



# Air Cooling Energy Storage System

**AELIO-P50B100 / AELIO-P60B100**

## Maintenance Manual

Version 3.0

[www.solaxpower.com](http://www.solaxpower.com)



# STATEMENT

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# About This Manual

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## Scope of Validity

This document describes routine maintenance, troubleshooting, and parts replacement of AELIO-P50B100 and AELIO-P60B100 product. Please read it carefully before maintaining.




## Target Group

This document is intended for:

- Technical support engineers
- Maintenance engineers

## Conventions

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

Symbol	Description
 DANGER	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
 WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
 CAUTION!	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE!	Provides tips for the optimal operation of the product.

## Change History

### Version 03 (2025-05-15)

Updated routine maintenance procedures in "2.2 Routine Maintenance".

Added "4 Replacement of Antenna" and "5 Replacement of Cabinet Screen".

Updated "Contact Information".

### Version 02 (2024-12-30)

Updated safety regulation in "1 Safety" and "2.1 Preparations Before Maintenance".

**Version 01 (2024-10-30)**

Modify the structure of the EPS area and Australian user service mailbox.

**Version 00 (2024-09-20)**

Initial release

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# 1 Safety

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## 1.1 General Safety

Before transporting, storing, installing, operating, using and/or maintaining the device, please carefully read and understand the document, and strictly follow the instructions and safety precautions given herein, as well as symbols affixed on the device. The safety instructions herein are only supplements to local laws and regulations.

The operator should not only abide by all safety precautions provided in the document, including but not limited to the "Danger" sign, "Warning" sign, "Caution" sign, and "Notice" sign, but also comply with relevant international, national and local laws, regulations, standards, guidelines and industry rules in the process of transportation, storage, installation, operation, and maintenance. SolaX will not assume any responsibilities for the loss caused by improper operation, or violation of safety standards for design, production and equipment suitability.

SolaX will not be liable for maintenance for possible device failure, device malfunction, or parts damage, nor will the company assume any liability to pay compensation for the possible physical and property damage resulting from the installation environment that does not meet the design requirements.

The device is well designed and tested to meet all applicable state and international safety standards. However, like all electrical and electronic equipment, safety precautions must be observed and followed during the installation of the device to reduce the risk of personal injury and to ensure a safe installation.

SolaX will not assume any responsibilities if any of the following circumstances occur, including but not limited to:

- Device damage due to force majeure, such as earthquake, flooding, thunderstorm, lighting, fire hazard, volcanic eruption, war, typhoon, tornado, etc.
- Device damage due to human cause.
- Device damage caused by strong vibrations from external factors before, during and after installation.
- Device used or operated against local policy or regulations.
- Failure to follow the operation instructions and safety precautions on the product and in this document.
- Installation and use under improper environment or electrical condition.
- Unauthorized modifications to the product or software.
- Device damage caused during transportation by the customer or the third party.
- Storage conditions that do not meet the requirements specified in this document
- Use of incompatible inverters or devices.

- Installation and commissioning operated by unauthorized personnel who are not licensed and /or satisfy state and local jurisdiction regulations.

## 1.2 Device Safety

To prevent personal injury or property damage from improper operation, please carefully read the following installation precautions before installation.

### 1.2.1 Cabinet Safety

#### DANGER!

- According to the local laws and regulations related to high-altitude work, operators must wear PPE, e.g., a helmet, safety belt, or waist harness, when they work at heights, while the other end of the harness must connect to a secure structure to prevent fall incidents.

#### WARNING!

- Please prepare tools that meet the requirements before installation, and check the number of tools after installation, to avoid leaving them inside the equipment.
- Please ensure that the cabinet has been thoroughly secured before operating it. Otherwise, it may cause personal injury or equipment damage due to tilting or collapsing the cabinet.
- Please ensure that the cabinet's vents and cooling system are working properly when it is running. If the vents are blocked, it will lead to overheating, and even equipment damage or fire hazard.
- Please ensure that the cabinet's vents and cooling system are kept away from heat sources.
- Do not drill holes in the device to avoid equipment failure.
- If the circumstances that may cause personal injury or equipment failure occur, such as, fluid flowing into the equipment, stop operation and power off immediately. Otherwise, it may cause a short circuit or damage.
- Do not open the cabinet doors on a rainy or high humid day ( $\geq 80\%$  humidity). If the doors have to be opened on such days, please take proper protective measures.

#### CAUTION!

- Do not use a straight ladder. When electrical work is involved, a wooden ladder or an insulated ladder shall be used.
- The equipment shall not be used to provide a backup power source in the following circumstances:
  - a. Equipment related to life;
  - b. Sensitive precision instruments;
  - c. Home appliances will be faulty in the case of a power failure during operation.

**NOTICE!**

- The signs and messages on the labels and nameplates attached to the device need to be visible and clear.
- The devices must be transported in its original packaging. SolaX will not be held responsible for any damage to the devices caused by improper transportation or by transportation after it has been installed.

### 1.2.2 Battery Safety

** DANGER!**

- Do not connect the positive and negative poles of a battery together. Otherwise, it may be short-circuited. This will result in an excessive flow of current and large quantities of energy for a short time, and then will cause battery leakage, smoke, the emission of flammable gases, thermal runaway, fire, or even an explosion. Therefore, the battery must be powered off before maintenance.
- If a battery is overheated, it will cause leakage, smoke, release of flammable gases, thermal runaway, fire, or even an explosion. Therefore, please ensure that the installation site shall be well ventilated and kept away from high temperatures.
- Do not dismantle, change, shake, drop, crush, impact, cut, penetrate with a sharp object, or any other ways to damage the battery. Otherwise, it may cause leakage, smoke, emission of flammable gases, thermal runaway, fire, or even an explosion.
- Do not mix different types or makes of the battery. Otherwise, it may cause leakage or rupture, resulting in personal injury or property damage.
- The battery electrolyte is toxic and volatile. Never get in contact with the leaked liquids or inhale gases in the case of the battery leakage or odor, and contact professionals immediately. The professional must wear PPE (including but not limited to safety glasses, safety gloves, gas masks, and protective clothing) before powering off the device, and then contact our company at once after removing the damaged battery.
- Normally, the battery will not release any gases. However, in the following situations: burnt, needle-pricked, squeezed, struck by lightning, overcharged, or subject to other adverse conditions that may cause battery thermal runaway, the battery may be damaged or an abnormal chemical reaction may occur inside the battery, resulting in electrolyte leakage or production of gases. If the battery needs to exhaust flammable gas, safe emission measures must be taken to prevent fire and device corrosion.
- Do not use damaged batteries, and ensure that the installation site must be well ventilated.

 **WARNING!**

- Please read the document carefully before installation, operation and maintenance.
- Must arrange fire-fighting equipment in advance according to the local laws, regulations, and standards while installing and commissioning the device.
- Please check that there is no damage to the outer packaging before and after unpacking, and in the process of storage and transportation. The battery shall be correctly placed or stacked in accordance with the requirements stipulated on the labels to prevent damaging or scrapping the battery resulting from crushing or falling.
- Must tighten screws securing cables and on the copper bars according to the torque information specified in the document, and check whether they are tightened periodically. For instance, whether there is any rust, corrosion, or any other foreign object on it, and then clean it up if any. Because the loose screw connections may result in excessive voltage drops and large currents, leading to generating a lot of heat and burning the battery.
- The battery should be charged in time after discharge, to prevent battery damage due to overdischarge. If a battery pack is stored for a long time, please periodically recharge it to protect it from damage according to the storage requirements specified in the document.
- Please charge the battery within the specific temperature range because the low temperature may result in a short circuit. Hence, do not charge it when the temperature is below the low limit of the operating temperature.
- Do not use the battery when you find a bulge, or dents on the battery housing, and contact the installer or professional maintenance personnel to dismantle and replace it. The damaged battery must be kept away from other devices and flammable and explosive articles, and do not contact it except for professionals.
- Before operation, ensure that there are no irritating or burning smells around the battery.
- Do not weld or grind near a battery. Because electric sparks or arcs may cause fires.
- Do not step, lead, stand, or set on the battery.

 **WARNING!**

- Please check that there is no damage to the outer packaging before unpacking. If damaged, do not use and contact the transporter and manufacturer immediately.
- Do not place installation tools, metal parts and other sundries on the battery while installing. Items on and around it need to be cleaned up in time after finishing installation.
- Do not install the battery in rain, snow, fog and other weather to avoid battery damage.
- If the battery is damaged or accidentally drenched in water, do not install and use it. Please transport it to a safety isolation point and contact the local fire department or professional technicians for scrapping.
- If the battery cables are submerged in water, do not approach, touch or use them.
- Ensure that the positive and negative terminals of the battery are not accidentally grounded. If accidental grounding occurs, disconnect the battery terminals from the ground immediately.

## NOTICE!

Transportation requirements for battery:

- Relevant qualifications for the transport of dangerous goods must be obtained by the forwarding agent engaged in such businesses, and they must strictly abide by the local regulations for the transport of dangerous goods.
- Please check the battery before transportation. If a battery leaks, smells, or is damaged, do not transport it.
- Please handle gently in the process of loading and unloading, transportation, and moving a battery to prevent bumping, and take effective moisture-proof measures to prevent personal injuries and battery damage.
- Unless otherwise specified, do not transport the batteries, which are classified as dangerous goods, together with food, medicine, or other additives on the same means of transport.

If the battery leaks electrolyte or any other chemical materials, the electrolyte leakage can lead to toxic gases. Therefore, do not contact with them at all times. In case of accidentally coming into contact with them, please do as follows:

- In case of inhalation: Leave the contaminated area immediately, and seek medical attention at once;
- In case of contact with eyes: Rinse eyes with running water for at least 15 minutes, and seek medical attention;
- In case of contact with skin: Wash the contact area thoroughly with soap, and seek medical attention;
- In case of ingestion: Induce vomiting, and seek medical attention.

## NOTICE!

If a fire breaks out where the battery is installed, please do as follows:

- In case a battery is charging when the fire breaks out, provided it is safe to do so, press the emergency stop button and unplug the power cable;
- In case a battery is not on fire yet, use a water-based fire extinguisher or a carbon dioxide extinguisher to extinguish the fire;
- In case a battery catches fire, do not try to put it out, and evacuate immediately;
- A battery may catch fire when it is heated above 150°F/60°C. If the battery catches fire, please evacuate immediately since it will generate noxious and poisonous gases.

Recovery of damaged or wasted battery:

- Dispose of the damaged or wasted batteries according to local laws and regulations instead of placing them in the household trash or curbside recycling bins. Otherwise, it may cause environmental pollution or explosions.
- Ensure that the damaged or wasted batteries are not exposed to the following situations: high temperatures, high humidity, direct sunlight, or corrosive environments.
- Contact a battery recycling company to scrap the battery, which leaks electrolytes, or is damaged or expired.
- Please take protective steps to prevent battery short circuits before moving batteries.
- Please keep away from flammable material storage areas, residential areas, and other population centers when transporting and storing the damaged battery.

### 1.2.3 Inverter Safety

#### PV safety

##### DANGER!

- Exposure to sunlight can result in the generation of high DC voltage by PV modules, which can lead to electric shock causing severe injuries or even death.
- Never touch the positive or negative poles of the PV connecting device, and avoid touching both poles simultaneously.
- Do not ground the positive or negative poles of the PV modules.
- Only qualified personnel can perform the wiring of the PV modules.

##### WARNING!

- Overvoltage protection with surge arresters should be provided when the PV system is installed. The grid connected inverter is fitted with SPDs on both PV input side and MAINS side.
- Please consult professionals before installing SPDs.
- Make sure that the input DC voltage does not exceed the maximum DC input voltage specified for the inverter. Overvoltage can cause irreversible damage to the inverter, and such damage is not covered by the warranty.
- PV modules should have an IEC61730 class A rating.

#### Inverter Safety

##### DANGER!

- Only operate the inverter if it is in a technically faultless condition. Operating a faulty inverter may lead to electric shock or fire.
- Do not attempt to open the enclosure without authorization from SolaX. Unauthorized opening of the enclosure will void the warranty and can result in lethal danger or serious injury due to electric shock.
- Make sure that the inverter is reliably grounded before any operation to prevent the risk of electric shock causing lethal danger or serious injury.
- Only qualified personnel can perform the installation, wiring, maintenance of the inverter by following this document and the related regulations.

 **WARNING!**

- Operators must wear PPE while installation and maintenance of the device.
- During operation, avoid touching any parts of the inverter other than the DC switch and LCD panel.
- Never connect or disconnect the AC and DC connector while the inverter is running.
- Prior to conducting any maintenance, turn off the AC and DC power and disconnect them from the inverter. Wait for 15 minutes to fully discharge the energy.
- Avoid touching the inverter while it is running, as it becomes hot during operation and may cause personal injuries.

 **CAUTION!**

- Make sure that children are supervised to prevent them from playing with the inverter.
- Pay attention to the weight of the inverter and handle it properly to avoid personal injuries.

**NOTICE!**

- The inverter has an integrated Residual Current Monitoring Unit (RCMU). If an external Residual Current Device (RCD) is required by local regulations, verify the type of RCD required. It is recommended to use a Type-A RCD with a rating of 300 mA unless a lower value is required by the specific local electric codes. When required by local regulations, the use of an RCD type B is permitted.
- Keep all product labels and the nameplate on the inverter clearly visible and well-maintained.

## 1.2.4 Utility Grid Safety

**NOTICE!**

- Only connect the inverter to the grid with the permission of the local utility grid company.

### 1.3 Electrical Safety

#### DANGER!

- Please make sure that the unit is free from any damage before the electrical connection.
- Do not modify, change, or dismantle the device, do not change the power-on and power-off sequences and the installation procedure written in the document, and please properly and correctly operate it.
- Do not power on the device during installation. Otherwise, it may cause a fire, personal injury, or device damage.
- Must remove earrings, rings, bracelets, watches, and any other metal jewelry before operation, to avoid electrical shock, burns, or even death.
- During operation, special insulated tools must be used to avoid electric shock or short circuit failure. The insulated tools' voltage ratings must exceed the system voltage ratings.

#### WARNING!

- Please wear PPE, such as, protective clothing, insulating shoes, goggles, safety helmets, insulating gloves, etc., when conducting electrical wiring.
- Do not touch the power supply equipment directly, or through conductors or damp objects.
- Do not touch the parts of the equipment of which warning signs are attached, to avoid personal injury or device damage.

#### CAUTION!

- Do not power on the device until it has been installed and confirmed by professionals.
- In the event of a fire, evacuate immediately and call the local fire services.

#### NOTICE!

- Please operate according to the safety code for power station.
- Before installation, it is necessary to set up temporary safety fences or warning lines and hang warning signs in the operation area, to prohibit non-staff from entering here.
- Please make sure that the equipment and its associated switches are off before connecting and disconnecting power cables.

## NOTICE!

- Please check whether the protective housing and insulating sleeve for an electrical component have been installed correctly after finishing installation, to avoid electric shock.
- Must turn off the output switch of the power supply equipment when maintaining its electrical terminal device and power distribution device.
- If the device is required to be powered off during troubleshooting and diagnosis, please do as the following procedure: power off > electricity testing > connecting grounding cable > hanging warning signs and setting up guardrails.
- Must hang up "Do Not Switch On" warning signs on the relevant switches or circuit breakers before completing maintenance, to prevent power connection. Do not switch on before the fault is solved.
- Do not use water, alcohol, oil, or other solvents when cleaning electrical components inside and outside the device.

## NOTICE!

## Grounding Requirements:

- The device's grounding impedance shall meet the requirements of local electrical safety standards.
- The equipment shall be permanently connected to a grounding wire within the building's electrical system. Please check whether the device is reliably grounded before operation. The grounding cable should be removed last while dismantling and maintaining the device.
- Do not start the device if it is not fitted with a grounding conductor.
- All acts against the grounding conductor are prohibited.
- If the device is equipped with a three-pronged socket, make sure that the ground prong is reliably grounded.
- For the device that may generate large contact currents, please make sure that the grounding terminal on the housing has been grounded before powering on, to avoid electric shock.

## NOTICE!

## Cable Requirements:

- When deciding the wire diameter, and connecting or wiring cables, follow the local laws, regulations, and codes to ensure safety.
- When external conditions (e.g., placement method, ambient temperature, etc.) change, the cable type must be verified according to IEC-60364-5-52 or local laws, regulations and standards. For instance, whether the cable's current-carrying capacity meets the requirements.
- Before connecting power cables, please make sure that the cable labels are correctly labelled and the cable terminals are well insulated.
- Do not loop and twist cables while conducting electrical wiring. If the length of the power cable is not enough, please replace it instead of joining or welding. Ensure that all the cables of the correct type and size are fully connected and well insulated, and the edges of cable slots and crossing holes are smooth.

NOTICE!

- It is recommended to bundle similar cables with cable ties, to ensure that the inside of the device is neat and tidy and to avoid cable jacket damage.
- Please use fireproof mud to seal the threading openings immediately after finishing wiring, to avoid the entry of water vapour or small animals.
- Cables should be kept away from heaters or other heat sources, because a high temperature environment may result in aging and damage to cable insulation.

NOTICE!

Short Circuit Protection:

- Please use electrical tape to wrap the bare conductor cables to prevent short circuits when installing and maintaining the battery.
- Prevent any object from entering into batteries, which may cause a short circuit.
- Regularly check the screws or copper bars on the device, to ensure that they are fully tightened.

Protection of Static-sensitive Components from Static Electricity:

- Please wear anti-static clothing and use anti-static gloves or wrist straps properly before operating sensitive equipment, and ensure that the wrist strap is grounded.
- Do not touch electronic components when picking up single boards or modules with exposed circuit boards.
- Please use anti-static materials to pack disassembled veneer boards or modules before storage or transportation, to avoid damage caused by static electricity.

## 2 Routine Maintenance

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### 2.1 Preparations Before Maintenance



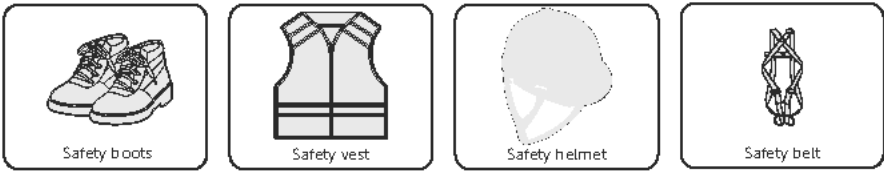
- Avoid maintaining the device outdoors under severe weather conditions such as lightning, rain or snow.
- Please clear the fallen leaves, dust, water, snow, or other debris on the top of the cabinet before opening its doors, to avoid internal damage to the device.

#### Handling of replacement parts

- Please choose an appropriate transport method based on site conditions and device weight.
- Please wear PPE (e.g. protective gloves, shoes, belt, etc.) and lift the device with proper postures, to prevent personal injuries and device damage.
- Please reasonably arrange the number of workers, the right mix, and the handling position to achieve distributing weight and balancing load when moving the device.
- Please hold the handles or the bottom of the device when moving, to avoid device damage.
- Please pay attention to the surrounding environment when moving, such as, obstacles, slippery ground, etc., to avoid personal injuries and device damage.
- Before moving the device, please pay attention to the center of gravity position of the load, and fully secure the load on the forklift by securing measures, such as ropes or bindings.

#### Tools requirement





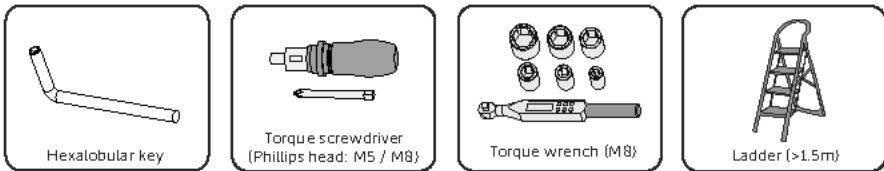
\* This section only lists protective equipment, please refer to the appropriate section for specific replacement tools.

## 2.2 Routine Maintenance

Regular maintenance is required for the device. Please follow the instructions below to inspect and maintain the system. We recommend maintaining the system once a year, and more frequent maintenance service is needed in the worse work environment. Please make records of the maintenance.

### Prerequisites

- Tools: Hexalobular key, cross screwdriver, torque wrench, ladder.



### Procedure

**Step 1:** Patrol the system round, checking the following items in turn:

Check item	Description
Operating environment	Check whether there are debris, flammable and explosive materials, toxic and harmful substances accumulating near the system. If so, please remove them.
System appearance	<ul style="list-style-type: none"> <li>• Check whether there is any damage or deformation in the system.</li> <li>• Check whether there are scratches, stubborn stains, dents or dings on the surface of the cabinet. If there is any paint loss, please repaint the cabinet (please refer to the user manual for specific procedure)</li> <li>• Check whether the antenna is rusty due to salt spray, if so, the antenna needs to be replaced, for detailed replacement procedures, please refer to "4 Replacement of Antenna".</li> </ul>
Operating status	Check whether there is any abnormal noise or odour in the running system.

Check item	Description
Cabinet ventilation	Check whether the air inlet and outlet and drainage port of the cabinet are blocked, if there is any blockage, please clear it.

**Step 2:** Check the cabinet screen for the following items:

Check item	Description
Screen display	Check whether the cabinet screen is displaying properly. If the cabinet screen fails, please replace it, for detailed replacement procedures, please refer to "5 Replacement of Cabinet Screen".
Alarm information	View alarms on the cabinet screen, for details, see "3.1 Cabinet Screen".
System operation mode	Check whether the system is charging and discharging normally according to the modes set up by checking the historical data of the battery cells, inverters, and so on.

**Step 3:** Power off the system, for details of the power off procedure, see "2.3 Power Off".

**Step 4:** Open the cabinet door, checking the following items:

#### NOTICE!

- Please gently open the door to prevent raising dust from the filter cotton. Otherwise, the smoke detector will alarm and give a command to the automatic fire sprinkler to spray gas.

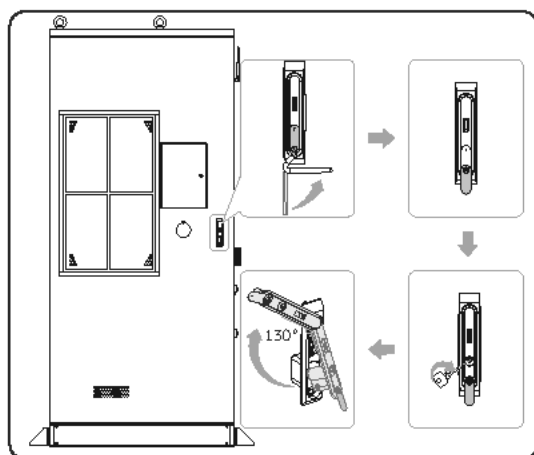


Figure 2-1 Opening the door

Check item	Description
Safety inspection	<ul style="list-style-type: none"> <li>• Check whether the cabinet opens and closes smoothly and can be locked properly. If the door does not open and close smoothly, please use rust remover WD40 on the hinge.</li> <li>• Check whether the sealing strip of the cabinet and cabinet screen is detached, broken or aged, if so, please replace the sealing strip.</li> </ul>
Cabinet internal environment	<ul style="list-style-type: none"> <li>• Check whether there is any obvious debris or construction leftovers inside the cabinet, if so, please make cleaning.</li> <li>• Check the cable threading holes for fireproof mud to ensure that they are sealed reliably and that no small animals enter the cabinet.</li> <li>• Check the inside of the cabinet and the battery compartment air-conditioning return vents for water leakage or traces of water leakage. If water leakage is found, please contact SolaX professionals for treatment.</li> </ul>
Parts appearance	<p>Check the appearance of the inverter, battery packs, air conditioner, smoke detector, temperature sensor, CO detector, UPS, EMS1000, I/O module and distribution box for damage, distortion, or soiling.</p>
Electrical connection	<ul style="list-style-type: none"> <li>• Check the electrical connection of battery packs, inverter, distribution box and EMS for looseness and cable jacket damage, especially the cable jacket connecting with the metal parts.</li> <li>• Check whether each cabinet has at least two grounding points, and the grounding is secure, the use of grounding resistance tester, measuring resistance <math>\leq 0.1\Omega</math></li> <li>• Check whether the sealing caps on idle terminals of inverter are falling off.</li> <li>• Check whether the electrical insulation tape is in good condition and no peeling.</li> <li>• Check whether there is any fading to the screws and copper bars.</li> </ul>
SPD status	<p>Check the status window on the SPD, if the status window is red, the SPD needs to be replaced.</p>
Aerosol	<p>Check the appearance of the aerosol: no deformation and nozzle integrity, confirm no agent leakage</p>
Battery pack	<ul style="list-style-type: none"> <li>• Check the appearance of each battery pack to make sure that there is no damage, deformation, and odour.</li> <li>• Open the left cover of the battery pack, remove the cover of positive and negative poles, check whether the glass fibre sleeve on the outside of the copper bar is broken, whether there is obvious deformation of the copper bar/cable, and whether there is no discolouration of the screws and the exposed part of the copper bar, and if there is any abnormality, please replace them in time.</li> </ul>

Check item	Description
Battery pack	<ul style="list-style-type: none"> <li>• Open the left cover of the battery pack, remove the cover of positive and negative poles, check whether the screws of cables and copper bars are loosened, whether there is any abnormality of the poles, if there is any loosening, please tighten the screws with a torque wrench (torque: 12.0±1 N.m), and contact SolaX to confirm the reason in time.</li> <li>• Check whether there is dust accumulation in the battery pack fan. If there is dust accumulation, please clean it up. If the dust accumulation is serious, the fan can be removed and cleaned up or replaced with a new one.</li> <li>• Check whether there is rust on the connection between the battery pack lugs and the battery pack, if rust is found, use sandpaper to polish the rust.</li> <li>• Open the right rotating cover of the slave control, check whether the cable harness is loose and whether the cable jacket is damaged. If there is any looseness, please tighten the cables, and if the cable jacket is damaged, please replace it, and contact SolaX to confirm the reason.</li> </ul>

**Step 5:** System power on, for details of the power on procedure, see "2.4 Power On".

**Step 6:** Open the cabinet door, checking the following items:

Check item	Description
Parts operating status	<ul style="list-style-type: none"> <li>• Check whether there is any abnormal noise when the inverter, battery packs, distribution box, air conditioner and UPS are in operation.</li> <li>• Check whether the indicator of distribution box, EMS1000 and I/O module lights normally.</li> </ul>
Explosion-proof fan	<ul style="list-style-type: none"> <li>• Use EMS D04+ to control the start-up of the explosion-proof fan. (This function is only available for admin account.) When the explosion-proof fan rotates, it makes a sound which is normal for exhaust air. If the explosion-proof fan does not rotate, it is abnormal. In such cases, the explosion-proof fan needs to be replaced.</li> </ul>
Safety function	<ul style="list-style-type: none"> <li>• Press the emergency stop button to check whether the AC circuit breaker can be disconnected, and the audible and visual alarms will sound for alarm prompting, and whether the LED indicator is displayed normally.</li> <li>• Check the stopping signal and communication by simulating the shutdown operation.</li> <li>• Check whether there are any damages to warning signs and other labels pasted on the equipment. If so, please replace them in time.</li> </ul>

**Step 7:** After completing the routine maintenance, please close the door.

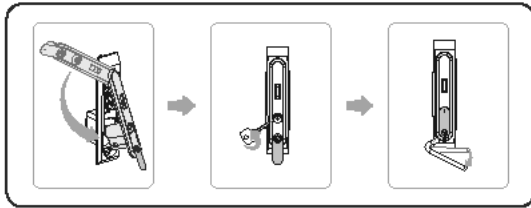


Figure 2-2 Closing the door

**NOTICE!**

- Please properly keep the key.

### 2.3 Power Off

Regarding the detailed location of the modules in the cabinet, see following figure.

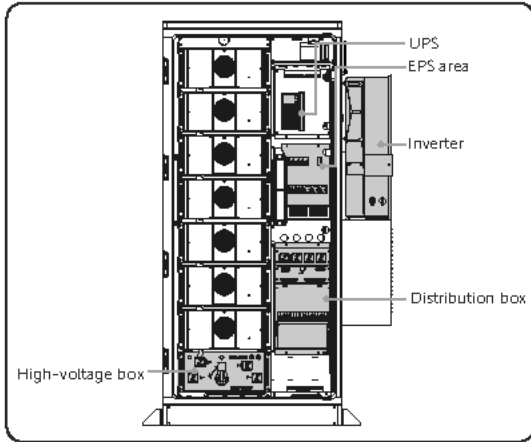


Figure 2-3 Location of modules

**WARNING!**

- Check whether the system is still running before power off. Do not power off if the device is "under load".

**Step 1:** Inverter power off.

- a. Set **OFF** in the **System ON/OFF** on the inverter LCD screen.
- b. Turn off the inverter system button.
- c. Set the DC switch1 and DC switch2 to "OFF".

