

LUNA2000 Energy Storage System

Safety Information

Issue	01
Date	2023-12-30



Copyright © Huawei Digital Power Technologies Co., Ltd. 2024. All rights reserved.

No part of this document may be reproduced or transmitted in any form or by any means without prior written consent of Huawei Digital Power Technologies Co., Ltd.

Trademarks and Permissions



HUAWEI and other Huawei trademarks are the property of Huawei Technologies Co., Ltd.

All other trademarks and trade names mentioned in this document are the property of their respective holders.

Notice

The purchased products, services and features are stipulated by the contract made between Huawei Digital Power Technologies Co., Ltd. and the customer. All or part of the products, services and features described in this document may not be within the purchase scope or the usage scope. Unless otherwise specified in the contract, all statements, information, and recommendations in this document are provided "AS IS" without warranties, guarantees or representations of any kind, either express or implied. The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

Huawei Digital Power Technologies Co., Ltd.

Address: Huawei Digital Power Antuoshan Headquarters

Futian, Shenzhen 518043

People's Republic of China

Website: <https://e.huawei.com>

About This Document

Purpose

Lithium battery products contain chemical energy. This document describes the safety precautions, battery recycling, emergency handling, energy storage installation environment, and charge requirements for FusionSolar Residential Smart PV products. Follow the instructions on installation, use, O&M, recycling, and emergency handling to prevent personal injury and property losses.

Intended Audience

This document is intended for:

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

Symbol Conventions

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

Symbol	Description
	Indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
	Indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
	Indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

Symbol	Description
	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.
	Supplements the important information in the main text. NOTE is used to address information not related to personal injury, equipment damage, and environment deterioration.

Change History

Changes between document issues are cumulative. The latest document issue contains all the changes made in earlier issues.

Issue 01 (2023-12-30)

This issue is the first official release.

Contents

About This Document..... ii

1 Safety Information..... 1

1.1 Personal Safety.....2

1.2 Electrical Safety.....4

1.3 Environment Requirements..... 8

1.4 Mechanical Safety..... 11

1.5 Battery Safety..... 15

2 Transportation and Storage..... 20

2.1 Transportation Requirements..... 20

2.2 Storage Requirements..... 23

3 System Installation..... 25

3.1 Determining the Installation Position..... 26

4 Electrical Connection.....28

5 System Commissioning..... 30

6 System Maintenance..... 31

7 Emergency Handling..... 33

1 Safety Information

Statement

Before transporting, storing, installing, operating, using, and/or maintaining the equipment, read this document, strictly follow the instructions provided herein, and follow all the safety instructions on the equipment and in this document. In this document, "equipment" refers to the products, software, components, spare parts, and/or services related to this document; "the Company" refers to the manufacturer (producer), seller, and/or service provider of the equipment; "you" refers to the entity that transports, stores, installs, operates, uses, and/or maintains the equipment.

The **Danger, Warning, Caution, and Notice** statements described in this document do not cover all the safety precautions. You also need to comply with relevant international, national, or regional standards and industry practices. **The Company shall not be liable for any consequences that may arise due to violations of safety requirements or safety standards concerning the design, production, and usage of the equipment.**

The equipment shall be used in an environment that meets the design specifications. Otherwise, the equipment may be faulty, malfunctioning, or damaged, which is not covered under the warranty. The Company shall not be liable for any property loss, personal injury, or even death caused thereby.

Comply with applicable laws, regulations, standards, and specifications during transportation, storage, installation, operation, use, and maintenance.

Do not perform reverse engineering, decompilation, disassembly, adaptation, implantation, or other derivative operations on the equipment software. Do not study the internal implementation logic of the equipment, obtain the source code of the equipment software, violate intellectual property rights, or disclose any of the performance test results of the equipment software.

The Company shall not be liable for any of the following circumstances or their consequences:

- The equipment is damaged due to force majeure such as earthquakes, floods, volcanic eruptions, debris flows, lightning strikes, fires, wars, armed conflicts, typhoons, hurricanes, tornadoes, and other extreme weather conditions.
- The equipment is operated beyond the conditions specified in this document.

- The equipment is installed or used in environments that do not comply with international, national, or regional standards.
- The equipment is installed or used by unqualified personnel.
- You fail to follow the operation instructions and safety precautions on the product and in the document.
- You remove or modify the product or modify the software code without authorization.
- You or a third party authorized by you cause the equipment damage during transportation.
- The equipment is damaged due to storage conditions that do not meet the requirements specified in the product document.
- You fail to prepare materials and tools that comply with local laws, regulations, and related standards.
- The equipment is damaged due to your or a third party's negligence, intentional breach, gross negligence, or improper operations, or other reasons not related to the Company.

1.1 Personal Safety

DANGER

Ensure that power is off during installation. Do not install or remove a cable with power on. Transient contact between the core of the cable and the conductor will cause electric arcs, sparks, fire, or explosion, which may result in personal injury.

DANGER

Non-standard and improper operations on the energized equipment may cause fire, electric shocks, or explosion, resulting in property damage, personal injury, or even death.

DANGER

Before operations, remove conductive objects such as watches, bracelets, bangles, rings, and necklaces to prevent electric shocks.

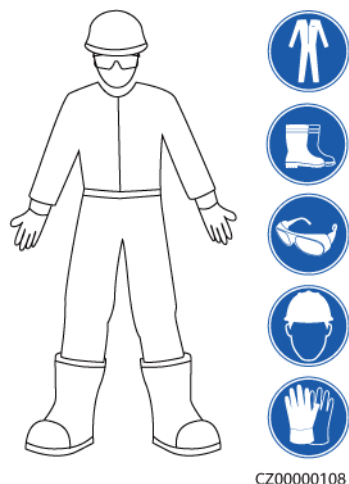
DANGER

During operations, use dedicated insulated tools to prevent electric shocks or short circuits. The dielectric withstanding voltage level must comply with local laws, regulations, standards, and specifications.

⚠ DANGER

During operations, wear personal protective equipment such as protective clothing, insulated shoes, goggles, safety helmets, and insulated gloves.

Figure 1-1 Personal protective equipment



General Requirements

- Do not stop protective devices. Pay attention to the warnings, cautions, and related precautionary measures in this document and on the equipment.
- If there is a likelihood of personal injury or equipment damage during operations, immediately stop, report the case to the supervisor, and take feasible protective measures.
- Do not power on the equipment before it is installed or confirmed by professionals.
- Do not touch the power supply equipment directly or with conductors such as damp objects. Before touching any conductor surface or terminal, measure the voltage at the contact point to ensure that there is no risk of electric shock.
- Do not touch operating equipment because the enclosure is hot.
- In the case of a fire, immediately leave the building or the equipment area and activate the fire alarm or call emergency services. Do not enter the affected building or equipment area under any circumstances.

Personnel Requirements

- Only professionals and trained personnel are allowed to operate the equipment.
 - Professionals: personnel who are familiar with the working principles and structure of the equipment, trained or experienced in equipment operations and are clear of the sources and degree of various potential hazards in equipment installation, operation, maintenance
 - Trained personnel: personnel who are trained in technology and safety, 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

- Personnel who plan to install or maintain the equipment must receive adequate training, be able to correctly perform all operations, and understand all necessary safety precautions and local relevant standards.
- 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 perform special tasks such as electrical operations, working at heights, and operations of special equipment must possess the required local qualifications.
- Only authorized professionals are allowed to replace the equipment or components (including software).
- Only personnel who need to work on the equipment are allowed to access the equipment.

1.2 Electrical Safety

DANGER

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

DANGER

Non-standard and improper operations may result in fire or electric shocks.

