SigenStor Home

Important Notice

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Revision History

Version	Date	Description
04	2024.05.31	Updated Routine Requirements.
03	2024.03.22	Updated General Requirements.
02	2023.10.25	Updated Storage Requirements.
01	2023.07.31	First official release.

Overview

Introduction

This document describes the precautions for installing, operating, and maintaining of the devices in the SigenStor Home.

Target readers

This document is intended for:

- Trained and qualified installation personnel
- Technical support engineer

Sign Definition

The following signs may be used in the document to indicate security precautions or key information. Before installation, operation, and maintenance of the equipment, familiarize yourself with signs and their definitions.

Signs	Definition
Danger	Danger. Failure to comply will result in death or serious personal injury.
Warning	Warning. Failure to comply will result in minor injury or property damage.
Caution	Caution. Failure to comply will result in equipment damage and property loss.
Tips	Important or key information, and supplementary operation tips.

Chapter 1 General Requirements

Before installation, operation, and maintenance of the equipment, familiarize yourself with this document.
The "Danger", "Warning", and "Caution" items described in this manual are only supplementary to all precautions.
The Company shall not be liable for equipment damage or property loss caused by the following reasons:

- The installation environment does not meet international, national, or regional standards.
- Failure to comply with local laws, regulations, and rules when transporting, installing, operating, or maintaining the equipment.
- The installation area does not meet the requirements of the equipment.
- Cables and tools used do not meet international, national, or regional standards.
- Damage caused by storage conditions that do not meet equipment requirements.
- Failure to follow the instructions and precautions in this document.
- Failure to handle the equipment with care or violent installation may result in equipment damage and liquid leakage and pose a risk of fire or explosion hazards.
- Failure to follow the warning labels on equipment or tools.
- Negligent, improper operation or intentional damage.
- Battery pack capacity loss or irreversible damage caused by failure to timely charge the equipment due to customer reasons.
- Damage caused by the customer or a third-party company changing the use of our company's equipment (such as mixing our company's battery pack with other battery packs, using our company's battery pack with other brands of inverters or converters, etc.).
- The equipment is damaged because the customer or a third-party company fails to use the accessories supplied with the packing box or purchase and install accessories of the same specification.
- Equipment damage caused by improper operations such as disassembling, replacing, or modifying the software code without authorization.
- Equipment damage caused by force majeure (such as war, earthquake, fire, storm, lightning, flood, debris flow, etc.).
- Damage caused by the failure of the natural environment or external power parameters to meet the standard requirements of the equipment during actual operation (for example, the actual operating temperature of the equipment is too high or too low).
- The equipment was stolen.
- The equipment is damaged after the warranty period.

Chapter 2 Personnel Requirements

The personnel responsible for installation and maintenance of the equipment must receive strict training and obtain relevant certificates, be familiar with local laws, regulations, and related standards, understand the structure and working principles of the power generation system, understand various safety precautions, master the correct operation methods, and possess the operation qualifications required by the local country.

Chapter 3 Handling and Transportation Requirements

3.1 Routine Requirements

- Wear personal protective equipment, such as protective gloves and safety shoes, when moving equipment.
- Select a proper transport mode based on the weight of the equipment.
- When handling the equipment, always follow the package orientation marking. Do not tilt or place the equipment upside down.
- The incline angle of the equipment belt package shall be no more than 15°, and the incline angle after unpacking shall be no more than 10°. If more than one person is moving the equipment, consider the height of the person moving the equipment to ensure stability.
- To avoid injury, lift or move the equipment slowly.
- When using a forklift:
  - Place the fork knife in the middle of the equipment, and bind the fork knife according to the actual situation.
  - When moving, a special person should take care of it.
  - No movement under the fork knife.
- Place the equipment according to the stacking requirements on the package. Stacking requires strapping and fastening.
- Ensure the equipment is placed on a flat and stable surface during transport. Do not tilt or place the equipment upside down.
- It is advisable to use protected means of transport. The equipment is prohibited from being subjected to rain, water immersion, etc.