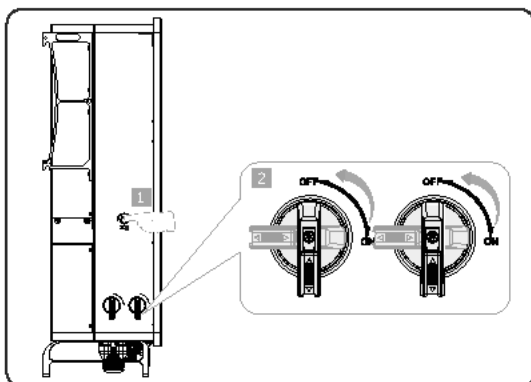


Figure 2-4 Shutting down the inverter

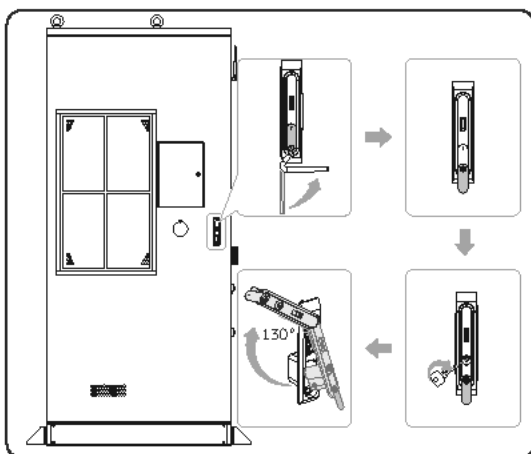
**Step 2:** Open the cabinet door.

Figure 2-5 Opening the door

**Step 3:** Perform operations on the EPS area.

- » Flip down EPS breaker;
- » Flip down "breaker for maintenance (APS2)";
- » Flip down "UPS breaker (UPS)".

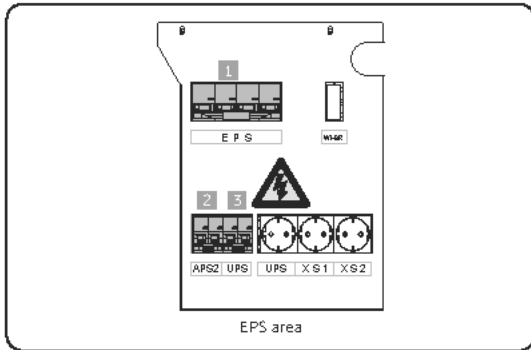


Figure 2-6 Performing on EPS area

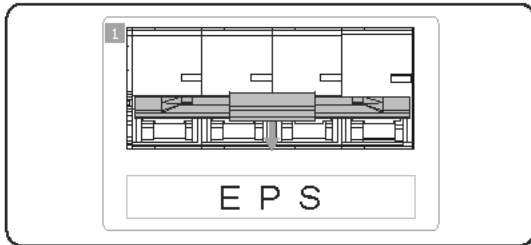


Figure 2-7 Flipping down EPS breaker

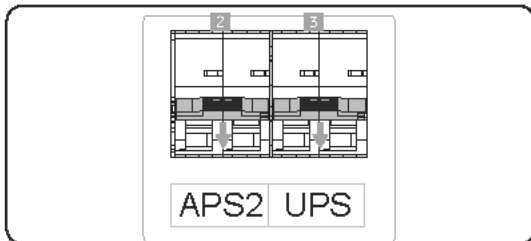


Figure 2-8 Flipping down UPS and APS2 breaker

**Step 4:** Gently press the power button, and rotate the disconnecter of the high-voltage box to "OFF".

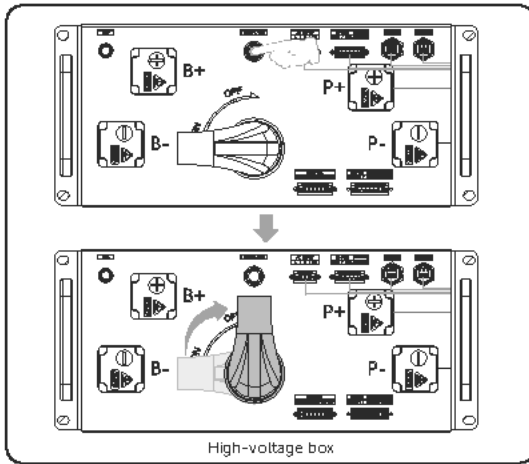


Figure 2-9 Shutting down the high-voltage box

**Step 5:** Hold and press the "Power on/off" button to power off the UPS.

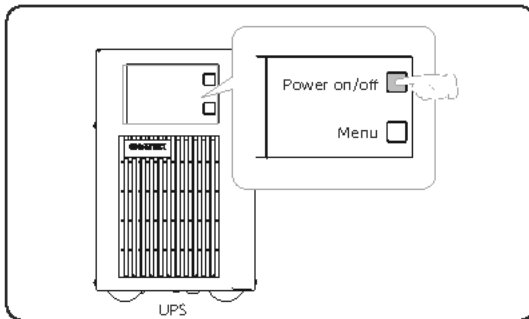


Figure 2-10 Holding and pressing button

**Step 6:** Shut down the distribution box.

- » Flip down the "auxiliary power breaker of high-voltage box (APS1)";
- » Flip down the "lightning protection breaker (SPD MCB)";
- » Flip down the "air conditioner/liquid cooling unit on/off breaker (HVAC MCB)";
- » Flip down the "reserve breaker (RES)";
- » Rotate the switch on the distribution box 90° counter-clockwise to "OFF".

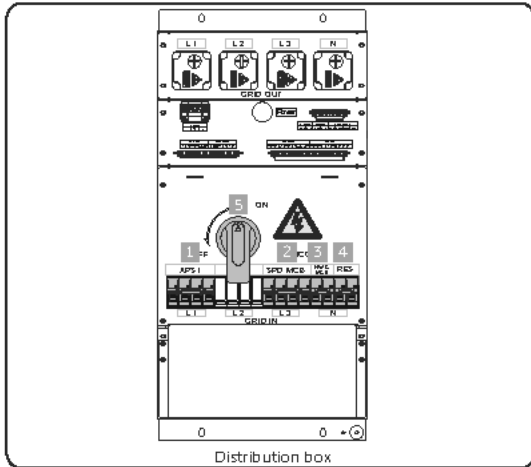


Figure 2-11 Shutting down sequence of distribution box

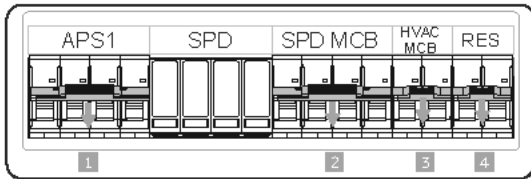


Figure 2-12 Flipping down breakers

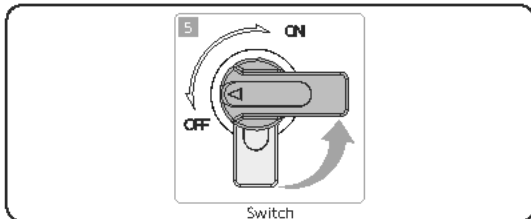


Figure 2-13 Rotating switch

 **WARNING!**

- The device may still have power and heat after turning off, which may cause electric shock and personal injuries. Therefore, please allow it to cool for at least 5 minutes and wear PPE before conducting maintenance.

## Emergency Power Off

 **WARNING!**

- Do not press the emergency stop button except for emergencies.
- Some modules inside the cabinet may still have power after pressing the emergency stop button, therefore, non-professionals are not allowed to operate them.

**Step 1:** Rotate the cover

**Step 2:** Press the emergency stop button.

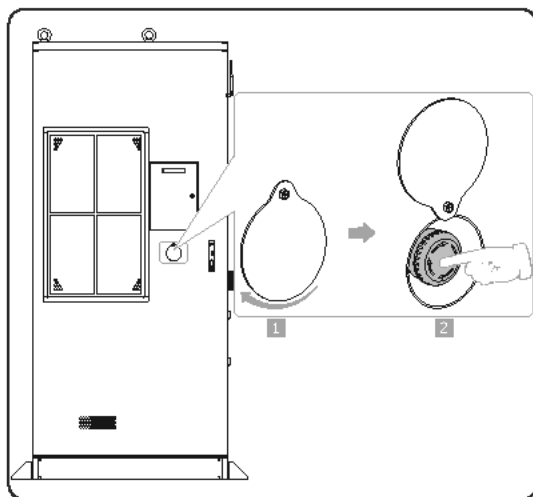


Figure 2-14 Pressing emergency stop button

**NOTICE!**

If it has been pressed, the emergency stop button must be reset before starting the equipment. The reset steps are shown as follows:

- Rotate the cover;
- Rotate the button according to the arrow direction shown on the button. Then the button will spring back to its original position.

## 2.4 Power On

### Checking before power on

Ensure that all the cables connecting to the EPS and distribution box (grid side) are wired

and securely fastened. For details, please refer to the following table.

Table 2-1 Checklist

No.	Item	Description
1	Equipment appearance	<ul style="list-style-type: none"> <li>• Check the equipment is in good condition, with a clean, non-peeling paint, and rust-free surface.</li> <li>• Ensure that the labels on the equipment are clear and easy to read. If it is damaged, the label shall be replaced at once.</li> </ul>
2	Installation	<ul style="list-style-type: none"> <li>• The battery cabinet, inverter and other device (if any) are installed correctly and securely.</li> <li>• All the screws are tightened.</li> </ul>
3	Cable appearance	<ul style="list-style-type: none"> <li>• Check that the cable jacket is in good condition.</li> <li>• Check that the protective pipes are in good condition.</li> </ul>
4	Cable connection	<ul style="list-style-type: none"> <li>• Check that the cable connection position is consistent with the design principles.</li> <li>• Ensure that the procedure for crimping terminals strictly observe the requirements, and the terminals are securely fastened.</li> <li>• Check that the labels on the both sides of cables are clear, and the direction of both labels is the same.</li> <li>• Check that all DC, AC cables, ground cable, communication cables and meter/CT of the inverter are connected correctly and securely</li> <li>• Check that the external AC and DC connectors are connected; The connectors on the Grid and EPS terminal are connected correctly and securely.</li> <li>• Check the unused terminals and ports of the inverter are locked by waterproof caps.</li> <li>• Check that all photovoltaic panels are connected correctly and securely.</li> </ul>
5	Wiring	<ul style="list-style-type: none"> <li>• Ensure that the wiring procedure is consistent with the principle of separation of strong and weak electricity.</li> <li>• Ensure that the cables are neatly places.</li> <li>• Leave a little extra length for adjustments.</li> <li>• Keep cables tidy in the cabinet.</li> <li>• Check if the grid connection voltage meets:  <math>L1+N=220/230\text{ V}</math>, <math>L2+N=220/230\text{ V}</math>, <math>L3+N=220/230\text{ V}</math>, <math>L1+L2=380/400\text{ V}</math>, <math>L2+L3=380/400\text{ V}</math>, <math>L1+L3=380/400\text{ V}</math>.</li> </ul>
6	Copper bars in the battery pack	<ul style="list-style-type: none"> <li>• Check to make sure the copper bars are not deformed.</li> </ul>

No.	Item	Description
7	Button/Switch	<ul style="list-style-type: none"> <li>• Check the distribution box's switch is "OFF".</li> <li>• Check the high voltage box's switches are "OFF".</li> <li>• All the DC breakers and AC breakers are "OFF"</li> </ul>

### Power on procedure

Regarding the detailed location of the modules in the cabinet, please refer to "Figure 2-3 Location of modules".

#### NOTICE!

- Please check that the emergency stop button remains in the closed position before powering on.

#### Step 1: Start the distribution box.

- » Rotate the switch on the distribution box 90° clockwise to "ON";
- » Flip up the "auxiliary power breaker of high-voltage box (APS1)";
- » Flip up the "lightning protection breaker (SPD MCB)";
- » Flip up the "air conditioner/liquid cooling unit on/off breaker (HVAC MCB)";
- » Flip up the "reserve breaker (RES)".

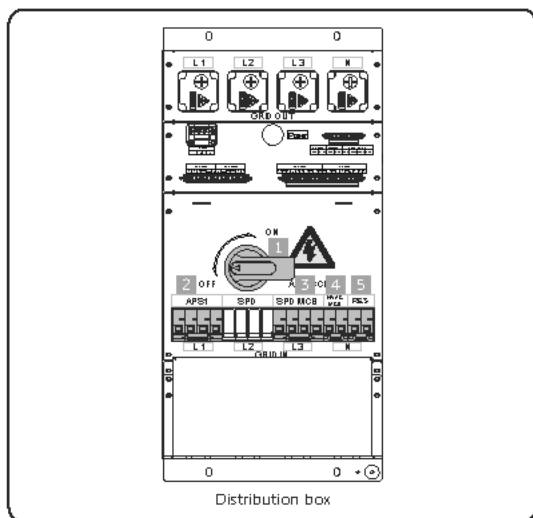


Figure 2-15 Starting sequence of distribution box

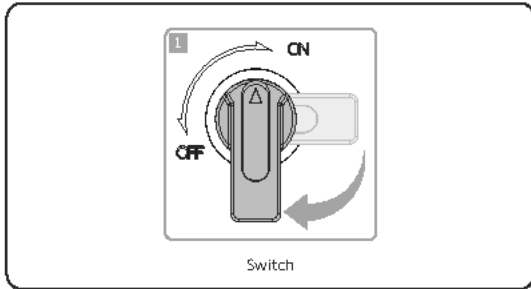


Figure 2-16 Rotating switch

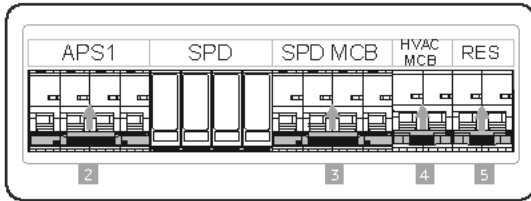


Figure 2-17 Flipping up breakers

**Step 2:** Perform operations on the EPS area.

- » Flip up EPS breaker;
- » Flip up "breaker for maintenance (APS2)";
- » Flip up "UPS breaker (UPS)".

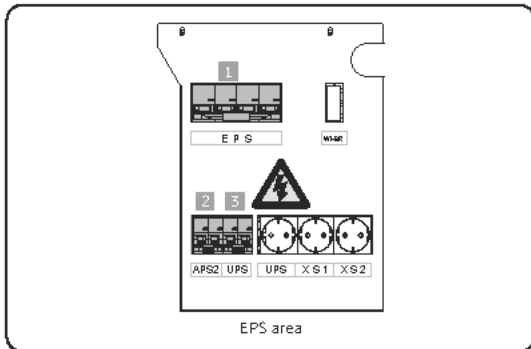


Figure 2-18 Performing on EPS area

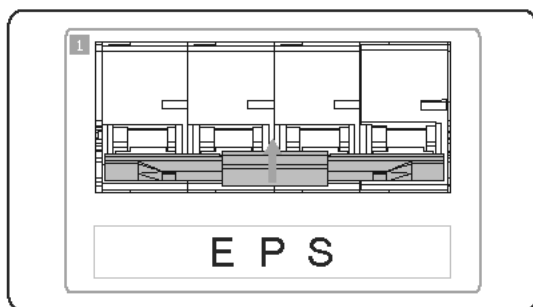


Figure 2-19 Flipping up EPS breaker

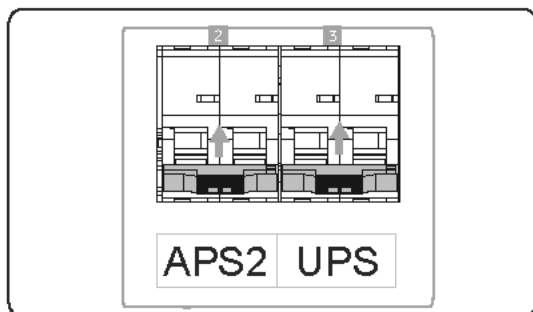


Figure 2-20 Flipping up UPS and APS2 breaker

**Step 3:** The startup sound on boot will be heard when holding and pressing the "Power on/off" button to start the UPS.

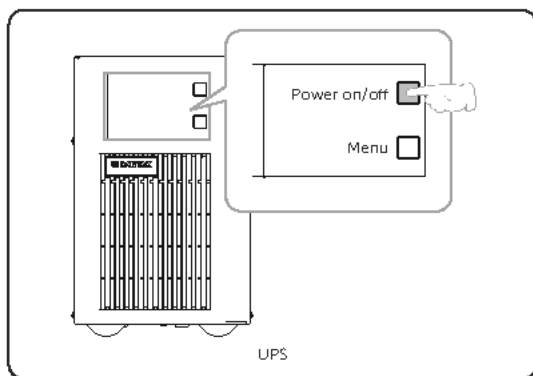


Figure 2-21 Holding and pressing button

**Step 4:** Rotate the disconnecter of the high-voltage box to "ON", and then gently press the power button. At the point, the LED light will come on green.

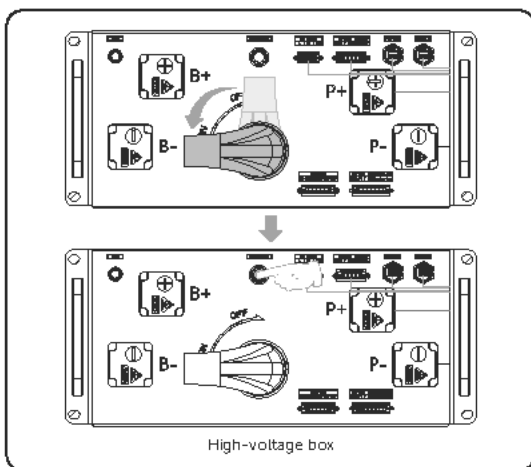


Figure 2-22 Starting the high-voltage box

**Step 5:** Close the door after the equipment has been started.

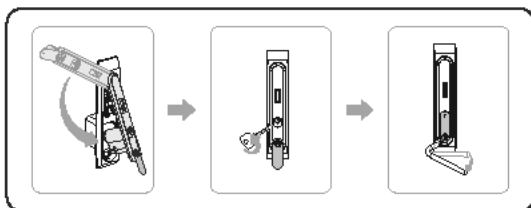


Figure 2-23 Closing the door

**NOTICE!**

- Please properly keep the key.

**Step 6:** Start the inverter.

- Turn on the AC breakers and check whether the LCD screen lights on.
  - » If the LCD screen is not on, turn off the AC breakers and check whether the Grid cable is connected correctly and securely.
- Switch on the inverter DC switch and check the LCD screen, check the PV voltage.
  - » If the PV voltage is 0, turn off the DC switch, pull out the PV connectors and then measure the voltage of the positive and negative PV port (in MPPT

voltage range 160-950 V) or check whether the positive and negative poles of PV cables are reversed.

- c. Press and turn on the inverter system button.

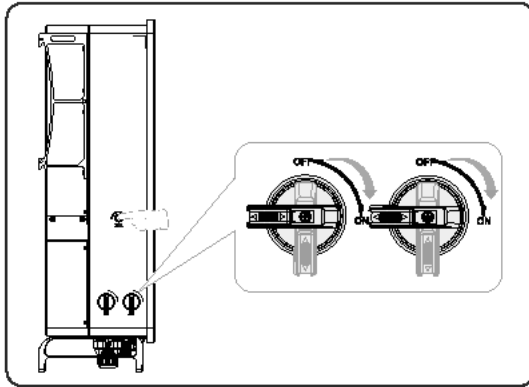


Figure 2-24 Starting the inverter

- d. Set **System ON/OFF** as ON status on the inverter screen, and the LCD displays waiting status.
- e. When the photovoltaic panels generate enough power or the battery supplies power, the inverter will start automatically. The inverter will go Waiting, Checking and Normal status in sequence.
- f. Check whether the meter/CT is correctly connected.
- » If CT is connected, please perform the Meter/CT Check to check the correct connection through the setting path: **Menu>Setting>Advance Setting>Meter/CT Settings>Meter/CT Check**
  - » If meter is connected, please set the connection of Meter through the setting path: **Menu>Setting>Advance Setting>Meter/CT Settings.**

#### NOTICE!

- When the meter or CT is correctly connected, the meter/CT power displays on the METER/CT check interface; when the connection method is wrong, **Meter Fault** displays on this interface.

#### Checking after power on

- a. Check whether the system has any abnormal noise.
- b. Check whether the indicator lights report an error and check the system for alarm through the cabinet screen
- c. Check the running status of the system through the cabinet screen.

## 3 Alarm Reference

System alarms can be viewed through the following channels: cabinet screen, EMS1000 webpage, SolaxCloud APP, please handle alarms according to the suggestions.

### 3.1 Cabinet Screen

#### 3.1.1 Logging in

Gently and correctly guide the key into the keyhole, and then turn it clockwise to unlock the screen door.

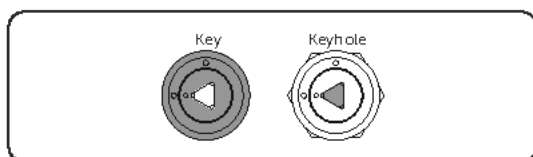


Figure 3-1 Correct position

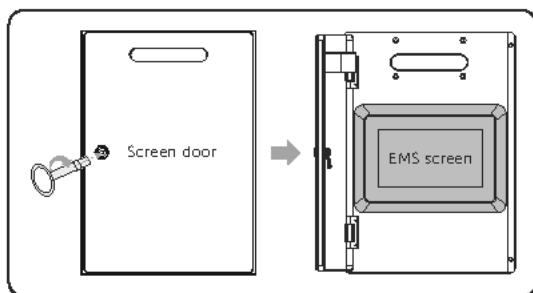


Figure 3-2 Unlocking screen door

On the login screen, enter the username and password, and then tap **Login**. Admin and user accounts are supported.

Table 3-1 Account information

Username	Password	Remarks
Admin	EMS SN	The password cannot be modified
User	123456 by default	The password can be modified on EMS1000 webpage.

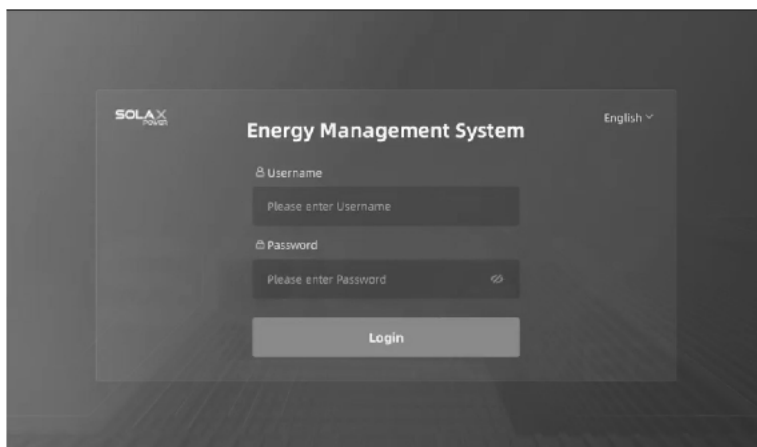


Figure 3-3 Logging in to the screen

### 3.1.2 Viewing Alarms

Alarm information includes the device name and type, error code, alarm name, alarm level, time that the alarm occurs and stops, alarm status and more.

Log in to the webpage, and then select **Alarm**.

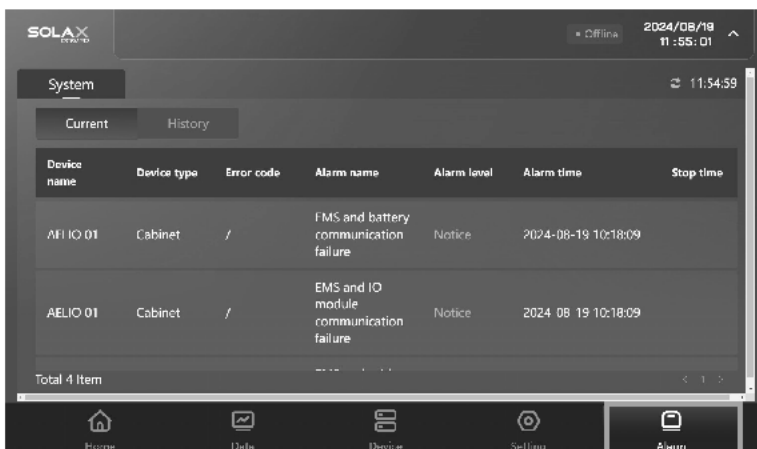


Figure 3-4 Logging in to the screen

Table 3-2 Alarm information description

Parameter	Description
Device name	Brief description of the device
Device type	The device with which the alarm occurs
Error code	Only available for inverter errors
Alarm name	Brief description of the alarm
Alarm level	Emergency urgency level of the alarm, divided into critical, warning and notice
Alarm time	Time that the alarm occurs
Stop time	Time that the alarm is resolved
Operation	Click <b>Detail</b> to view to view more details on the alarm.

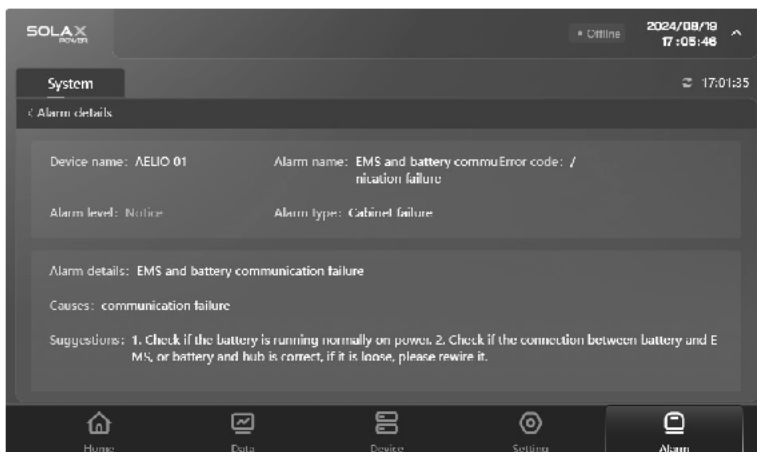


Figure 3-5 Alarm details

## 3.2 EMS1000 Webpage

### NOTICE!

Screenshots of V002.05 software are used for example in this chapter, and the actual page details might vary.

### 3.2.1 Logging in

#### NOTICE!

IE browser is not supported currently, and we recommend logging in to the webpage through Chrome.

**Step 1:** Connect the computer to NET2 of EMS1000 with a network cable, or connect the computer to EMS1000 hotspot named WiFi\_SN, and then go to the defined IP address based on the connection mode.

- » For wired connection: **192.168.11.10**
- » For hotspot connection: **192.168.10.10**

**Step 2:** On the login page, select the language, enter the username and password, and then click **Login**.

The default username and password for the user account are user and 123456.

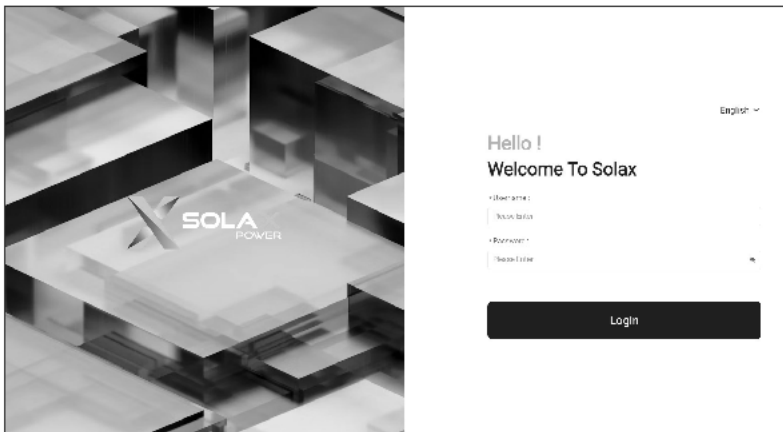


Figure 3-6 Login page

### 3.2.2 Viewing Alarms

Alarm information includes the device type and SN, alarm name, error code, alarm level, time that the alarm occurs and ends, alarm status and more.

Log in to the webpage, and then select **Alarm info**.