DANGER

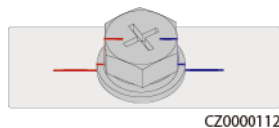
Prevent foreign matter from entering the equipment during operations. Otherwise, equipment damage, load power derating, power failure, or personal injury may occur.

WARNING

For the equipment that needs to be grounded, install the ground cable first when installing the equipment and remove the ground cable last when removing the equipment.

General Requirements

- Follow the procedures described in the document for installation, operation, and maintenance. Do not reconstruct or alter the equipment, add components, or change the installation sequence without permission.
- Obtain approval from the national or local electric utility company before connecting the equipment to the grid.
- Observe the power plant safety regulations, such as the operation and work ticket mechanisms.
- Install temporary fences or warning ropes and hang "No Entry" signs around the operation area to keep unauthorized personnel away from the area.
- Before installing or removing power cables, turn off the switches of the equipment and its upstream and downstream switches.
- If any liquid is detected inside the equipment, disconnect the power supply immediately and do not use the equipment.
- Before performing operations on the equipment, check that all tools meet the requirements and record the tools. After the operations are complete, collect all of the tools to prevent them from being left inside the equipment.
- Before installing power cables, check that cable labels are correct and cable terminals are insulated.
- When installing the equipment, use a torque tool of a proper measurement range to tighten the screws. When using a wrench to tighten the screws, ensure that the wrench does not tilt and the torque error does not exceed 10% of the specified value.
- Ensure that bolts are tightened with a torque tool and marked in red and blue after double-check. Installation personnel mark tightened bolts in blue. Quality inspection personnel confirm that the bolts are tightened and then mark them in red. (The marks must cross the edges of the bolts.)



- After the installation is complete, ensure that protective cases, insulation tubes, and other necessary items for all electrical components are in position to avoid electric shocks.
- If the equipment has multiple inputs, disconnect all the inputs before operating the equipment.
- Before maintaining a downstream electrical or power distribution device, turn off the output switch on the power supply equipment.
- During equipment maintenance, attach "Do not switch on" labels near the upstream and downstream switches or circuit breakers as well as warning signs to prevent accidental connection. The equipment can be powered on only after troubleshooting is complete.
- If fault diagnosis and troubleshooting need to be performed after power-off, take the following safety measures: Disconnect the power supply. Check whether the equipment is live. Install a ground cable. Hang warning signs and set up fences.
- Do not open equipment panels.

- Check equipment connections periodically, ensuring that all screws are securely tightened.
- Only qualified professionals can replace a damaged cable.
- Do not scrawl, damage, or block any labels or nameplates on the equipment. Promptly replace labels that have worn out.
- Do not use solvents such as water, alcohol, or oil to clean electrical components inside or outside of the equipment.

Grounding

- Ensure that the grounding impedance of the equipment complies with local electrical standards.
- Ensure that the equipment is connected permanently to the protective ground. Before operating the equipment, check its electrical connection to ensure that it is reliably grounded.
- Do not work on the equipment in the absence of a properly installed ground conductor.
- Do not damage the ground conductor.
- For the equipment that uses a three-pin socket, ensure that the ground terminal in the socket is connected to the protective ground point.
- If high touch current may occur on the equipment, ground the protective ground terminal on the equipment enclosure before connecting the power supply; otherwise, electric shock as a result of touch current may occur.

Cabling Requirements

- When selecting, installing, and routing cables, follow local safety regulations and rules.
- When routing power cables, ensure that there is no coiling or twisting. Do not join or weld power cables. If necessary, use a longer cable.
- Ensure that all cables are properly connected and insulated, and meet specifications.
- Ensure that the slots and holes for routing cables are free from sharp edges, and that the positions where cables are routed through pipes or cable holes are equipped with cushion materials to prevent the cables from being damaged by sharp edges or burrs.
- Ensure that cables of the same type are bound together neatly and straight and that the cable sheath is intact. When routing cables of different types, ensure that they are away from each other without entanglement and overlapping.
- When cable connection is completed or paused for a short period of time, seal the cable holes with sealing putty immediately to prevent small animals or moisture from entering.
- Secure buried cables using cable supports and cable clips. Ensure that the cables in the backfill area are in close contact with the ground to prevent cable deformation or damage during backfilling.
- If the external conditions (such as the cable layout or ambient temperature) change, verify the cable usage in accordance with the IEC-60364-5-52 or local laws and regulations. For example, check that the current-carrying capacity meets requirements.

- When routing cables, reserve at least 30 mm clearance between the cables and heat-generating components or areas. This prevents deterioration or damage to the cable insulation layer.
- 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.
- Do not perform any improper operations, for example, dropping cables directly from a vehicle. Otherwise, the cable performance may deteriorate due to cable damage, which affects the current-carrying capacity and temperature rise.

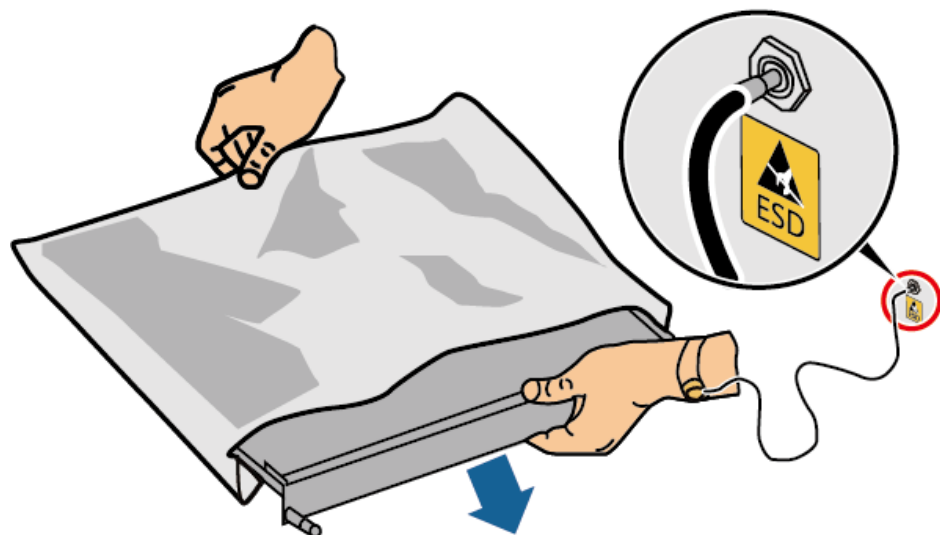
ESD

NOTICE

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

- When touching the equipment and handling boards, modules with exposed circuit boards, or application-specific integrated circuits (ASICs), observe ESD protection regulations and wear ESD clothing and ESD gloves or a well-grounded ESD wrist strap.

Figure 1-2 Wearing an ESD wrist strap



DC15000001

- When holding a board or a module with exposed circuit boards, hold its edge without touching any components. Do not touch the components with bare hands.

- Package boards or modules with ESD packaging materials before storing or transporting them.

1.3 Environment Requirements

DANGER

Do not expose the equipment to flammable or explosive gas or smoke. Do not perform any operation on the equipment in such environments.

DANGER

Do not store any flammable or explosive materials in the equipment area.

DANGER

Do not place the equipment near heat sources or fire sources, such as smoke, candles, heaters, or other heating devices. Overheat may damage the equipment or cause a fire.

WARNING

Install the equipment in an area far away from liquids. Do not install it under areas prone to condensation, such as under water pipes and air exhaust vents, or areas prone to water leakage, such as air conditioner vents, ventilation vents, or feeder windows of the equipment room. Ensure that no liquid enters the equipment to prevent faults or short circuits.

