in this user manual is subject to change due to product updates or other reasons. This guide cannot replace the product labels or the safety precautions in the user manual unless otherwise specified. All descriptions in the manual are for guidance only. Before installations, read through the quick installation guide. For additional information, please see the user manual. All installations should be performed by trained and knowledgeable technicians who are familiar with local standards and safety regulations. Check the deliverables for correct model, complete contents, and intact appearance. Contact after sales service if any damage is found or any component is missing. Use insulating tools and wear personal protective equipment (PPE) when operating the equipment to ensure personal safety. Wear anti-static gloves, cloths, and wrist strips when touching electron devices to protect the equipment from damage. Strictly follow the installation, operation, and configuration instructions in this guide and relative user manual. The manufacturer shall not be liable for equipment damage or personal injury if you do not follow the instructions. For more warranty details, please visit: https://www.leaptonpv.com.If you encounter any technical issues during installation or use, please contact us at the following email address:service@leaptonenergy.com

1.2 Safety Disclaimer

⚠ DANGER

- The battery system is a Low voltage system. Please keep Power Off before any operations to avoid danger. Strictly follow all safety precautions outlined in this manual and safety labels on the equipment during the operation.
- The inverter used with the battery shall be approved by the battery manufacturer. The approved list of batteries and the matched inverter can be obtained through the official website.
- Do not disassemble, modify, or replace any part of the battery without official authorization from the manufacturer, Otherwise, it will cause electrical shock or damages to the equipment, which shall not be borne by the manufacturer. Do

not hit, pull, drag, squeeze or step on the equipment or put the battery into fire. Otherwise, the battery will be exploded.

- Do not place the battery in a high temperature environment. Make sure that there is no heat source near the battery and no direct sunlight. When the ambient temperature exceeds 60℃. it will cause a fire.
- Do not use the battery or the power control unit if it is defective, broken, or damaged. The damaged battery may leak electrolyte.
- To protect the battery pack and its components from damage during transportation, please ensure that the transportation personnel are professionally trained. All operations during the transportation have to be recorded. The equipment shall be kept in balance, thus avoiding falling down.
- The battery equipment is heavy. Please equip the corresponding personnel according to its weight, so that the equipment does not exceed the weight range of the human body can carry, and smash the personnel.
- Contact after-sale service immediately if the battery is not able to be started. Otherwise, the battery might be damaged permanently.
- Do not move the battery system if it is connected with external battery modules. Contact after-sale service if the battery shall be replaced or added.

⚠ CAUTION

- Protect the battery system from damage during transportation and storage.
- The transportation must be carried out by trained professionals. All operations during the process have to be recorded.
- Keep the equipment stable to avoid dumping, which can result in equipment damage and personal injuries.
- Place the cables at least 30mm away from the heating components or heat sources, otherwise the insulation layer of the cables may be aging or broken due to high temperature.
- Tie the cables of the same type together, and place cables of different types at least 30mm apart. Do not place the cables entangled or crossed.

1.3 Personnel Requirements

- Personnel who plan to install or maintain Leapton equipment must receive thorough training, understand all necessary safety precautions, and be able to correctly perform all operations.
- Only qualified professionals or trained personnel are allowed to install, operate, and maintain the equipment.

- Only qualified professionals are allowed to remove safety facilities and inspect the equipment.
- Personnel who will operate the equipment, including operators, trained personnel, and professionals, should possess the local national required qualifications in special operations such as high-voltage operations, working at heights, and operations of special equipment.
- Only professionals or authorized personnel are allowed to replace the equipment or components (including software).

NOTICE

- Professionals: personnel who are trained or experienced in equipment operations and are clear of the sources and degree of various potential hazards in equipment installation, operation, and maintenance.
- Trained personnel: personnel who are technically trained, have required experience, are aware of possible hazards on themselves in certain operations, and are able to take protective measures to minimize the hazards on themselves and other people.
- Operators: operation personnel who may come in contact with the equipment,except trained personnel and professionals.

1.4 Electrical Safety

Grounding Requirements

- For the equipment that needs to be grounded, install the protective earthing (PE) cable first when installing the equipment and remove the PE cable last when removing the equipment.
- Do not damage the ground conductor.
- Do not operate the equipment in the absence of a properly installed ground conductor.
- Ensure that the equipment is connected permanently to the protective round. Before operating the equipment, check the electrical connection to ensure that it is securely grounded.

General Requirements

⚠ DANGER

Before connecting cables, ensure that the equipment is intact. Otherwise, electric shocks or fire may occur.

- Ensure that all electrical connections comply with local electrical standards.
- Obtain approval from the local electric utility company before using the equipment in grid-tied mode.

- Ensure that the cables you prepared meet local regulations.
- Use dedicated insulated tools when performing high-voltage operations.

DC Operation

⚠ DANGER

Do not connect or disconnect power cables with power-on. Transient contact between the core of the power cable and the conductor will generate electric arcs or sparks, which may cause fire or personal injury.

- Before connecting cables, switch off the disconnector on the upstream equipment to cut off the power supply if people may contact energized components.
- Before connecting a power cable, check that the label on the power cable is correct.
- If the equipment has multiple inputs, disconnect all the inputs before operating the equipment.

Cable Requirements

- When routing cables, ensure that a distance of at least 30 mm exists between the cables and heat-generating components or areas. This prevents damage to the insulation layer of the cables.
- Bind cables of the same type together. When routing cables of different types, ensure that they are at least 30 mm away from each other.
- Ensure that the cables used in a grid-tied PV power system are properly connected and insulated and meet specifications.
- The positions where cables are routed through pipes or holes must be protected to prevent the cables from being damaged by sharp edges or burrs.
- When the temperature is low, violent impact or vibration may damage the plastic cable sheathing. To ensure safety, comply with the following requirements:
  - Cables can be laid or installed only when the temperature is higher than 0°C. Handle cables with caution, especially at a low temperature.
  - Cables stored at subzero temperatures must be stored at room temperature for at least 24 hours before they are laid out.

ESD

NOTICE

The static electricity generated by human bodies may damage the electrostaticsensitive components on boards, for example, the large-scale integrated (LSI) circuits.

- Wear ESD gloves when handling the equipment. Do not wear clothes prone to static electricity

1.5 Battery Safety

Declaration

The Company shall not be liable for equipment functional abnormality, component damage, personal safety accident, property loss, or other damage caused by the following reasons:

- The batteries are not charged as required during storage, resulting in capacity loss or irreversible damage to the batteries.
- A battery is damaged, falls, or leaks due to improper operations or incorrect connection.
- After being installed and connected to the system, the batteries are not powered on in time, which causes damage to the batteries due to overdischarge.
- Battery running parameters are incorrectly set.
- The customer or a third party uses the batteries beyond the scenarios specified by the Company. For example, connect extra loads, or use with other batteries, including but not limited to batteries of other brands or batteries of different rated capacities.
- Damage is caused to batteries because the battery operating environment or external power parameters do not meet environment requirements. The actual operating temperature of batteries is too high or too low, or the power grid is unstable and experiences outages frequently.
- Batteries are frequently overdischarged due to improper maintenance, capacity is incorrectly expanded, or the batteries have not been fully charged for a long time.
- Batteries are not maintained based on the operation guide, such as failure to check battery terminals regularly.
- Batteries are stolen.
- The warranty period of batteries has expired.

Basic Requirements

⚠ DANGER

- Do not expose batteries at high temperatures or around heat-generating sources, such as sunlight, fire sources, transformers, and heaters. The battery may cause a fire if overheated.
- To avoid leakage, overheating, or fire, do not disassemble, alter, or damage batteries. For example, do not insert foreign objects into batteries or place batteries in water or other liquids.
- The fire hazard of the lithium-ion/sodium-ion battery energy storage system is high. Consider the following safety risks before handling batteries:

(a) Battery electrolyte is combustible, toxic, and volatile.

(b) Battery thermal runaway can generate flammable gas and harmful gas such as CO and HF.

(c) The concentration of flammable gas generated from battery thermal runaway may cause deflagration and explosion.

- The batteries must be stored separately inside the packaging. Do not store batteries together with other materials or in the open air.
- Do not stack batteries too high.
- Do not use batteries beyond the warranty period.
- Do not remove the battery packaging before use. Batteries should be charged during storage by professionals as required. Put batteries back to their packaging after charge during storage.
- Move batteries in the correct direction. Do not place a battery upside down or tilt it.
- Protect batteries from impact.
- Do not perform welding or grinding work around batteries to prevent fire caused by electric sparks or arcs.
- Use batteries within the temperature range specified in this manual.
- Do not use damaged batteries (such as damage caused when a battery is dropped, bumped, or dented on the enclosure). Damaged batteries may release flammable gases.
- Do not store damaged batteries near undamaged products.
- Do not place damaged batteries in close proximity to flammable materials.
- Do not approach the damaged batteries unless you are a professional.
- Monitor damaged batteries during storage for signs of smoke, flame, electrolyte leakage, or heat.

Personal Safety

- Wear proper personal protective equipment (PPE) during operation. If there is a probability of personal injury or equipment damage, immediately stop the operations, report the case to the supervisor, and take feasible protective measures.
- Use tools correctly to avoid hurting people or damaging the equipment.
- Do not touch the energized equipment, as the enclosure is hot.
- To ensure personal safety and normal use of the equipment, the equipment must be reliably grounded before use.

- When a battery is faulty, the temperature may exceed the burn threshold of the t ouchable surface. Therefore, avoid touching the battery.
- Do not disassemble or damage the battery. The released electrolyte is harmful to your skin and eyes. Avoid contact with the electrolyte.
- Do not place irrelevant objects on the top of the equipment or insert them into any position of the equipment.
- Do not place inflammables around the equipment.
- To prevent explosions and body injury, do not place batteries in a fire.
- Do not place the battery module in water or other liquids.
- Do not short-circuit wiring terminals of batteries. Short circuits can cause a fire.
- Batteries may cause electric shocks and high short-circuit currents. When using the battery, pay attention to the following points:
  (a) Remove any metal objects from yourself, such as watches and rings.
  (b) Use tools with insulated handles.
  (c) Wear rubber gloves and boots.
  (d) Do not place tools or metal parts on top of batteries.
  (e) Before connecting or disconnecting battery terminals, disconnect the charging power supply.
  (f) Check whether batteries are accidentally grounded. If it is accidentally grounded, remove the power supply from the ground. Touching any part of a grounded battery can cause an electric shock. If these grounding points are removed during installation and maintenance, the possibility of electric shocks can be reduced.
- Do not use water to clean electrical components inside or outside of a cabinet.
- Do not stand on, lean on, or sit on the top of the equipment.
- Do not damage the modules of the equipment.

Battery Installation Requirements

- Before installing batteries, check whether the packaging is intact. Do not use batteries with damaged packaging.
- During installation, ensure that the positive and negative electrodes of a battery are not short-circuited.
- During installation, ensure that the screws are tightened properly using a torque wrench and check them regularly.
- After installing the equipment, remove idle packing materials such as cartons, foam, plastics, and cable ties from the equipment area.

Hazardous and Toxicity Class

⚠ DANGER

- Hazard: It may cause heat generation or electrolyte leakage if battery terminals contact with other metals. Electrolyte is flammable. In case of electrolyte leakage, move the battery from fire immediately.
- Toxicity: Vapor generated from burning batteries, may make eyes, skin, and throat irritate.

Battery Emergency Measures

⚠ DANGER

If the battery module leaks electrolyte, avoid contact with the leaking liquid or gas. The electrolyte is corrosive. It will cause skin irritation or chemical burn to the operator. Any one contacts the leaked substance accidentally has to do as following:

- Breath in the leaked substance: Evacuate from the polluted area, and seek immediate medical assistance.
- Eye contact: Rinse your eyes for at least 15 minutes with clean water and seek immediate medical assistance.
- Skin contact: Thoroughly wash the touch area with soap and clean water, and seek immediate medical assistance.
- Ingestion: Induce vomiting, and seek immediate medical assistance.

Fire Emergency Measures

⚠ DANGER

- The battery may explode when the ambient temperature exceeds 150°C. Poisonous and hazardous gas may be released if the battery is on fire.
- In the event of a fire, please make sure that the carbon dioxide extinguisher or Novac1230 orFM-200 is nearby.
- The fire cannot be put out by water or ABC dry powder extinguisher. Firefighters are required to wear full protective clothing and self-contained breathing apparatus.