No.	Device type	SN	Alarm name	Error code	Notice 1	Notice 2	Notice 3	Notice 4	Notice 5	Notice 6	Notice 7	Alarm status
1	CA-10	AC-00	Grid all inverter faulty communication failed	7	NA-02	2021-07-22 02:30:07						Resolved
2	CA-10	AC-00	Grid all inverter faulty communication failed	7	NA-01	2021-07-21 09:17:14	2021-07-21 09:17:14					Resolved
3	CA-10	AC-00	Grid all inverter faulty communication failed	7	NA-02	2021-07-21 09:18:09	2021-07-01 09:18:09					Resolved
4	CA-10	AC-00	Grid all inverter faulty communication failed	7	NA-01	2021-07-21 09:18:07	2021-07-21 09:18:07					Resolved
5	CA-10	AC-00	Grid all inverter faulty communication failed	7	NA-02	2021-07-21 09:18:50	2021-07-01 09:18:50					Resolved
6	CA-10	AC-00	Grid all inverter faulty communication failed	7	NA-01	2021-07-21 09:19:09	2021-07-01 09:19:09					Resolved
7	CA-10	AC-00	Grid all inverter faulty communication failed	7	NA-01	2021-07-21 09:19:52	2021-07-01 09:19:52					Resolved
8	CA-10	AC-00	Grid all inverter faulty communication failed	7	NA-01	2021-07-21 09:19:52	2021-07-01 09:19:52					Resolved
9	CA-10	AC-00	Grid all inverter faulty communication failed	7	NA-02	2021-07-22 16:11:25	2021-07-02 16:11:25					Resolved

Figure 3-7 Viewing alarm information

Table 3-3 Alarm information description

Parameter	Description
Device type	The device with which the alarm occurs
SN	SN of the alarm device
Alarm name	Brief description of the alarm
Error code	Only available for inverter errors
Alarm level	Emergency urgency level of the alarm, divided into critical, warning and notice
Alarm time	Time that the alarm occurs
End time	Time that the alarm is resolved
Alarm status	<ul style="list-style-type: none"> <li>Pending: Alarms that are not resolved yet</li> <li>Resolved: Alarms that have been resolved</li> </ul>

You can click **Detail** under **Operation** on each alarm to view more details on the alarm, and the possible causes and suggestions that we offer for each type of alarm. This helps you to solve the problem quickly and efficiently.

Alarm details x

Device model	Alarm type
AELIO P308T00	Cabinet failure

**Alarm details:**  
EMS and CO detector communication failure

**Causes:**  
communication failure

---

**Suggestions:**

1. Check if the connection between RS-485-2(A2, B2) of IO module and CO sensor is correct, if it is loose, please rewire it. Then check whether the communication of the device is normal through EMS or cloud after wiring.
2. Check if the CO sensor is supplied with power, if not, please rewire it.
3. Check if the communication line of the CO sensor is normal. PIN terminal 1,4 is to 485A and PIN terminal 2,5 for 485B. (24V+ for PIN terminal 3, 24V- for PIN terminal 6). If it is not working properly, please connect the wires again.  
Colors: PIN terminal 1: orange white; PIN terminal 2: orange; PIN terminal 3: green white; PIN terminal 4: blue; PIN terminal 5: blue white; PIN terminal 6: brown

Figure 3-8 Alarm details

### 3.3 SolaX Cloud App

#### 3.3.1 Downloading and Installing App

Scan the QR code below to download SolaXCloud APP. You can also find the QR codes at the bottom right of the login page of [www.solaxcloud.com](http://www.solaxcloud.com) or on the user manual of Pocket series communication module. In addition, you can search with the key word SolaXCloud in Apple Store or Google Play to download it.



Figure 3-9 QR code

Please watch the video or read the document on the SolaXCloud App for relevant operation.

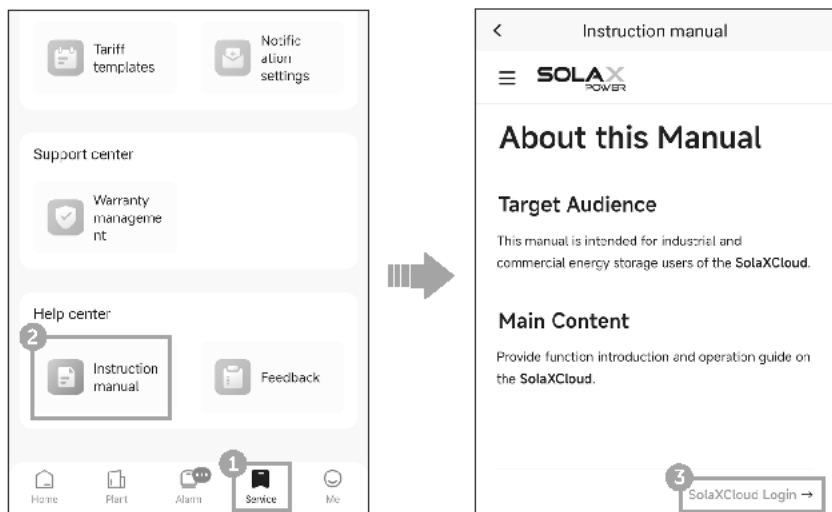


Figure 3-10 App guide on SolaXCloud

### 3.3.2 Viewing Alarms

Please follow the steps below to view alarm information.

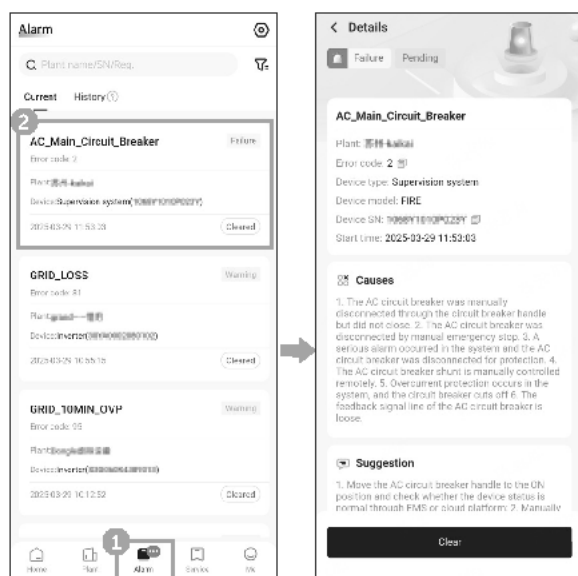


Figure 3-11 Viewing alarm information

#### NOTICE!

- The screenshots in this chapter correspond to the SolaXCloud App V6.6.0.

## 4 Replacement of Antenna

---

### Prerequisites

- Tools: Ladder (>1.5m).



### WARNING!

- The system must be powered off before replace the antenna.
- After the system powers off, there will still be the remaining electricity and heat which may cause electric shocks and body burns. Please wear personal protective equipment (PPE) and begin servicing the system 5 minutes after power off.

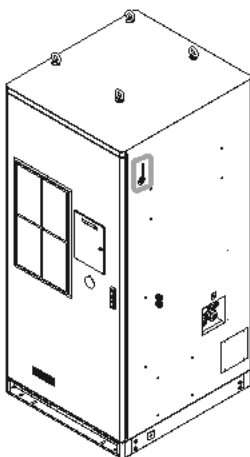


Figure 4-1 Position of the antenna

## Procedure

**Step 1:** Fold the antenna downward, rotate it counterclockwise and remove it.

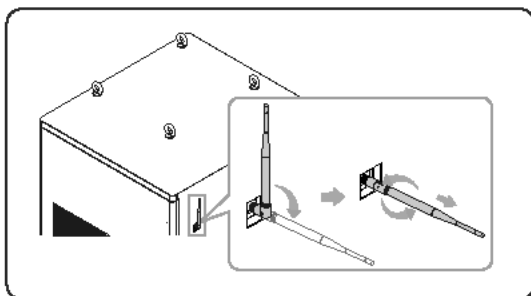


Figure 4-2 Removing antenna

**Step 2:** Correctly insert and tighten the new antenna by turning it clockwise.

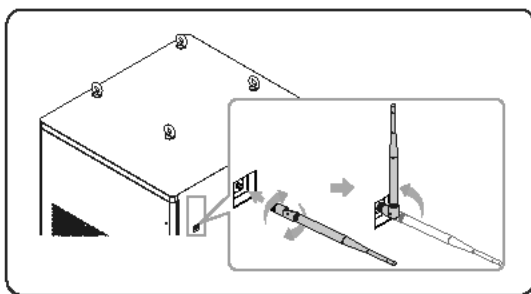
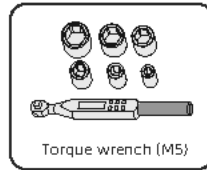
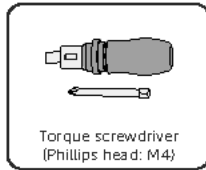


Figure 4-3 Installing a new antenna

# 5 Replacement of Cabinet Screen

## Prerequisites

- Tools: Cross screwdriver, torque wrench.



### WARNING!

- The system must be powered off before replace the cabinet screen.
- After the system powers off, there will still be the remaining electricity and heat which may cause electric shocks and body burns. Please wear personal protective equipment (PPE) and begin servicing the system 5 minutes after power off.

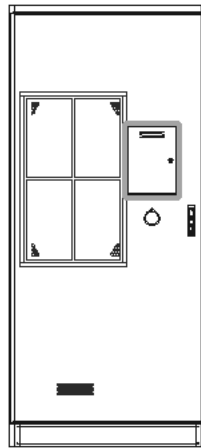


Figure 5-1 Position of the cabinet screen

Procedure

**Step 1:** Remove the front air duct and the side air ducts of the air conditioner.

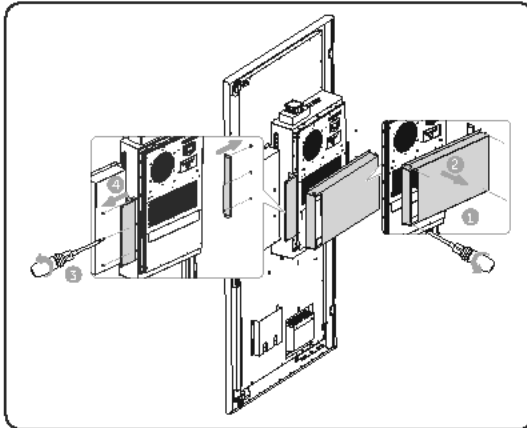


Figure 5-2 Removing the front air duct and side air ducts

**Step 2:** Loosen the M5 nuts and screws on the upper and lower sides of the screen cover.

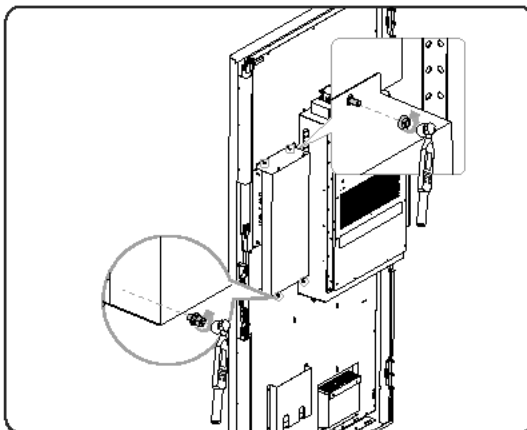


Figure 5-3 Loosening the nuts and screws

**Step 3:** Remove the screen cover.

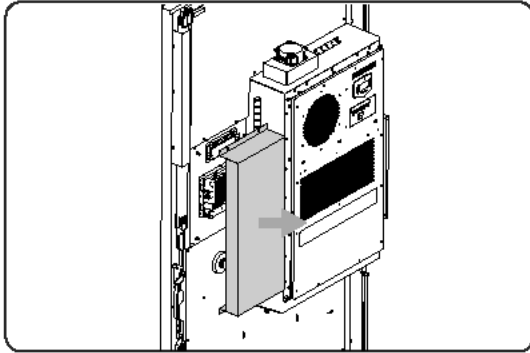


Figure 5-4 Removing the screen cover

**Step 4:** Disconnect the wiring at the top and bottom of the cabinet screen.

**Step 5:** Loosen the M4 screws on both sides of the cabinet screen and remove the fasteners.

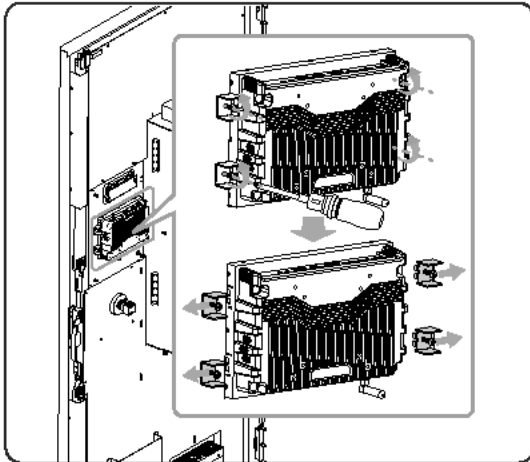


Figure 5-5 Removing the fasteners

- Step 6:** Gently and correctly guide the key into the keyhole, and then turn it clockwise to unlock the screen door.

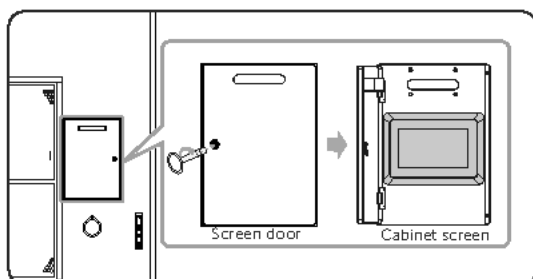


Figure 5-6 Unlocking screen door (front view)

- Step 7:** Remove the screen from the front.

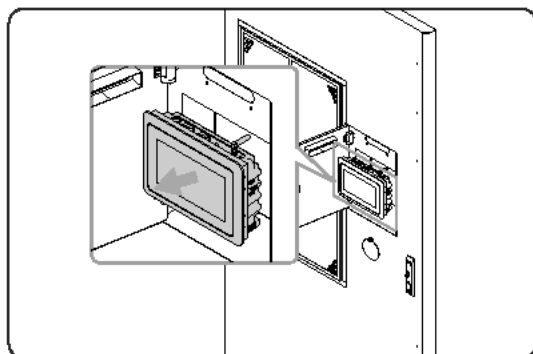


Figure 5-7 Removing the screen (front view)

- Step 8:** Install the new cabinet screen from the front.

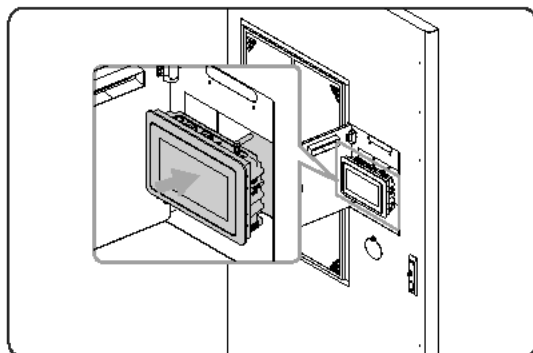


Figure 5-8 Installing the screen

**Step 9:** Hang the hooks of the fasteners onto the holes on both sides of the cabinet screen and tighten the M4 screws.

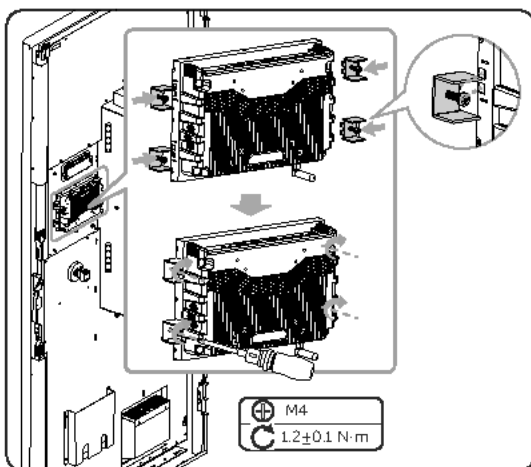


Figure 5-9 Installing the fasteners

**Step 10:** Connect the wiring at the top and bottom of the cabinet screen.

**Step 11:** Install the screen cover.

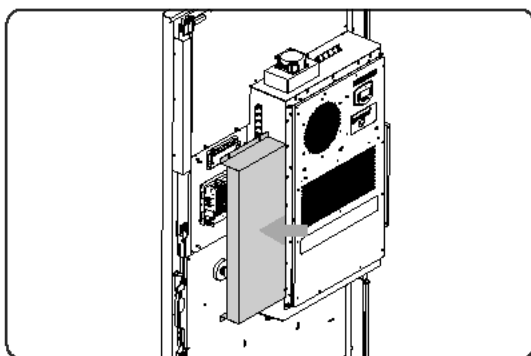


Figure 5-10 Installing the screen cover

**Step 12:** Tighten the M5 nuts and screws on the upper and lower sides of the screen cover.

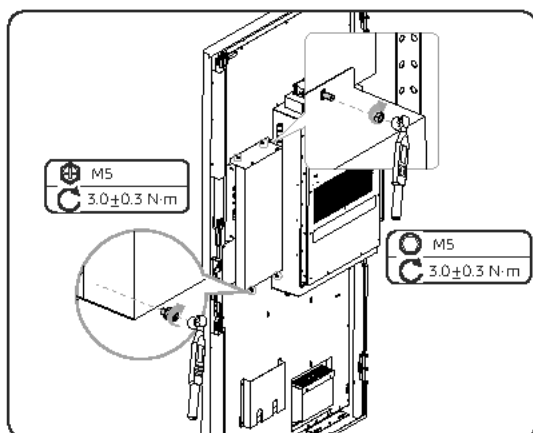


Figure 5-11 Tightening the nuts and screws

**Step 13:** Install the front air duct and side air ducts of the air conditioner.

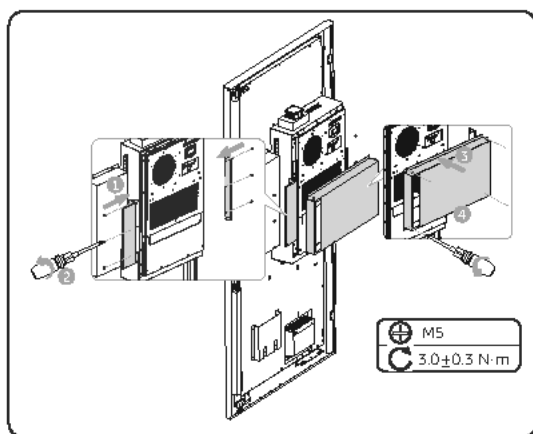


Figure 5-12 Installing the front air duct and side air ducts

### Checking after replacement

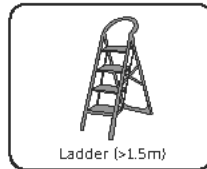
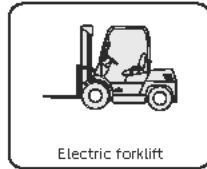
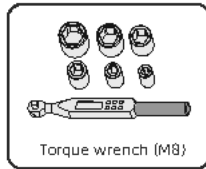
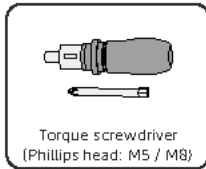
**Step 1:** Power on the system. For details, refer to "2.4 Power On".

**Step 2:** Check whether the functions of cabinet screen are restored.

# 6 Replacement of Battery Pack

## Prerequisites

- Fault locating:
  - a. View alarm information via cabinet screen, EMS1000 webpage or SolaXCloud App.
  - b. Refer to the alarm handling suggestions in the alarm details.
  - c. Contact Solax and order replacement parts.
- Tools: Cross screwdriver, torque wrench, electric forklift, ladder.



- At least four persons are required to replace the component.

### DANGER!

- Do not disassemble the battery violently. Otherwise, it may lead to battery pack short circuit, damage to the device (leakage, rupture), fire or explosion.

### WARNING!

- Before replacing the battery pack, ensure that the system is powered off. Otherwise, electric shocks may occur.
- After the system powers off, there will still be the remaining electricity and heat which may cause electric shocks and body burns. Please wear personal protective equipment (PPE) and begin servicing the system 5 minutes after power off.
- Only qualified person can perform the maintenance for the device.

 **WARNING!**

- 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 cannot be transported.
- Handle gently when moving the battery pack to prevent bumping or damage.
- Before moving a faulty battery pack (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.
- Keep away from flammable material storage area, residential areas, and other population centers (e.g., public transport, elevators) when transporting the faulty battery pack.

 **WARNING!**

- Before unpacking the battery, check whether the package is intact, batteries with damaged packaging should not be used, please notify the transporter and the manufacturer immediately if it is damaged.
- Before installing the battery pack, inspect the battery pack shell for deformation or damage.
- After removing the package from the battery pack, the installation must be completed within 24 hours, if it cannot be installed in time, the battery needs to be repacked and placed in an indoor, dry, non-corrosive gas environment; after completing the installation of the energy storage system, it must be powered on within 24 hours; the unpacking of the batteries to the powering on of the energy storage system needs to be completed within 72 hours, and the power off time can not be more than 24 hours for the later regular routine maintenance.

**NOTICE!**

- The expenses for dispose of the wasted or damaged battery packs incurred shall be borne by the user.

**NOTICE!**

- The replaced devices should be sent back to the local Solax warehouse.

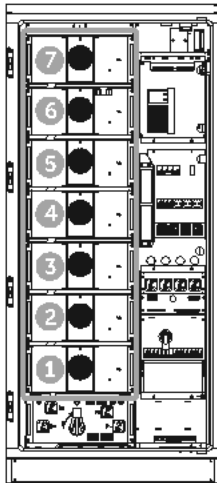


Figure 6-1 Position of the battery packs

Procedure

NOTICE!

- This section takes the replacement of battery pack 4 as an example.

**Step 1:** Press to open the covers on both sides of the battery pack to be replaced and adjacent battery packs.

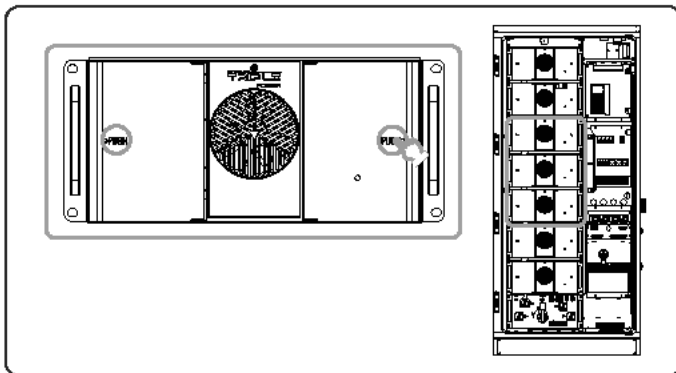


Figure 6-2 Opening the battery pack cover

**Step 2:** Remove the copper bars and cables.

1. Remove the terminal cover. Unscrew the M8 nut and remove the negative copper bar, reinstall the terminal cover.
2. Remove the positive copper bar in the same way.

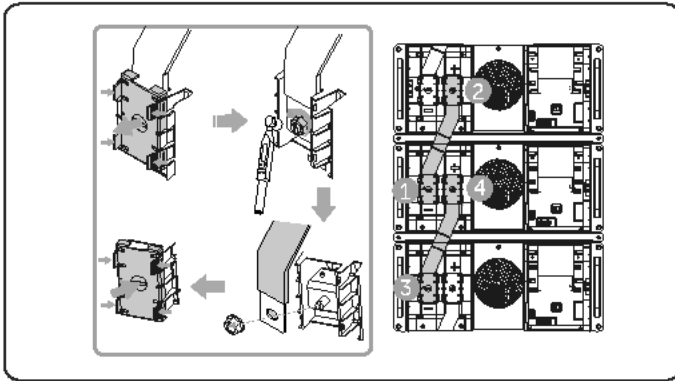


Figure 6-3 Removing the copper bars

⚠ WARNING!

- After removing the copper bars, it is necessary to install the terminal covers back, otherwise electric shock may occur.

3. Remove the fan power cables and communication cables of the battery pack.

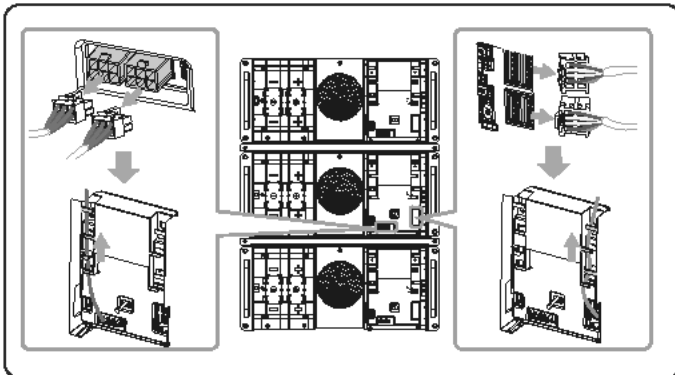


Figure 6-4 Removing the cables

**Step 3:** Unscrew the M5 screws on the baffle, remove the baffle. Unscrew the M8 screws on the battery pack.

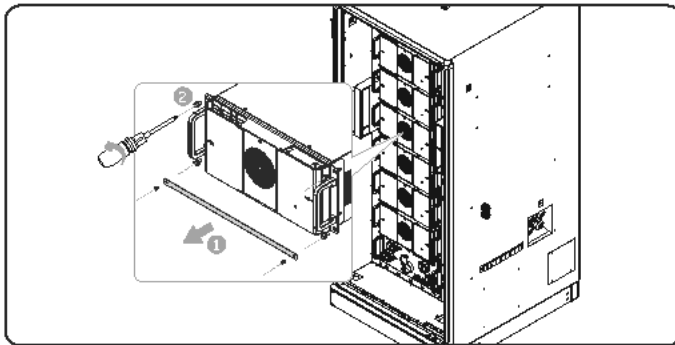


Figure 6-5 Removing the baffle

**Step 4:** Draw the faulty battery pack onto a forklift and transport it to the designated storage location using the forklift.

**Step 5:** Transport the new battery pack to the designated location with a forklift and manually push the battery pack into the cabinet. Secure the battery pack with M8 screws. Install the baffle and secure with M5 screws.

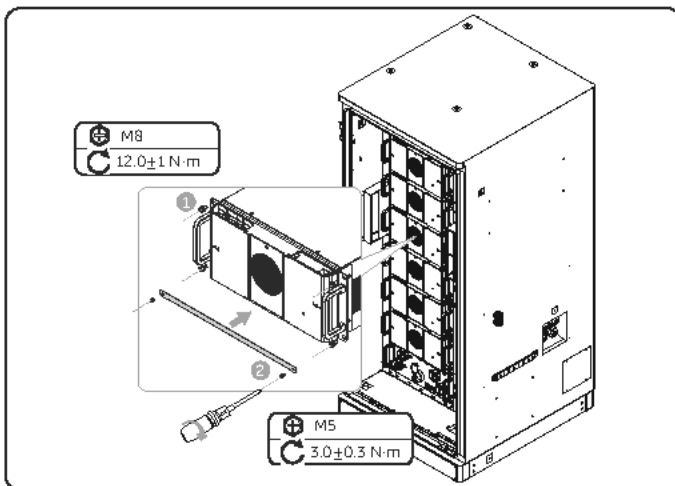


Figure 6-6 Installing the battery pack

**Step 6:** Install the copper bars and cables.

1. Remove the terminal cover. Install the negative copper bars, tightening M8 nut with a torque wrench (torque:  $12.0 \pm 1$  N·m). Reinstall the terminal cover.
2. Install the positive copper bar in the same way.

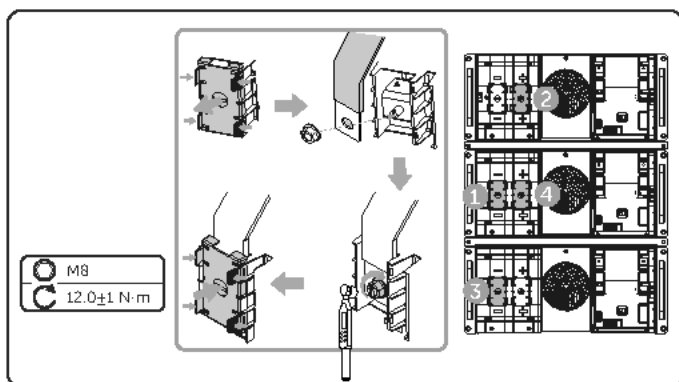


Figure 6-7 Installing the copper bars

3. Connect the fan power cables and communication cables of the battery pack.

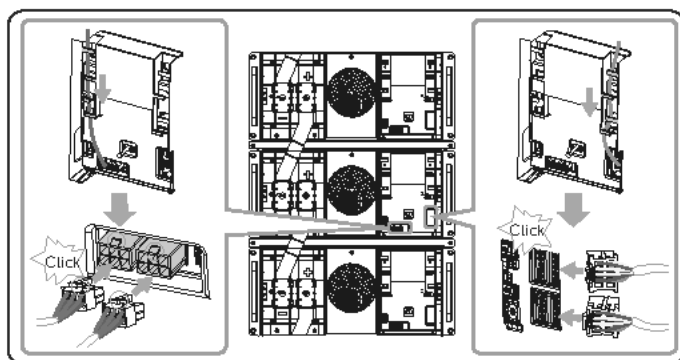


Figure 6-8 Removing the cables

- Step 7:** Close the covers on both sides of the battery packs.