WARNING

To prevent damage or fire due to high temperature, ensure that the ventilation vents or heat dissipation systems are not obstructed or covered by other objects while the equipment is running.

General Requirements

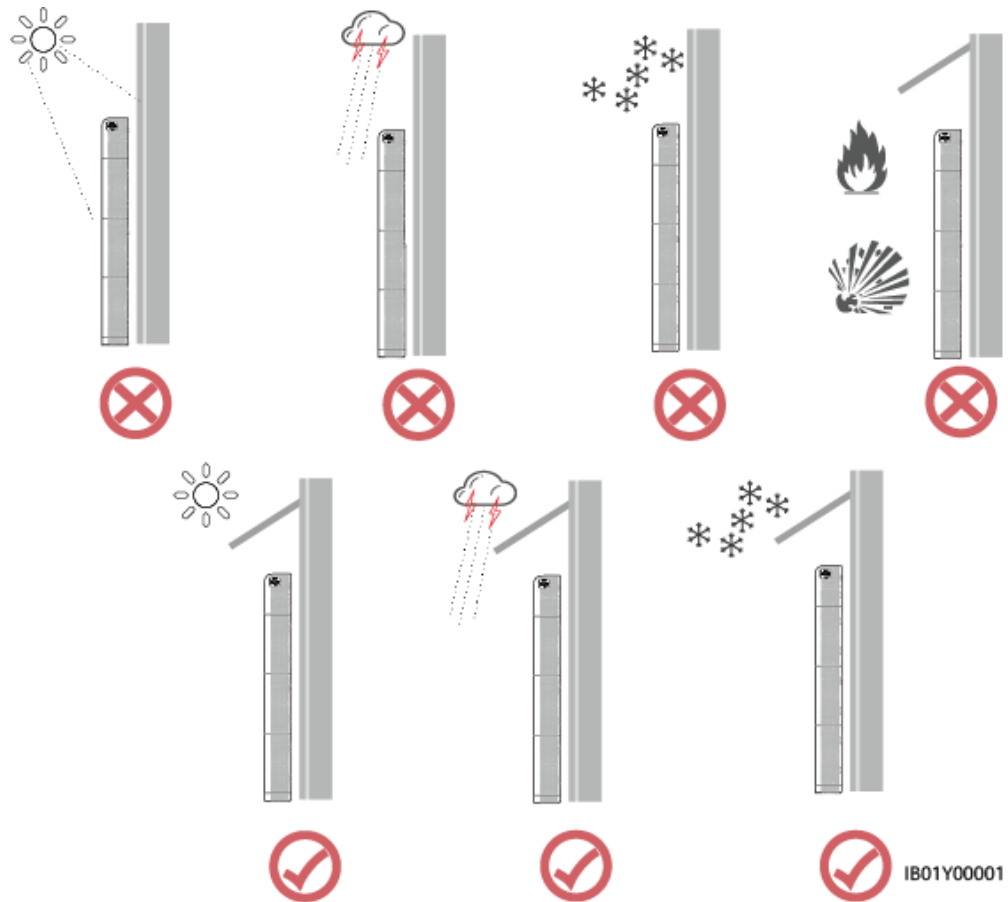
- The installation and usage environment must meet relevant international, national, and local standards for lithium batteries, and are in accordance with the local laws and regulations. The user is obliged to protect the ESS against fire or other hazards.
- Keep the ESS out of the reach of children 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.

- When installing the ESS in a garage, keep it clear of the drive path. It is recommended that the ESS be mounted on the wall higher than the bumper to prevent collision.
- Do not install the ESS in places that are enclosed, unventilated, without proper fire fighting facilities, or difficult for firefighters to access. Do not place flammable or explosive materials around the ESS. It is recommended that the ESS be mounted on a wall to avoid contact with water.
- Install the ESS in a sheltered place or install an awning over it to avoid direct sunlight or rain.
- For areas prone to natural disasters such as floods, debris flows, earthquakes, and typhoons, take corresponding precautions for installation.
- Do not install the ESS in an easily accessible position because the temperature of the enclosure and heat sink is high when the ESS is running.
- Do not install the ESS on a moving object, such as ship, train, or car.
- Ensure that the equipment is stored in a clean, dry, and well ventilated area with proper temperature and humidity and is protected from dust and condensation.
- Keep the installation and operating environments of the equipment within the allowed ranges. Otherwise, its performance and safety will be compromised.
- Do not install, use, or operate outdoor equipment and cables (including but not limited to moving equipment, operating equipment and cables, inserting connectors to or removing connectors from signal ports connected to outdoor facilities, working at heights, performing outdoor installation, and opening doors) in harsh weather conditions such as lightning, rain, snow, and level 6 or stronger wind.
- Do not install the equipment in an environment with direct sunlight, dust, smoke, volatile or corrosive gases, infrared and other radiations, organic solvents, or salty air.
- Do not install the equipment in an environment with conductive metal or magnetic dust.
- Do not install the equipment in an area conducive to the growth of microorganisms such as fungus or mildew.
- Do not install the equipment in an area with strong vibration, noise, or electromagnetic interference.
- Ensure that the site complies with local laws, regulations, and related standards.
- Ensure that the ground in the installation environment is solid, free from spongy or soft soil, and not prone to subsidence. The site must not be located in a low-lying land prone to water or snow accumulation, and the horizontal level of the site must be above the highest water level of that area in history.
- Do not install the equipment in a position that may be submerged in water.
- If the equipment is installed in a place with abundant vegetation, in addition to routine weeding, harden the ground underneath the equipment using cement or gravel.
- Do not install the equipment outdoors in salt-affected areas because it may be corroded. A salt-affected area refers to the region within 500 m of the coast or prone to sea breeze. Regions prone to sea breeze vary with weather

conditions (such as typhoons and monsoons) or terrains (such as dams and hills).

- Before installation, operation, and maintenance, clean up any water, ice, snow, or other foreign objects on the top of the equipment.
- When installing the equipment, ensure that the installation surface is solid enough to bear the weight of the equipment.
- After installing the equipment, remove the packing materials such as cartons, foam, plastics, and cable ties from the equipment area.

Figure 1-3 Installation environment



 NOTE

- The operation and service life of the battery depend on the operating temperature. Install the battery at a temperature equal to the ambient temperature or in a better environment.
- The operating temperature of the LUNA2000 ranges from -20°C to $+55^{\circ}\text{C}$. If the LUNA2000 is installed in a cold environment, the built-in thermal control system starts to heat the battery to achieve better performance. The heating process consumes rechargeable power, which reduces the system energy efficiency in cold weather.
- If the LUNA2000 is stored in a cold environment (for example, 0°C) before installation, the LUNA2000 needs some time ($< 2\text{ h}$) to heat up before it can be charged. You are advised to place the LUNA2000 in a warm place before installation to facilitate commissioning.
- When the ambient temperature of the LUNA2000 is higher than $+45^{\circ}\text{C}$ or lower than -10°C , the battery charge and discharge power will be derated.

1.4 Mechanical Safety

 DANGER

When working at heights, wear a safety helmet and safety harness or waist belt and fasten it to a solid structure. Do not mount it on an insecure moveable object or metal object with sharp edges. Make sure that the hooks will not slide off.

 WARNING

Ensure that all necessary tools are ready and inspected by a professional organization. Do not use tools that have signs of scratches or fail to pass the inspection or whose inspection validity period has expired. Ensure that the tools are secure and not overloaded.

 WARNING

Do not drill holes into the equipment. Doing so may affect the sealing performance and electromagnetic containment of the equipment and damage components or cables inside. Metal shavings from drilling may short-circuit boards inside the equipment.