3.2 Battery Pack

Caution

- Do not use the equipment if it has been dropped, subjected to mechanical shock, submerged in water, or otherwise exposed to water.
- If the equipment has been exposed to rain or snow, please have it evaluated by a professional before using it again.

Tips

The equipment belongs to Class 9 Dangerous Goods and has been approved by UN38.3 (UN38.3: Section 38.3 of the sixth Revised Edition of the Recommendations on the Transport of Dangerous Goods: 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 "Inspection Procedures for Packaging of Dangerous Goods for Export Part 2: Performance Inspection".

Loading and Unloading Requirements

Load and unload the equipment according to local laws, regulations, and industry standards. Violent loading and unloading are prohibited. Handle the equipment with care; otherwise, it may break, leak, fire, or explode.

Prior to Transportation

- Before transportation, ensure that the package is intact and no odor, smoke, or fire occurs. Otherwise, do not transport the equipment.
- Before transportation, ensure that the equipment are securely placed and protected from moisture.
- It is forbidden to place the equipment in the same vehicle or container with common articles such as food, medicine and animal feed.
- If the equipment must be shipped with common goods, please take the following measures:
  - The space between common articles and equipment is ⩾ 0.8 m.
  - Use isolators as high as the equipment package for isolation.
- Never arrange the equipment in the same vehicle or container with flammable, explosive or corrosive materials.

During Transportation

- Please comply with international regulations on the transport of dangerous goods and meet the requirements of the local transport regulatory authorities of the countries of shipment, route, and destination.
- It is prohibited to transport by rail and by air.
- For transport by sea, please observe the transport requirements of the International Maritime Dangerous Goods CODE (IMDG CODE).

- For land transport, please follow the requirements of the European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR) or the Regulations Concerning Road Transportation of Dangerous Goods (JT/T 617).
- It is recommended to transport by sea or choose a road with good road conditions, and minimize turbulence or tilt in the process of transport.

Chapter 4 Storage Requirements

- The storage location must comply with local laws and regulations.
- Do not unpack the storage equipment.
- Do not store battery packs with other items. Fire fighting facilities such as fire extinguishers that meet requirements must be placed at the battery pack storage site.
- Do not expose the equipment to direct sunlight or to wet, dewy, dirty, rainy, flammable, explosive or corrosive environments.
- The storage location should be well protected against insects and rodents.
- When storing the equipment, place it according to the storage requirements on the package.
- During storage, periodically record the temperature and humidity of the storage environment.
  - Storage temperature: -25°C to 60°C, and 20°C to 30°C is recommended.
  - Relative humidity: 5% to 95% RH. Do not install the battery pack if the battery pack interface is moist and dewy.
- Before storing the battery pack, ensure that the capacity of the battery pack is 40%±5% SOC.
- When storing the battery pack, the warehouse manager needs to count and report the inventory status monthly. When the recharge period is approaching, please arrange to recharge in time.

Storage temperature requirement	Actual storage temperature	Recharge period
-25°C＜ T≤60°C	T≤-25°C	Not allowed
-25°C＜ T≤60°C	-25°C＜ T≤25°C	15 months
-25°C＜ T≤60°C	25°C＜ T≤35°C	9 months
-25°C＜ T≤60°C	35°C＜ T≤60°C	6 months
-25°C＜ T≤60°C	60°C＜ T	Not allowed

- The storage time of battery packs is calculated from the shipping time on the outer packaging. After the battery is properly charged, update the latest charging time (YYYY-MM-DD is recommended).
- It is not recommended to store battery packs beyond the recommended storage period. After first 12 months at the recommended storage temperature, the irreversible capacity loss is 3% to 10%. If battery packs are stored beyond the expiry date, they should be checked and tested by qualified personnel before use.
- Please follow the "first-in, first-out" principle when shipping the equipment.