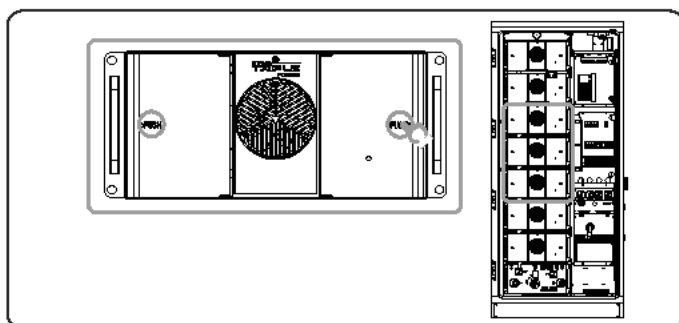


Figure 6-9 Closing battery pack covers

**Step 8:** Long press the button of the high-voltage box for 10 seconds for address assignment.

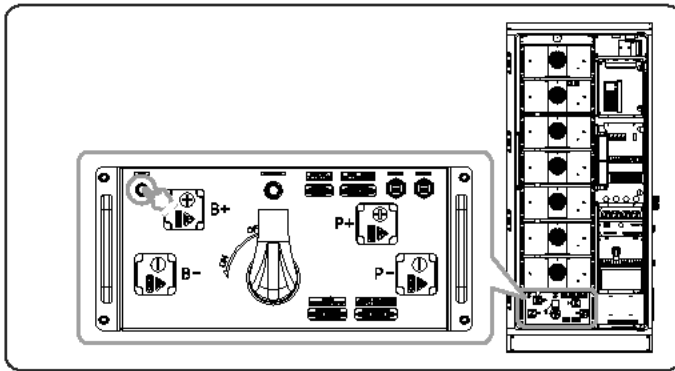


Figure 6-10 Address assignment

### Checking after replacement

**Step 1:** Power on the system. For details, refer to "2.4 Power On".

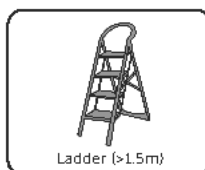
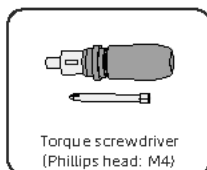
**Step 2:** Check whether the functions are restored.

No.	Check Item	Criteria
1	Alarm information	The alarm status is displayed as resolved and no new alarms are generated
2	Function	The communication and charging/discharging functions are normal.
3	Appearance	<ul style="list-style-type: none"><li>• There is no obvious damage to the appearance.</li><li>• There is no obvious paint peeling or rust.</li><li>• The screws are secured.</li><li>• The fans rotate properly without abnormal sound.</li><li>• The front panel vent is clean and free from blockage.</li></ul>

## 7 Replacement of Battery Pack Fan

### Prerequisites

- Fault locating:
  - a. View alarm information via cabinet screen, EMS1000 webpage or SolaXCloud App.
  - b. Refer to the alarm handling suggestions in the alarm details.
  - c. Contact Solax and order replacement parts.
- Tools: Cross screwdriver, ladder.



### DANGER!

- Do not disassemble the battery violently. Otherwise, it may lead to battery pack short circuit, damage to the device (leakage, rupture), fire, or explosion.

### WARNING!

- Before replacing the battery pack fan, ensure that the system is powered off. Otherwise, electric shocks may occur.
- After the system powers off, there will still be the remaining electricity and heat which may cause electric shocks and body burns. Please wear personal protective equipment (PPE) and begin servicing the system 5 minutes after power off.
- Only qualified person can perform the maintenance for the device.

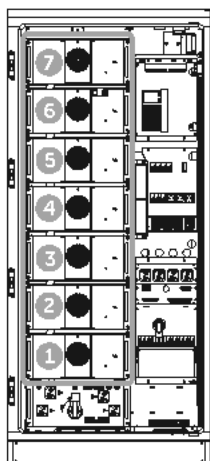


Figure 7-1 Position of the battery pack fans

Procedure

**Step 1:** Press to open the cover of the battery pack.

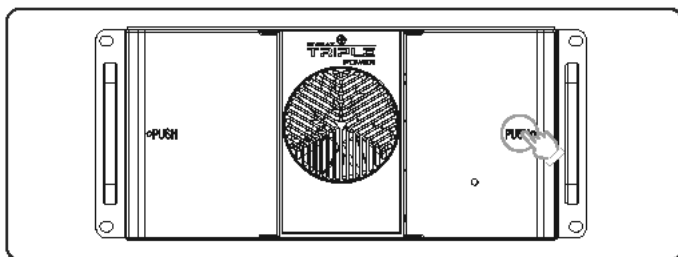


Figure 7-2 Opening the battery pack cover

**Step 2:** Remove the cable of the fan.

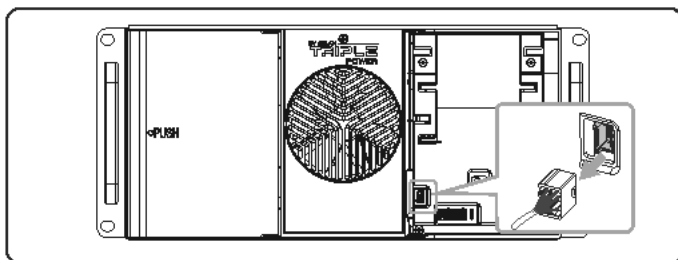


Figure 7-3 Removing the cable

**Step 3:** Unscrew the screw on the cover, remove the cover.

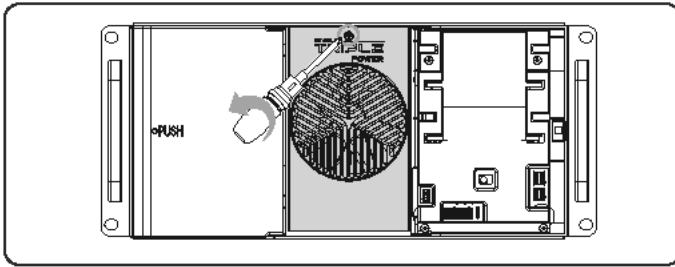


Figure 7-4 Removing the screw

**Step 4:** Unscrew the screws and remove the fan.

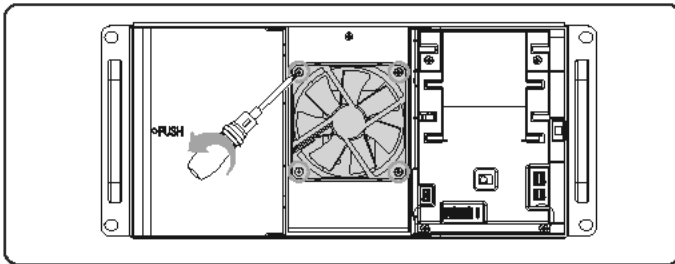


Figure 7-5 Removing the fan

**Step 5:** Install a new fan and connect the cables.

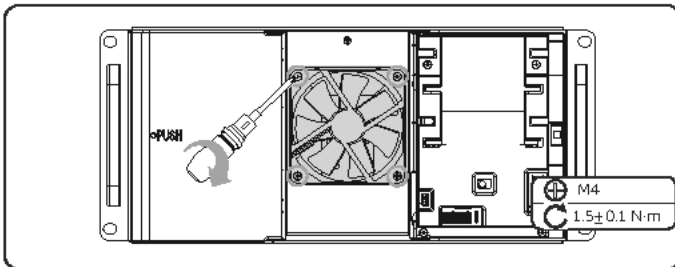


Figure 7-6 Installing a new fan

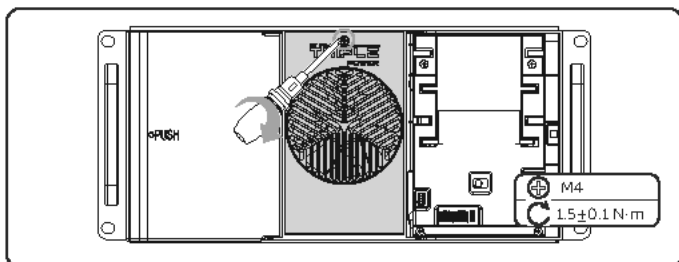


Figure 7-7 Installing the cover

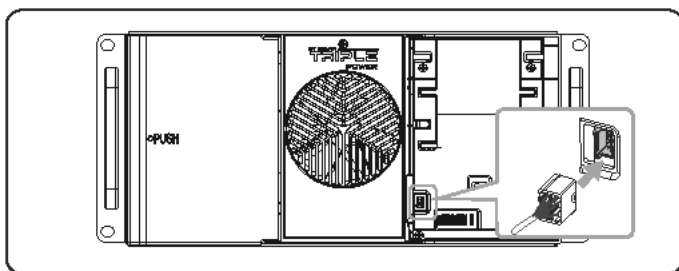


Figure 7-8 Connecting the cable

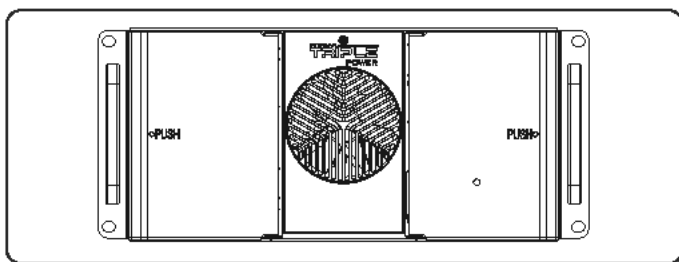


Figure 7-9 Closing the cover

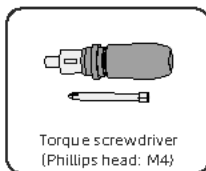
### Checking after replacement

For details of checking procedure after replacement, please refer to "30 Checking after Replacement".

## 8 Replacement of BMU

### Prerequisites

- Fault locating:
  - a. View alarm information via cabinet screen, EMS1000 webpage or SolaXCloud App.
  - b. Refer to the alarm handling suggestions in the alarm details.
  - c. Contact Solax and order replacement parts.
- Tools: Cross screwdriver, ladder.



### DANGER!

- Do not disassemble the battery violently. Otherwise, it may lead to battery pack short circuit, damage to the device (leakage, rupture), fire, or explosion.

### WARNING!

- Before replacing the BMU, ensure that the system is powered off. Otherwise, electric shocks may occur.
- After the system powers off, there will still be the remaining electricity and heat which may cause electric shocks and body burns. Please wear personal protective equipment (PPE) and begin servicing the system 5 minutes after power off.
- Only qualified person can perform the maintenance for the device.

### NOTICE!

- The replaced devices should be sent back to the local Solax warehouse.

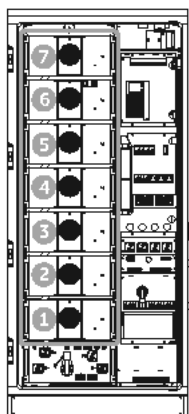


Figure 8-1 Position of the BMUs

### Procedure

**Step 1:** Press to open the right cover of the battery pack.

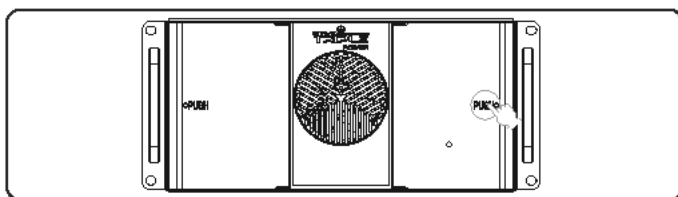


Figure 8-2 Opening the battery pack cover

**Step 2:** Remove the cables of the battery pack.

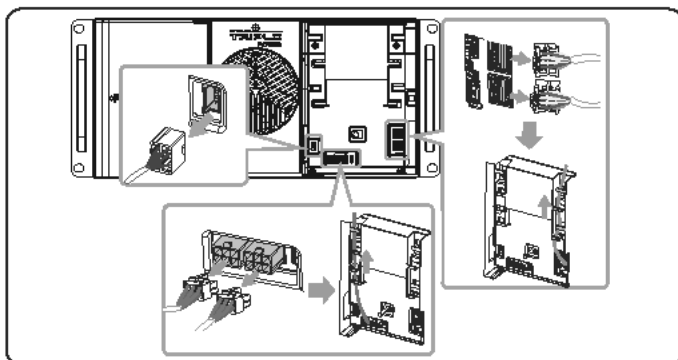


Figure 8-3 Removing the cables

**Step 3:** Remove the PCBA cover.

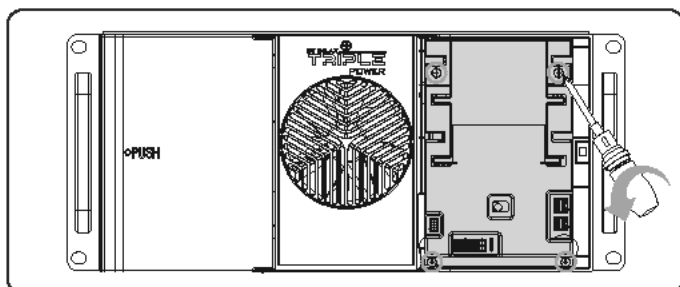


Figure 8-4 Removing the PCBA cover

**Step 4:** Removing the cables of the BMU.

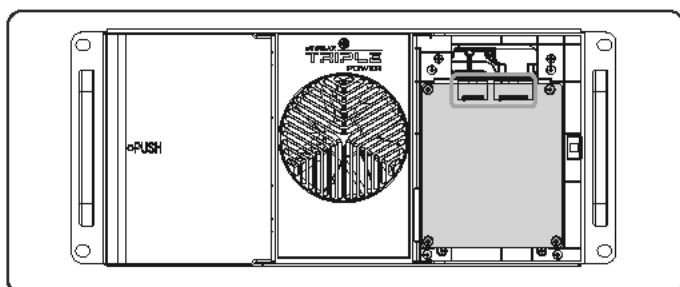


Figure 8-5 Removing the cables of the BMU

**Step 5:** Remove the BMU.

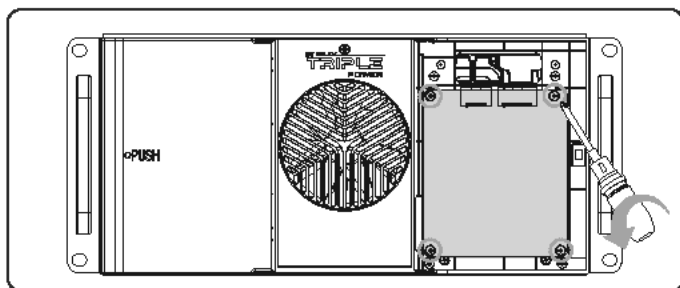


Figure 8-6 Removing the BMU

**Step 6:** Install a new BMU.

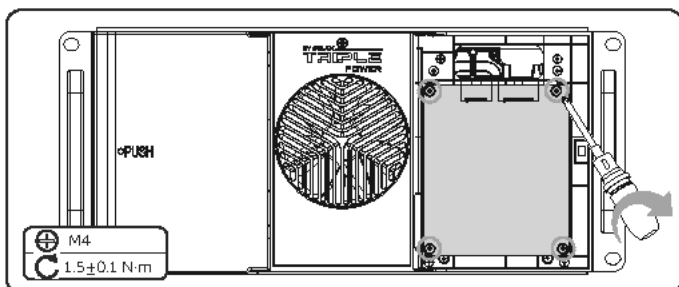


Figure 8-7 Installing a new BMU

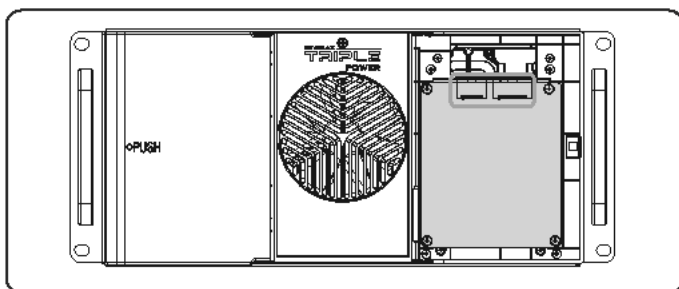


Figure 8-8 Connecting the cables of the BMU

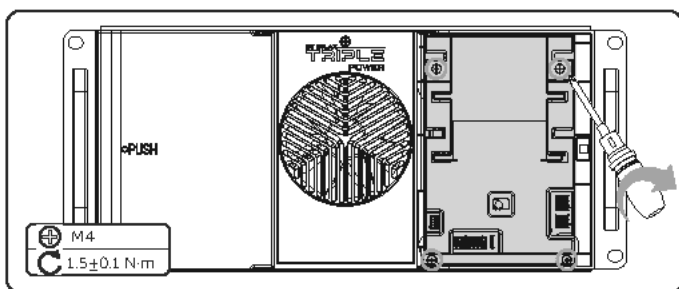


Figure 8-9 Installing the PCBA cover

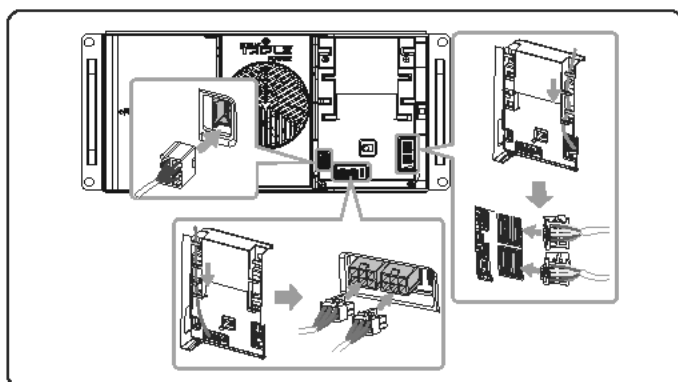


Figure 8-10 Connecting the cables of battery pack

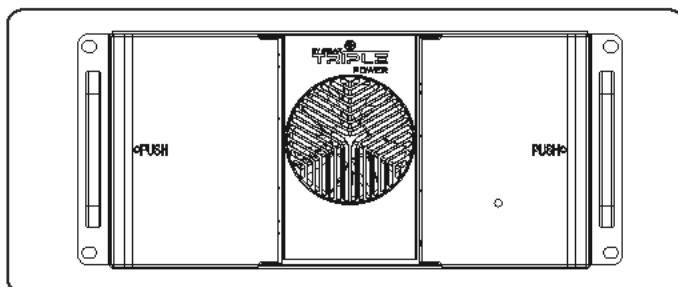


Figure 8-11 Closing the cover

### Checking after replacement

- Step 1:** Power on the system. For details, refer to "2.4 Power On".
- Step 2:** Check whether the indicator on the battery pack front panel is flashing green light and check whether the battery pack communication is normal via EMS1000 webpage or SolaX Cloud App.

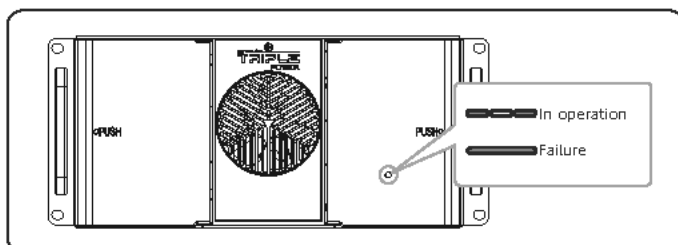
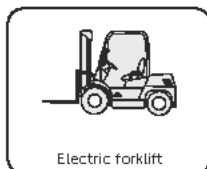
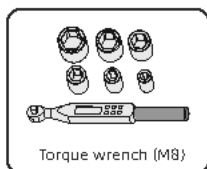
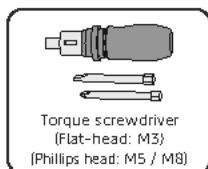


Figure 8-12 Battery pack indicator

## 9 Replacement of High-voltage Box

### Prerequisites

- Fault locating:
  - a. View alarm information via cabinet screen, EMS1000 webpage or SolaXCloud App.
  - b. Refer to the alarm handling suggestions in the alarm details.
  - c. Contact Solax and order replacement parts.
- Tools: Cross screwdriver, torque wrench, electric forklift, ladder.



### WARNING!

- Before replacing the high-voltage box, ensure that the system is powered off. Otherwise, electric shocks may occur.
- After the system powers off, there will still be the remaining electricity and heat which may cause electric shocks and body burns. Please wear personal protective equipment (PPE) and begin servicing the system 5 minutes after power off.
- Only qualified person can perform the maintenance for the device.

### NOTICE!

- The replaced devices should be sent back to the local Solax warehouse.

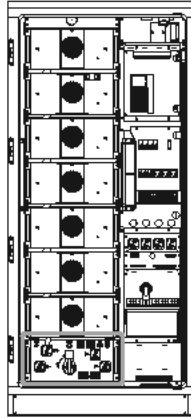


Figure 9-1 Position of the high-voltage box

### Procedure

**Step 1:** Press to open the left covers of the top and bottom battery packs.

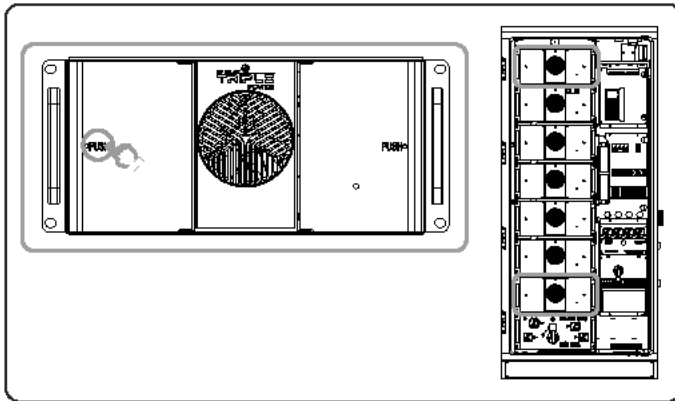


Figure 9-2 Opening the battery pack covers

**Step 2:** Remove the copper bar and cables.

1. Remove the negative terminal cover. Unscrew the M8 nut and remove the negative power cable, reinstall the negative terminal cover.

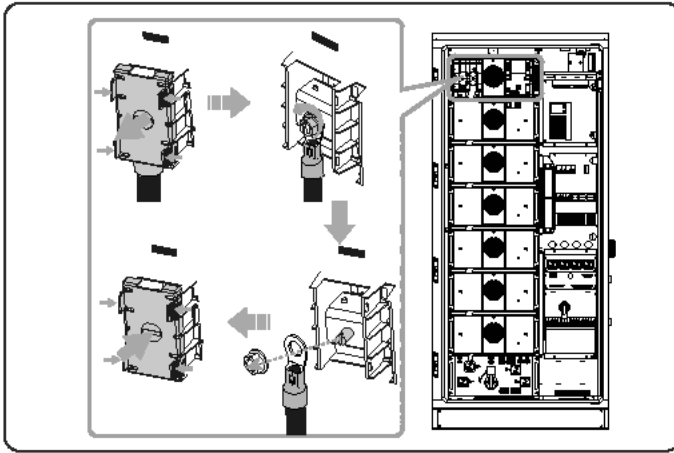


Figure 9-3 Removing the negative power cable

**⚠ WARNING!**

- After removing the power cable and copper bars, it is necessary to install the terminal covers back, otherwise electric shock may occur.

2. Remove the copper bar and cables of the positive terminal of circled battery pack and the B-, B+, P- and P+ terminals of the high-voltage box in the same way.

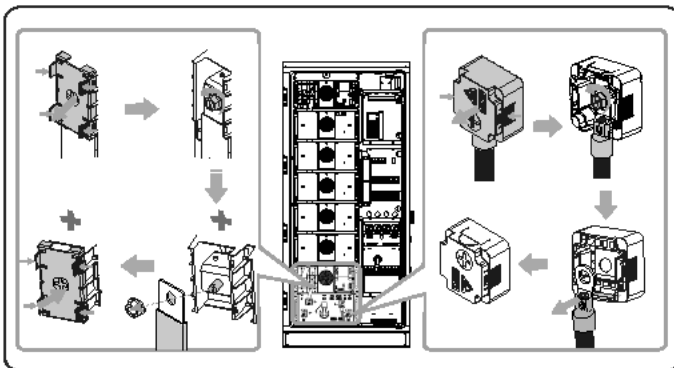


Figure 9-4 Removing the copper bar and cables

- Unplug the cables of the high-voltage box.

**NOTICE!**

- The following uses PCS communication cable and fan power cable as examples. Please remove all cables of the high-voltage box.

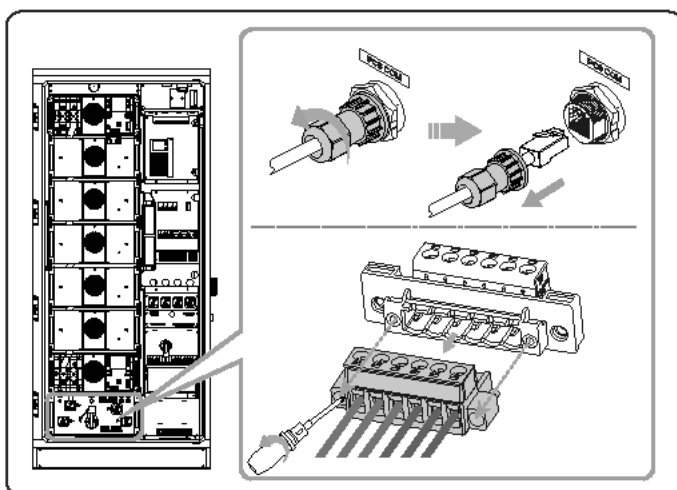


Figure 9-5 Removing cables of high-voltage box

- Step 3:** Unscrew the M5 screws on the baffle and remove the baffle. Unscrew the M8 screws on the high-voltage box.

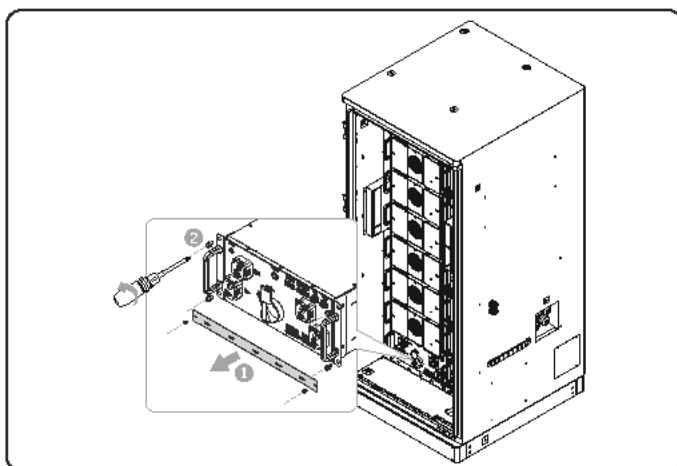


Figure 9-6 Removing the baffle

- Step 4:** Draw the faulty high-voltage box onto a forklift and transport it with the forklift.
- Step 5:** Transport the new high-voltage box to the designated location with a forklift and manually push the high-voltage box into the cabinet. Secure the high-voltage box with M8 screws. Install the baffle and secure with M5 screws.

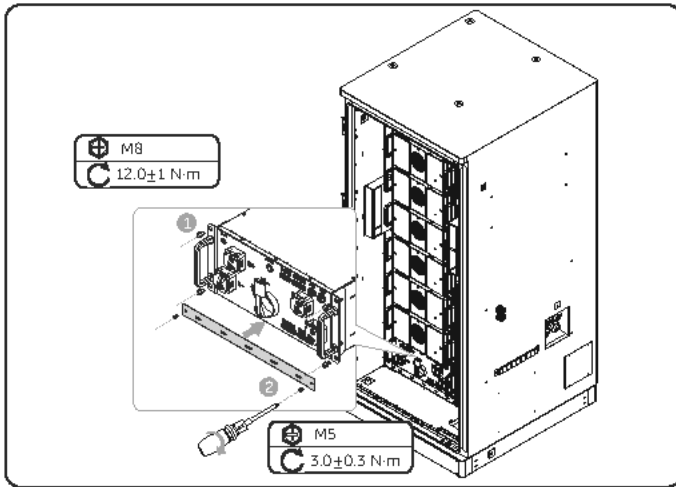


Figure 9-7 Installing the high-voltage box

- Step 6:** Install the copper bar and connect the cables.
  1. Remove the negative terminal cover and unscrew the M8 nut. Connect the negative power cable and secure with M8 nut, reinstall the negative terminal cover.

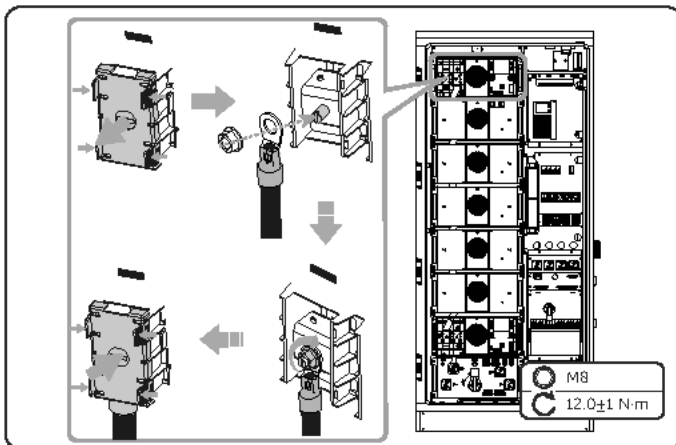


Figure 9-8 Connecting the negative power cable

- Connecting the copper bar and cables of the positive terminal of circled battery pack and the B-, B+, P- and P+ terminals of the high-voltage box in the same way.