Flood Emergency Measures

⚠ DANGER

- Power off the system if it is safe to do so.
- If any part of the batteries is submerged in water, do not touch the batteries to avoid electric shock.
- Do not use batteries that have been soaked in water. Contact a battery recycling company for disposal.

Dropped Battery Emergency Measures

⚠ DANGER

- If a battery pack is dropped or violently impacted during installation, internal damage may occur. Do not use such battery packs; otherwise, safety risks such as cell leakage and electric shock may arise.
- If a dropped battery has obvious damage or abnormal odor, smoke, or fire occurs, evacuate the personnel immediately, call emergency services, and contact the professionals. The professionals can use fire extinguishing facilities to extinguish the fire under safety protection.
- If a dropped battery has no obvious deformation or damage and no abnormal odor, smoke, or fire occurs, contact the professionals to transfer the battery to an open and safe place, or contact a recycling company for disposal.

DANGER

If a battery pack is dropped or violently impacted during installation, internal damage may occur. Do not use such battery packs; otherwise, safety risks such as cell leakage and electric shock may arise.

Battery Recycling

- Dispose of used batteries in accordance with local laws and regulations. Do not dispose of batteries as household waste.
- If the batteries leak or are damaged, contact technical support or a battery recycling company for disposal.
- If the batteries are out of service life, contact a battery recycling company for disposal.
- Do not expose batteries to high temperatures or direct sunlight.
- Do not expose batteries to high humidity or corrosive environments.

1.6 Storage Requirements

NOTE:

- *Record storage data such as temperature, humidity, and storage environment in compliance with the storage requirements in this manual.*
- *Do not store batteries for extended periods. Storing lithium batteries for extended periods may cause capacity loss. Generally, the irreversible capacity loss is 3% to 10% after lithium batteries are stored at the recommended storage temperature range for 12months.*

- The storage environment must comply with local regulations and standards.
- If a battery has been stored for longer than the allowed period, it must be checked and tested by professionals before use.
- Place batteries according to the signs on the packing case during storage. Do not put batteries upside down or sidelong.
- Stack battery packing cases in compliance with the stacking requirements on the external package.
- Handle batteries with caution to avoid damage.

The storage environment requirements are as follows:

- Ambient temperature: -10–55°C; recommended storage temperature: 20–30°C
- Relative humidity: 5% to 80%.
- The batteries must be stored in a clean, dry, and well-ventilated place and be protected from dust and water vapor corrosion. The batteries must be protected against rain and water.
- Relative humidity: 5% to 80%
- Keep batteries away from direct sunlight.

1.7 Transportation Requirements

NOTICE

The product passes the certifications of the UN38.3 (UN38.3: Section 38.3 of the sixth Revised Edition of the Recommendations on the Transport of Dangerous Goods: Manual of Tests and Criteria) and SN/T 0370.2-2009 (Part 2: Performance Test of the Rules for the Inspection of Packaging for Exporting Dangerous Goods). This product belongs to Class 9 dangerous goods.

Loading and unloading

Load and unload the batteries in compliance with local laws, regulations, and industry standards. Reckless handling may cause short circuits or damage to batteries in the container, which may result in battery leakage, rupture, explosion, or fire.

Before transportation

- Check that the batteries are intact and there is no obvious odor, smoke, or fire. Otherwise, the batteries cannot be transported.

NOTE:

• The product can be delivered to the site directly and transported by land and water. The packing case must be secured for transportation. Handle the product with care during loading, unloading, and transportation with moisture-proof measures in place. The actual capacity may vary depending on the environment conditions, such as temperature, transportation conditions, and storage conditions.

During transportation:

- The batteries cannot be transported by rail or air.
- Maritime transport must comply with the International Maritime Dangerous Goods Code (IMDG Code).
- Road transport must comply with the International Carriage of Dangerous Goods by Road (ADR) or JT T617.
- Comply with the requirements of the transportation regulatory authorities in the countries of departure, route, and destination.

Comply with the international regulations on the transport of dangerous goods and the requirements of the transport regulatory authorities of the respective countries.

Protect the packing case with the product from the following situations:

- Being dampened by rains, snows, or falling into water.
- Falling or mechanical impact.
- Being upside-down or tilted.

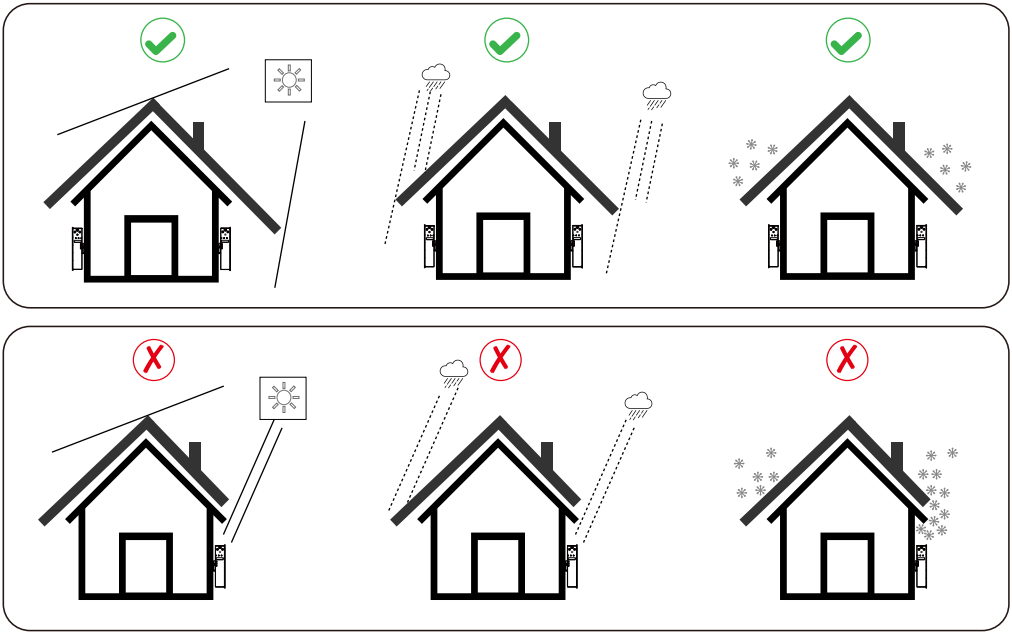
NOTE:
If any of the preceding exceptions occurs, take the emergency measures.

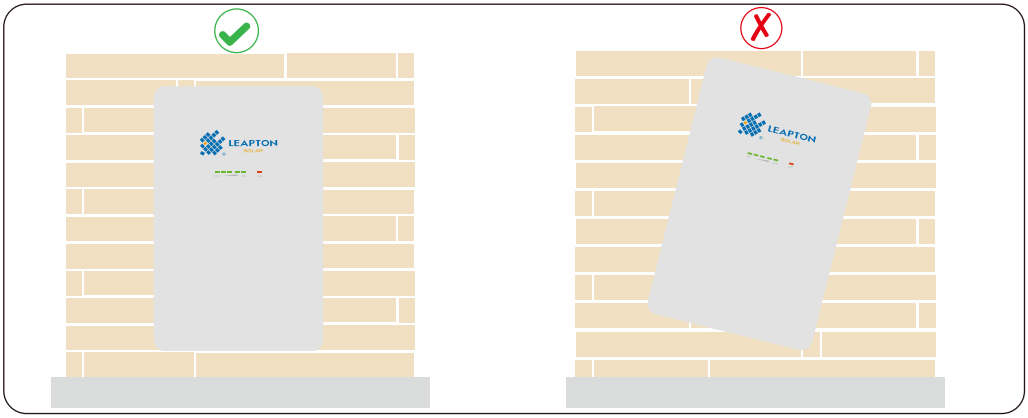
1.8 Installation Environment Requirements

• The installation and use environment must meet relevant international, national, and local standards for lithium batteries, and are in accordance with the local laws and regulations.
• Ensure that the battery is not accessible to children and away from daily working or living areas, including but not limited to the following areas: studio, bedroom, lounge, living room, music room, kitchen, study, game room, home theater, sunroom, toilet, bathroom, laundry, and attic.
• This product has an IP65 protection rating. However, IP65 does not mean it is completely protected for fully exposed outdoor installation.The product is suitable for outdoor use, but it should be installed in an environment or cabinet that provides shade, rain protection, dust prevention, and temperature control to ensure safety, stable performance, and long service life.
• When installing the battery in a garage, keep it away from the drive way. It is recommended that the battery be mounted on the wall higher than the bumper to prevent collision.
• When installing the battery in a basement, keep good ventilation. Do not place flammable or explosive materials around the battery. It is recommended that the battery be mounted on the wall to avoid contact with water.
• Install the battery in a dry and well-ventilated environment. Secure the battery on a solid and flat surface.
• Install the battery in a sheltered place or install an awning over it to avoid direct sunlight or rain.
• Install the battery in a clean environment that is free from sources of strong infrared radiation, organic solvents, and corrosive gases.

• For areas prone to natural disasters such as floods, debris flows, earthquakes, and typhoons/hurricanes, take corresponding precautions for installation.
• Keep the battery away from fire sources. Do not place any flammable or explosive materials around the battery.
• Keep the battery away from water sources such as taps, sewer pipes, and sprinklers to prevent water seepage.
• Do not install the battery in a position where it is easy to touch as the temperature of the chassis and heat sink is high when the battery is running.
• To prevent fire due to high temperature, ensure that the vents and the cooling system are not blocked when the battery is running.
• Do not expose the battery to flammable or explosive gas or smoke. Do not perform any operation on the battery in such environments.
• Do not install the battery on a moving object, such as ship, train, or car.
• In backup power scenarios, do not use the battery for the following situations:
a. Medical devices substantially important to human life. b. Control equipment such as trains and elevators which may cause personal injury. c. Computer systems of social and public importance. d. Locations near medical devices. e. Other devices similar to those described above.
• Do not install the battery outdoors in salt-affected areas because it may corrode. A salt-affected area refers to the region within 500 meters from the coast or prone to sea breeze. The regions prone to sea breeze vary with weather conditions (such as typhoons and monsoons) or terrains (such as dams and hills).

Figure:Installation environment





1.9 Label Description

	Potential risks exist. Wear proper PPE before any operations.		Do not place at the children and pet touchable area.
	High voltage exists in the equipment during operation. Ensure the equipment is powered off before any operations.		Do not reverse connection the positive and negative.
	Operate the equipment properly to avoid explosion danger.		Label for Waste Electrical and Electronic Equipment (WEEE) Directive (2012/19/EU)
	Batteries contain flammable materials, beware of fire.		Recycle label
	Read the product and operation manual before operating the battery system		CE Marking
	Read the product and operation manual before operating the battery system		The certificate label for Safety by TÜV NORD

2 Product Introduction

2.1 Product Overview

Intended usage

The battery system consists of a Battery Management System (BMS) and battery modules.It can store and release direct current (DC) electrical energy according to the requirements of the solar energy storage system.The wiring terminals on both sides of the energy storage system are low-voltage DC ports.

Model

- Model of the Product:

5kWh Battery System: EL-A05

Note:

EL:Product Code; A05:The design code and power level is 5kWh;

Usable energy description

The capacity of one battery system is 5.12kWh

Battery 1

The battery system supports capacity parallel expansion. The new and old batteries can be used in parallel together.A maximum of 15 battery modules can be used to extend the usable energy of the battery system.The maximum capacity of battery system is 76.8kWh.