Chapter 5 Operating Requirements

5.1 Routine Requirements

Danger

High voltage, danger:

- Do not perform operations on the equipment with power on (including but not limited to installation, wiring, replacement). Before operation, please make sure all power supplies to the equipment have been disconnected, including but not limited to the grid side, inverter and diesel generator power switches.
- Do not touch the battery pack plug-in with sharp objects.
- Do not operate the equipment in bad weather (including but not limited to thunder, rain, snow, typhoon, etc.).
- Do not clean or soak the equipment with water, alcohol, or oil to avoid power leakage or battery pack leakage.
- Do not hit, drag, or step on the equipment.
- Check the equipment for damage before operating it. Do not perform this operation if there is any abnormality (for example, deformed appearance or strange smell).
- When operating the equipment, wear protective equipment such as insulation gloves, shoes, and safety helmets. Conductive ornaments such as metal bracelets, rings and necklaces are prohibited.
- Use insulation tools when installing and connecting cables.
- Devices that need to be grounded are permanently connected to the protection ground. When connecting cables, connect the ground cable first. Before replacement of any equipment, remove the ground cable at last.
- Before touching the terminal, measure the voltage of the contact point to ensure that there is no danger of electric shock.
- Do not drop any foreign objects into the equipment when operating it.

Caution

If scratches appear on the equipment's surface, repair the paint in time. Rust and other equipment damage caused by failure to repair paint in a timely manner is not covered by our warranty.

5.2 Equipment Installation

Warning

- When handling the equipment, be prepared to support the load in order to avoid slips and injuries.
- Do not use the battery pack if it has been dropped or subjected to mechanical shock.

Ladder Safety

- Do not use ladders without training or instruction.
- Do not use unqualified ladders (including but not limited to damaged, broken, deformed, and temporary ladders).
- Do not use a ladder that does not meet the load-bearing requirements.
- Use wooden or fiberglass ladders when there is a possibility of electrical work at height.
- When an extension ladder is used, the inclination of the ladder is 60° to 70°.
- When working on a ladder, do not throw objects from height.
- When working on a ladder, it is recommended that another person supervises the operation.
- Lock the door when using the ladder at the entrance of the passageway.

Drilling Safety

- Do not drill holes on the equipment.
- Wear safety goggles and protective gloves when drilling holes.
- Do not place the equipment near the drilling position to prevent debris from falling into the equipment.
- After drilling holes, clean them in time.

5.3 Cable Connection

Danger

- **Before connecting cables, ensure that the equipment is not damaged.**
- **Before connecting or removing cables, ensure that the front and rear switches of the equipment and its own switches are disconnected.**

- Do not intertwine or cross cables. You are advised to bundle cables by category.
- Do not use cables whose insulation layer is damaged, and do not have sharp edges or burrs in the holes where cables pass through.
- Keep cables away from heat sources to prevent cable aging in a high temperature environment.
- The lower the ambient temperature is, the more brittle the plastic cable skin will be. To prevent skin cracking during installation, install the cable at a temperature higher than 0°C and handle the cable with caution. If cables are stored in an environment below 0°C for a long time, move them to an environment above 0°C for at least 24 hours before using them.

5.4 Equipment Maintenance and Replacement

- Before maintaining or replacing the equipment, power off the equipment and wait for a sufficient period of time according to the delay label on the equipment. Power on the equipment only after the fault is completely rectified or the replacement is complete.
- Battery energy storage systems have high fire risk, and faulty battery packs may release flammable and toxic gases. Battery pack replacement can only be performed or supervised by professionals who are familiar with the preventive measures.
- When replacing the battery pack, use the battery pack of our company. Do not mix batteries of other brands.
- When the battery pack is faulty, the surface temperature may be too high. Do not touch it with your bare hands.
- Do not store faulty battery packs in flammable or explosive environments, and do not allow non-professionals to approach them.
- During storage of faulty battery packs, monitor them periodically to ensure that no electrolyte leakage, heat, or flame occurs.