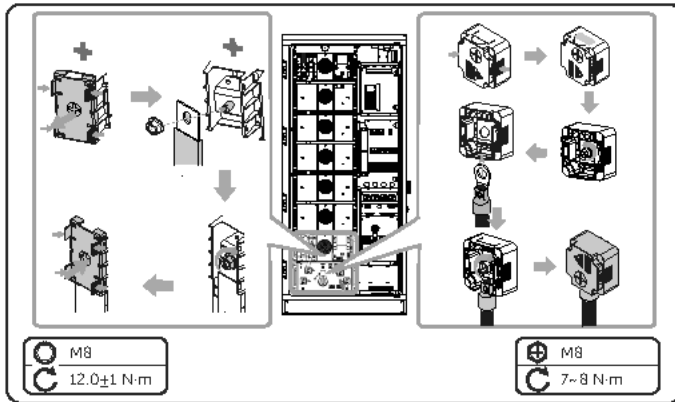


Figure 9-9 Connecting the copper bars and cables

- Connecting the cables of the high-voltage box.

## NOTICE!

- The following uses PCS communication cable and fan power cable as examples. Please connect all cables of the high-voltage box.

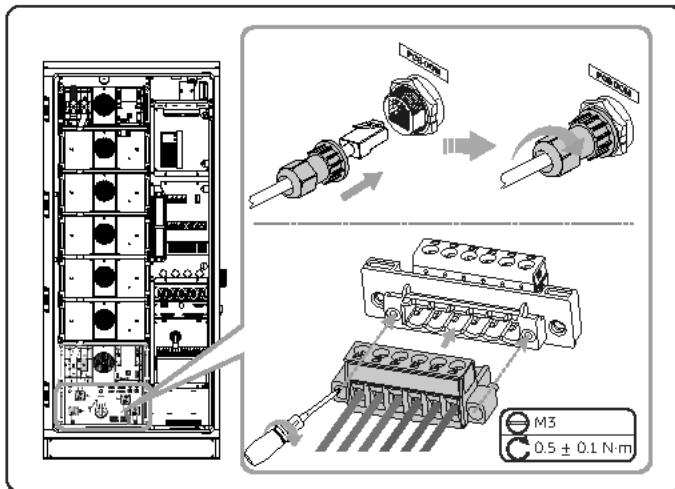


Figure 9-10 Connecting cables of high-voltage box

**Step 7:** Close the left covers of the battery packs.

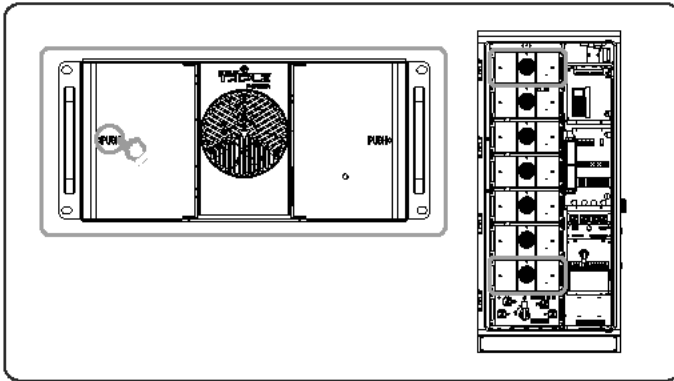


Figure 9-11 Closing the battery pack covers

**Step 8:** Long press the button of the high-voltage box for 10 seconds for address assignment.

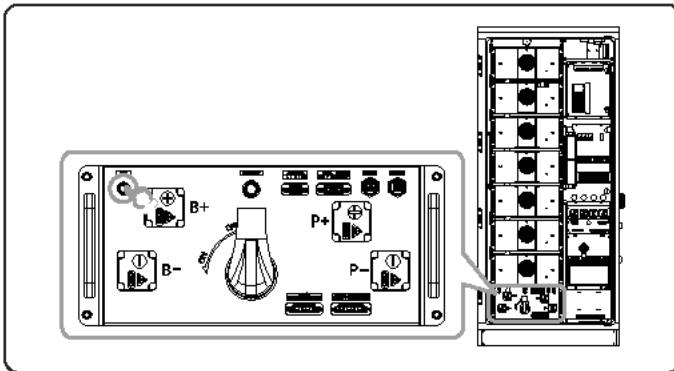


Figure 9-12 Address assignment

## Checking after replacement

**Step 1:** Power on the system. For details, refer to "2.4 Power On".

**Step 2:** Log in to the screen, and then tap **Device > Device pairing**.



Figure 9-13 Device pairing

**Step 3:** Tap **Save and Pre-check** to save the pairing results.

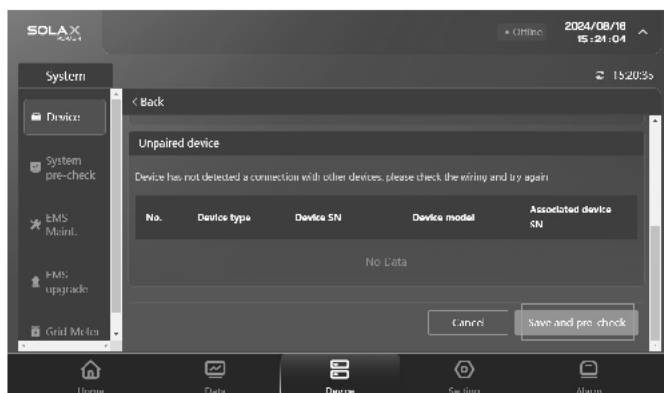


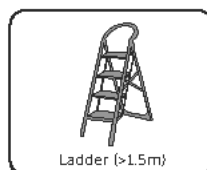
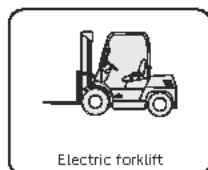
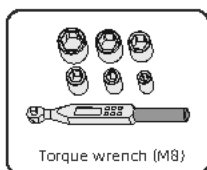
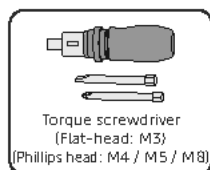
Figure 9-14 Save pairing

**Step 4:** Check whether the alarm status is displayed as resolved and no new alarms are generated via the cabinet screen.

# 10 Replacement of SBMU

## Prerequisites

- Fault locating:
  - a. View alarm information via cabinet screen, EMS1000 webpage or SolaXCloud App.
  - b. Refer to the alarm handling suggestions in the alarm details.
  - c. Contact Solax and order replacement parts.
- Tools: Cross screwdriver, torque wrench, electric forklift, ladder.



### WARNING!

- Before replacing the SBMU, ensure that the system is powered off. Otherwise, electric shocks may occur.
- After the system powers off, there will still be the remaining electricity and heat which may cause electric shocks and body burns. Please wear personal protective equipment (PPE) and begin servicing the system 5 minutes after power off.
- Only qualified person can perform the maintenance for the device.

### NOTICE!

- The replaced devices should be sent back to the local Solax warehouse.

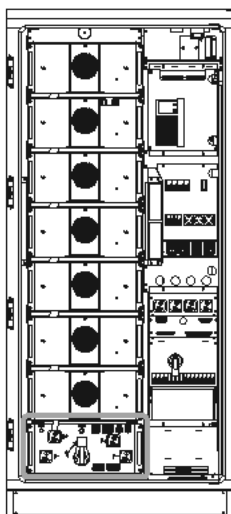


Figure 10-1 Position of the SBMU

## Procedure

**Step 1:** Press to open the left covers of the top and bottom battery packs.

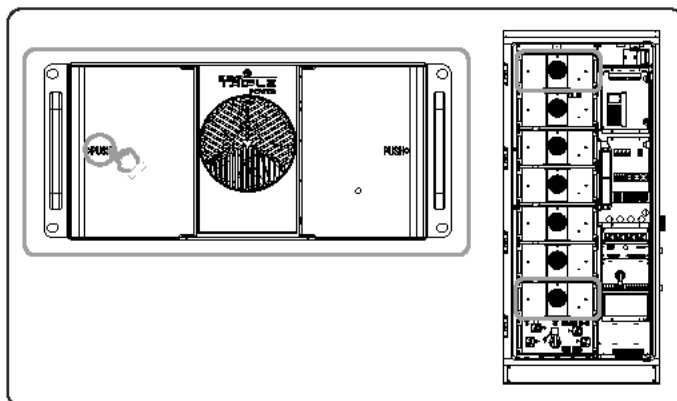


Figure 10-2 Opening the battery pack covers

**Step 2:** Remove the copper bar and cables.

1. Remove the negative terminal cover. Unscrew the M8 nut and remove the negative power cable, reinstall the negative terminal cover.

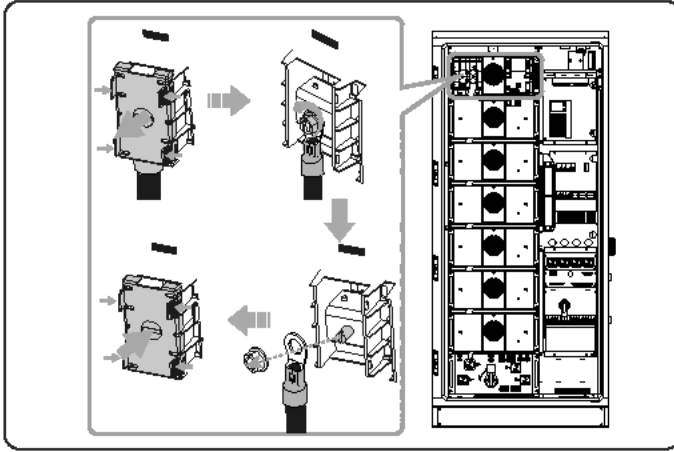


Figure 10-3 Removing the negative power cable

**⚠ WARNING!**

- After removing the copper bars, it is necessary to install the covers back, otherwise electric shock may occur.

2. Remove the copper bar and cables of the positive terminal of circled battery pack and the B-, B+, P- and P+ terminals of the high-voltage box in the same way.

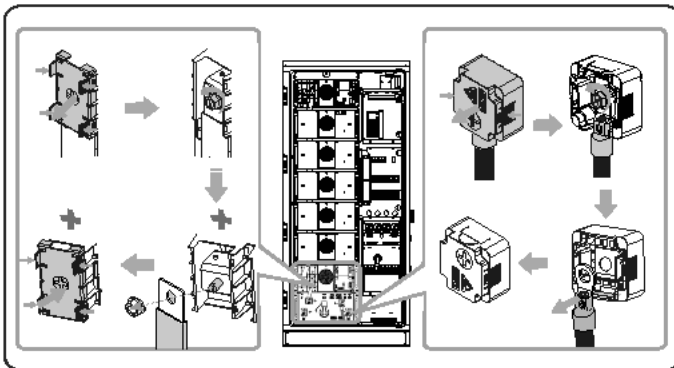


Figure 10-4 Removing the copper bar and cables

- Unplug the cables of the high-voltage box.

**NOTICE!**

- The following uses PCS communication cable and fan power cable as examples. Please remove all cables of the high-voltage box.

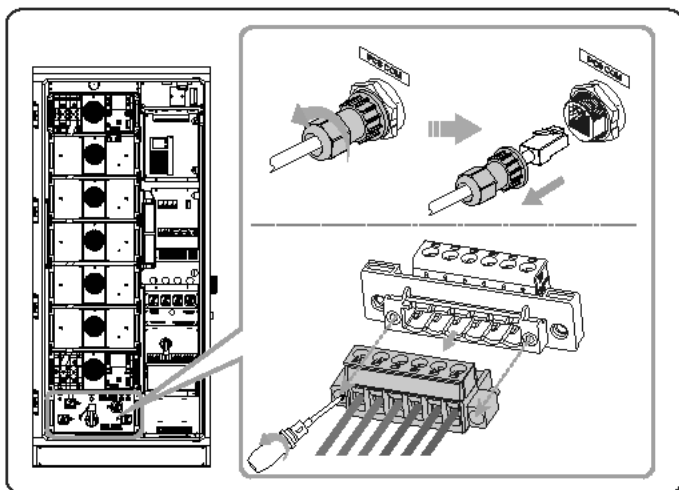


Figure 10-5 Removing cables of high-voltage box

- Step 3:** Unscrew the M5 screws on the baffle and remove the baffle. Unscrew the M8 screws on the high-voltage box.

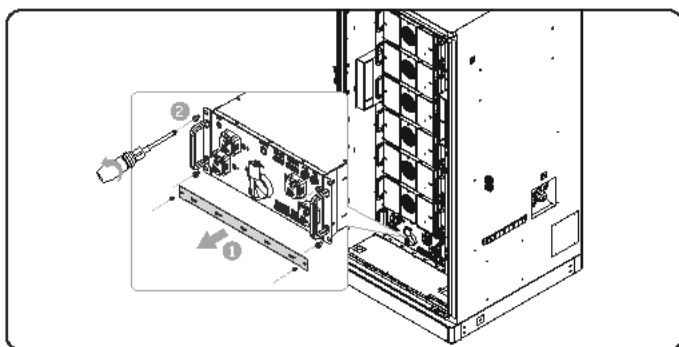


Figure 10-6 Removing the baffle

- Step 4:** Draw the faulty high-voltage box onto a forklift and transport it with the forklift.

**Step 5:** Unscrew the M4 screws and remove the top cover of the high-voltage box.

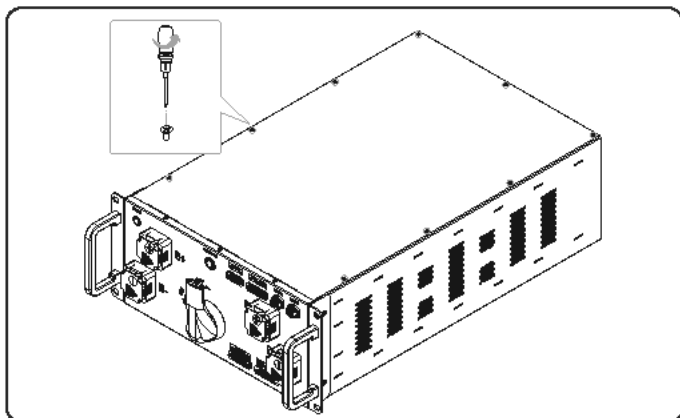


Figure 10-7 Removing the top cover

**Step 6:** Remove the cables of the SBMU. Unscrew the M4 screws and remove the SBMU.

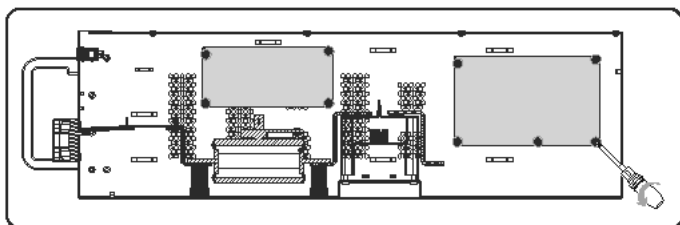


Figure 10-8 Removing the SBMU (right view)

**Step 7:** Connect the cables of the SBMU. Install new SBMU and secure with screws.

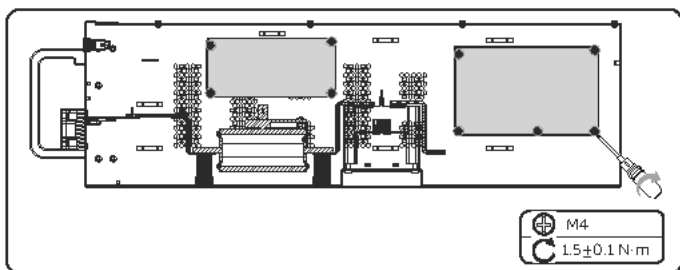


Figure 10-9 Installing the contactors (right view)

**Step 8:** Install the top cover of the high-voltage box and secure with screws.

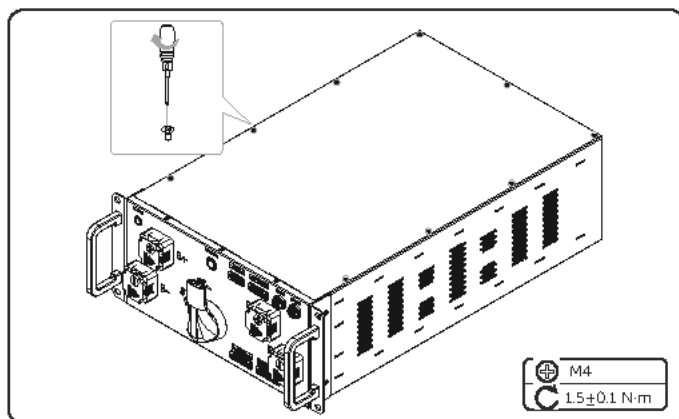


Figure 10-10 Installing the top cover

**Step 9:** Transport the new high-voltage box to the designated location with a forklift and manually push the high-voltage box into the cabinet. Secure the high-voltage box with M8 screws. Install the baffle and secure with M5 screws.

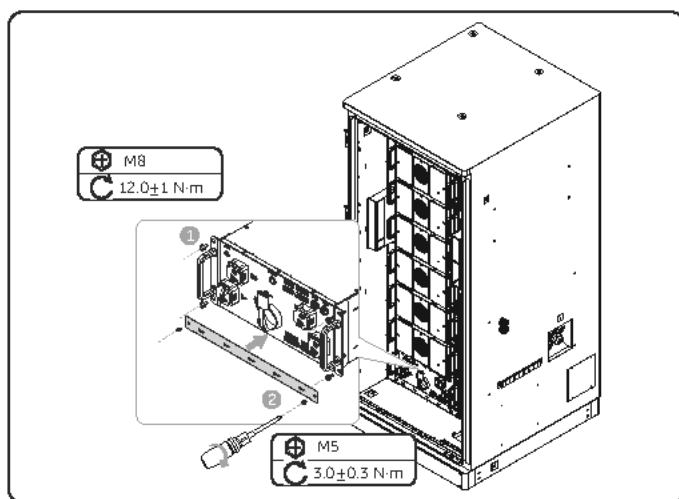


Figure 10-11 Installing the high-voltage box

**Step 10:** Install the copper bar and connect the cables.

1. Remove the negative terminal cover and unscrew the M8 nut. Connect the negative power cable and secure with M8 nut, reinstall the negative terminal cover.

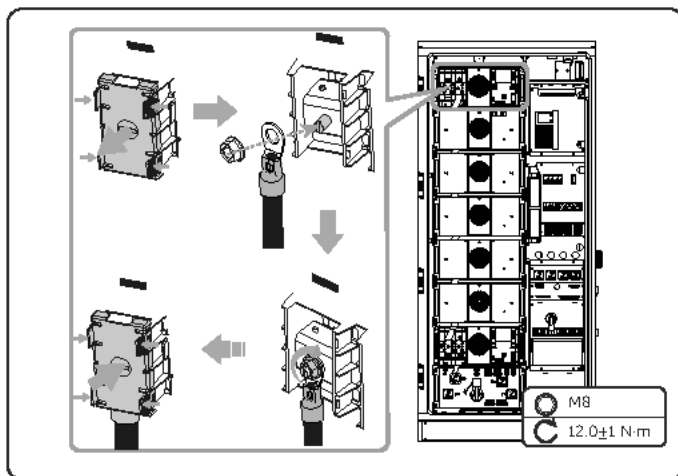


Figure 10-12 Connecting the negative power cable

2. Connecting the copper bar and cables of the positive terminal of circled battery pack and the B-, B+, P- and P+ terminals of the high-voltage box in the same way.

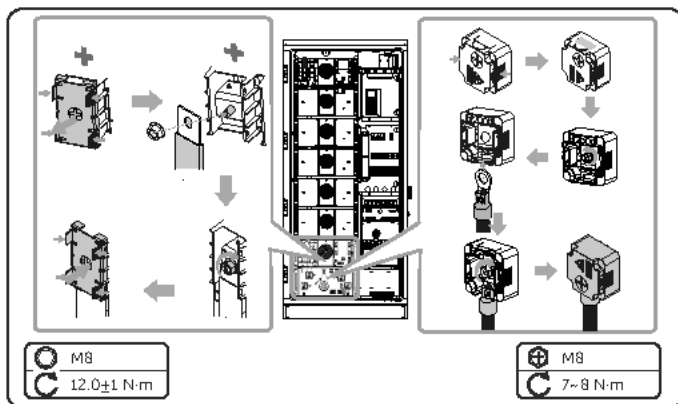


Figure 10-13 Connecting the copper bars and cables

## 3. Connecting the cables of the high-voltage box.

## NOTICE!

- The following uses PCS communication cable and fan power cable as examples. Please connect all cables of the high-voltage box.

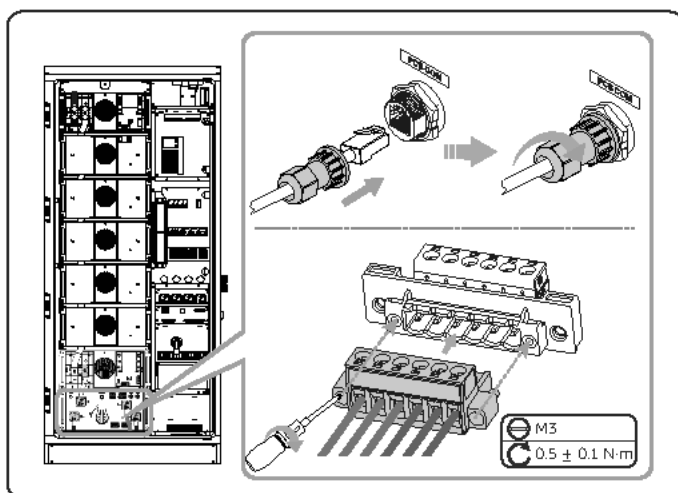


Figure 10-14 Connecting cables of high-voltage box

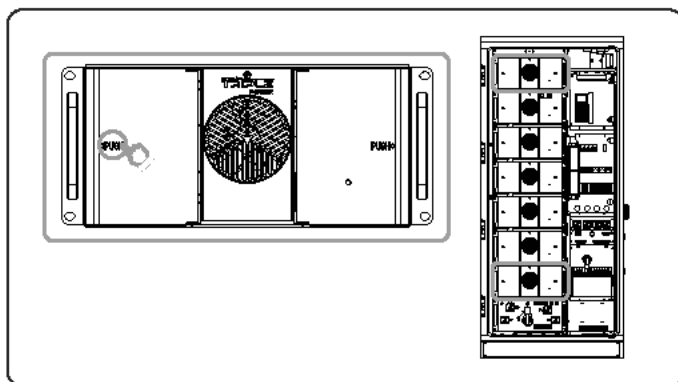
**Step 11:** Close the left covers of the battery packs.

Figure 10-15 Closing the battery pack covers

**Step 12:** Long press the button of the high-voltage box for 10 seconds for address assignment.

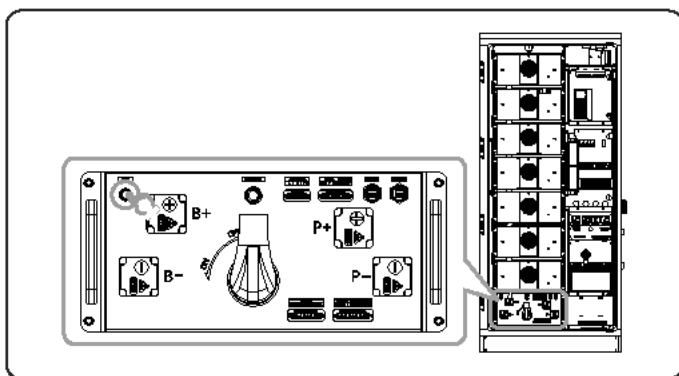


Figure 10-16 Address assignment

### Checking after replacement

**Step 1:** Power on the system. For details, refer to "2.4 Power On".

**Step 2:** Log in to the screen, and then tap **Device > Device pairing**.



Figure 10-17 Device pairing

**Step 3:** Tap **Save and Pre-check** to save the pairing results.

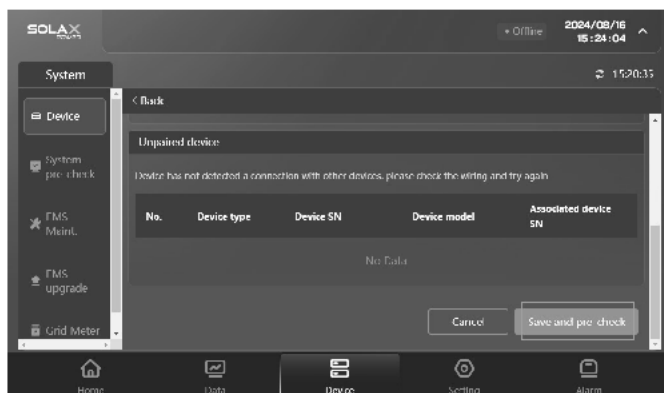


Figure 10-18 Save pairing

**Step 4:** Check whether the alarm status is displayed as resolved and no new alarms are generated via the cabinet screen.

**Step 5:** Check whether the indicator on the high voltage box front panel is flashing green light.

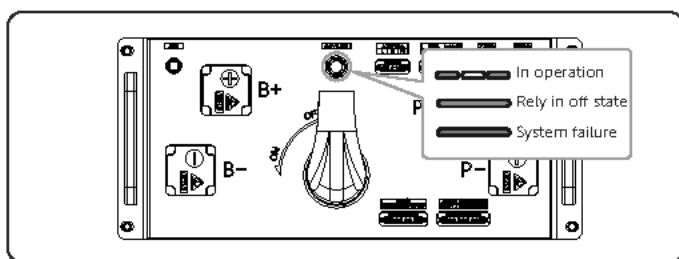
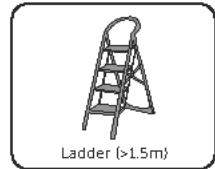
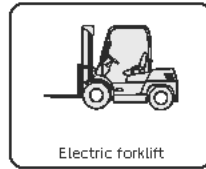
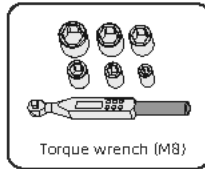
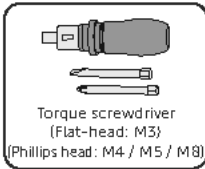


Figure 10-19 Checking the indicator

# 11 Replacement of High-voltage Box Fuse

## Prerequisites

- Fault locating:
  - a. View alarm information via cabinet screen, EMS1000 webpage or SolaXCloud App.
  - b. Refer to the alarm handling suggestions in the alarm details.
  - c. Contact Solax and order replacement parts.
- Tools: Cross screwdriver, torque wrench, electric forklift, multimeter, ladder.



### WARNING!

- Before replacing the high-voltage box fuse, ensure that the system is powered off. Otherwise, electric shocks may occur.
- After the system powers off, there will still be the remaining electricity and heat which may cause electric shocks and body burns. Please wear personal protective equipment (PPE) and begin servicing the system 5 minutes after power off.
- Only qualified person can perform the maintenance for the device.

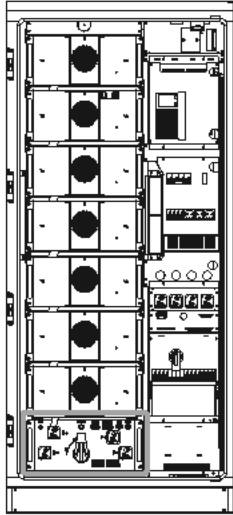


Figure 11-1 Position of the high-voltage box fuses

### Procedure

**Step 1:** Press to open the left covers of the top and bottom battery packs.

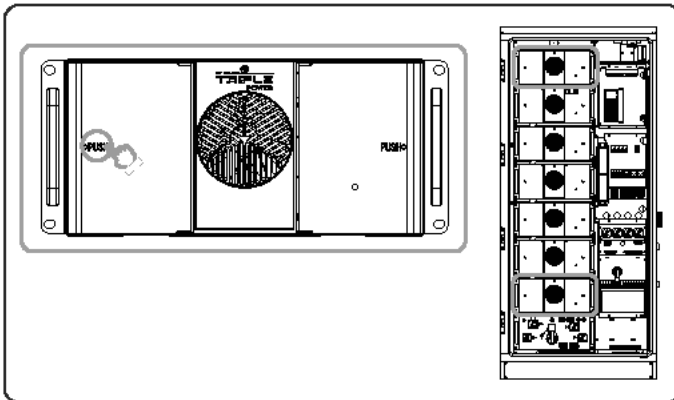


Figure 11-2 Opening the battery pack covers

**Step 2:** Remove the copper bar and cables.

1. Remove the negative terminal cover. Unscrew the M8 nut and remove the negative power cable, reinstall the negative terminal cover.

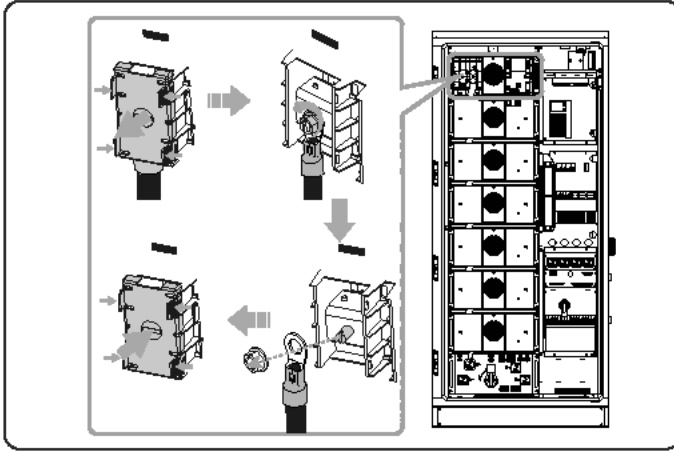


Figure 11-3 Removing the negative power cable

**⚠ WARNING!**

- After removing the copper bars, it is necessary to install the covers back, otherwise electric shock may occur.