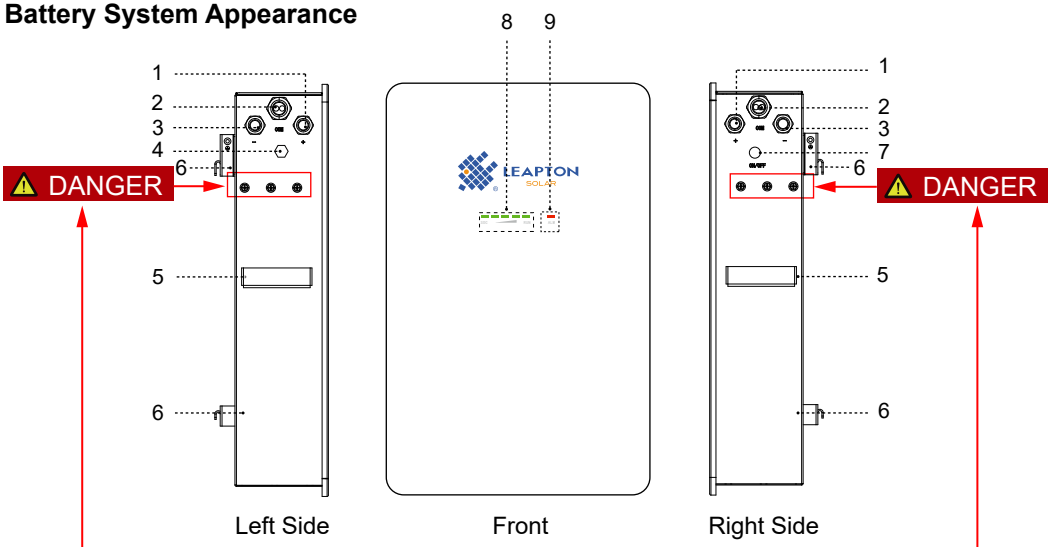
Battery 1 Battery 2 Battery 15

DANGER

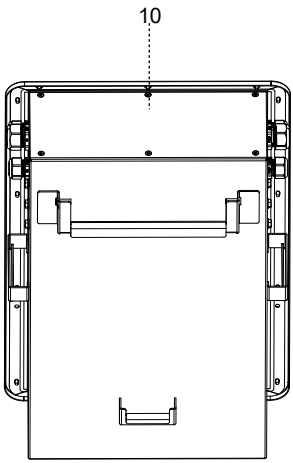
When using in parallel, please strictly follow the instructions for setting up and operating. Pay attention to the positive and negative poles of the battery and do not connect the wrong cables.

2.2 Product Appearance

Battery System Appearance



Do not loosen these screws. Factory setting only.



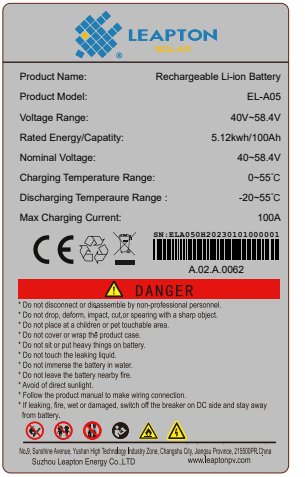
Back

1. Battery Positive +	6. Bracket Mount
2. Battery Communication Port	7. Power Button
3. Battery Negative -	8. SOC & Status Indicator
4. Vent	9. Alarm Indicator
5. Lifting Handle	10. Maintenance cover plate

Description

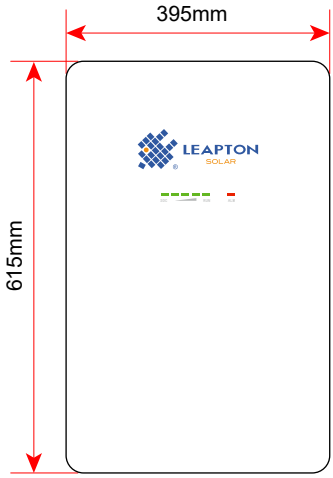
Number	Project	Description
1	Battery Positive Terminal	To realize the power transmission with the inverter and the parallel use between the battery, Charging and discharging
2	Battery Communication Port	To realize the communication with the inverter and the parallel use between the battery, communication IN and OUT
3	Battery Negative Terminal	To realize the power transmission with the inverter and the parallel use between the battery, Charging and discharging
4	Vent	Balance the pressure inside and outside the battery
5	Lifting Handle	To transport batteries
6	Bracket Mount	For installing the bracket
7	Power Button	To turn ON/OFF the whole battery
8	SOC & Status Indicator	To observe status of the battery and the current SOC
9	Alarm Indicator	The indicator shows a red light when a malfunction occurs.
10	Maintenance cover plate	This panel can be accessed during installation or repair work

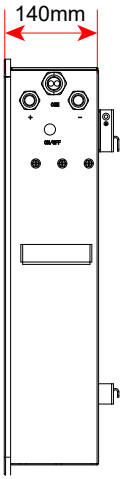
2.3 Nameplate



Nameplate of Battery

2.4 Dimension





2.5 Parameters

Project	Parameters	Project	Parameters
Battery Type	LFP	Recommend Charging Current	50A
Model	EL-A05	Operating Temperature Range	Charge:0~55℃ Discharge:-20~55℃
Configuration	1P16S	Storage Temperature Range	-10~55℃
Rated Capacity	100Ah	Dimension(W*H*D)	395*615*140 mm
Nominal Voltage	51.2V	Weight	43±3 kg
Nominal Energy	5.12kWh	Communication	RS485/CAN
Recommend Voltage Range	44.8~56.8V	IP Class	IP65
Max Charging Current	100A@25℃	Cooling	Natural Cooling
Max Discharging Current	100A@25℃	Mounting Method	Wall Mounted

3 Mounting Installation

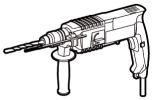
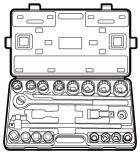
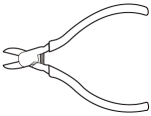
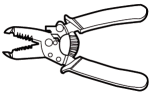
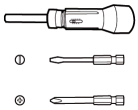
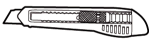
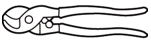
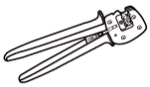
3.1 Checking Before Installation

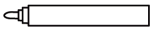
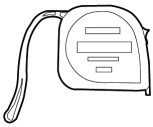
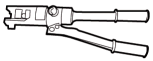
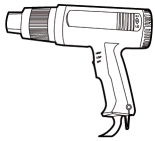
Check the Outer Packing

Check the following items before receiving the product.

1. Check the outer packing box for damage, such as holes, cracks, deformation, and other signs of equipment damage. Do not unpack the package and contact the supplier as soon as possible if any damage is found.
2. Check the product model. If the product model is not what you requested, do not unpack the product and contact the supplier.
3. Check the deliverables for correct model, complete contents, and intact appearance. Contact the supplier as soon as possible if any damage is found.

3.2 Preparing Tools and Instruments

Type	Tools and Instruments		
Installation	 Hammer drill (with a drill bit of 8 mm)	 Torque socket wrench	 Torque wrench
	 Diagonal pliers	 Wire strippers	 Torque screwdriver
	 Rubber mallet	 Utility knife	 Cable cutter
	 Crimping tool(model: TE-T3100001001-000)	 Cord end terminal crimper	 Multimeter (DC voltage measurement range ≥ 600 V DC)
	 Cable tie	 Vacuum cleaner	

Type	Tools and Instruments		
Installation	 Marker	 Steel measuring tape	 Level
	 Hydraulic pliers	 Heat-shrink tubing	 Heat gun
Personal protective equipment (PPE)	 Safety gloves	 Safety goggles	 Dust mask
	 Safety boots	-	-

3.3 Check the Installation Position

Installation Angle Requirements

The battery can be Wall-mounted. The installation angle requirement is as follows:

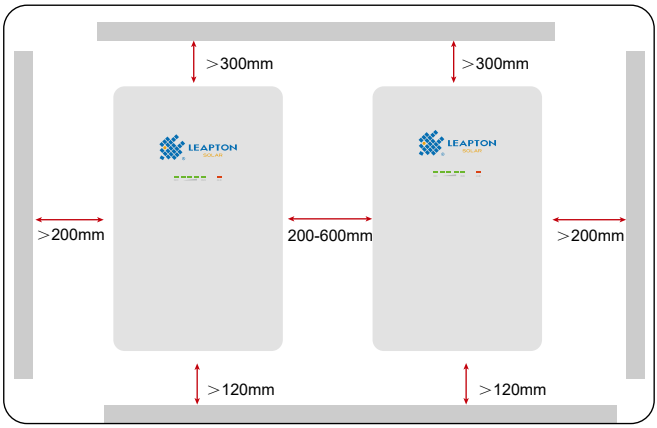
- Do not install the battery at a side tilted, horizontal, or upside down positions.

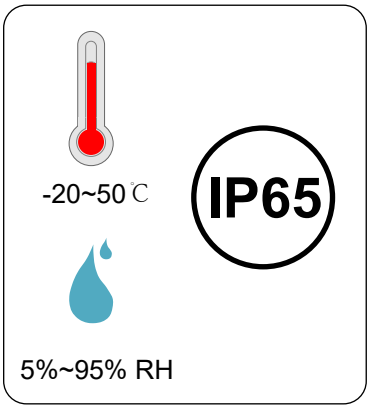
Installation Position Requirements

Install the battery on a solid brick-concrete structure or concrete wall or floor. If other types of walls and floors are used, they must be made of fire-retardant materials and meet the load-bearing requirements of the equipment.

Installation Space Requirements

During installation, ensure that there is no other devices (except related devices and awnings) or flammable or explosive materials around the batteries. Reserve adequate space for heat dissipation and safety isolation.





3.4 Moving the Equipment

⚠ CAUTION

- Operations such as transportation, turnover, installation and so on must meet the requirements of the laws and regulations of the country or region where it is located.
- Move the equipment to the site before installation. Follow the instructions below to avoid personal injury or equipment damage.

1. Consider the weight of the equipment before moving it. Assign enough personnel to move the equipment to avoid personal injury.
2. Wear safety gloves to avoid personal injury.
3. Keep balance to avoid falling down when moving the equipment.
4. Before fixing the battery to the wall, please ensure that the wiring of each individual battery has been properly connected.

3.5 Installing the Battery System

⚠ DANGER

Avoid drilling holes in the water pipes and cables buried in the wall.

1 Drilling Holes and Installing the Wall-side Bracket

Step 1: Attach the wall-side bracket to the wall, Keep a distance as the figure shows;

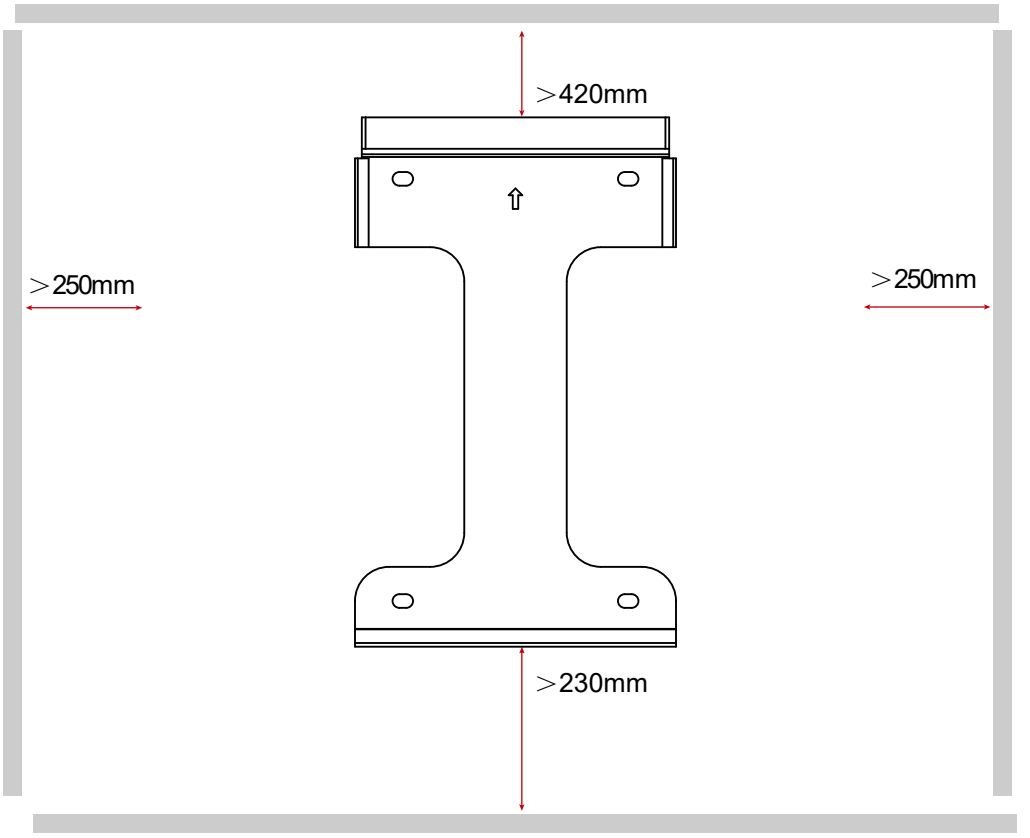
Step 2: Ensure that the Wall-side bracket attach to the wall parallel and tightly.