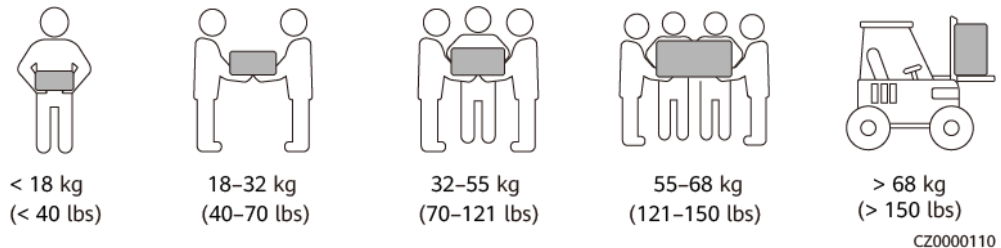
General Requirements

- Repaint any paint scratches caused during equipment transportation or installation in a timely manner. Equipment with scratches must not be exposed for an extended period of time.
- Do not perform operations such as arc welding and cutting on the equipment without evaluation by the Company.
- Do not install other devices on the top of the equipment without evaluation by the Company.

- When performing operations over the top of the equipment, take measures to protect the equipment against damage.
- Use correct tools and operate them in the correct way.

Moving Heavy Objects

- Be cautious to prevent injury when moving heavy objects.



- If multiple persons need to move a heavy object together, determine the manpower and work division with consideration of height and other conditions to ensure that the weight is equally distributed.
- If two persons or more move a heavy object together, ensure that the object is lifted and landed simultaneously and moved at a uniform pace under the supervision of one person.
- Wear personal protective gears such as protective gloves and shoes when manually moving the equipment.
- To move an object by hand, approach to the object, squat down, and then lift the object gently and stably by the force of the legs instead of your back. Do not lift it suddenly or turn your body around.
- Do not quickly lift a heavy object above your waist. Place the object on a workbench that is half-waist high or any other appropriate place, adjust the positions of your palms, and then lift it.
- Move a heavy object stably with balanced force at an even and low speed. Put down the object stably and slowly to prevent any collision or drop from scratching the surface of the equipment or damaging the components and cables.
- When moving a heavy object, be aware of the workbench, slope, staircase, and slippery places. When moving a heavy object through a door, ensure that the door is wide enough to move the object and avoid bumping or injury.
- When transferring a heavy object, move your feet instead of turning your waist around. When lifting and transferring a heavy object, ensure that your feet point to the target direction of movement.
- When transporting the equipment using a pallet truck or forklift, ensure that the tynes are properly positioned so that the equipment does not topple. Before moving the equipment, secure it to the pallet truck or forklift using ropes. When moving the equipment, assign dedicated personnel to take care of it.
- Choose sea or roads in good conditions for transportation. Do not transport the equipment by railway or air. Avoid tilt or jolt during transportation.

Working at Heights

- Any operations performed 2 m or higher above the ground shall be supervised properly.

- Only trained and qualified personnel are allowed to work at heights.
- Do not work at heights when steel pipes are wet or other risky situations exist. After the preceding conditions no longer exist, the safety owner and relevant technical personnel need to check the involved equipment. Operators can begin working only after safety is confirmed.
- Set a restricted area and prominent signs for working at heights to warn away irrelevant personnel.
- Set guard rails and warning signs at the edges and openings of the area involving working at heights to prevent falls.
- Do not pile up scaffolding, springboards, or other objects on the ground under the area involving working at heights. Do not allow people to stay or pass under the area involving working at heights.
- Carry operation machines and tools properly to prevent equipment damage or personal injury caused by falling objects.
- Personnel involving working at heights are not allowed to throw objects from the height to the ground, or vice versa. Objects shall be transported by slings, hanging baskets, highline trolleys, or cranes.
- Do not perform operations on the upper and lower layers at the same time. If unavoidable, install a dedicated protective shelter between the upper and lower layers or take other protective measures. Do not pile up tools or materials on the upper layer.
- Dismantle the scaffolding from top down after finishing the job. Do not dismantle the upper and lower layers at the same time. When removing a part, ensure that other parts will not collapse.
- Ensure that personnel working at heights strictly comply with the safety regulations. The Company is not responsible for any accident caused by violation of the safety regulations on working at heights.
- Behave cautiously when working at heights. Do not rest at heights.

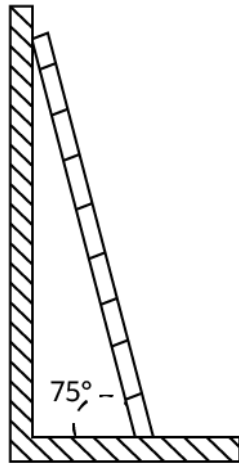
Using Ladders

- Use wooden or insulated ladders when you need to perform live-line working at heights.
- Platform ladders with protective rails are preferred. Single ladders are not recommended.
- Before using a ladder, check that it is intact and confirm its load bearing capacity. Do not overload it.
- Ensure that the ladder is securely positioned and held firm.



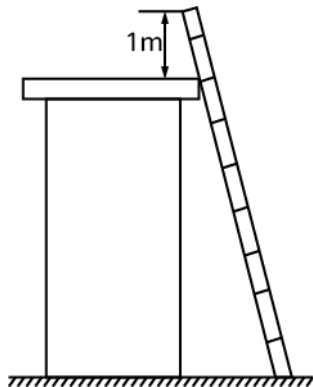
CZ00000107

- When climbing up the ladder, keep your body stable and your center of gravity between the side rails, and do not overreach to the sides.
- When a step ladder is used, ensure that the pull ropes are secured.
- If a single ladder is used, the recommended angle for the ladder against the floor is 75 degrees, as shown in the following figure. A square can be used to measure the angle.



PI02SC0008

- If a single ladder is used, ensure that the wider end of the ladder is at the bottom, and take protective measures to prevent the ladder from sliding.
- If a single ladder is used, do not climb higher than the fourth rung of the ladder from the top.
- If you use a single ladder to climb up to a platform, ensure that the ladder is at least 1 m higher than the platform.



PI02SC0009

Drilling Holes

- Obtain consent from the customer and contractor before drilling holes.
- Wear protective equipment such as safety goggles and protective gloves when drilling holes.
- To avoid short circuits or other risks, do not drill holes into buried pipes or cables.
- When drilling holes, protect the equipment from shavings. After drilling, clean up any shavings.

1.5 Battery Safety

 DANGER

Do not connect the positive and negative poles of a battery together. Otherwise, the battery may be short-circuited. Battery short circuits can generate high instantaneous current and releases a large amount of energy, which may cause battery leakage, smoke, flammable gas release, thermal runaway, fire, or explosion. To avoid battery short circuits, do not maintain batteries with power on.

 DANGER

Do not expose batteries at high temperatures or around heat sources, such as scorching sunlight, fire sources, transformers, and heaters. Battery overheating may cause leakage, smoke, flammable gas release, thermal runaway, fire, or explosion.

 DANGER

Protect batteries from mechanical vibration, falling, collision, punctures, and strong impact. Otherwise, the batteries may be damaged or catch fire.

 DANGER

To avoid leakage, smoke, flammable gas release, thermal runaway, fire, or explosion, do not disassemble, alter, or damage batteries, for example, insert foreign objects into batteries, squeeze batteries, or immerse batteries in water or other liquids.

 DANGER

Do not touch battery terminals with other metal objects, which may cause heat or electrolyte leakage.