2. Remove the copper bar and cables of the positive terminal of circled battery pack and the B-, B+, P- and P+ terminals of the high-voltage box in the same way.

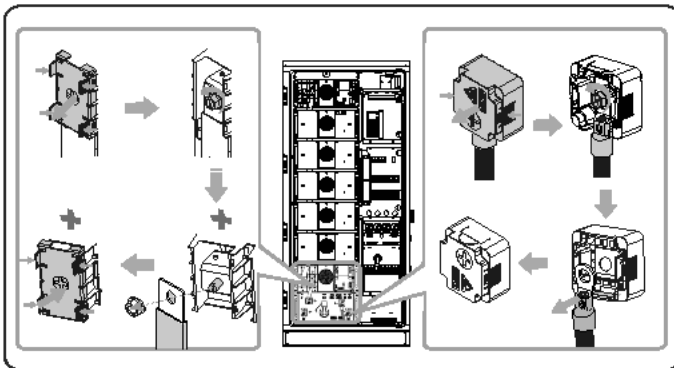


Figure 11-4 Removing the copper bar and cables

- Unplug the cables of the high-voltage box.

**NOTICE!**

- The following uses PCS communication cable and fan power cable as examples. Please remove all cables of the high-voltage box.

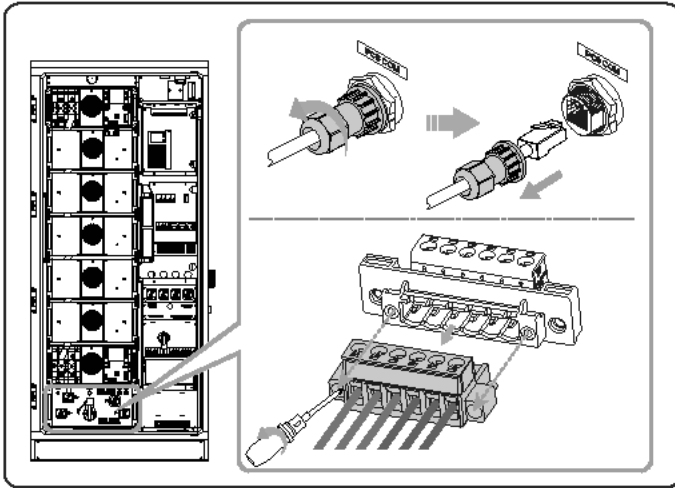


Figure 11-5 Removing cables of high-voltage box

- Step 3:** Unscrew the M5 screws on the baffle and remove the baffle. Unscrew the M8 screws on the high-voltage box.

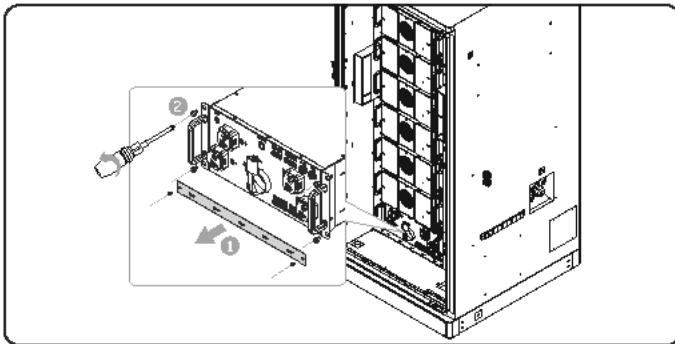


Figure 11-6 Removing the baffle

- Step 4:** Draw the faulty high-voltage box onto a forklift and transport it with the forklift.

**Step 5:** Unscrew the M4 screws and remove the top cover of the high-voltage box.

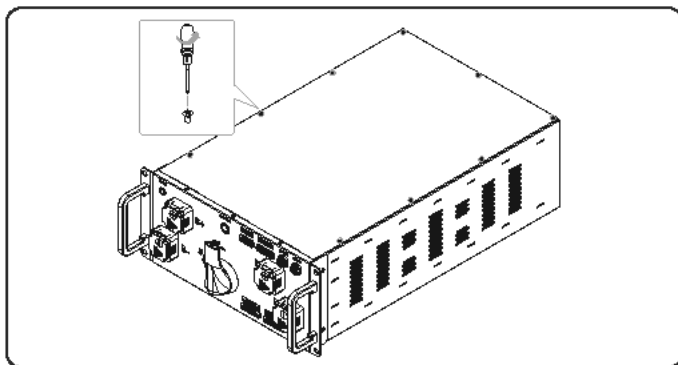


Figure 11-7 Removing the top cover

**Step 6:** Use a multimeter to measure the fuse ON-OFF status (ON for normal, OFF for abnormal).

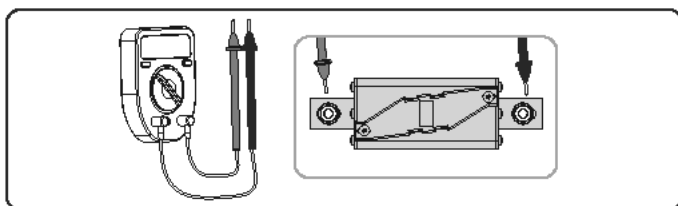


Figure 11-8 Measuring the fuse ON-OFF status

**Step 7:** Remove the cables of the fuse. Loosen the M8 nuts from the fuses and remove the fuses.

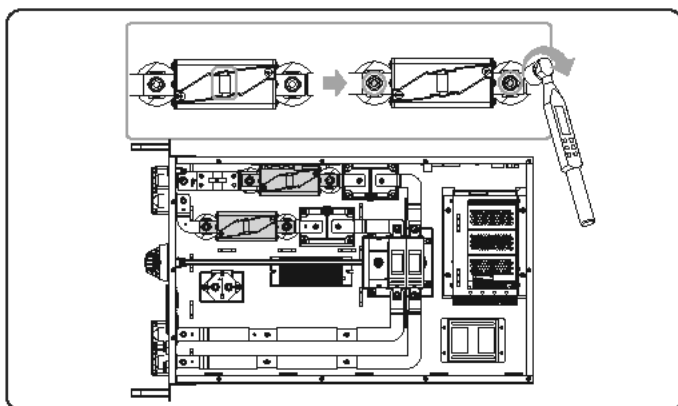


Figure 11-9 Removing the fuses (top view)

**Step 8:** Install new fuses and secure with nuts. Connect the cables of the fuse.

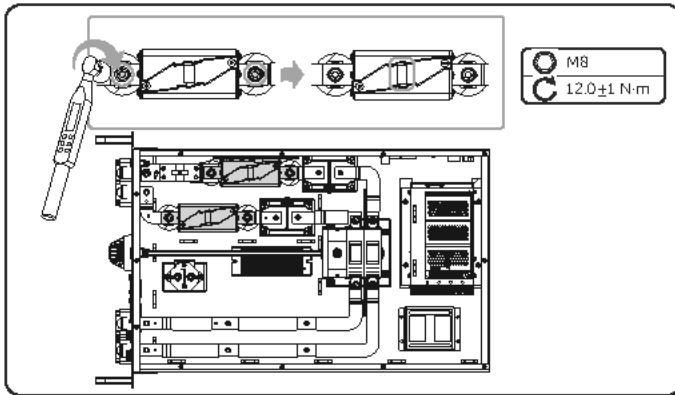


Figure 11-10 Installing the fuses (top view)

**Step 9:** Use a multimeter to measure the replaced fuse ON-OFF status (ON for normal, OFF for abnormal).

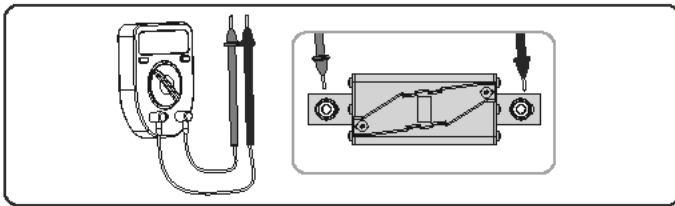


Figure 11-11 Measuring the fuse ON-OFF status

**Step 10:** Install the top cover of the high-voltage and secure with screws.

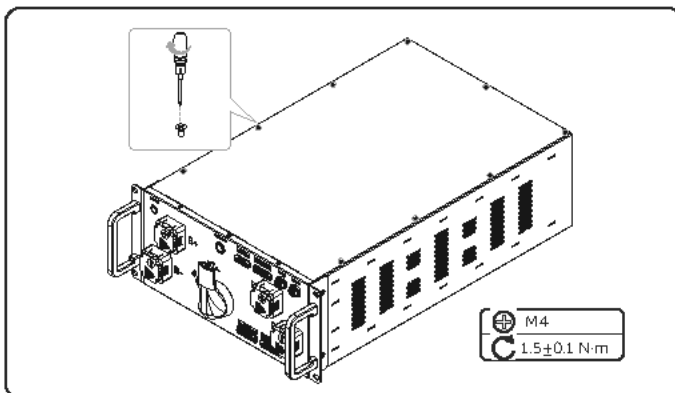


Figure 11-12 Installing the top cover

**Step 11:** Transport the new high-voltage box to the designated location with a forklift and manually push the high-voltage box into the cabinet. Secure the high-voltage box with M8 screws. Install the baffle and secure with M5 screws.

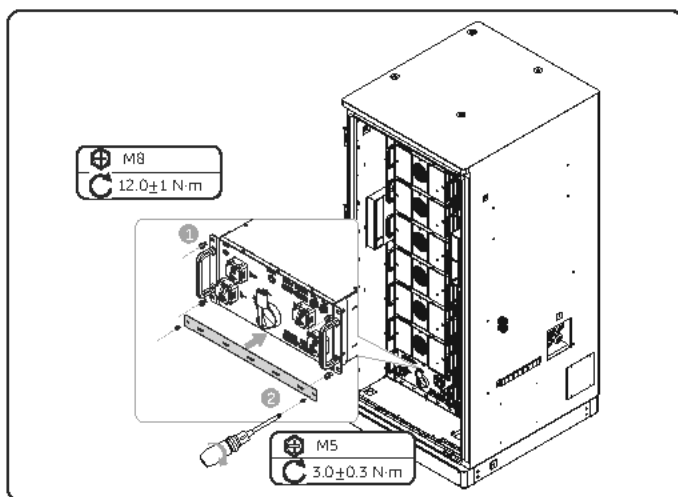


Figure 11-13 Installing the high-voltage box

**Step 12:** Install the copper bar and connect the cables.

1. Remove the negative terminal cover and unscrew the M8 nut. Connect the negative power cable and secure with M8 nut, reinstall the negative terminal cover.

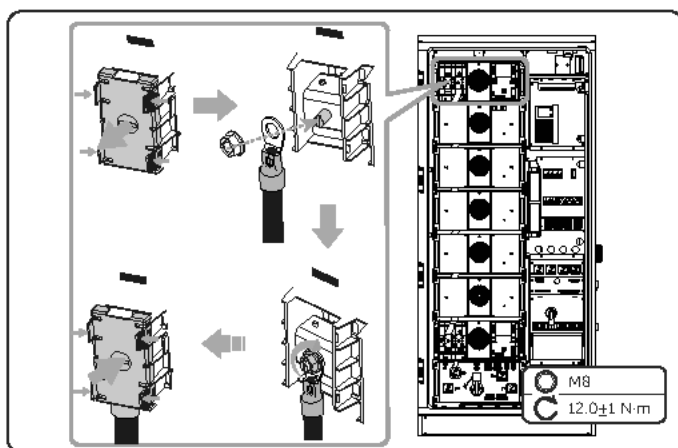


Figure 11-14 Connecting the negative power cable

- Connecting the copper bar and cables of the positive terminal of circled battery pack and the B-, B+, P- and P+ terminals of the high-voltage box in the same way.

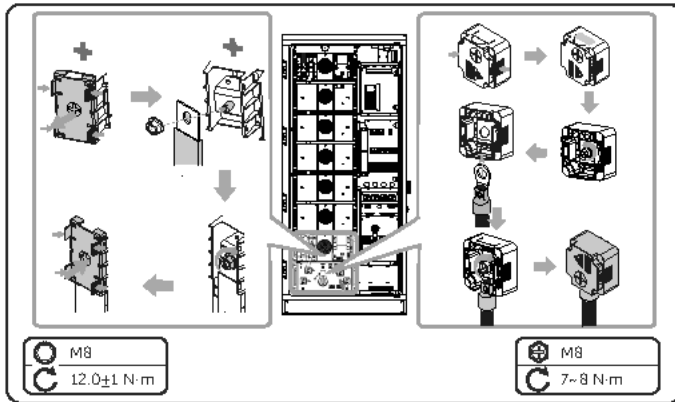


Figure 11-15 Connecting the copper bars and cables

- Connecting the cables of the high-voltage box.

**NOTICE!**

- The following uses PCS communication cable and fan power cable as examples. Please connect all cables of the high-voltage box.

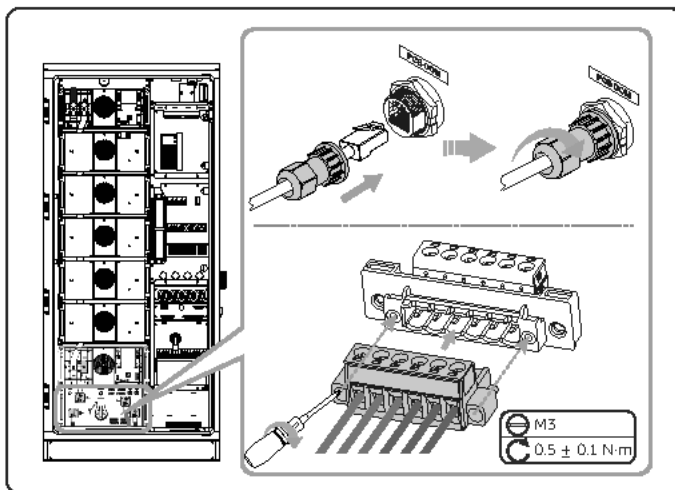


Figure 11-16 Connecting cables of high-voltage box

**Step 13:** Close the left covers of the battery packs.

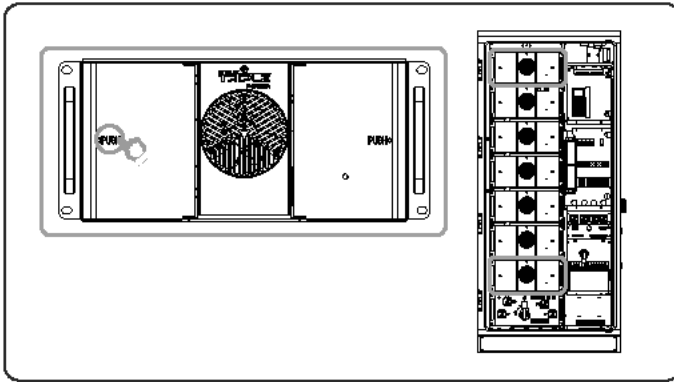


Figure 11-17 Closing the battery pack covers

**Step 14:** Long press the button of the high-voltage box for 10 seconds for address assignment.

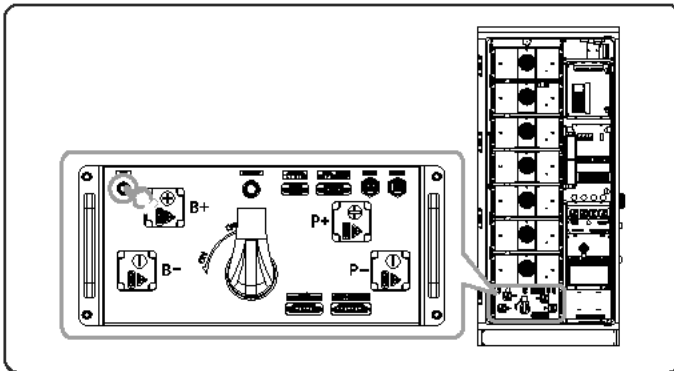
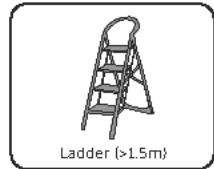
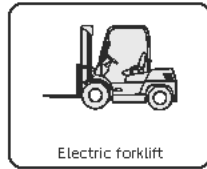
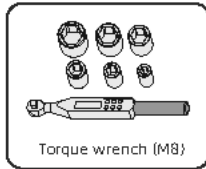
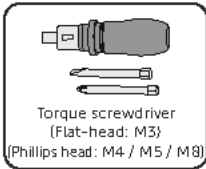


Figure 11-18 Address assignment

# 12 Replacement of High-voltage Box Contactor

## Prerequisites

- Fault locating:
  - a. View alarm information via cabinet screen, EMS1000 webpage or SolaXCloud App.
  - b. Refer to the alarm handling suggestions in the alarm details.
  - c. Contact Solax and order replacement parts.
- Tools: Cross screwdriver, torque wrench, electric forklift, multimeter, ladder.



### WARNING!

- Before replacing the high-voltage box contactor, ensure that the system is powered off. Otherwise, electric shocks may occur.
- After the system powers off, there will still be the remaining electricity and heat which may cause electric shocks and body burns. Please wear personal protective equipment (PPE) and begin servicing the system 5 minutes after power off.
- Only qualified person can perform the maintenance for the device.

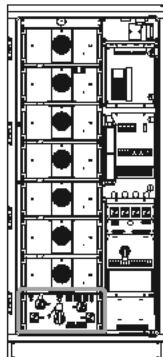


Figure 12-1 Position of the high-voltage box contactors

Procedure

**Step 1:** Press to open the left covers of the top and bottom battery packs.

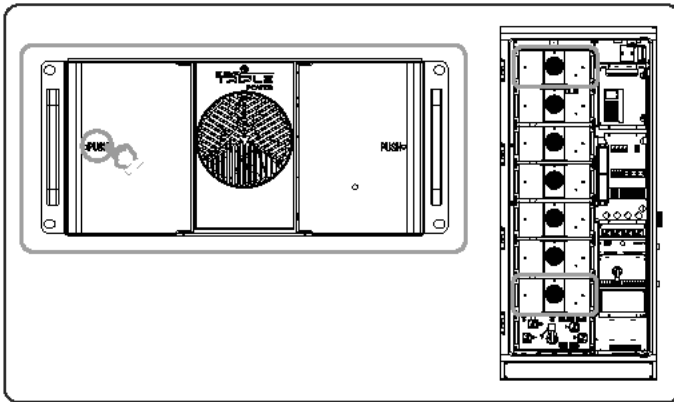


Figure 12-2 Opening the battery pack covers

**Step 2:** Remove the copper bar and cables.

1. Remove the negative terminal cover. Unscrew the M8 nut and remove the negative power cable, reinstall the negative terminal cover.

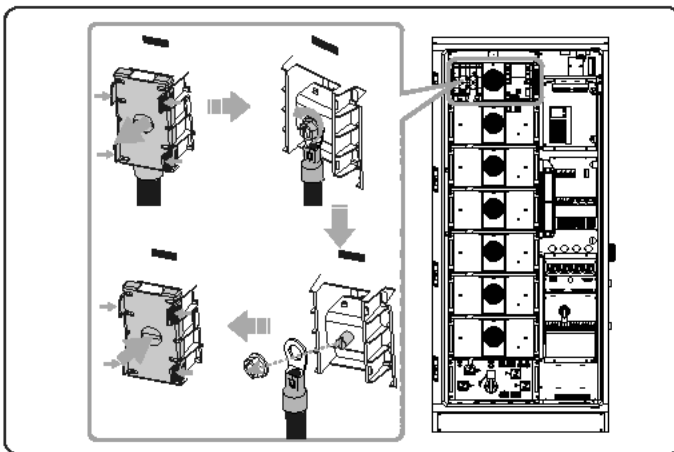


Figure 12-3 Removing the negative power cable



**WARNING!**

- After removing the copper bars, it is necessary to install the covers back, otherwise electric shock may occur.

- Remove the copper bar and cables of the positive terminal of circled battery pack and the B-, B+, P- and P+ terminals of the high-voltage box in the same way.

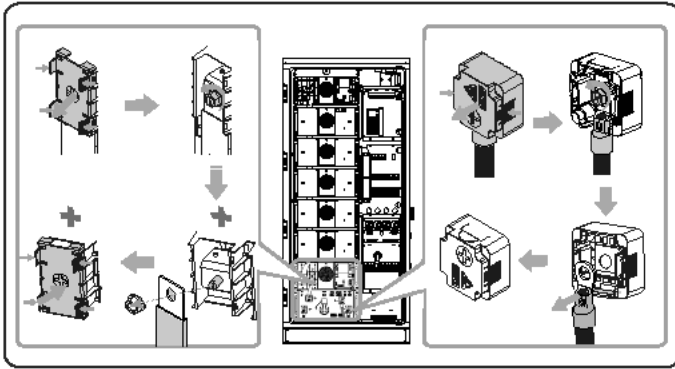


Figure 12-4 Removing the copper bar and cables

- Unplug the cables of the high-voltage box.

**NOTICE!**

- The following uses PCS communication cable and fan power cable as examples. Please remove all cables of the high-voltage box.

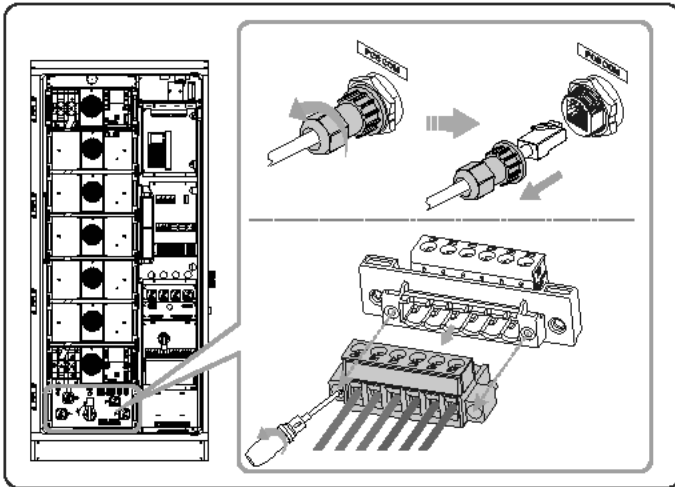


Figure 12-5 Removing cables of high-voltage box

**Step 3:** Unscrew the M5 screws on the baffle and remove the baffle. Unscrew the M8 screws on the high-voltage box.

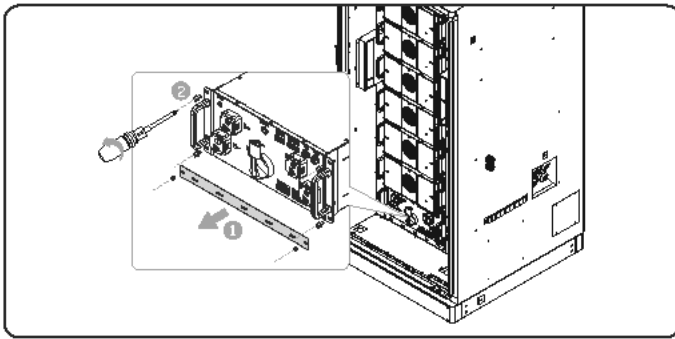


Figure 12-6 Removing the baffle

**Step 4:** Draw the faulty high-voltage box onto a forklift and transport it with the forklift.

**Step 5:** Unscrew the M4 screws and remove the top cover of the high-voltage box.

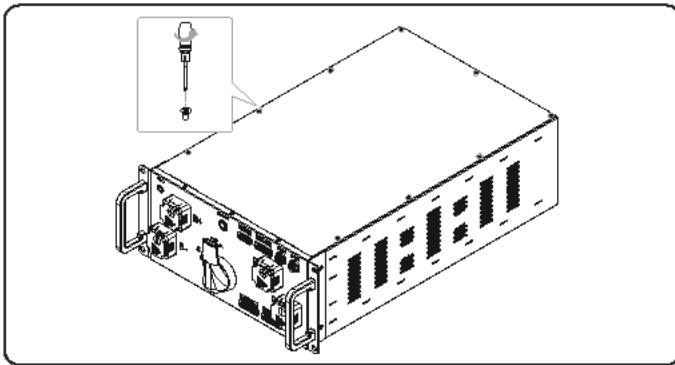


Figure 12-7 Removing the top cover

**Step 6:** Use a multimeter to measure the fuse ON-OFF status (ON for normal, OFF for abnormal).

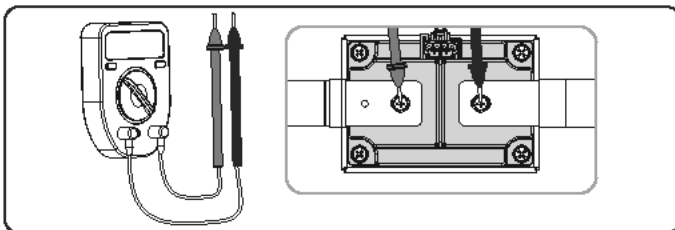


Figure 12-8 Measuring the fuse ON-OFF status

- Step 7:** Remove the cables of the fuse. Loosen the M8 nuts from the fuses and remove the fuses.

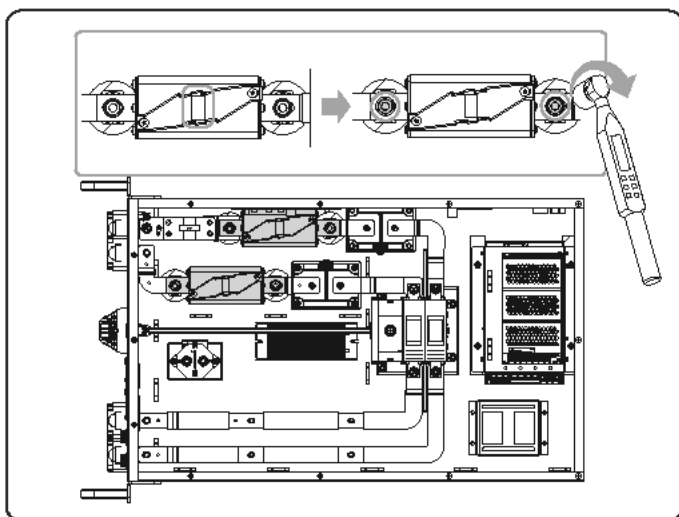


Figure 12-9 Removing the fuses (top view)

- Step 8:** Remove cables from the contactors. Unscrew the M5 screws and M8 nut of the copper bars on the contactors, remove the copper bar. Unscrew the M6 screws and remove the contactors.