Mark the mounting holes for the bracket

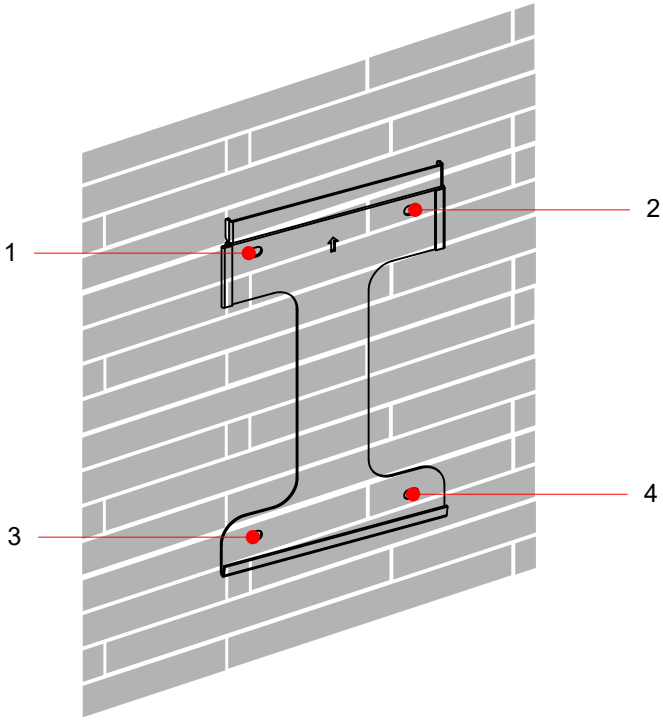
Step 3: Drill holes using the hammer drill;

Step 4 Secure the wall-side bracket to the wall.

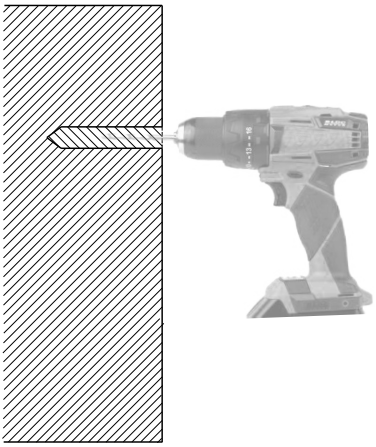
Step1: Mounting hole dimensions and requirements



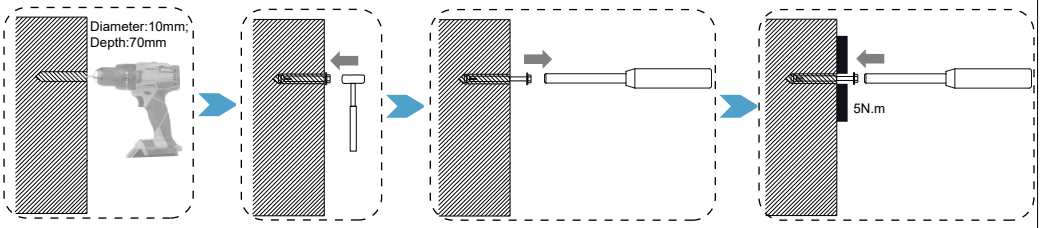
Step2: Attach the bracket to the wall and mark the 5 holes



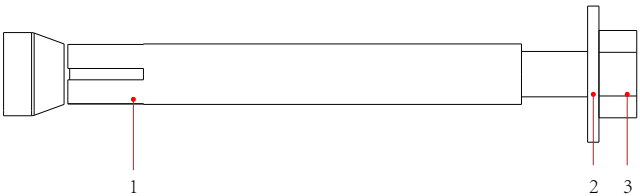
Step3: Drilling holes



Requirements of Drill holes



The M6x70 expansion bolts delivered with the battery are mainly used for solid concrete walls and concrete floors. If other types of walls and floors are used, ensure that the walls and floors meet the load-bearing requirements (one battery module weighs 55kg) and select the bolts by yourself.



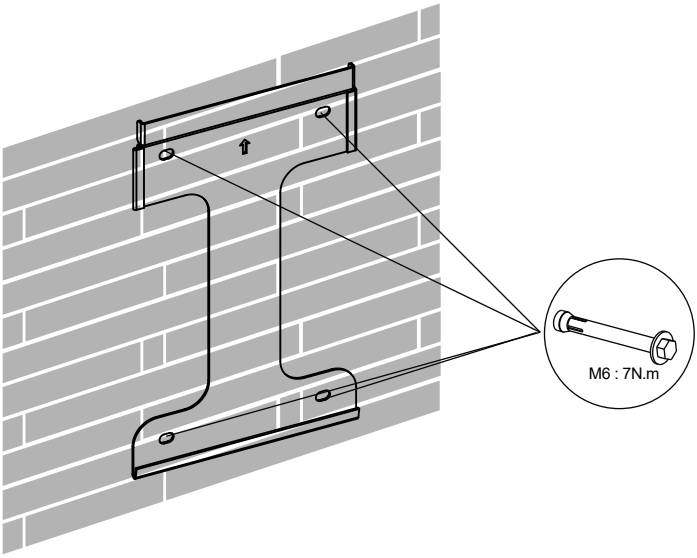
1.Expansion sleeve 2.Flat Washer 3.Bolt

M6 expansion bolt structure diagram

NOTICE

- To prevent dust inhalation or contact with eyes, wear safety goggles and an anti-dust mask when drilling holes.
- Wipe away any dust in or around the holes and measure the hole distances. If the holes are inaccurately positioned, drill holes again.
- Level the head of the expansion sleeve with the concrete wall or floor after removing the bolt and flat washer. Otherwise, the mounting kit will not be securely installed on the wall or ground.
- Secure the battery or base support with bolt and flat washer.

Step4:Secure the wall-side bracket



2 Secure the Battery to the Wall-side Bracket

NOTICE

- The following describes how to install the battery expansion modules for a 5.12kWh model.
- The installation of battery for 10.24kWh~76.8kWh models is the same. One battery expansion module is installed for a 5kWh model, two battery expansion modules are installed for a 10.12kWh model and so on (for the installation of mechanical structures).

Installation Environment and Spacing Requirements

- Space and Ventilation

Maintenance and ventilation spacing at the front: ≥ 800 mm; both sides: ≥ 200 mm; top: ≥ 300 mm.

The bottom of the equipment shall be ≥ 120 mm above the ground (using brackets/base/moisture-proof platform) to avoid the impact of low ground temperature and condensation.

- Distance from Heat Sources and Air Supply Outlets

Maintain a horizontal distance of ≥ 1.0 m from significant heat sources such as inverters, air conditioner external/internal units, heat pumps, heaters, boilers, and water tank coils.

Avoid direct air blowing from air conditioners/heat pumps to the batteries. If unavoidable, wind deflectors/air guide covers/heat insulation baffles must be installed to ensure no blockage of the battery's heat dissipation air inlet/outlet paths.

- Temperature Range and Temperature Difference Control

Recommended operating environment: 10–30 ℃; optimal operating temperature for lithium batteries: 20–35 ℃.

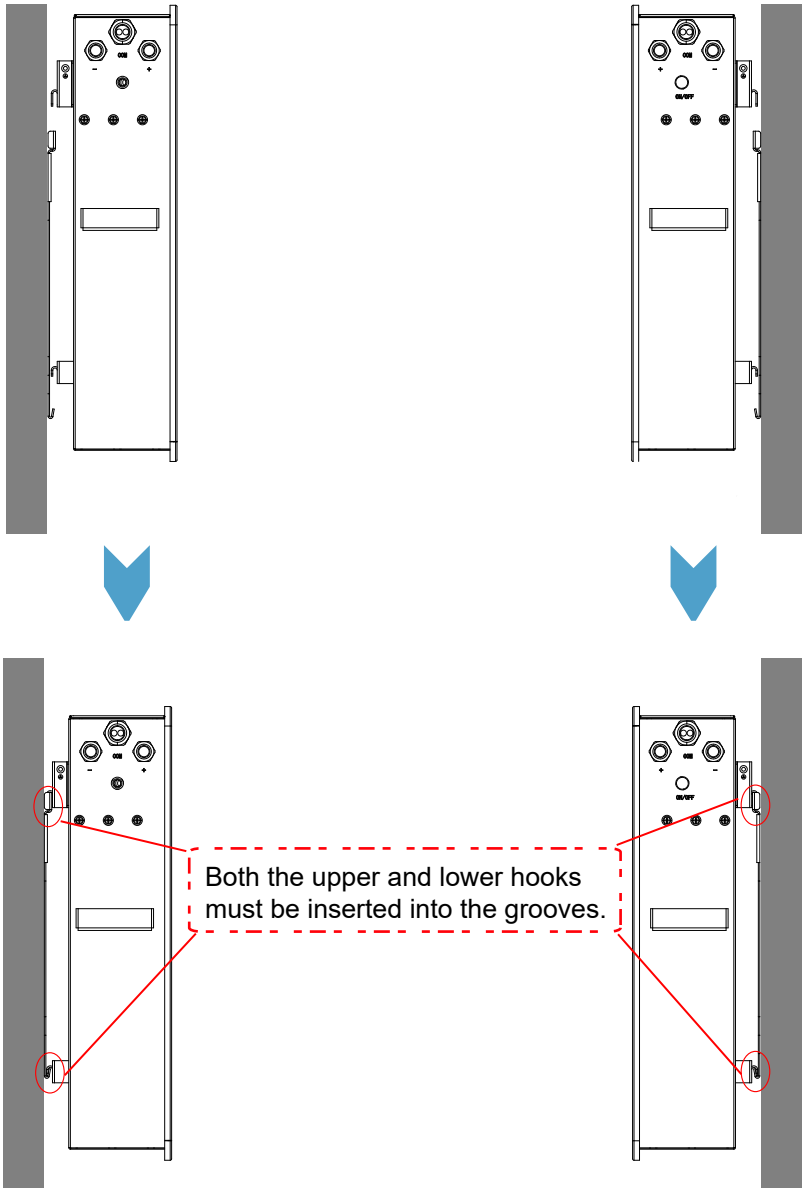
The recommended system temperature difference is ≤ 8 ℃ (the temperature difference between the maximum and minimum temperatures among the upper/lower, front/back of the same battery pack or between multiple cabinets).

A temperature difference ＞ 10 ℃ will trigger an alarm (set by the BMS/monitoring system). Check the distance from heat sources, air ducts, and direct blowing conditions, and take measures such as heat insulation, air guiding, or air supplement.

- Anti-Direct Blowing and Heat Insulation

Prohibit direct blowing of hot or cold air currents to the battery case and interface areas. If necessary, install heat insulation layers (temperature-resistant materials) and air guide components on the heat source side, and regularly check the reliability of their fixation. It is forbidden to install batteries directly in front of the air outlets of air conditioners/heat pumps or in the heat dissipation air ducts of compressors.

Step1:Secure the battery to the wall



NOTICE

Before fixing the battery to the wall, please ensure that the wiring of each individual battery has been properly connected.