 DANGER

There is a risk of fire or explosion if the model of the battery in use or used for replacement is incorrect. Use a battery of the model recommended by the manufacturer.

 DANGER

Battery electrolyte is toxic and volatile. Do not get contact with leaked liquids or inhale gases in the case of battery leakage or odor. In such cases, stay away from the battery and contact professionals immediately. Professionals must wear safety goggles, rubber gloves, gas masks, and protective clothing, power off the equipment, remove the battery, and contact technical engineers.

 DANGER

A battery is an enclosed system and will not release any gases under normal operations. If a battery is improperly treated, for example, 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 such as CO and H₂. To prevent fire or device corrosion, ensure that flammable gas is properly exhausted.

 DANGER

The gas generated by a burning battery may irritate your eyes, skin, and throat. Take protective measures promptly.

 WARNING

Install batteries in a dry area. Do not install them under areas prone to water leakage, such as air conditioner vents, ventilation vents, feeder windows of the equipment room, or water pipes. Ensure that no liquid enters the equipment to prevent faults or short circuits.

 WARNING

Before unpacking, storage, and transportation, ensure that the packing cases are intact and the batteries are correctly placed according to the labels on the packing cases. Do not place a battery upside down or vertically, lay it on one side, or tilt it. Stack the batteries according to the stacking requirements on the packing cases. Ensure that the batteries do not fall or get damaged. Otherwise, they will need to be scrapped.

 WARNING

After unpacking batteries, place them in the required direction. Do not place a battery upside down or vertically, lay it on one side, tilt it, or stack it. Ensure that the batteries do not fall or get damaged. Otherwise, they will need to be scrapped.

 WARNING

Tighten the screws on copper bars or cables to the torque specified in this document. Periodically confirm whether the screws are tightened, check for rust, corrosion, or other foreign objects, and clean them up if any. Loose screw connections will result in excessive voltage drops and batteries may catch fire when the current is high.

 WARNING

After batteries are discharged, charge them in time to avoid damage due to overdischarge.

Statement

The Company shall not be liable for any damage or other consequences to the batteries it provides due to the following reasons:

- Batteries are damaged due to force majeure such as earthquakes, floods, volcanic eruptions, debris flows, lightning strikes, fires, wars, armed conflicts, typhoons, hurricanes, tornadoes, and other extreme weather conditions.
- Batteries are damaged because the onsite equipment operating environment or external power parameters do not meet the environment requirements for normal operation, for example, the actual operating temperature of batteries is too high or too low, or the power grid is unstable and experiences outages frequently.
- Batteries are damaged, fall, leak, or crack due to improper operations or incorrect connection.
- After being installed and connected to the system, the batteries are not powered on in time due to your reasons, which causes damage to the batteries due to overdischarge.
- Batteries are damaged because they are not accepted in time due to your reasons.
- You set battery operating parameters incorrectly.
- You use batteries of different types together, causing acceleration of capacity attenuation. For example, you use our batteries together with batteries of other vendors or with batteries of different rated capacity.
- You maintain batteries improperly, causing frequent overdischarge; you expand the load capacity without notifying us; or you have not fully charged the batteries for a long time.
- You do not perform battery maintenance based on the operation guide, such as failure to check battery terminals regularly.
- Batteries are damaged because you do not store them in accordance with storage requirements (for example, in an environment that is damp or prone to rain).
- Batteries are not charged as required during storage due to your reasons, resulting in capacity loss or other irreversible damages to the batteries.

- Batteries are damaged due to your or a third party's reasons, for example, relocating or reinstalling the batteries without complying with the Company's requirements.
- You change the battery use scenarios without notifying the Company.
- You connect extra loads to the batteries.
- The battery storage period has exceeded the upper limit.
- The battery warranty period has expired. You are advised not to use a battery whose warranty period has expired, as this poses safety risks.

General Requirements

NOTICE

To ensure battery safety and battery management accuracy, use batteries provided by the Company. The Company is not responsible for any faults of batteries not provided by it.

- Before installing, operating, and maintaining batteries, read the battery manufacturer's instructions and comply with their requirements. The safety precautions specified in this document are highly important and require special attention. For additional safety precautions, see the instructions provided by the battery manufacturer.
- Use batteries within the specified temperature range. When the ambient temperature of the batteries is lower than the allowed range, do not charge the batteries to prevent internal short circuits caused during low-temperature charging.
- Before unpacking batteries, check whether the packaging is intact. Do not use batteries with damaged packaging. If any damage is found, notify the carrier and manufacturer immediately.
- Power on batteries within 24 hours after unpacking. If the batteries cannot be powered on in time, put them in the original packaging and place them in a dry indoor environment without corrosive gases. During later maintenance, ensure that the power-off time does not exceed 24 hours.
- Do not use a damaged battery (such as damage caused when a battery is dropped, bumped, bulged, or dented on the enclosure), because the damage may cause electrolyte leakage or flammable gas release. In the case of electrolyte leakage or structural deformation, contact the installer or professional O&M personnel immediately to remove or replace the battery. Do not store the damaged battery near other devices or flammable materials and keep it away from non-professionals.
- Before working on a battery, ensure that there is no irritant or scorched smell around the battery.
- When installing batteries, do not place installation tools, metal parts, or sundries on the batteries. After the installation is complete, clean up the objects on the batteries and the surrounding area.
- If batteries are exposed to water accidentally, do not install them. Instead, transport the batteries to a safe isolation point and dispose of them in a timely manner.

- Before installing a battery pack, check that its enclosure is not deformed or damaged.
- Check whether the positive and negative battery terminals are grounded unexpectedly. If so, disconnect the battery terminals from the ground.
- Do not perform welding or grinding work around batteries to prevent fire caused by electric sparks or arcs.
- If batteries are left unused for a long period of time, store and charge them according to the battery requirements.
- Do not charge or discharge batteries by using a device that does not comply with local laws and regulations.
- Keep the battery loop disconnected during installation and maintenance.
- Monitor damaged batteries during storage for signs of smoke, flame, electrolyte leakage, or heat.
- If a battery is faulty, its surface temperature may be high. Do not touch the battery to avoid scalds.
- Do not stand on, lean on, or sit on the top of the equipment.
- In backup power scenarios, do not use the batteries for the following situations:
 - Medical devices substantially important to human life
 - Control equipment such as trains and elevators, as this may cause personal injury
 - Computer systems of social and public importance
 - Locations near medical devices
 - Other devices similar to those described above

Short-Circuit Protection

- When installing and maintaining batteries, wrap the exposed cable terminals on the batteries with insulation tape.
- Avoid foreign objects (such as conductive objects, screws, and liquids) from entering a battery, as this may cause short circuits.

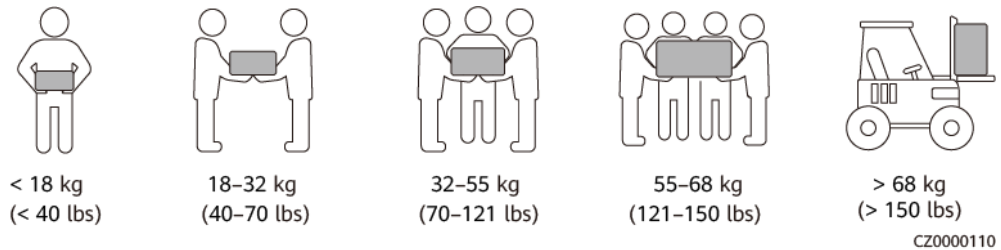
Recycling

- Dispose of waste batteries in accordance with local laws and regulations. Do not dispose of batteries as household waste. Improper disposal of batteries may result in environmental pollution or an explosion.
- If a battery leaks or is damaged, contact technical support or a battery recycling company for disposal.
- If batteries are out of service life, contact a battery recycling company for disposal.
- Do not expose waste batteries to high temperatures or direct sunlight.
- Do not place waste batteries in environments with high humidity or corrosive substances.
- Do not use faulty batteries. Contact a battery recycling company to scrap them as soon as possible to avoid environmental pollution.