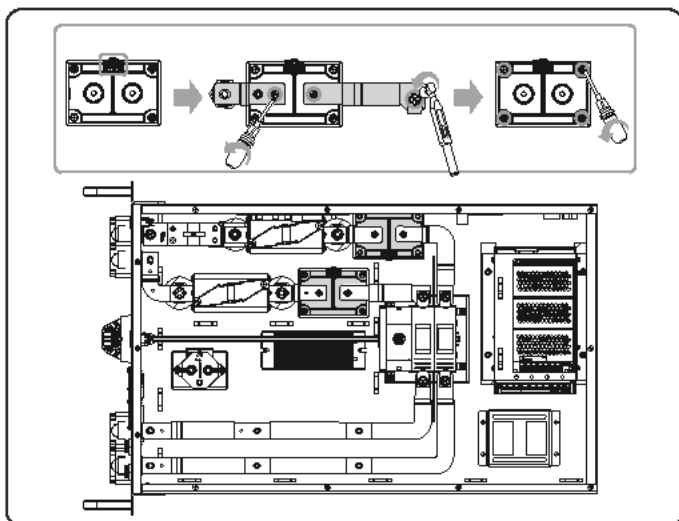


Figure 12-10 Removing the contactors (top view)

**Step 9:** Install new contactors, and secure with screws. Install the copper bar and connect the cable.

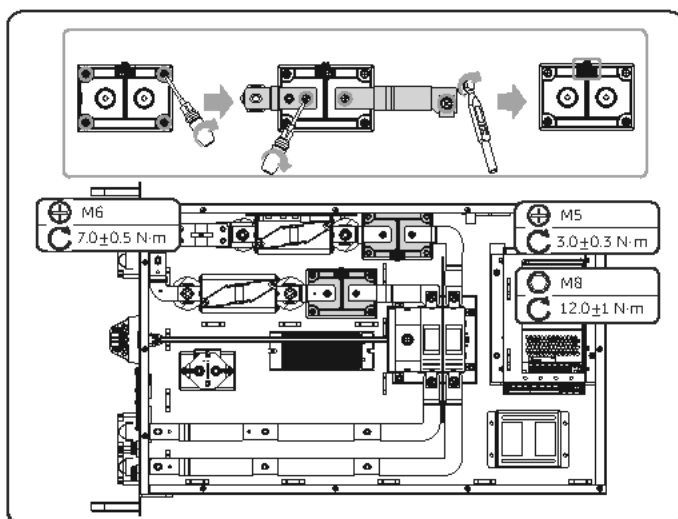


Figure 12-11 Installing the contactors (top view)

**Step 10:** Install fuses and secure with nuts. Connect the cables of the fuse.

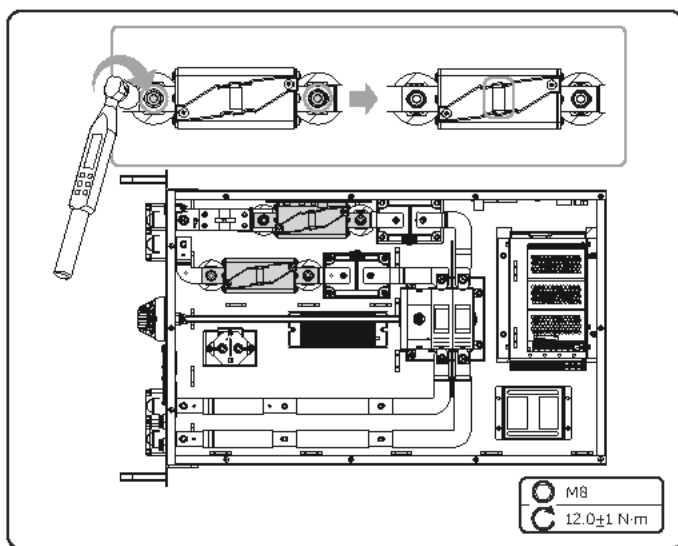


Figure 12-12 Installing the fuses (top view)

**Step 11:** Use a multimeter to measure the replaced contactor ON-OFF status (ON for abnormal, OFF for normal).

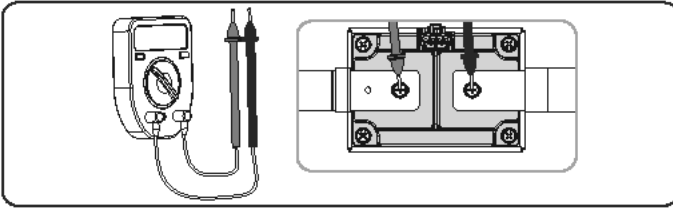


Figure 12-13 Measuring the contactor ON-OFF status

**Step 12:** Install the top cover of the high-voltage and secure with screws.

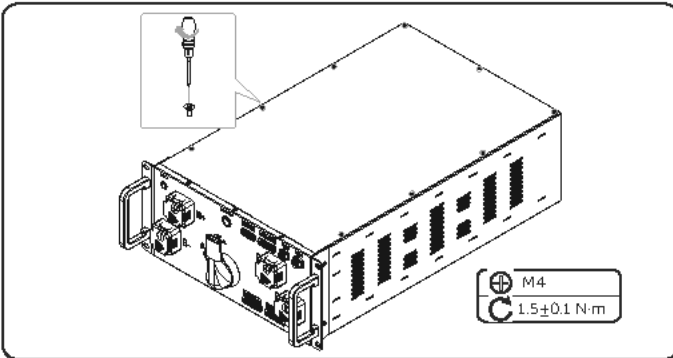


Figure 12-14 Installing the top cover

**Step 13:** Transport the new high-voltage box to the designated location with a forklift and manually push the high-voltage box into the cabinet. Secure the high-voltage box with M8 screws. Install the baffle and secure with M5 screws.

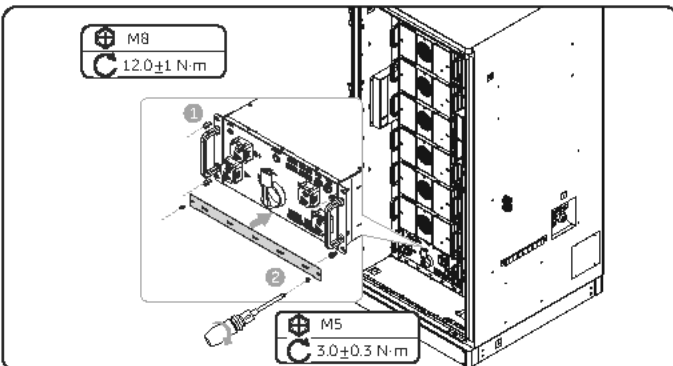


Figure 12-15 Installing the high-voltage box

**Step 14:** Install the copper bar and connect the cables.

1. Remove the negative terminal cover and unscrew the M8 nut. Connect the negative power cable and secure with M8 nut, reinstall the negative terminal cover.

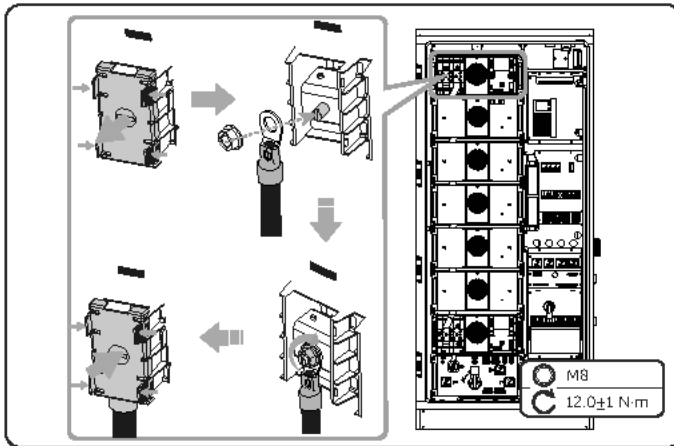


Figure 12-16 Connecting the negative power cable

2. Connecting the copper bar and cables of the positive terminal of circled battery pack and the B-, B+, P- and P+ terminals of the high-voltage box in the same way.

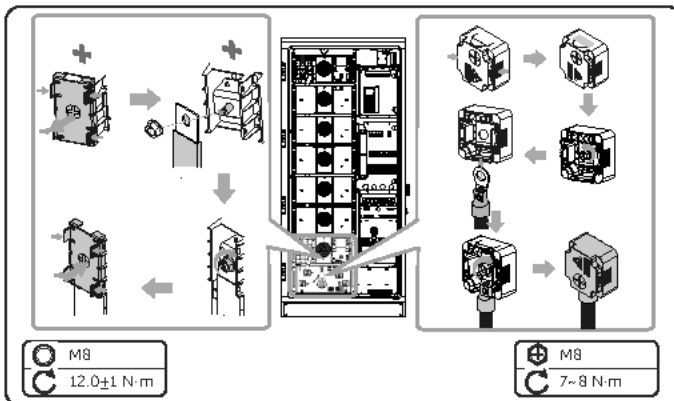


Figure 12-17 Connecting the copper bars and cables

## 3. Connecting the cables of the high-voltage box.

## NOTICE!

- The following uses PCS communication cable and fan power cable as examples. Please connect all cables of the high-voltage box.

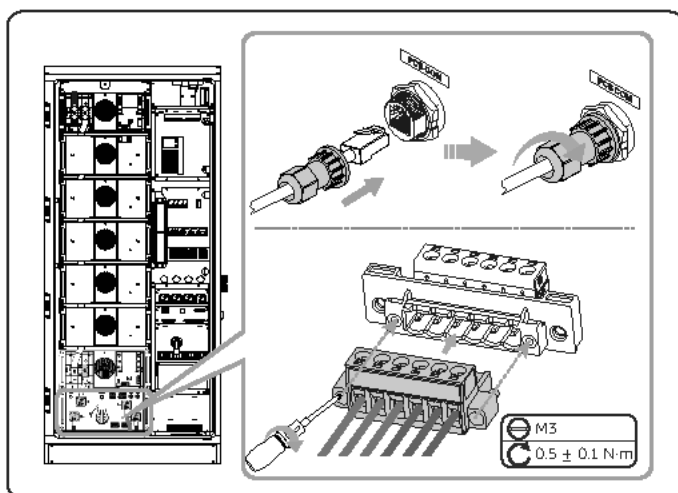


Figure 12-18 Connecting cables of high-voltage box

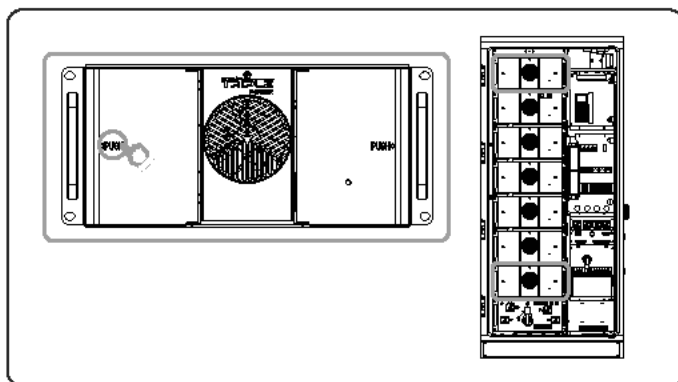
**Step 15:** Close the left covers of the battery packs.

Figure 12-19 Closing the battery pack covers

**Step 16:** Long press the button of the high-voltage box for 10 seconds for address assignment.

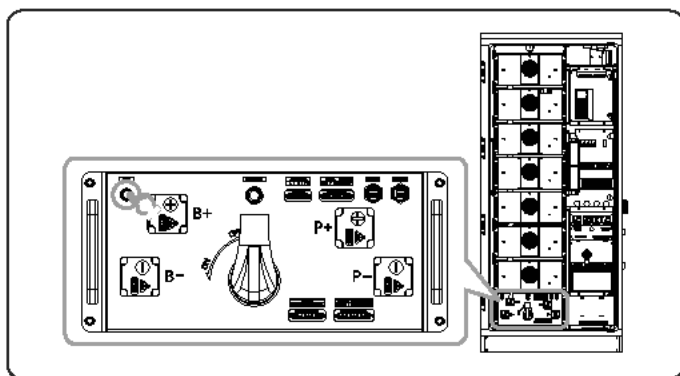
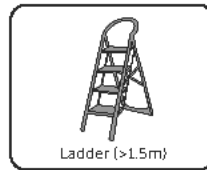
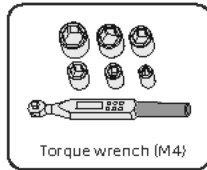
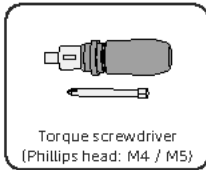


Figure 12-20 Address assignment

# 13 Replacement of EMS1000

## Prerequisites

- Fault locating:
  - a. View alarm information via cabinet screen, EMS1000 webpage or SolaXCloud App.
  - b. Refer to the alarm handling suggestions in the alarm details.
  - c. Contact Solax and order replacement parts.
- Tools: Cross screwdriver, torque wrench, ladder.



### WARNING!

- Before replacing the EMS1000, ensure that the system is powered off. Otherwise, electric shocks may occur.
- After the system powers off, there will still be the remaining electricity and heat which may cause electric shocks and body burns. Please wear personal protective equipment (PPE) and begin servicing the system 5 minutes after power off.
- Only qualified person can perform the maintenance for the device.

### NOTICE!

- The replaced devices should be sent back to the local Solax warehouse.

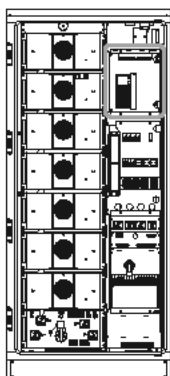


Figure 13-1 Position of the EMS1000

### Procedure

**Step 1:** Unscrew the M5 screws on the front panel and remove the front panel.

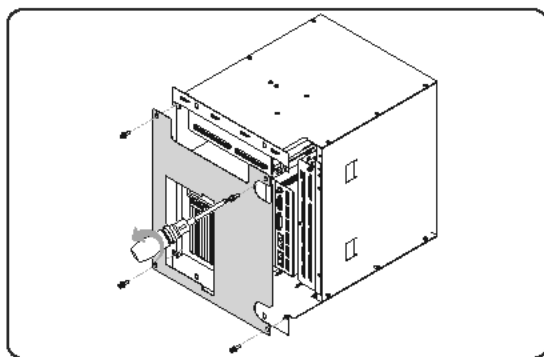


Figure 13-2 Removing the front panel

**Step 2:** Remove cables from the EMS1000.

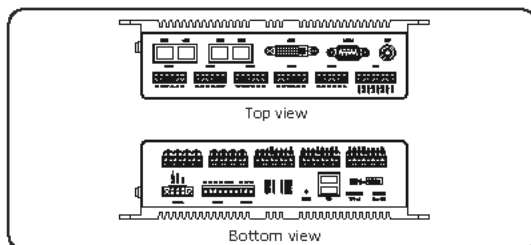


Figure 13-3 EMS1000 wiring area

**Step 3:** Unscrew the M4 screws on the sheet metal.

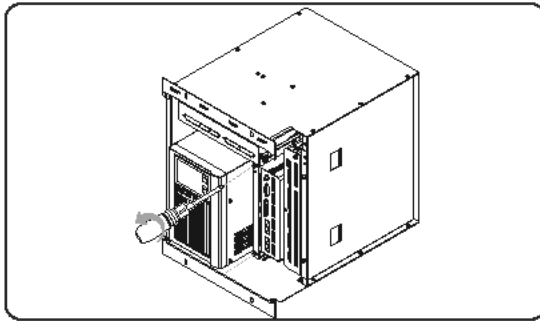


Figure 13-4 Unscrewing screws on the sheet metal

**Step 4:** Pull out the EMS1000 with the sheet metal, loosen the M4 nuts and remove the EMS1000 from the sheet metal.

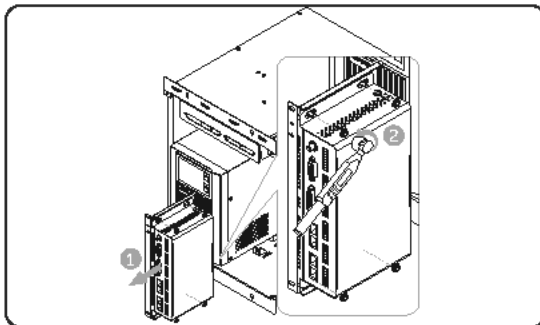


Figure 13-5 Removing the EMS1000

**Step 5:** Install a new EMS1000 and connect the EMS1000 cables according to silkscreen and cable markings.

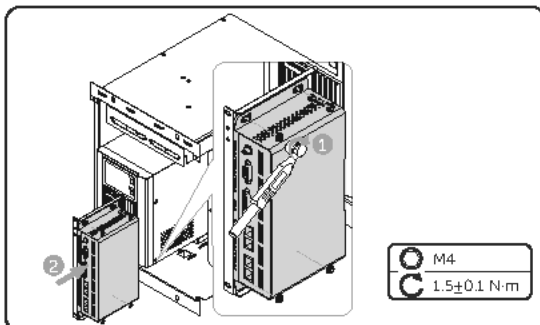


Figure 13-6 Installing the EMS1000

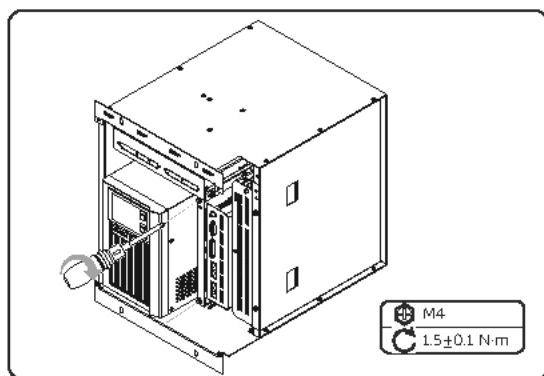


Figure 13-7 Installing the sheet metal

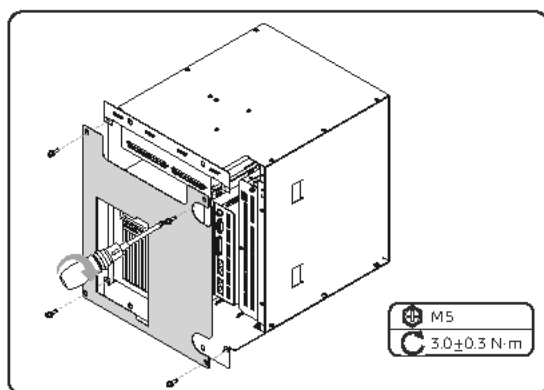


Figure 13-8 Installing the front panel

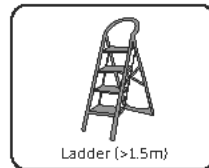
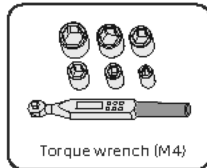
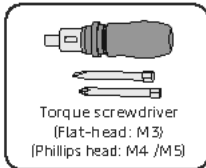
### Checking after replacement

For details of checking procedure after replacement, please refer to "30 Checking after Replacement".

# 14 Replacement of I/O Module

## Prerequisites

- Fault locating:
  - a. View alarm information via cabinet screen, EMS1000 webpage or SolaXCloud App.
  - b. Refer to the alarm handling suggestions in the alarm details.
  - c. Contact Solax and order replacement parts.
- Tools: Cross screwdriver, torque wrench, ladder.



### WARNING!

- Before replacing the I/O module, ensure that the system is powered off. Otherwise, electric shocks may occur.
- After the system powers off, there will still be the remaining electricity and heat which may cause electric shocks and body burns. Please wear personal protective equipment (PPE) and begin servicing the system 5 minutes after power off.
- Only qualified person can perform the maintenance for the device.

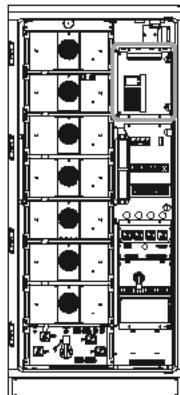


Figure 14-1 Position of the I/O module

Procedure

**Step 1:** Unscrew the M5 screws on the front panel and remove the front panel.

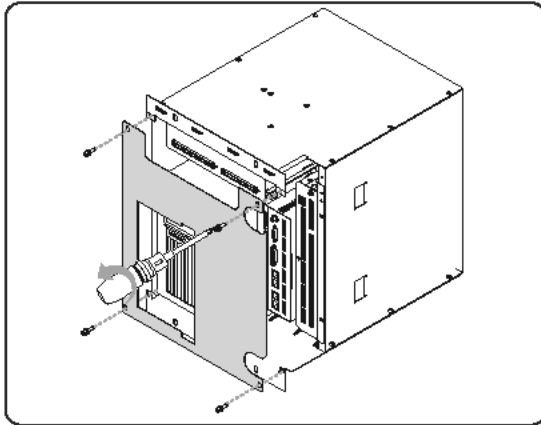


Figure 14-2 Removing the front panel

**Step 2:** Loosen the M3 fixing screws of the terminal blocks and remove the terminal blocks of I/O module.

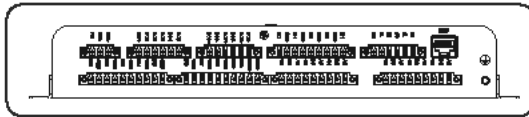


Figure 14-3 IO module wiring area

**Step 3:** Unscrew the M4 screws on the sheet metal.

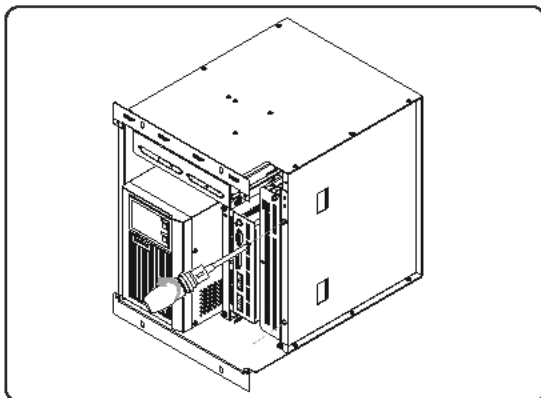


Figure 14-4 Unscrewing screws on the sheet metal

- Step 4:** Pull out the I/O module with the sheet metal, loosen the M4 nuts and remove the I/O module from the sheet metal.

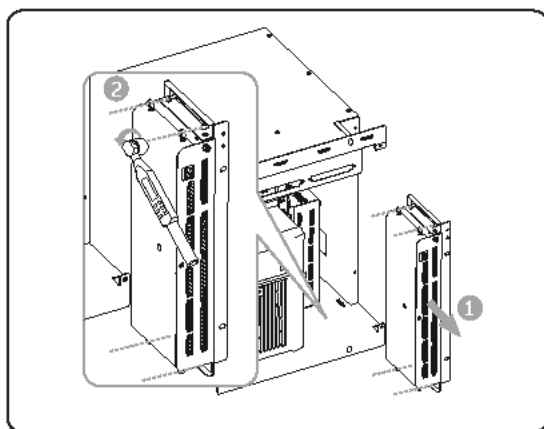


Figure 14-5 Removing the I/O module

- Step 5:** Install a new I/O module, connect the I/O module cables according to silkscreen and cable markings, tighten the M3 fixing screws of the terminal blocks (torque:  $0.5 \pm 0.1$  N·m) with a flat-head screwdriver.

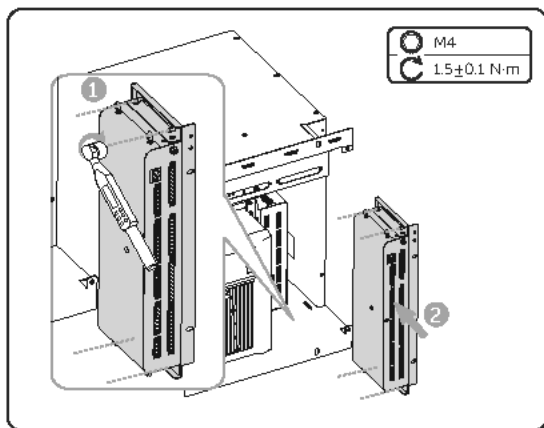


Figure 14-6 Installing the I/O module

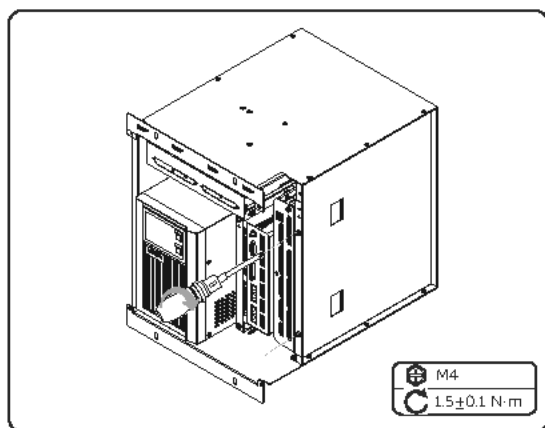


Figure 14-7 Installing the sheet metal

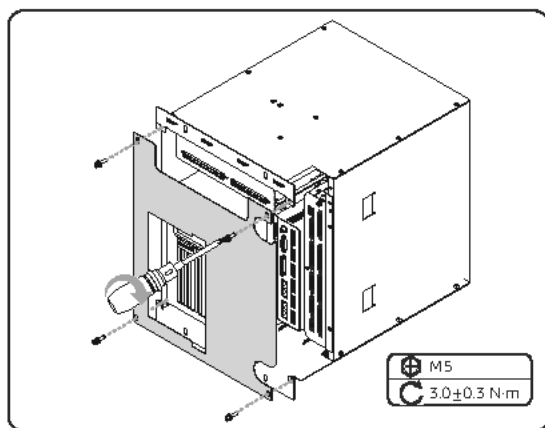


Figure 14-8 Installing the front panel

### Checking after replacement

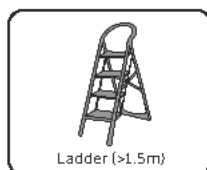
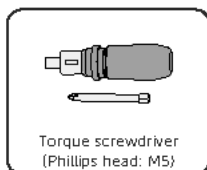
For details of checking procedure after replacement, please refer to "30 Checking after Replacement".

# 15 Replacement of UPS

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## Prerequisites

- Fault locating:
  - a. View alarm information via cabinet screen, EMS1000 webpage or SolaXCloud App.
  - b. Refer to the alarm handling suggestions in the alarm details.
  - c. Contact Solax and order replacement parts.
- Tools: Cross screwdriver, ladder.



- At least two persons are required to replace the component.

### WARNING!

- Before replacing the UPS, ensure that the system is powered off. Otherwise, electric shocks may occur.
- After the system powers off, there will still be the remaining electricity and heat which may cause electric shocks and body burns. Please wear personal protective equipment (PPE) and begin servicing the system 5 minutes after power off.

### NOTICE!

- The replaced devices should be sent back to the local Solax warehouse.

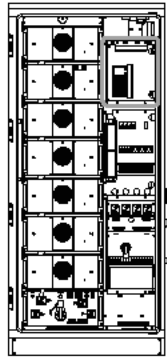


Figure 15-1 Position of the UPS

Procedure

**Step 1:** Unscrew the M5 screws on the front panel and remove the front panel.

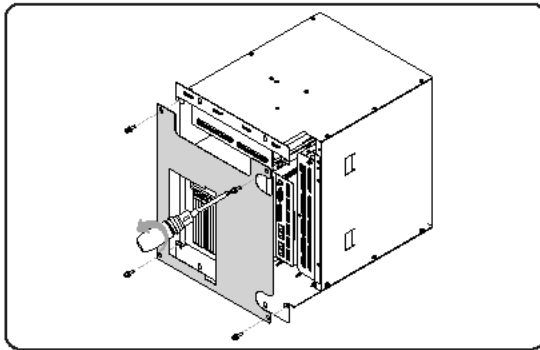


Figure 15-2 Removing the front panel

**Step 2:** Unplug the UPS cables on the back of the UPS.

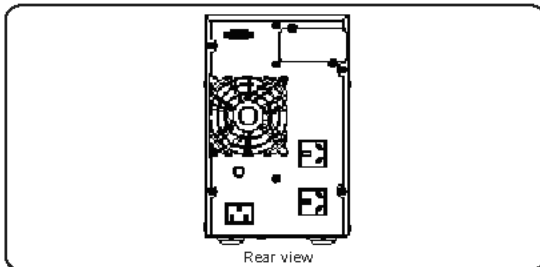


Figure 15-3 UPS wiring panel

**Step 3:** Pull out the UPS.

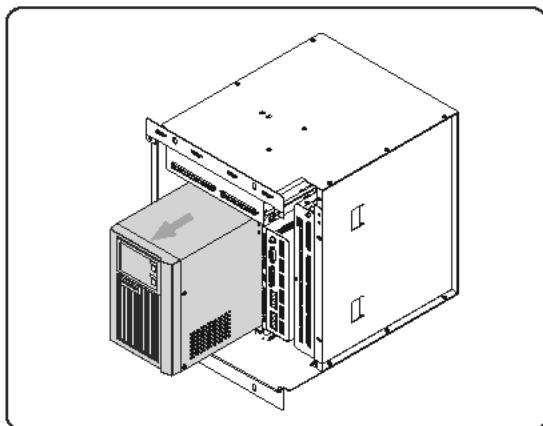


Figure 15-4 Removing the UPS

**Step 4:** Connect the new UPS cables and install the UPS.

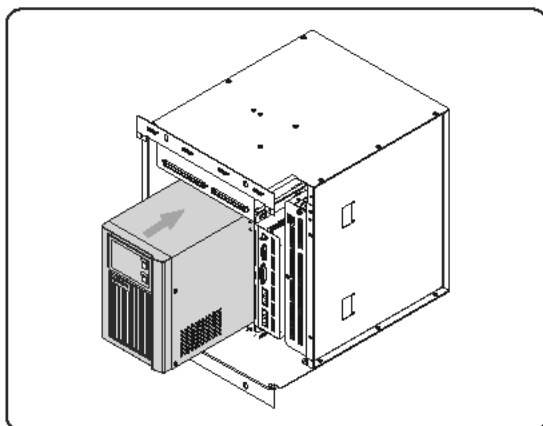


Figure 15-5 Installing the UPS

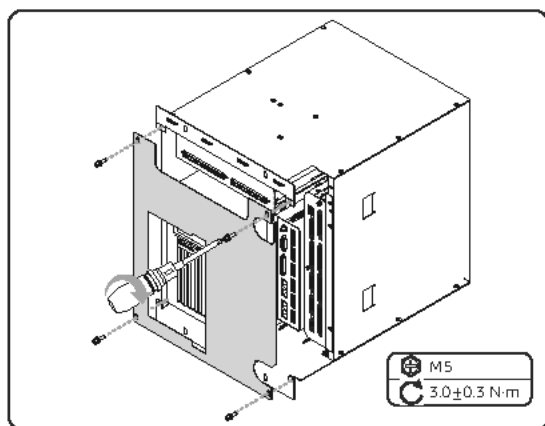


Figure 15-6 Installing the front panel

#### Checking after replacement

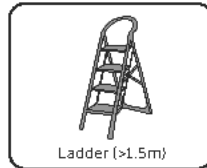
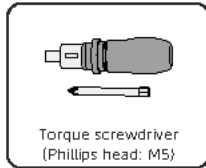
**Step 1:** Check whether the UPS can be powered on.