4 Electrical Connection

4.1 Safety Precaution

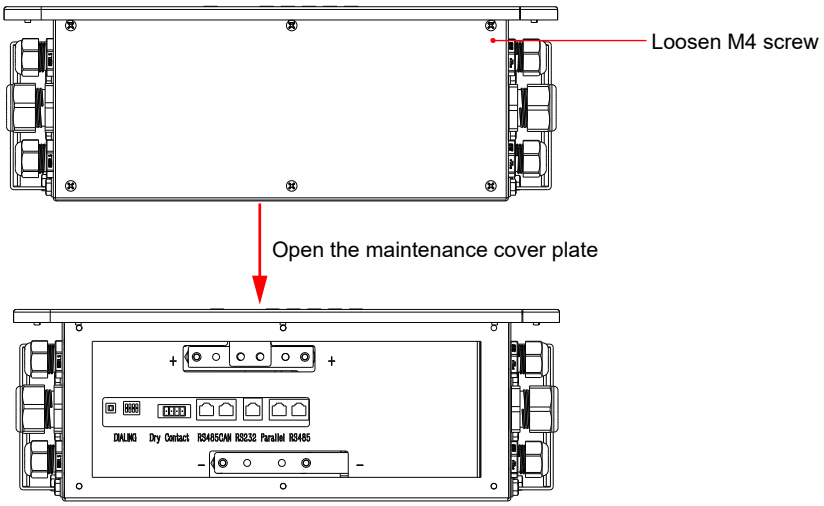
⚠ DANGER

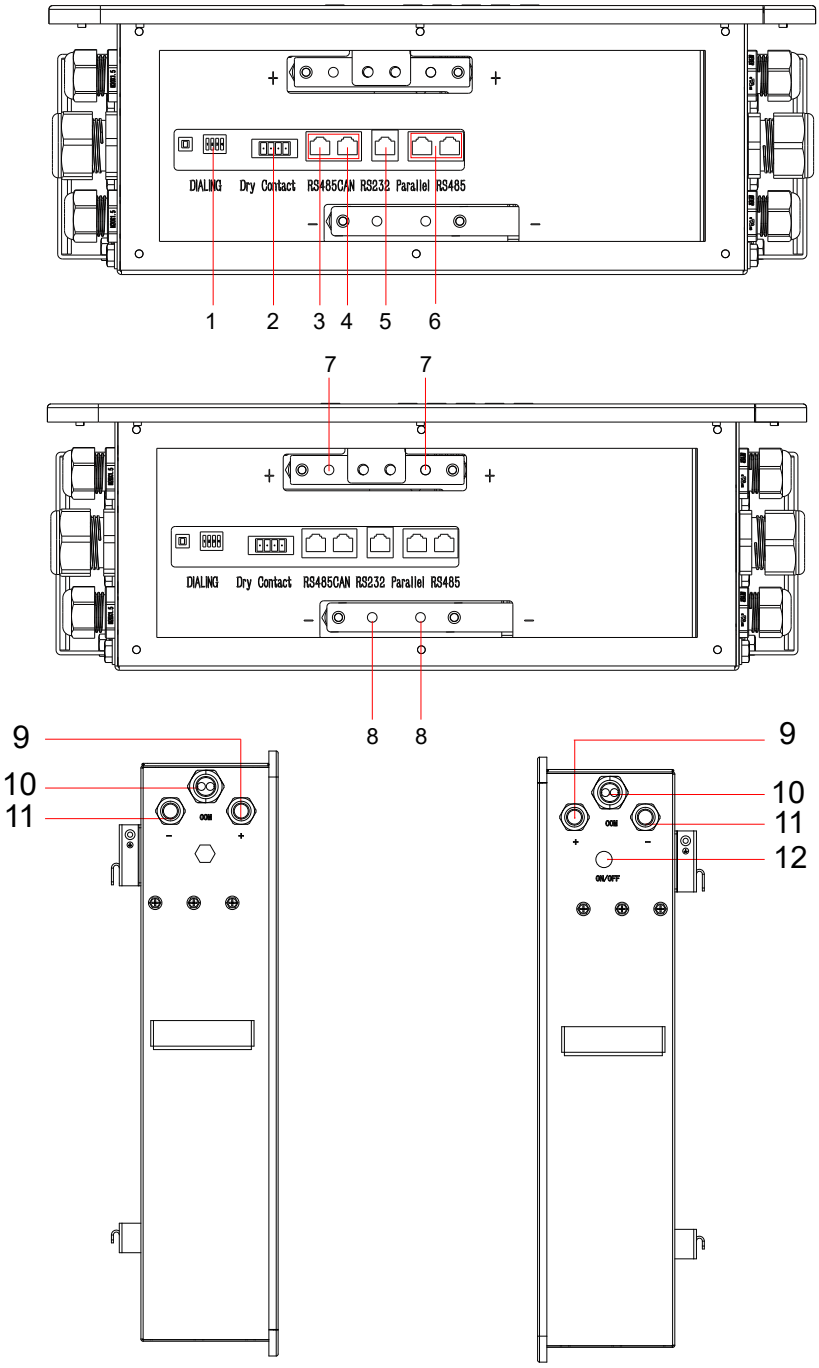
- Please keep Power Off before any operations to avoid danger. Strictly follow all safety precautions outlined in this manual and safety labels on the equipment during the operation.
- All operations, cables and parts specification during the electrical connection shall be in compliance with local laws and regulations.
- Tie cables of the same type together and keep them separate from cables of different types.Do not place the cables entangled or crossed.
- Make sure that the cable conductor is in full contact with the terminal and the cable insulation part is not crimped with the terminal when crimping the terminal. Otherwise, the device may not be able to work properly, or the connection may be unreliable during working, which may cause terminal block damage, etc.

NOTICE

- Wear personal protective equipment like safety shoes, safety gloves, and insulating gloves during electrical connections.
- All electrical connections should be performed by qualified professionals.
- Cable colors in this document are for reference only. The cable specifications shall meet local laws and regulations.

4.2 Battery Internal Description



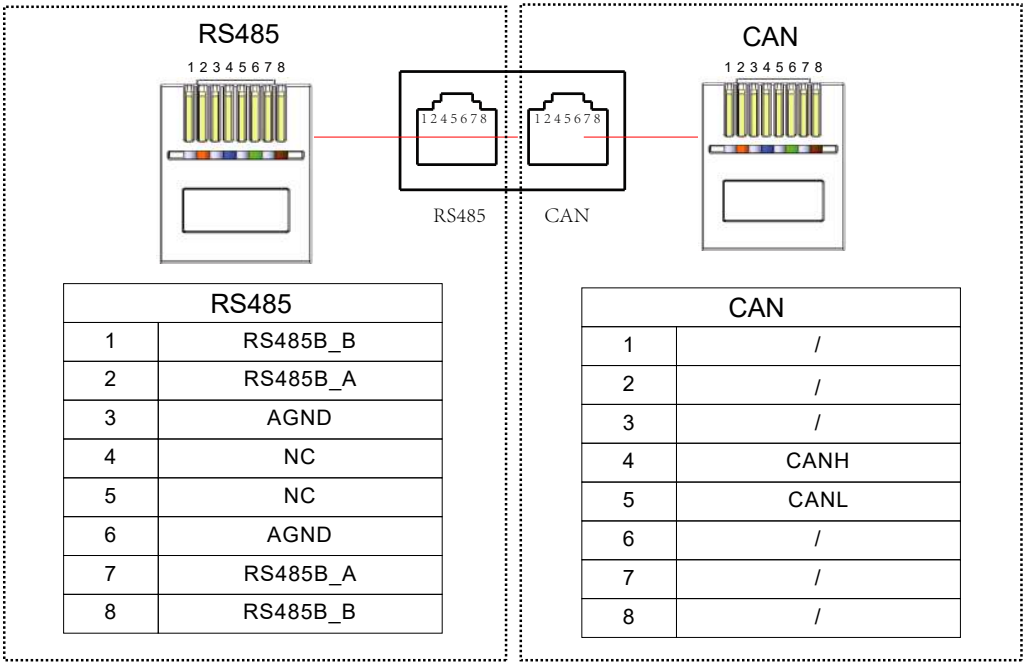

DIALING
Dry Contact
RS485CAN
RS232
Parallel
RS485
1
2
3
4
5
6
7
7
8
8
9
10
11
9
10
11
12
ON/OFF

Number	Project	Description
1	DIALING	When multiple modules are connected in parallel, different address codes can be specified for each battery module,up to 15
2	Dry Contact	1/2 open, close when fault protection; 3/4 open, low battery power alarm
3	RS485	RJ45 interface. When the communication method of the inverter is RS485, please use this port to connect to the inverter.
4	CAN	RJ45 interface. When the communication method of the inverter is CAN, please use this port to connect to the inverter.
5	RS232	The BMS can communicate with the upper - computer through the RS232 interface
6	Parallel RS485	RJ45 interface, used for parallel communication
7	Positive busbar	Realize the charge and discharge function,one connected device is expanded in parallel with other batteries
8	Negative busbar	Realize the charge and discharge function,one connected device is expanded in parallel with other batteries
9	Battery Positive Terminal	The waterproof cable gland.A pair of connector with the same function Used for through the Power cable .one connected device is expanded in parallel with other batteries. Foreach individual module, each terminal supports charge and discharge functions.
10	Battery Communication Port	The waterproof cable gland.A pair of connector with the same function, Used for through the network cable .one connected device is expanded in parallel with other batteries. Foreach individual module, each terminal can realize the communication function with the inverter.
11	Battery Negative Terminal	The waterproof cable gland.A pair of connector with the samefunction, Used for through the Power cable .one connected device is expanded in parallel with other batteries.For each individual module,each terminal supports charge and discharge functions.
12	Power Button	To turn ON/OFF the whole battery

4.3 Connecting the Communication Cable

4.3.1 Communication Port Introduction

- The two communication ports of the battery are RS485 and CAN.
- For one battery system， connect the cable to RS485 or CAN port according to the communication method of inverter.Connect the other end of the cable to inverter.
- Please refer to the following pin definitions if you need to match the different inverter.



RS485	
1	RS485B_B
2	RS485B_A
3	AGND
4	NC
5	NC
6	AGND
7	RS485B_A
8	RS485B_B

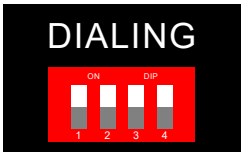
CAN	
1	/
2	/
3	/
4	CANH
5	CANL
6	/
7	/
8	/

4.3.2 DIALING Setting Introduction

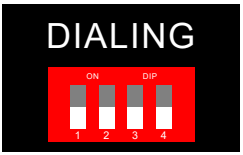
For easier explanation, we use different colors to represent the two statuses.

ON: Gray indicates the ‘on’ state　OFF: Gray indicates the ‘OFF’ state

Moving the DIALING switch upward represents the "on" position



All four DIALING switch are set to ‘OFF’



All four DIALING switch are set to ‘ON’

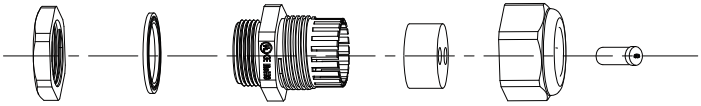
DIALING Setting Introduction

Battery 1 	Battery 2 	Battery 3 
Battery 4 	Battery 5 	Battery 6 
Battery 7 	Battery 8 	Battery 9 
Battery 10 	Battery 11 	Battery 12 
Battery 13 	Battery 14 	Battery 15 

- If only one battery is used, the DIALING setting should be configured solely according to the specifications for Battery 1.

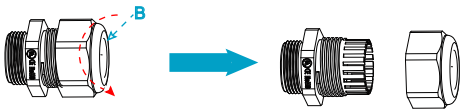
- If you have two or more batteries connected in parallel, you must first connect the batteries and the inverter as instructed in Section 4.5. Then, assign each battery a sequential identifier (Battery 1, Battery 2, Battery 3, and so on, up to Battery 15) based on their parallel connection order.

4.3.3 Battery Communication Cable Installation

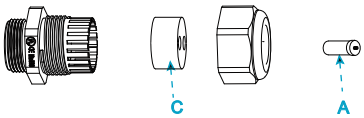


F:lock nut E:flat washer D:main part C:clamping ring B:lock nut A:plug head

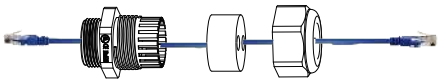
step1:rotate counterclockwise to remove B



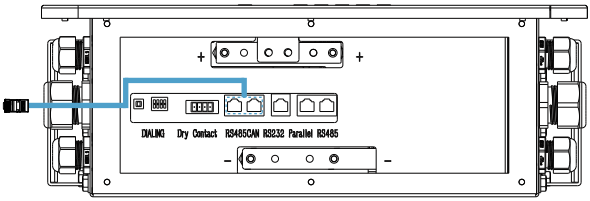
step2:Remove C and A in the direction of the arrow



step3:Thread the network cable through B and C in sequence and install C onto the connector



step4:Insert the network cable into the device



step6:Clockwise lock:B (locking torque:6.75N.M)

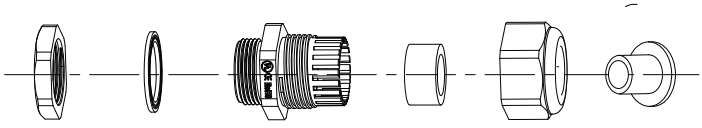
4.4 Connecting the Power Cable

NOTICE

Power off the battery system before connecting the power cable to avoid danger.