2 Transportation and Storage

2.1 Transportation Requirements

- Be cautious to prevent injury when moving heavy objects.



- If multiple persons need to move a heavy object together, determine the manpower and work division with consideration of height and other conditions to ensure that the weight is equally distributed.
- If two persons or more move a heavy object together, ensure that the object is lifted and landed simultaneously and moved at a uniform pace under the supervision of one person.
- Wear personal protective gears such as protective gloves and shoes when manually moving the equipment.
- To move an object by hand, approach to the object, squat down, and then lift the object gently and stably by the force of the legs instead of your back. Do not lift it suddenly or turn your body around.
- Do not quickly lift a heavy object above your waist. Place the object on a workbench that is half-waist high or any other appropriate place, adjust the positions of your palms, and then lift it.
- Move a heavy object stably with balanced force at an even and low speed. Put down the object stably and slowly to prevent any collision or drop from scratching the surface of the equipment or damaging the components and cables.
- When moving a heavy object, be aware of the workbench, slope, staircase, and slippery places. When moving a heavy object through a door, ensure that the door is wide enough to move the object and avoid bumping or injury.

- When transferring a heavy object, move your feet instead of turning your waist around. When lifting and transferring a heavy object, ensure that your feet point to the target direction of movement.
- When transporting the equipment using a pallet truck or forklift, ensure that the tynes are properly positioned so that the equipment does not topple. Before moving the equipment, secure it to the pallet truck or forklift using ropes. When moving the equipment, assign dedicated personnel to take care of it.
- Choose sea or roads in good conditions for transportation. Do not transport the equipment by railway or air. Avoid tilt or jolt during transportation.

 DANGER

Load or unload batteries with caution. Otherwise, the batteries may be short-circuited or damaged (such as leakage and crack), catch fire, or explode.

 WARNING

Do not move a battery by holding its terminals, bolts, or cables. Otherwise, the battery may be damaged.

Keep batteries in the correct direction during transportation. They must not be placed upside down or tilted, and must be protected against falling down, mechanical impact, rains, snows, and falling into water during transportation.

 WARNING

Before unpacking, storage, and transportation, ensure that the packing cases are intact and the batteries are correctly placed according to the labels on the packing cases. Do not place a battery upside down or vertically, lay it on one side, or tilt it. Stack the batteries according to the stacking requirements on the packing cases. Ensure that the batteries do not fall or get damaged. Otherwise, they will need to be scrapped.

- Batteries have obtained 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). The batteries belong to class 9 dangerous goods.
- The transportation service provider must be qualified to transport dangerous goods. Open truck transportation is not allowed.
- Batteries are delivered to the site directly and the road or sea transportation requirements shall be met.
- Comply with the international regulations on the transport of dangerous goods and meet the requirements of the transportation regulatory authorities in the countries of departure, route, and destination.
- Choose sea or roads in good conditions for transportation. Do not transport the equipment by railway or air. Avoid tilt or jolt during transportation.

- Maritime transport must comply with the *International Maritime Dangerous Goods Code* (IMDG Code).
- Road transport must comply with the *Agreement Concerning the International Carriage of Dangerous Goods by Road* (ADR) or JT/T 617.
- Before transportation, check that the battery package is intact and that there is no abnormal odor, leakage, smoke, or sign of burning. Otherwise, the batteries must not be transported.
- The packing case must be secured for transportation. Handle the case with care during loading and unloading, and take moisture-proof measures during transportation.
- Exercise caution when moving batteries to prevent bumping and ensure personal safety.
- Unless otherwise specified, dangerous goods must not be mixed with goods containing food, medicine, animal feed, or their additives in the same vehicle or container.
- Unless otherwise specified, when dangerous goods packages are loaded in the same vehicle or container as ordinary goods, they shall be separated in either of the following ways:
 - Use a spacer that is as high as the packages.
 - Keep a distance of at least 0.8 m around.
- Before transporting a faulty battery (with scorch, leakage, bulge, or water intrusion), insulate its positive and negative terminals, pack it, and place it in an insulated explosion-proof box as soon as possible. Record information such as the site name, address, time, and fault symptom on the box.
- When transporting faulty batteries, avoid approaching flammable material storage areas, residential areas, or other densely populated places, such as mass transit facilities or elevators.

2.2 Storage Requirements

WARNING

- Ensure that batteries are stored in a dry, clean, and ventilated indoor environment that is free from sources of strong infrared or other radiations, organic solvents, corrosive gases, and conductive metal dust. Do not expose batteries to direct sunlight or rain and keep them far away from sources of heat and ignition.
 - If a battery is faulty (with scorch, leakage, bulge, or water intrusion), move it to a dangerous goods warehouse for separate storage. The distance between the battery and any combustible materials must be at least 3 m. The battery must be scrapped as soon as possible.
 - Place batteries correctly according to the signs on the packing case during storage. Do not place batteries upside down, lay them on one side, or tilt them. Stack batteries in accordance with the stacking requirements on the packing cases.
 - Store batteries in a separate place. Do not store batteries together with other devices. Do not stack batteries too high. If a large number of batteries are stored onsite, it is recommended that the site be equipped with qualified fire fighting facilities, such as fire sand and fire extinguishers.
-

CAUTION

It is recommended that batteries be used soon after being deployed onsite. Batteries that have been stored for an extended period shall be charged periodically. Otherwise, they may be damaged.

- The storage environment must comply with local regulations and standards.
- The storage environment must be clean and dry. The product must be protected against rain and water.
- The air must not contain corrosive or flammable gases.
- The storage environment requirements are as follows:
 - Ambient temperature: -10–55°C; recommended storage temperature: 20–30°C
 - Relative humidity: 5% to 80%
- If equipment except battery packs has been stored for more than two years, it must be checked and tested by professionals before use.
- Proof that the product is stored according to the requirements must be available, such as temperature and humidity log data, storage environment photos, and inspection reports.
- Ensure that batteries are delivered based on the "first in, first out" rule.

- Ensure that the storage duration starts from the latest charge time marked on the battery packing case and that the latest charge time is updated after every charge.

3 System Installation

DANGER

Note the polarities when installing batteries. Do not connect the positive and negative poles of a battery or battery string together. Otherwise, the battery may be short-circuited.

WARNING

- Tighten the screws on copper bars or cables to the torque specified in this document. Periodically confirm whether the screws are tightened, check for rust, corrosion, or other foreign objects, and clean them up if any. Loose screw connections will result in excessive voltage drops and batteries may catch fire when the current is high.
 - When installing batteries, do not place installation tools, metal parts, or sundries on the batteries. After the installation is complete, clean up the objects on the batteries and the surrounding area.
-

WARNING

After unpacking batteries, place them in the required direction. Do not place a battery upside down or vertically, lay it on one side, tilt it, or stack it. Ensure that the batteries do not fall or get damaged. Otherwise, they will need to be scrapped.