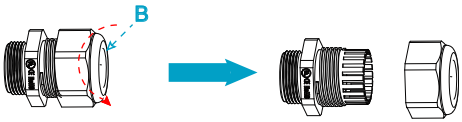
- The parallel cable should be prepared by customers. Connect the positive connector to the red wire harness. And the negative connector to the black wire harness. The cable should meet standards for outdoor use.

Battery Power Cable Installation

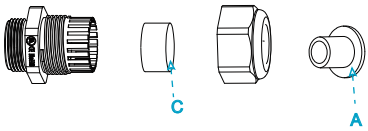


F:lock nut E:flat washer D:main part C:clamping ring B:lock nut A:plug head

step1:rotate counterclockwise to remove B

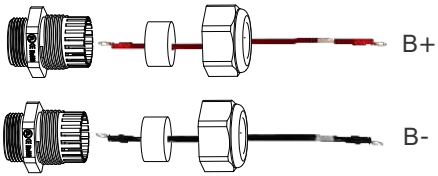


step2:Remove C and A in the direction of the arrow

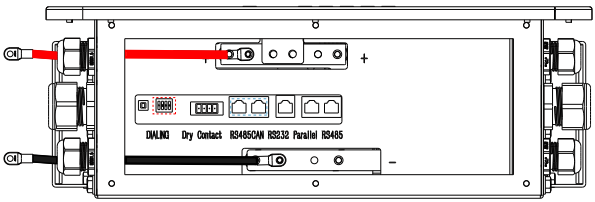


step3:Thread the power cable through B and C in sequence and install C onto the connector

B+ positive connector uses red power cable
B- negative connector uses black power cable



step4:Connect positive terminal cable to the positive busbar with M5X16 combination, Connect negative terminal cable to the negative busbar with M5X16 combination.(locking torque:6N.M)



step5:Clockwise lock:B (locking torque:6.75N.M)

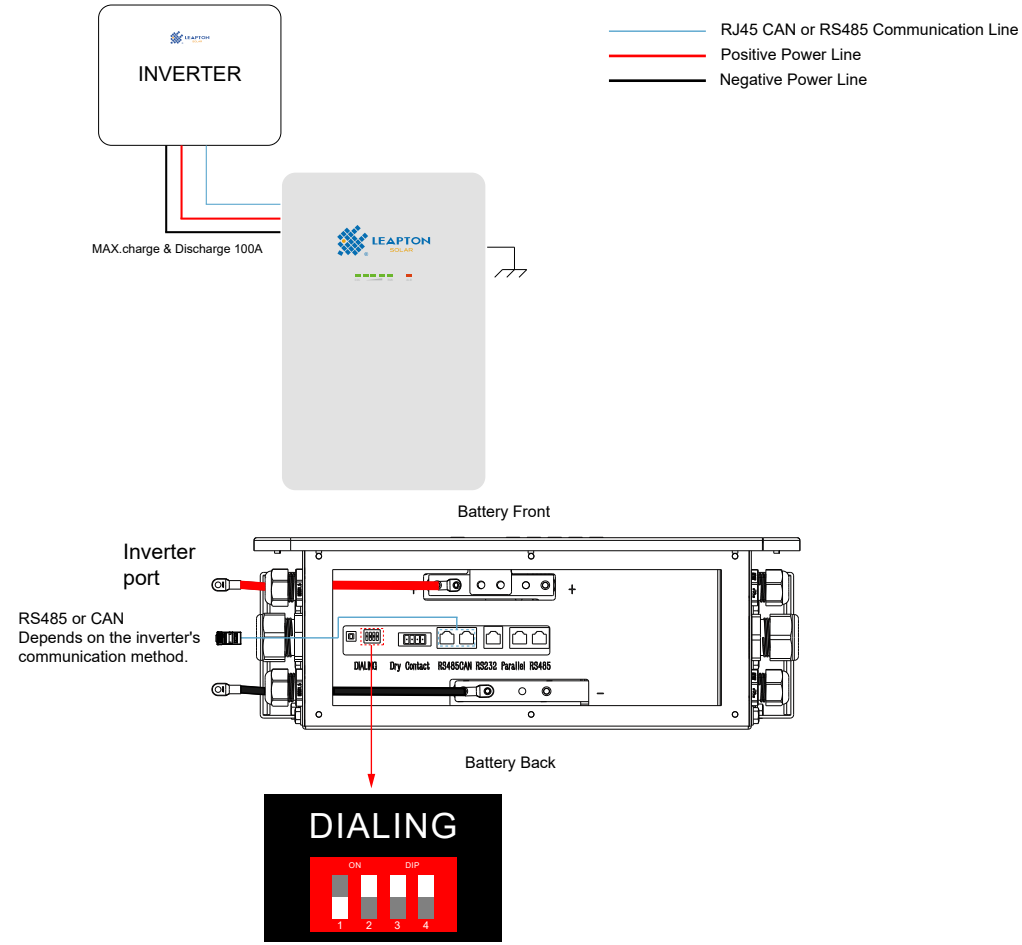
4.5 Description of Battery System Usage Modes

4.5.1 Single Battery

⚠ CAUTION

Cable requirements: The cross-sectional area of the cable must be at least 25mm². It should be noted that the maximum current of the first battery is 100A (inverter power must not exceed 5kW), exceeding 100A will cause heating of the connectors and cable, and in severe cases, it will cause a fire accident.

Schematic diagram of EL-A05 system battery：



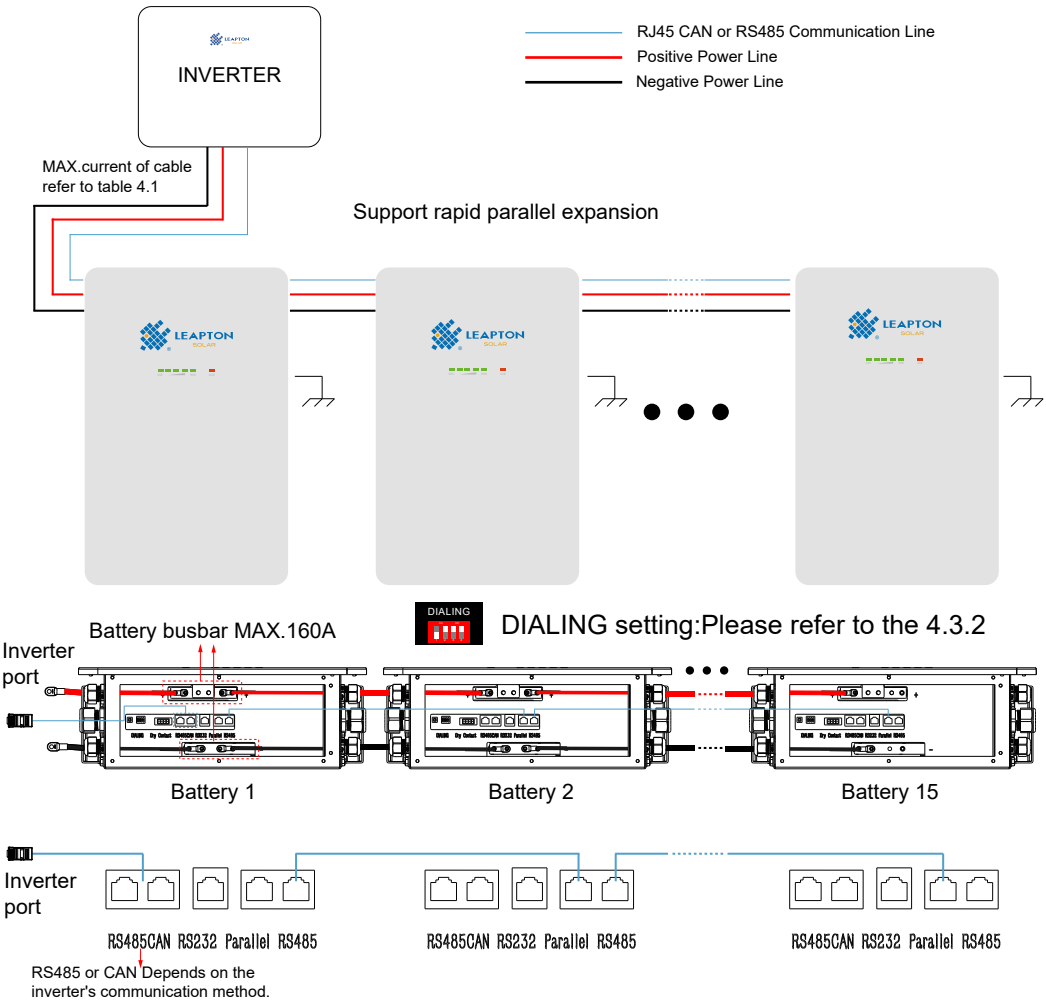
DIALING Setting

4.5.2 Battery Parallel

4.5.2.1 Battery Parallel Mode 1

Table 4.1

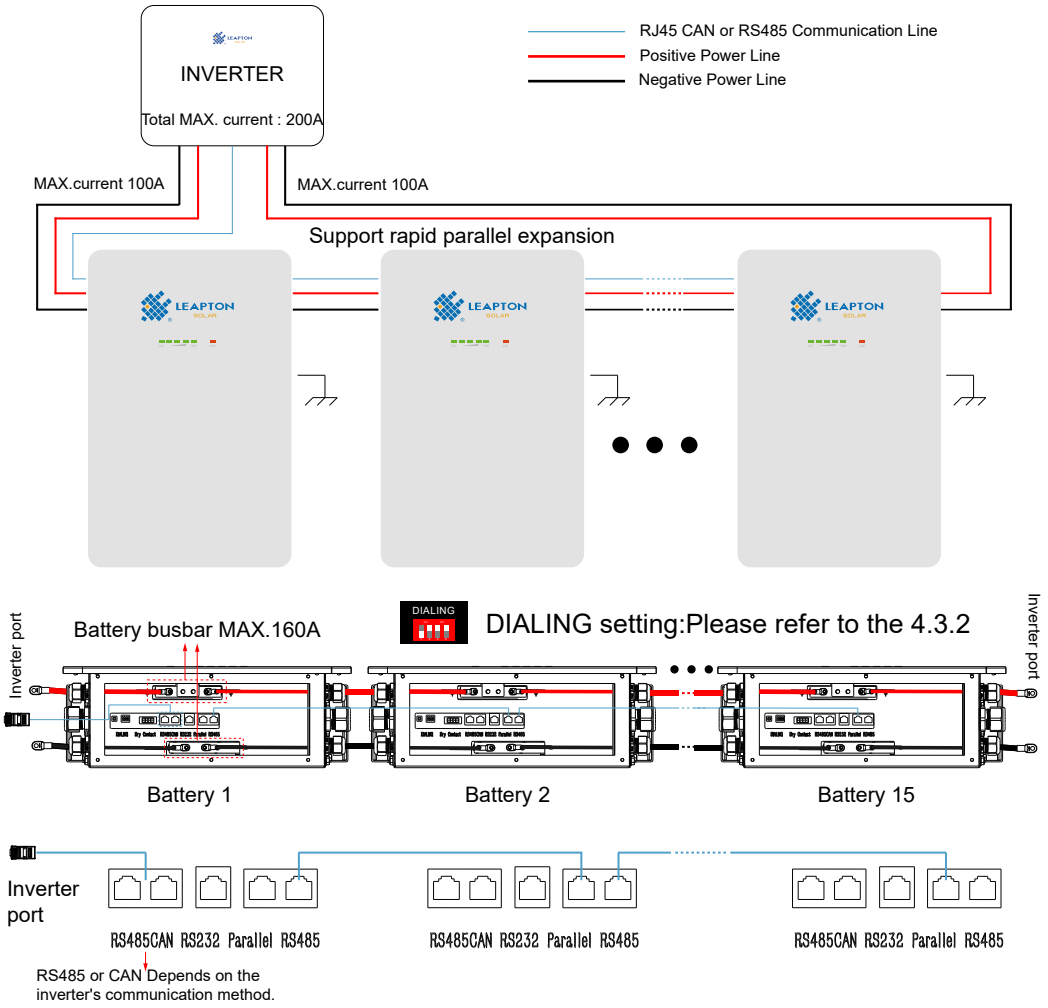
Cross-sectional area of the cable	Max.current	Max. power of inverter
25mm²(standard)	100A	5kW
35mm²	160A	8kW



4.5.2.2 Battery Parallel Mode 2

It is suitable for scenarios where the inverter power ≤10kW

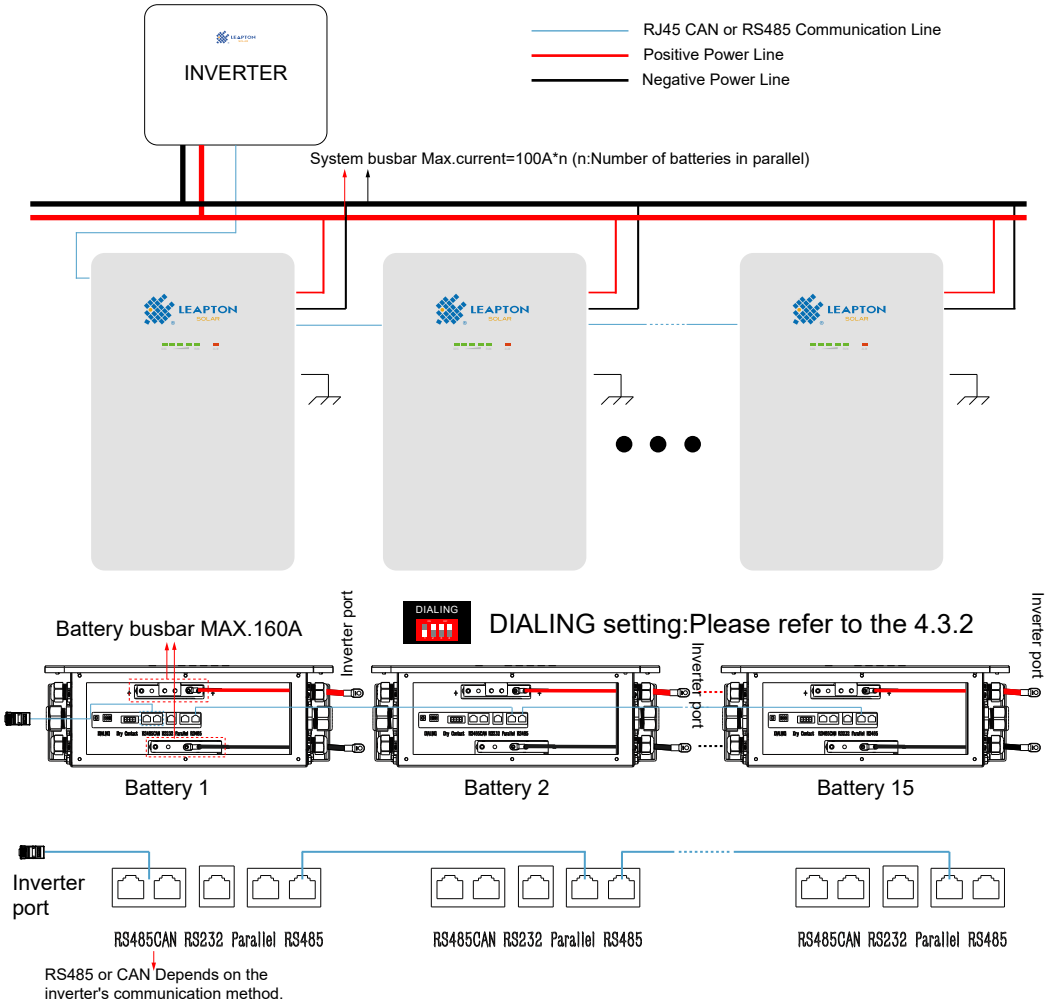
Cable requirements: The cross-sectional area of the cable must be at least 25mm². Inverter power must not exceed 10kW, The system maximum current is 200A.Exceeding 200A will cause heating of the connectors and cable, and in severe cases, it will cause a fire accident.Schematic diagram of EL-A05 system battery：



4.5.2.3 Battery Parallel Mode 3

It is suitable for scenarios where the inverter power＞10kW.

Schematic diagram of EL-A05 system battery：



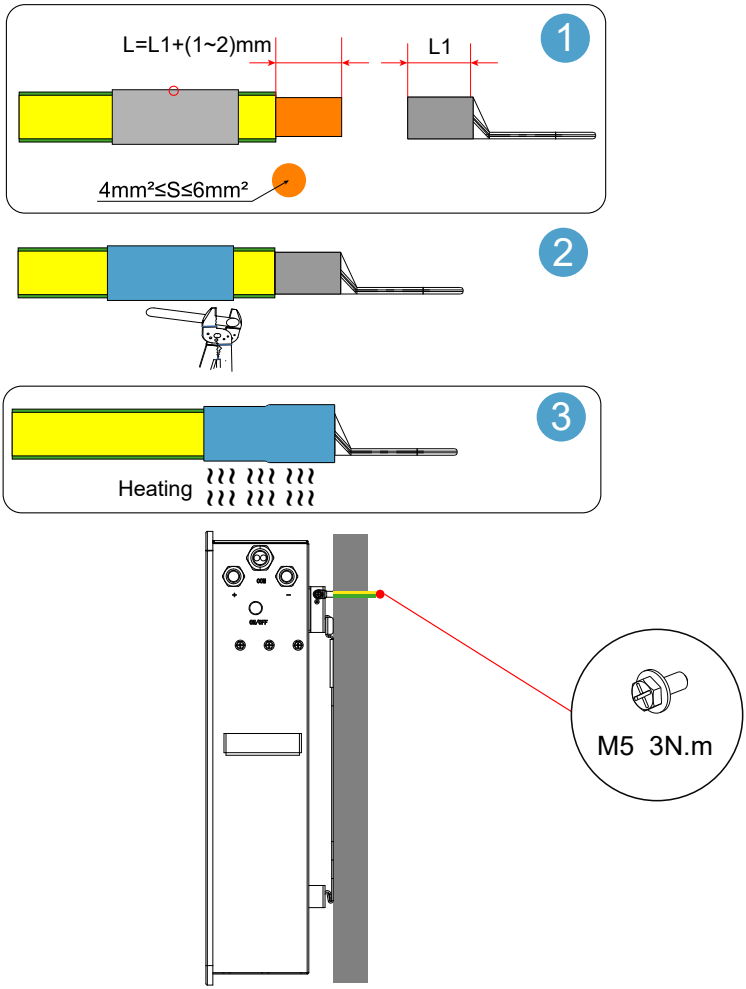
4.6 Connecting the PE cable

Connect the PE cable first before installing the equipment. Disconnect the PE cable before dismantling the equipment.

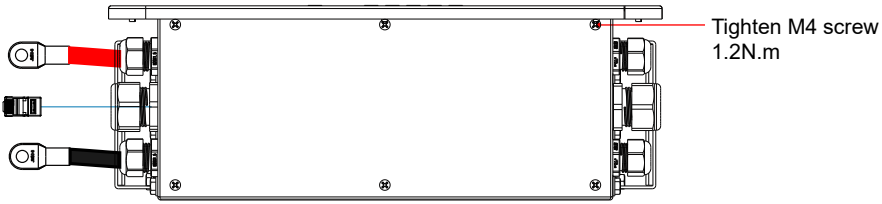
- The drawing force of the cable after crimping should be at least 400N.
- Connect the PE cable to the battery.

If the PE cable in the delivables cannot match the installation environment. The PE cable can be prepared by the customer. Recommended specifications:

- Type: single-core outdoor copper cable.
- Cross-sectional area: 4-6mm².



4.7 Verifying the Installation



After finish the system installation, please close the maintenance cover plate

NO.	Acceptance
1	The battery is installed correctly and securely.
2	The cables are routed properly as required by the customer.
3	Cable ties are secured evenly and no burr exists.
4	The ground cable is connected correctly and securely.
5	The battery switch and all switches connected to the battery are OFF.
6	The DC input power cables and signal cables are connected correctly and securely.
7	Idle terminals and ports are locked by watertight caps.
8	The installation space is proper, and the installation environment is clean and tidy.

DANGER

- Connect cables in accordance with local installation laws and regulations.
- Before connecting the cables, ensure that the Power Button is turned OFF. Failure to do so may cause the BMS to mistakenly detect an external short circuit during battery–inverter connection, resulting in a short-circuit protection fault.

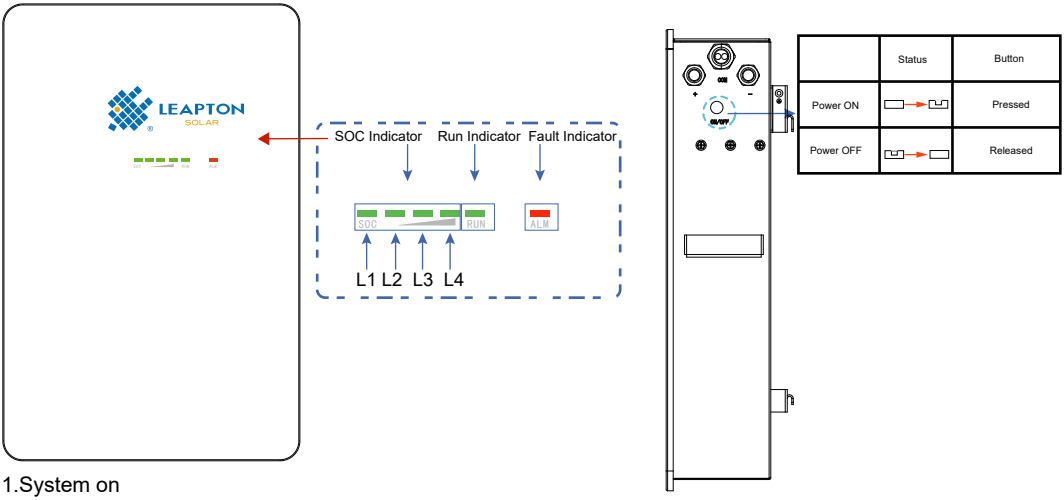
5 System Operation

Check the following items before power on to avoid the battery system being damaged.

Table 5.1:Check Item before Power On

NO.	Check Item
1	The battery is firmly installed in a clean place where is well-ventilated and easy to operate.
2	The PE cable, power cable, communication cable are connected correctly and securely.
3	Cable ties are intact, routed properly and evenly.
4	Unused ports and terminals are sealed.
5	All fasteners, including bolts and screws, are tightened.
6	No bystanders or animals are allowed in the work area.
7	Keep foreign objects, especially metals, away from the battery.

5.1 Battery System ON and OFF



1.System on

• Press the switch button;

• The lights turn on in sequence. If there is no red fault light, it indicates that the battery is operating normally.

2.System off

•Turn off the battery, press the switch button again. When the button pops up, all battery indicator lights go out.

5.2 LED Indicator

State	Item	Battery Indicator LED				RUN	FAULT
		L1	L2	L3	L4		
Shut down Status	Resting State	OFF	OFF	OFF	OFF	OFF	OFF
Stand By	Normal	According to the electricity instruction				Flash 1	OFF
	Report an emergency					Flash 1	Flash 3
Charge	SOC 0~25%	FLASH 2	OFF	OFF	OFF	ON	OFF
	SOC 25~50%	ON	FLASH 2	OFF	OFF	ON	OFF
	SOC 50~75%	ON	ON	FLASH 2	OFF	ON	OFF
	SOC 75~100%	ON	ON	ON	FLASH 2	ON	OFF
	Report an emergency	According to the Battery SOC				ON	Flash 3
	Overcharge protection	ON	ON	ON	ON	ON	OFF
	Over current & Over temperature	OFF	OFF	OFF	OFF	OFF	ON
Discharge	SOC 0~25%	ON	OFF	OFF	OFF	FLASH 3	OFF
	SOC 25~50%	ON	ON	OFF	OFF	FLASH 3	OFF
	SOC 50~75%	ON	ON	ON	OFF	FLASH 3	OFF
	SOC 75~100%	ON	ON	ON	ON	FLASH 3	OFF
	Report an Emergency	According to the Battery SOC				Flash 3	Flash3
	Undervoltage Protection	OFF	OFF	OFF	OFF	OFF	OFF
	Over current & Over temperature & short circuit	OFF	OFF	OFF	OFF	OFF	ON

Note:

FLASH 1: 0.25S ON 3.75S OFF

FLASH 2: 0.5S ON 0.5S OFF

FLASH 3: 0.5S ON 1.5S OFF

5.3 Troubleshooting

The maintenance personnel can perform an initial fault diagnosis according to the LED indicator status.
For further analysis, please contact Leapton service personnel to obtain the battery monitoring software, which helps identify the current protection mode of the battery system.
After the protection mode is confirmed, refer to the following section for the recommended troubleshooting procedures.