 CAUTION

- Slowly push or move battery packs to prevent damage and collision.
 - To prevent battery packs from falling off, start the pallet truck or forklift after confirming that battery packs are securely bound.
 - When moving batteries, do not remove protective components such as protective covers or waterproof caps from battery terminals.
 - Exercise caution when moving batteries to prevent bumping and ensure personal safety.
 - Install and secure batteries horizontally from the bottom up and from left to right to prevent falling over due to imbalance.
 - When connecting batteries, ensure that the spring washer on the screw is leveled, that the protruding part of the terminal on the cable faces outwards, and that the cable is intact.
-

 CAUTION

- Install and secure batteries horizontally from the bottom up and from left to right to prevent falling over due to imbalance.
 - Ensure that the power circuit breaker is OFF before installing batteries.
 - Keep the battery loop disconnected during installation and maintenance.
-

NOTICE

- Do not use a damaged battery (such as damage caused when a battery is dropped, bumped, bulged, or dented on the enclosure), because the damage may cause electrolyte leakage or flammable gas release. In the case of electrolyte leakage or structural deformation, contact the installer or professional O&M personnel immediately to remove or replace the battery. Do not store the damaged battery near other devices or flammable materials and keep it away from non-professionals.
 - Before installing a battery pack, check that its enclosure is not deformed or damaged.
-

3.1 Determining the Installation Position

Installation Angle Requirement

The battery can be floor-mounted and wall-mounted. The installation angle requirement is as follows:

- Do not install the battery at forward tilted, back tilted, 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 Huawei devices and awnings) or flammable or explosive materials around the batteries. Reserve adequate space for heat dissipation and safety isolation.
- When the battery is mounted on a wall, do not place any objects under the battery.

4 Electrical Connection

Precautions

DANGER

Before connecting cables, ensure that the DC switch on the battery and all the switches connected to the battery are set to OFF. Otherwise, the high voltage of the battery may result in electric shocks.

DANGER

Note the polarities when installing batteries. Do not connect the positive and negative poles of a battery or battery string together. Otherwise, the battery may be short-circuited.

DANGER

- Do not smoke or have an open flame around batteries.
 - Wear personal protective equipment and use dedicated insulated tools to avoid electric shocks or short circuits.
-

WARNING

- The equipment damage caused by incorrect cable connections is not covered under any warranty.
 - Only certified electricians are allowed to connect cables.
 - Operation personnel must wear proper PPE when connecting cables.
-



WARNING

- Tighten the screws on copper bars or cables to the torque specified in this document. Periodically confirm whether the screws are tightened, check for rust, corrosion, or other foreign objects, and clean them up if any. Loose screw connections will result in excessive voltage drops and batteries may catch fire when the current is high.
 - When installing batteries, do not place installation tools, metal parts, or sundries on the batteries. After the installation is complete, clean up the objects on the batteries and the surrounding area.
-



CAUTION

- Do not connect two or more cables to the positive or negative power port of a battery in parallel.
 - Stay away from the equipment when preparing cables to prevent cable scraps from entering the equipment. Cable scraps may cause sparks and result in personal injury and equipment damage.
-



NOTE

Select cables in accordance with local cable specifications (green-and-yellow cables are only used for PE).

5 System Commissioning

DANGER

- Wear personal protective equipment and use dedicated insulated tools to avoid electric shocks or short circuits.
-

CAUTION

- During the power-on procedure, power off the batteries immediately if any fault is detected. Rectify the fault before proceeding with the procedure.
 - After batteries are used for system commissioning or batteries have discharged, charge the batteries in time. Otherwise, batteries may be damaged due to overdischarge.
 - Battery overdischarge and damage may occur if batteries with low SOC are stored. Batteries shall be recharged in a timely manner.
-

NOTICE

Before the equipment is put into operation for the first time, ensure that the parameters are set correctly by professional personnel. Incorrect parameter settings may result in noncompliance with local grid connection requirements and affect the normal operations of the equipment.

NOTICE

- Power on the LUNA2000 within 24 hours after unpacking. The power-off time cannot exceed 24 hours during maintenance.
-

6 System Maintenance

DANGER

- Wear personal protective equipment and use dedicated insulated tools to avoid electric shocks or short circuits.
 - Do not smoke or have an open flame around batteries.
 - Do not use wet cloth to clean exposed copper bars or other conductive parts.
 - Do not use water or any solvent to clean batteries.
-

WARNING

- Do not maintain batteries with power on. To power off the batteries before performing operations such as checking and tightening screw torques, explain the risks to the customer, obtain the customer's written consent, and take effective preventive measures.
 - After batteries are discharged, charge them in time to avoid damage due to overdischarge.
 - Before moving or reconnecting the equipment, disconnect the mains and batteries and wait for five minutes until the equipment powers off. Before maintaining the equipment, check that no hazardous voltages remain in the DC bus or components to be maintained by using a multimeter.
-

CAUTION

- Do not connect two or more cables to the positive or negative power port of a battery in parallel.
 - Stay away from the equipment when preparing cables to prevent cable scraps from entering the equipment. Cable scraps may cause sparks and result in personal injury and equipment damage.
-



WARNING

- After the system powers off, the remaining electricity and heat may still cause electric shocks and body burns. Therefore, wear protective gloves 5 minutes after the system is powered off before performing any operation on the battery. You can maintain the battery only when all indicators on the battery are off.
 - When the ESS is running, you can only turn off the DC switch of the battery, but cannot power off the ESS completely. In this case, you cannot maintain the battery.
-

7 Emergency Handling

If an accident (including but not limited to the following) occurs on the site, ensure the safety of onsite personnel first and contact the Company's service engineers.

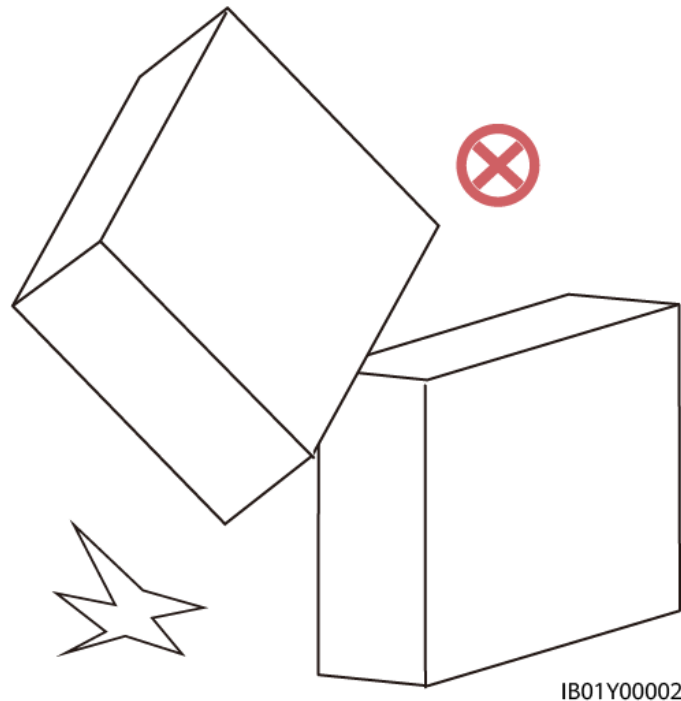
Battery Falling or Strong Impact



DANGER

If a battery is dropped or violently impacted during installation, it may become faulty and must not be used. Using a faulty battery will cause safety risks such as cell leakage and electric shock.

- If a battery has obvious damage or abnormal odor, smoke, or fire occurs, evacuate the personnel immediately, call emergency services, and contact the professionals. The professionals shall use fire extinguishing facilities to extinguish the fire under safety protection.
- If the appearance is not deformed or damaged, and there is no obvious abnormal odor, smoke, or fire, contact the professionals to transfer the battery to an open and safe place, or contact a recycling company for disposal.



Flood

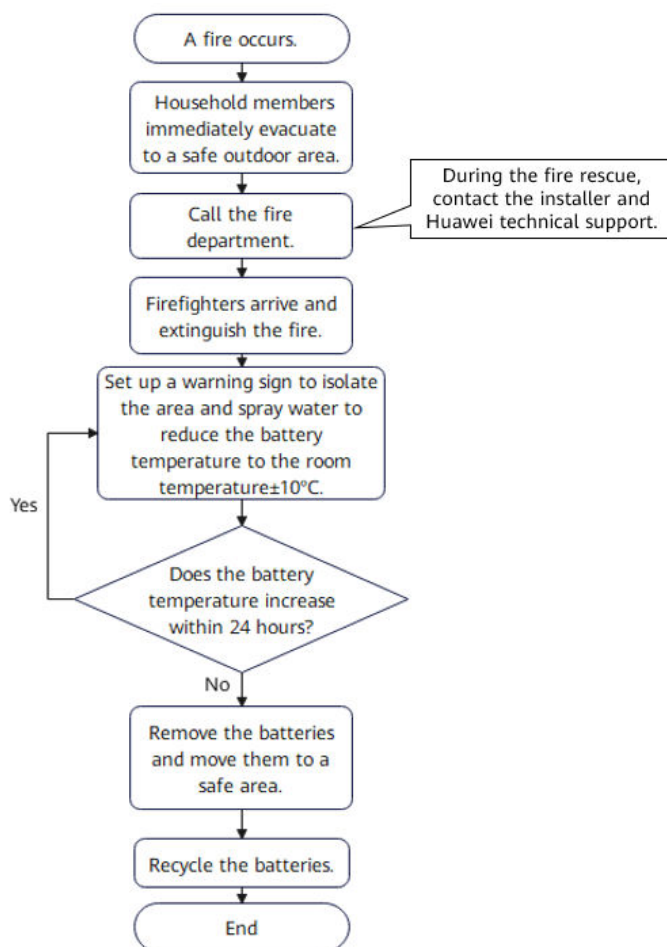
- Power off the system if it is safe to do so.
- If any part of the batteries is submerged in water, do not touch the batteries to avoid electric shock.
- Do not use batteries that have been soaked in water. Contact a battery recycling company for disposal.

Smoke or Fire

DANGER

- In case of smoke or fire, if there is a large amount of smoke in the battery storage room, do not open the door to prevent explosion risks and toxic gas inhalation.
 - If a lithium battery catches fire, flammable and toxic gases will be released. Therefore, during the extinguishing process, all firefighters must wear a full set of protective suite, including flame retardant/fireproof clothing, air-purifying respirator or breathing apparatus, firefighter helmet and mask, and insulated shoes.
 - A lithium battery fire may last for several hours. After it is extinguished, the fire may be reignited by the heat generated from residual ingredients due to internal cell damage. After an open flame is extinguished, continue spraying water to cool the batteries. Wait until the battery temperature drops to the room temperature $\pm 10^{\circ}\text{C}$ and monitor for 24 hours to ensure that there is no sign of temperature rise before removing the batteries. Move the removed batteries to a safe place (an open and safe outdoor place is recommended), and then place the batteries in the fire sand box or salt water.
-

If a Huawei ESS emits smoke or catches fire, household members should not dispose of the ESS by themselves. Follow the processes in the flowchart below.



The detailed description is as follows:

1. If batteries emit smoke or catch fires, notify all household members to evacuate immediately.
2. After evacuating to a safe outdoor area (20 m away is recommended), call the fire department immediately. While waiting for the fire rescue, contact the installer and Huawei technical support.
3. Firefighters arrive at the site and extinguish the fire.
4. After the fire is extinguished, set up a warning sign to isolate the area and spray water to reduce the battery temperature to the room temperature $\pm 10^{\circ}\text{C}$. (You can use an infrared thermometer or thermal imager.)
5. Observe the batteries for 24 hours and ensure that there is no sign of temperature rise before removing the batteries. (Only professionals are allowed to remove the batteries.)
6. After removing the batteries, move them to a safe place (an open and safe outdoor place is recommended), place them in the fire sand box or salt water. These operations must be performed by professionals who must take insulation measures, such as wearing insulated gloves, insulated shoes, and personal protective equipment (PPE).

7. After the battery fire is extinguished, if there is no potential risk onsite, the battery must be handled and recycled by professionals in accordance with local laws and regulations.

Electric Shock

DANGER

Before the injured person is separated from the source of electricity, onsite paramedic personnel are not allowed to touch the injured person with their hands to avoid electric shocks.

WARNING

Even if the AC circuit breaker of an inverter is turned off, PV modules and the DC side of the inverter are still energized in the daytime.

For household members, if an electric shock occurs related to a PV device, you are advised to follow the following steps:

- (1) Turn off the AC circuit breaker of the inverter.
- (2) Wear dedicated insulated shoes and insulated gloves, and use insulated tools to separate the injured person from the source of electricity. If no professional equipment is available, you can step on a dry wooden stool or hold insulated tools (such as a long dry wooden stick) to separate the injured person from the source of electricity while ensuring your safety.
- (3) If the injury is serious, call the emergency medical service immediately. Let the injured person lie flat and monitor the person's consciousness, breathing, and heartbeat changes. Personnel who have first aid qualifications or have received first aid training can perform first aid such as artificial respiration and cardiopulmonary resuscitation based on the situation of the injury onsite until the paramedic personnel arrive to send the injured person to the hospital.
- (4) Install warning objects and barricades around the electric shock site to prevent other personnel from getting electric shocks.
- (5) Notify distributors and installers to dispatch professional O&M personnel to rectify the fault.

Battery Leakage

** DANGER**

- The leaked electrolyte is a colorless viscous liquid that may evaporate rapidly and is flammable, turning into white salt residues. The electrolyte has a pungent smell and is corrosive, irritating to eyes and skin. Avoid contact with it.
 - When handling chemical leakage incidents, professional maintenance personnel and firefighters must wear necessary protective equipment such as air-purifying respirator and other PPE.
-

For household members, if battery leakage occurs, you are advised to follow the following steps:

- (1) Stop the ESS immediately and set the battery switch to OFF. Turn off the AC circuit breaker of the inverter and set the inverter DC switch to OFF.
- (2) Indoor installation scenario: Indoor personnel should quickly evacuate, open the doors, windows, and ventilation devices of the room, and turn off indoor fire sources during the evacuation. Outdoor installation scenario: Notify outdoor personnel to stay away from the site and set up a warning sign to isolate the area.
- (3) After evacuating to a safe area, notify professional maintenance personnel or firefighters to handle the emergency.

Avoid contact with electrolytes or released gases. In the case of contact, take the following measures:

- Inhalation: Evacuate from contaminated areas, get fresh air immediately, and seek immediate medical attention.
- Eye contact: Immediately wash your eyes with water for at least 15 minutes, do not rub your eyes, and seek immediate medical attention.
- Skin contact: Wash the affected areas immediately with soap and water and seek immediate medical attention.
- Intake: Seek immediate medical attention.

Conclusion and Follow-Up Procedure

- After a battery fire is extinguished and there is no potential risk onsite, professionals handle and recycle the batteries after wearing insulated gloves, insulated shoes, and other PPE in accordance with local laws and regulations. After an accident occurs, the manufacturer can identify the damage to the device and replace the device according to the corresponding procedure to restore the ESS.
- After a battery fire is extinguished, the fire extinguishing water may pollute the surrounding soil and water source. In this case, notify the related environmental protection department for evaluation and handling.
- If you have any questions about Huawei residential inverters and ESSs, contact the device distributor and installer. You can also contact us through the local service hotline on Huawei official website.