Fault Type	Fault Generation condition	Possible Causes	Troubleshooting
BMS fault	The cell voltage sampling circuit is faulty. The cell temperature sampling circuit is faulty	The welding point for cell voltage sampling is loose or disconnected. The voltage sampling terminal is disconnected. The fuse in the voltage sampling circuit is blown. The cell temperature sensor has failed.	Replace the battery.
Electrochemical cell fault	The voltage of the cell is low or unbalanced.	Due to large self- discharge, the cell over discharges to below 2.0V after long term storage. The cell is damaged by external factors, and short circuits, pinpricks, or crushing occur.	Replace the battery.
Overvoltage protection	The cell voltage is greater than 3.65 V in charging state. The battery voltage is greater than 58.4 V.	The busbar input voltage exceeds the normal value. Cells are not consistent. The capacity of some cells deteriorates too fast or the internal resistance of some cells is too high.	If the battery cannot be recovered due to protection against abnormality contact local engineers to rectify the fault.
Under voltage protection	The battery voltage is less than 44.8V. The minimum cell voltage is less than 2.8V	The mains power failure has lasted for a long time. Cells are not consistent. The capacity of some cells deteriorates too fast or the internal resistance of some cells is too high.	Same as above.

Charge or dis- charge high temperature protection	The maximum cell temperature is greater than 55℃	The battery ambient temperature is too high. There are abnormal heat sources around	Same as above.
Charge low temperature protection	The minimum cell temperature is less than 0℃	The battery ambient temperature is too low.	Same as above.
Discharge low temperature protection	The minimum cell temperature is less than -20℃	The battery ambient temperature is too low.	Same as above.

By checking the above data and sending the data to the service personnel of our company, the service personnel of our company will reply the corresponding solution after receiving the data.

6 System Maintenance

6.1 Routing Maintenance

⚠ WARNING

- Contact after-sales service for help if you find any problems that may influence the battery or the hybrid inverter. Disassemble without permission is strictly forbidden.
- Contact after-sale service for help if the copper conductor is exposed. Do not touch or disassemble privately because the high voltage danger exists.
- In case of other emergencies, contact after-sales service as soon as possible. Operate following the instructions or wait for the after-sales service personnel.
- The battery product is not fully charged. It is recommended that the installation be completed within 3 months after arrival;
- It is forbidden to dismantle any battery in the battery product, and it is forbidden to dissect the battery;
- After the battery product is over-discharged, it is recommended to charge the battery within 48 hours. The battery product can also be charged in parallel. After the battery product is connected in parallel, the charger only needs to connect the output port of any product battery;
- Never attempt to open or dismantle the battery! The inside of the battery does not contain serviceable parts;
- Disconnect the Li-Ion battery from all loads and charging devices before performing cleaning and maintenance activities;
- Place the enclosed protective caps over the terminals before cleaning and maintenance activities to avoid the risk of contacting the terminals;
- If necessary, clean the Li-Ion battery with a soft, dry cloth. Never use liquids, solvents, or abrasives to clean the Li-Ion battery;
- The Li-Ion battery is maintenance free. Charge the battery to approximately > 80% of its capacity at least once every year to preserve the battery's capacity;

Table 6.1:Maintaining Item

Maintaining Item	Maintaining Period
Check whether the locking brackets are secured, tighten it if not.	Once every 6 month
Check whether the outer enclosure is broken. Repair the painting or contact after-sales service if there is any broken.	Once every 6 month
Check whether there is an exposed cable. Replace the exposed cable or contact the after-sales service for help.	Once every 6 month
Check whether there is any dust around the battery module. Clean the dust if there is any to avoid affecting heat dissipation.	Once every 6 month
Check whether there is any liquid or pest near the battery to avoid intrusion in a long term.	Once every 6 month

6.2 Battery Storage and Recharge

6.2.1 Battery Acceptance Inspection

The battery production label must be put on the battery packing case.

6.2.2 Battery Storage Requirements

1. Place batteries according to the signs on the packing case during storage. Do not put batteries upside down or sidelong.
2. Stack battery packing cases by complying with the stacking requirements on the external package.
3. Handle batteries with caution to avoid damage.
4. The storage environment requirements are as follows:
   – Ambient temperature: -10–55°C; recommended storage temperature: 20–30°C
   – Relative humidity: 5% to 80%
   – Place batteries in a dry and clean place with proper ventilation.
   – Place batteries in a place that is away from corrosive organic solvents and gases.
   – Keep batteries away from direct sunlight.
   – Keep batteries at least 2 meters away from heat sources.
5. The batteries in storage must be disconnected from external devices. The indicators (if any) on the batteries should be off.
6. AC mains input voltage requirements in the recharge places: single-phase power grid: 220 V/230 V/240 V, ±10%; three-phase voltage: 380 V/400 V,±10%.
7. The warehouse keeper should collect battery storage information every month and periodically report the battery inventory information to the planning department. The batteries that have been stored for nearly 12 months (-10–25°C), 6 months (25–35°C) or 3 months (35–55°C) should be recharged in a timely manner
8. Batteries should be delivered based on the "first in, first out" rule.
9. After the battery production test is complete and before the batteries are stored, the batteries must be recharged to at least 50% of the SOC.

6.2.3 Conditions for Judging Overdue Storage

It is recommended that batteries not be stored for a long period. They should be used soon after being deployed onsite. The batteries should be handled according to the following requirements.

Required Storage Temperature	Actual Storage Temperature	Recharge Interval	Remarks
-10℃＜T≤55℃	T≤-10℃	Not allowed	Not reaching the time for recharge: Use the batteries as soon as possible. Reaching the time for recharge: Recharge the batteries. The total storage duration should not exceed the warranty period.
	-10℃＜T≤25℃	＜12 months	
	25℃＜T≤35℃	＜6 months	
	35℃＜T≤55℃	＜3 months	
	55℃＜T	Not allowed	

1.Dispose of deformed, damaged, or leaking batteries directly irrespective of how long they have been stored.

2.The storage duration starts from the latest charge time labeled on the battery package. If a battery is qualified after recharge, update the latest charge time and the next recharge time (next recharge time = latest charge time + recharge interval) on the label.

3.If stored for more than 12 months (Calculated from battery production date) under the specified conditions, the battery needs to be charged once, until the system SOC is 30%Preferably, use a hybrid inverter for forced charging

4.If a lithium battery is stored for a long time, capacity loss may occur. After a lithium battery is stored for 12 months in the recommended storage temperature, the irreversible capacity loss rate is 3%–10%. If customers perform the discharge test according to the specification ,they may fail to pass the test if the storage capacity of the battery is not 100% of the rated capacity.

6.2.4 Inspection Before Recharge

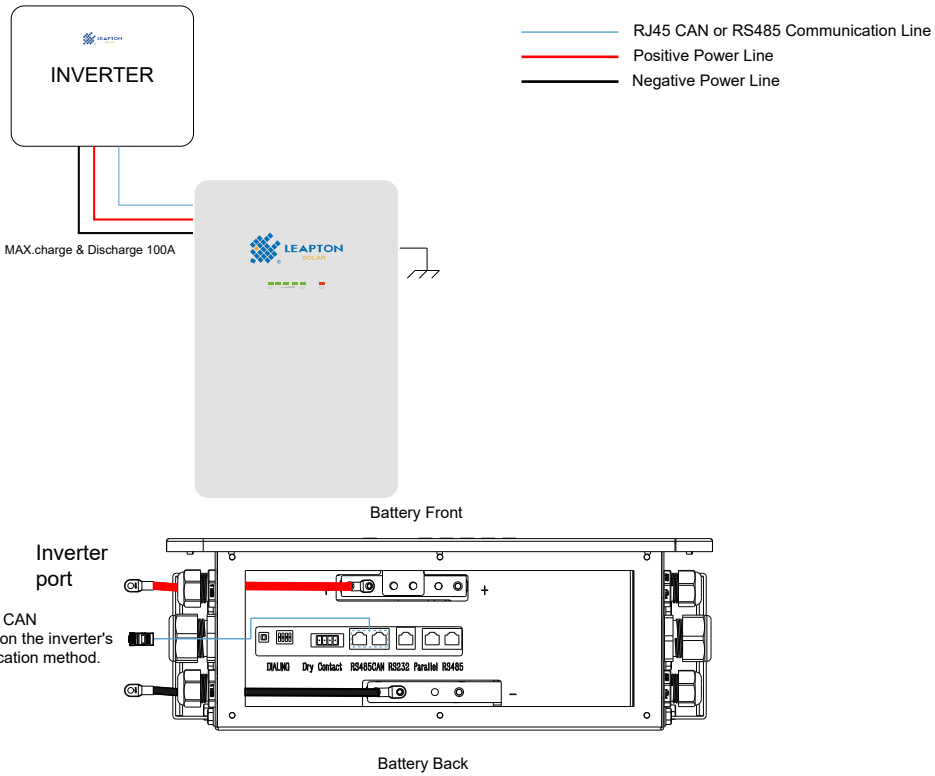
1. Before recharging a battery, you need to check its appearance. Recharge the battery if it is qualified or dispose of it if not.

2. The battery is qualified if it is free from the following symptoms:
   a) Deformation;
   b) Shell damage;
   c) Leakage.

6.2.5 Battery Recharging

Inverter or specified charger to charge the battery, support single battery recharge, do not allow two or more batteries to charge at the same time;

Networking diagram of the power-on scenario



6.2.6 Battery Recharging Cable Connection

⚠ WARNING

Please use the power cables and communication cables to connect the battery to the inverter or charging equipment.
If the B+ or B– cables of the battery are connected in reverse, the equipment may be damaged.

6.2.7 Battery Power-On and Commissioning

NOTICE

- Ensure that the charge process is supervised to prevent any abnormality.

If a battery experiences an abnormality such as bulging or smoking, stop charging immediately and dispose of it.

- Ensure that only trained professionals perform recharge operations.
- After turning on the battery switch, power on the inverter. For details about how to power on the inverter, see the quick guide for the corresponding inverter model.
- It is recommended that the battery be charged to 50% SOC. Long-term storage will cause capacity loss, after a lithium battery is stored for 12 months in the recommended storage temperature, the irreversible capacity loss rate is 3%–10%.

  Step 1: Correctly connect the power cables and communication cables to the inverter or charging equipment.

  Step 2: Turn on the AC switch between the inverter or charging equipment and the power grid.

  Step 3: Turn on the battery Power Button to the ON position to activate the battery.

  Step 4: Start the inverter or charging equipment to begin charging the battery.

  Step 5: Stop charging when at least two SOC indicator LEDs are illuminated but no more than three are on, or when the inverter display shows that the SOC is greater than 50%.

  Step 6: After charging is complete, switch off the AC input of the inverter or charging equipment, and then turn the Power Button to OFF. If other batteries need to be charged, repeat the above steps.

6.2.8 Storage with Low SOC

After the battery is powered off, the battery modules and the BMS may generate static power consumption and self-discharge losses.

Therefore, the battery should be charged in a timely manner and should not be stored for a long period in a low state of charge (SOC).Otherwise, the battery may be damaged due to overdischarge and may need to be replaced.

(1) The following situations may cause the battery to remain stored in a low SOC condition:

(2) The battery is in the ON state, but communication or power connection with the inverter is lost.

(3) The battery cannot be charged after discharge due to a system fault.

(4) The inverter cannot charge the battery because of incorrect parameter configuration in either the inverter or the battery.

(5)The battery cannot be charged due to no PV input or prolonged mains power failure.

In any of the above situations, when the battery is powered off, it must be recharged within the maximum allowable interval corresponding to its current SOC.
If the battery is not recharged within this maximum interval, it may be damaged due to overdischarge.

Regardless of scenarios, the ESS must be charged within the maximum interval corresponding to the SOC when the ESS is powered off. If the ESS is not charged beyond the maximum interval, it may be damaged due to overdischarge.

Power-Off SOC Before Storage	Maximum Charge Interval
SOC≥5%	30days
0≤S0C＜5%	7days

Note
When the SOC of the ESS decreases to 0%, charge the ESS within seven days. Any permanent battery damage due to customer's failure to charge the ESS properly is not covered under warranty.

Suzhou Leapton Energy Co., LTD
No. 9, Sunshine Avenue, Yushan High Technology Industry Zone, Changshu City,Jiangsu Province, 215500 PR.China
FAX：862-512-88800068 website：https://www.leaptonpv.com