**Step 2:** Check whether the function switching on the UPS screen is normal.

# 16 Replacement of Switch

## Prerequisites

- Fault locating:
  - a. Remove the front panel.
  - b. The indicator of switch is off.
- Tools: Cross screwdriver, ladder.



### WARNING!

- Before replacing the switch, ensure that the system is powered off. Otherwise, electric shocks may occur.
- After the system powers off, there will still be the remaining electricity and heat which may cause electric shocks and body burns. Please wear personal protective equipment (PPE) and begin servicing the system 5 minutes after power off.
- Only qualified person can perform the maintenance for the device.

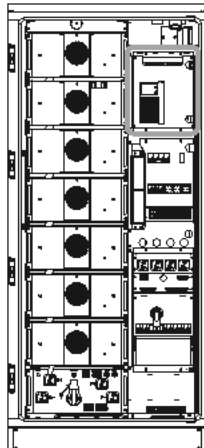


Figure 16-1 Position of the switch

Procedure

**Step 1:** Unscrew the M5 screws on the front panel and remove the front panel.

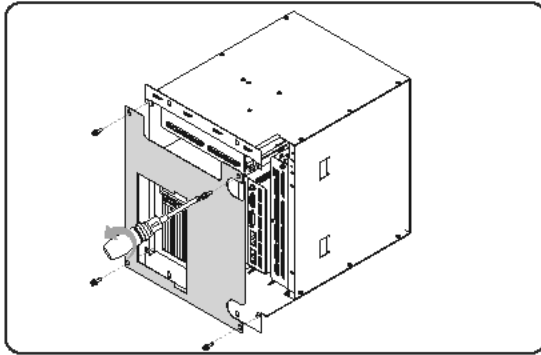


Figure 16-2 Removing the front panel

**Step 2:** Remove cables from the switch.

**Step 3:** Slide the switch up until it is above the rail and remove the switch.

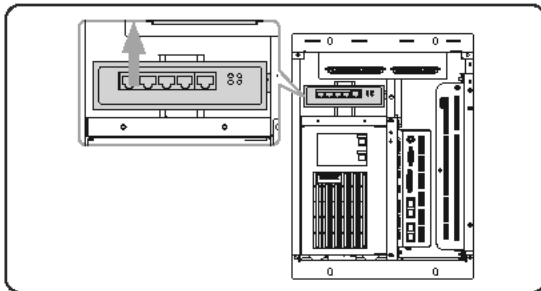


Figure 16-3 Sliding the switch up

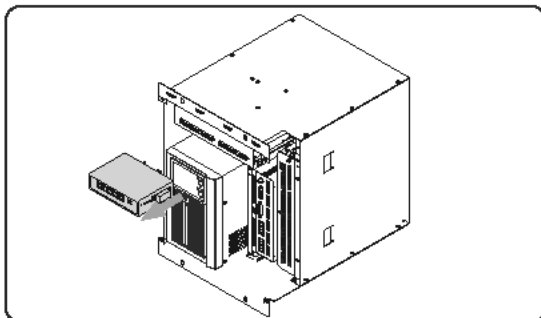


Figure 16-4 Removing the switch

**Step 4:** Install a new switch and connect the switch cables according to switch label and cable markings.

**NOTICE!**

- Please notice the direction of the switch when installing.

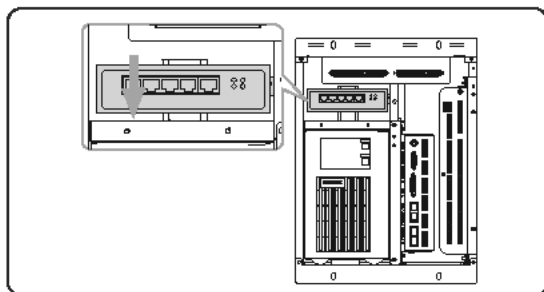


Figure 16-5 Sliding the switch down

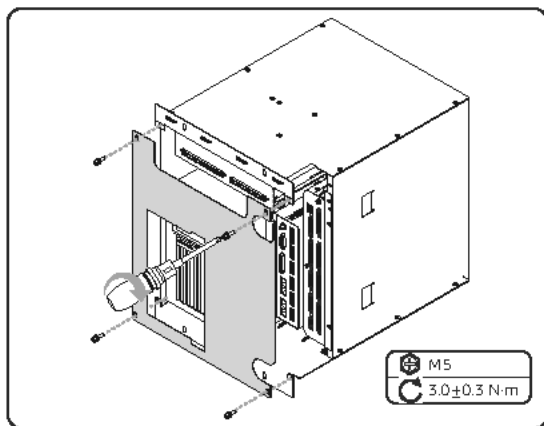


Figure 16-6 Installing the front panel

### Checking after replacement

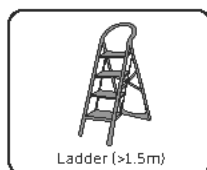
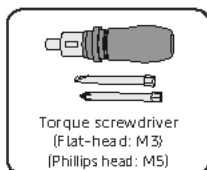
**Step 1:** Power on the system. For details, refer to "2.4 Power On".

**Step 2:** Check whether the indicator on the switch is flashing green light.

# 17 Replacement of Air Conditioner

## Prerequisites

- Fault locating:
  - a. View alarm information via cabinet screen, EMS1000 webpage or SolaXCloud App.
  - b. Refer to the alarm handling suggestions in the alarm details.
  - c. Contact Solax and order replacement parts.
- Tools: Cross screwdriver, ladder.



- At least two persons are required to replace the component.

### WARNING!

- Before replacing the air conditioner, ensure that the system is powered off. Otherwise, electric shocks may occur.
- After the system powers off, there will still be the remaining electricity and heat which may cause electric shocks and body burns. Please wear personal protective equipment (PPE) and begin servicing the system 5 minutes after power off.
- Only qualified person can perform the maintenance for the device.

### NOTICE!

- The replaced devices should be sent back to the local Solax warehouse.

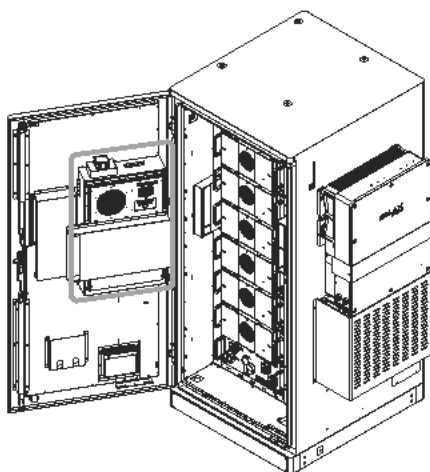


Figure 17-1 Position of the air conditioner

### Procedure

- Step 1:** Loosen the fixing screws of the terminal blocks and remove the terminal blocks of air conditioner.
- Step 2:** Remove the front air duct and the side air ducts.

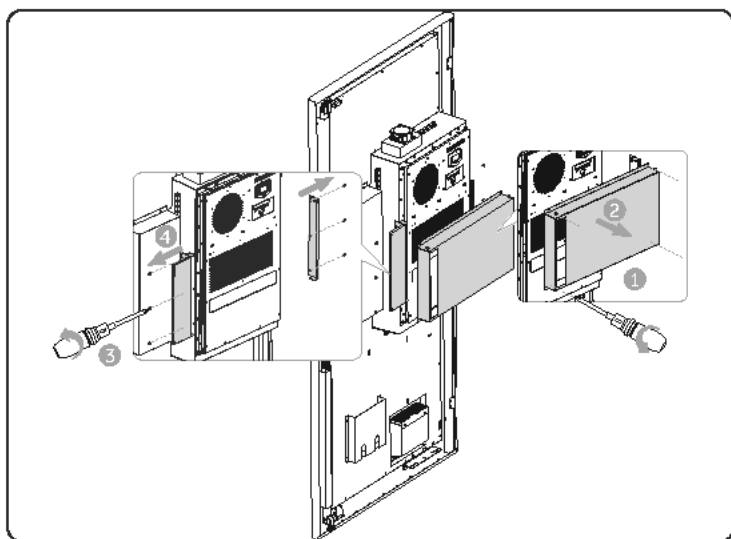


Figure 17-2 Removing the front air duct and side air ducts

**Step 3:** Unscrew the M5 screws on the air conditioner and remove the air conditioner.

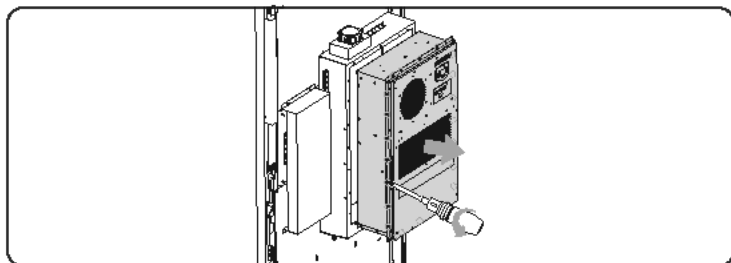


Figure 17-3 Removing the air conditioner

**Step 4:** Push the new air conditioner into the air conditioner mounting bracket and tighten the M5 screws.

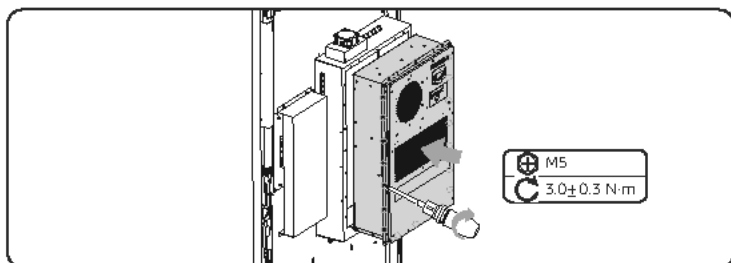


Figure 17-4 Installing the air conditioner

**Step 5:** Install the front and side air ducts. Connect the cables and tighten the M3 fixing screws of the terminal blocks (torque: 0.5±0.1 N·m) with a flat-head screwdriver.

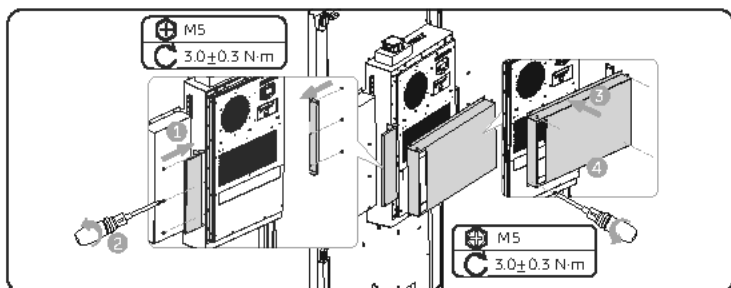


Figure 17-5 Installing the front air duct and side air ducts

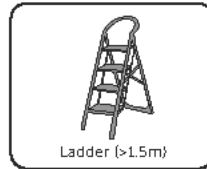
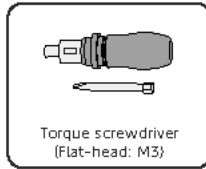
### Checking after replacement

For details of checking procedure after replacement, please refer to "30 Checking after Replacement".

# 18 Replacement of Temperature and Humidity Sensor

## Prerequisites

- Fault locating:
  - a. View alarm information via cabinet screen, EMS1000 webpage or SolaXCloud App.
  - b. Refer to the alarm handling suggestions in the alarm details.
  - c. Contact Solax and order replacement parts.
- Tools: Flat-head screwdriver, ladder.



### WARNING!

- Before replacing the temperature and humidity sensor, ensure that the system is powered off. Otherwise, electric shocks may occur.
- After the system powers off, there will still be the remaining electricity and heat which may cause electric shocks and body burns. Please wear personal protective equipment (PPE) and begin servicing the system 5 minutes after power off.
- Only qualified person can perform the maintenance for the device.

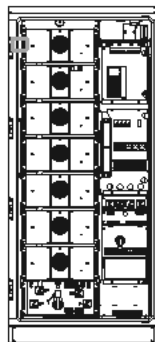


Figure 18-1 Position of the temperature and humidity sensor

### Procedure

- Step 1:** Loosen the M3 fixing screws of the terminal blocks and remove the terminal blocks of temperature and humidity sensor.
- Step 2:** Loosen the M3 fixing screws of the fixture and remove the fixture along the rail outwards, and then remove the temperature and humidity sensor.

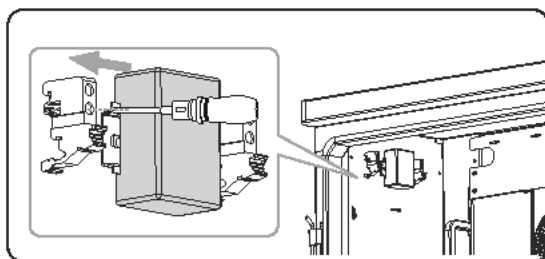


Figure 18-2 Removing the temperature and humidity sensor

- Step 3:** Install a new temperature and humidity sensor and secure it with the fixture, tighten the screw of the fixture.

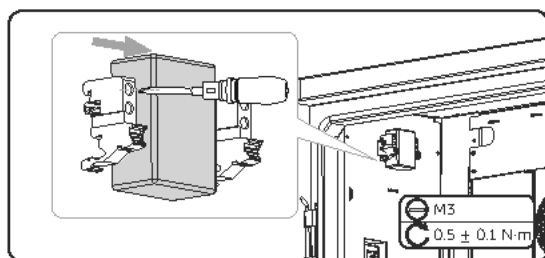


Figure 18-3 Removing the temperature and humidity sensor

- Step 4:** Connect the cables of temperature and humidity sensor and tighten the M3 fixing screws of the terminal blocks (torque:  $0.5 \pm 0.1$  N·m).

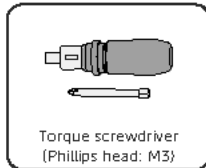
### Checking after replacement

- Step 1:** Power on the system. For details, refer to "2.4 Power On".
- Step 2:** Check whether the temperature and humidity is in normal range ( $-30^{\circ}\text{C}\sim+55^{\circ}\text{C}$ , 0-95%RH) via EMS1000 webpage or SolaX Cloud App.

# 19 Replacement of Door Sensor

## Prerequisites

- Fault locating:
  - a. View alarm information via cabinet screen, EMS1000 webpage or SolaXCloud App.
  - b. Refer to the alarm handling suggestions in the alarm details.
  - c. Contact Solax and order replacement parts.
- Tools: Cross screwdriver, ladder.



### WARNING!

- Before replacing the door sensor, ensure that the system is powered off. Otherwise, electric shocks may occur.
- After the system powers off, there will still be the remaining electricity and heat which may cause electric shocks and body burns. Please wear personal protective equipment (PPE) and begin servicing the system 5 minutes after power off.
- Only qualified person can perform the maintenance for the device.

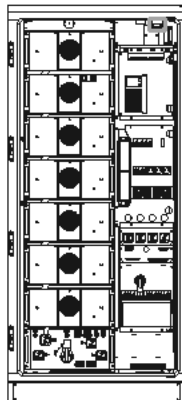


Figure 19-1 Position of the door sensor 1

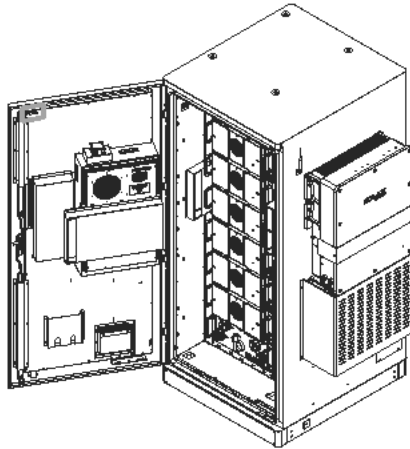


Figure 19-2 Position of the door sensor 2

### Procedure

**Step 1:** Remove the cover of the door sensor.

**Step 2:** Remove the door sensor and disconnect the cable.

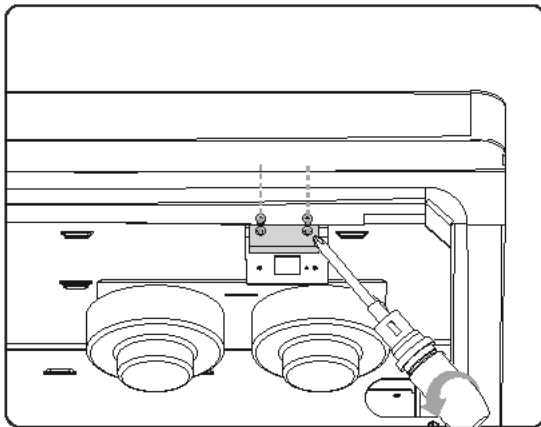


Figure 19-3 Removing the door sensor

### NOTICE!

- This section take door sensor 1 as an example, remove door sensor 2 accordingly.

**Step 3:** Connect the cable and install the new door sensor, snap the cover.

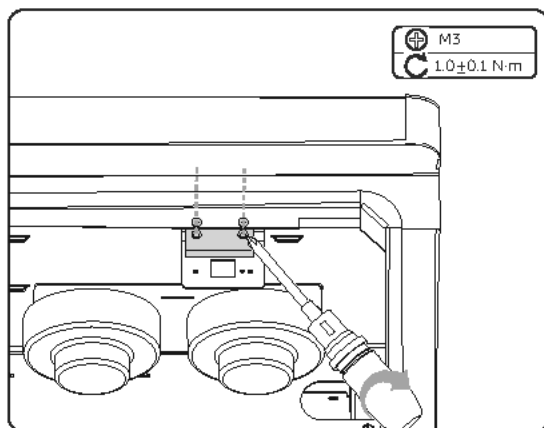


Figure 19-4 Installing the door sensor

### Checking after replacement

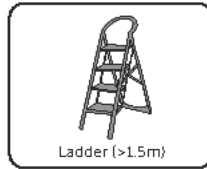
For details of checking procedure after replacement, please refer to "30 Checking after Replacement".

# 20 Replacement of Smoke Detector and Temperature Sensor

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## Prerequisites

- Fault locating:
  - a. View alarm information via cabinet screen, EMS1000 webpage or SolaXCloud App.
  - b. Refer to the alarm handling suggestions in the alarm details.
  - c. Contact Solax and order replacement parts.
- Tools: Ladder.



### WARNING!

- Before replacing the smoke detector and temperature sensor, ensure that the system is powered off. Otherwise, electric shocks may occur.
- After the system powers off, there will still be the remaining electricity and heat which may cause electric shocks and body burns. Please wear personal protective equipment (PPE) and begin servicing the system 5 minutes after power off.
- Only qualified person can perform the maintenance for the device.

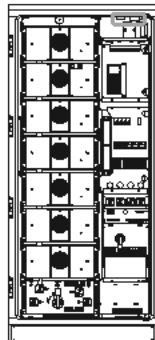


Figure 20-1 Position of the smoke detector and temperature sensor

## Procedure

- Step 1:** Loosen the cover of the smoke detector and temperature sensor counterclockwise.

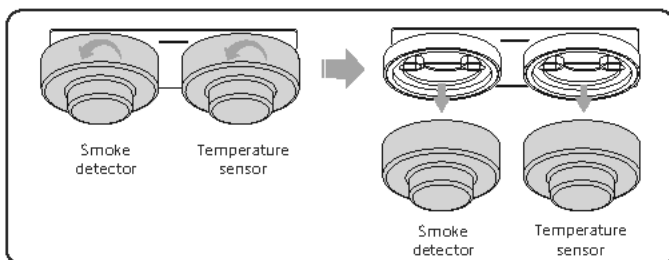


Figure 20-2 Removing the smoke detector and temperature sensor

- Step 2:** Install the new smoke detector and temperature sensor on the bases.

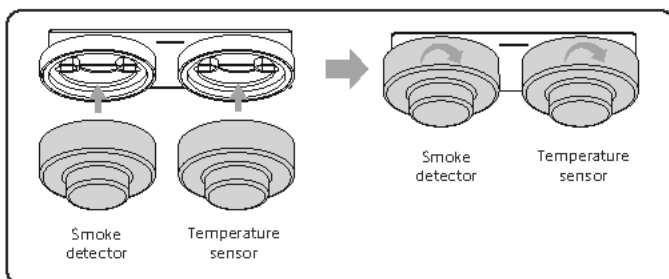


Figure 20-3 Installing the smoke detector and temperature sensor

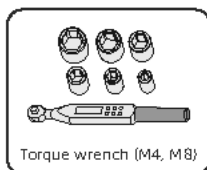
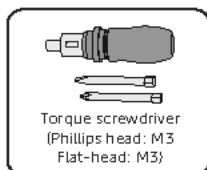
## Checking after replacement

For details of checking procedure after replacement, please refer to "30 Checking after Replacement".

# 21 Replacement of Distribution Box

## Prerequisites

- Fault locating:
  - a. View alarm information via cabinet screen, EMS1000 webpage or SolaXCloud App.
  - b. Refer to the alarm handling suggestions in the alarm details.
  - c. Contact Solax and order replacement parts.
- Tools: Cross screwdriver, torque wrench



- At least two persons are required to replace the component.

### WARNING!

- Before replacing the distribution box, ensure that the system is powered off. Otherwise, electric shocks may occur.
- After the system powers off, there will still be the remaining electricity and heat which may cause electric shocks and body burns. Please wear personal protective equipment (PPE) and begin servicing the system 5 minutes after power off.
- Only qualified person can perform the maintenance for the device.

### NOTICE!

- The replaced devices should be sent back to the local Solax warehouse.

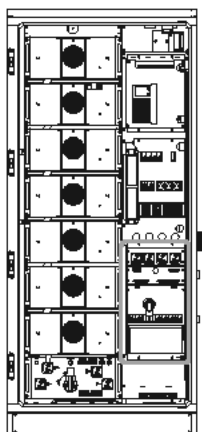


Figure 21-1 Position of the distribution box

### Procedure

**Step 1:** Unscrew M4 screws to remove the cover.

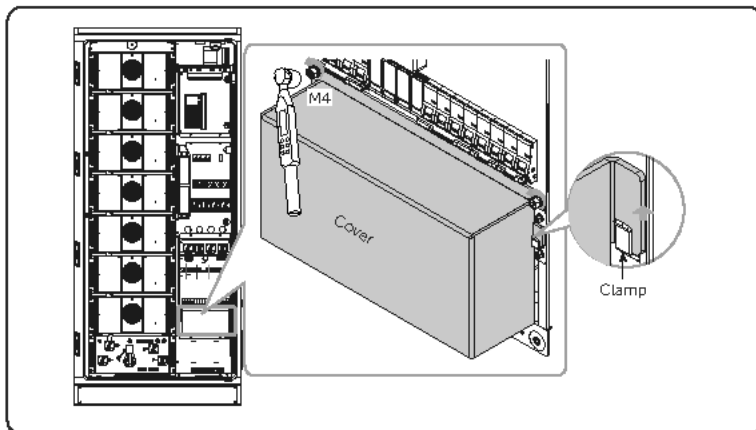


Figure 21-2 Removing cover

**Step 2:** Unscrew the M8 screws using torque wrench and remove the Grid cables. Reassemble the M8 screws.

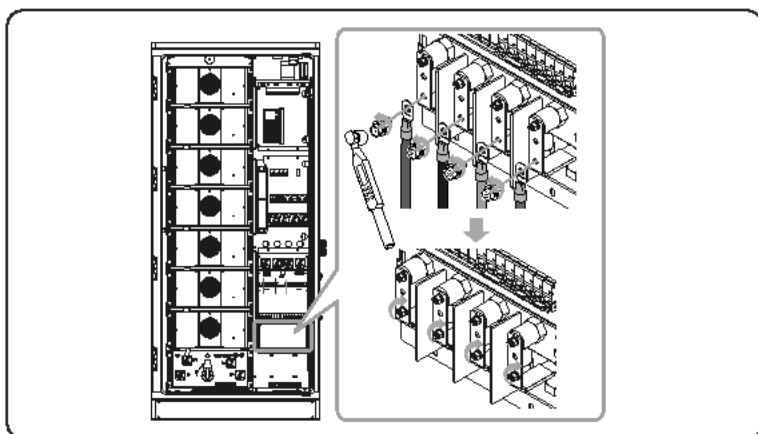


Figure 21-3 Removing Grid cables

**Step 3:** Loosen the M3 fixing screws of the terminal blocks and remove the terminal blocks.

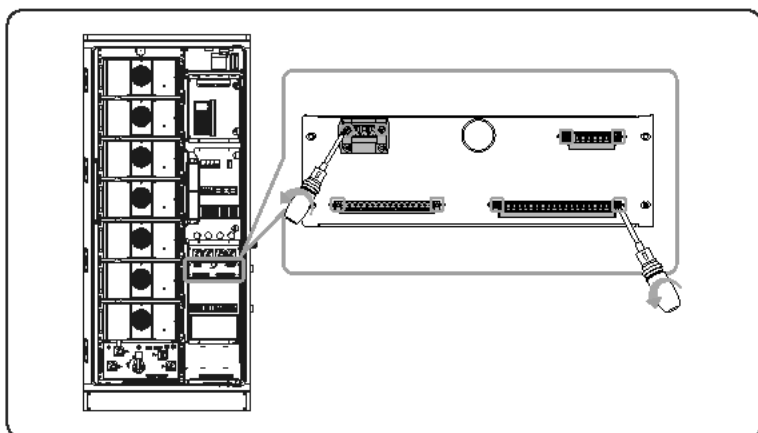


Figure 21-4 Removing the terminal blocks

**Step 4:** Loosen the M5 screws with torque wrench, remove the distribution box.

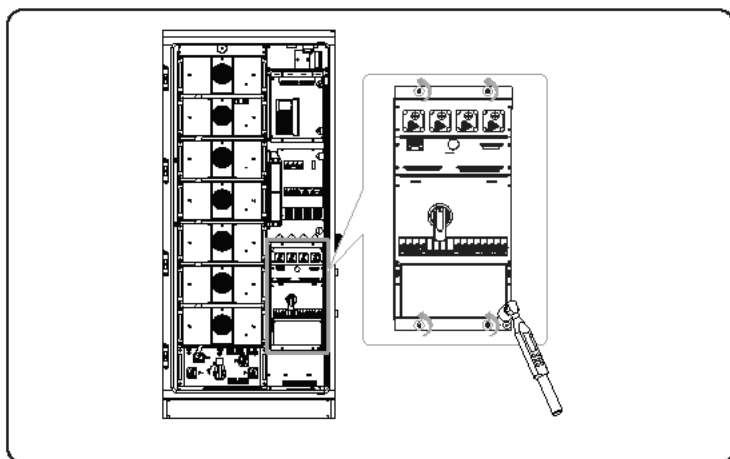





Figure 21-5 Removing the distribution box

**NOTICE!**

- If the jacket of the cable is damaged or the terminals are deformed and so on, please replace the cable. The cable and terminal requirements are shown below.

Table 21-1 Cable and terminal requirements

No.	Required Material	Type	Conductor Cross-section
1	Grid wire	 Five-core copper cable * The conductor cross-section for L1, L2, L3 and N wires is 35 mm <sup>2</sup> ; the conductor cross-section for PE wire is 16 mm <sup>2</sup> .	35 mm <sup>2</sup> * 4 + 16 mm <sup>2</sup> * 1
2	EPS wire	 Four-core copper cable	35 mm <sup>2</sup> * 4
3	Ring terminal	 TLK16-8 ring terminal	/

**Step 5:** Install a new distribution box.

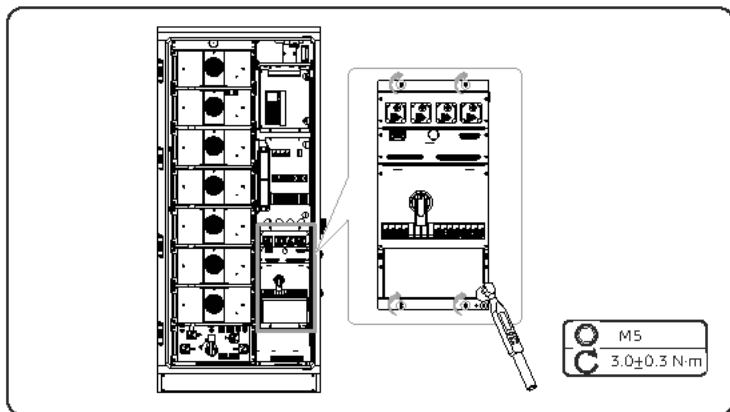


Figure 21-6 Installing new distribution box

**Step 6:** There are four bars in the connection area. Each bar has two holes, and it is recommended to connect wires in the lower holes. Unscrew the M8 screws using torque wrench, connect the assembled L1/L2/L3/N wires to the wire interface, and then tighten them (torque:  $12 \pm 1 \text{ N}\cdot\text{m}$ ).

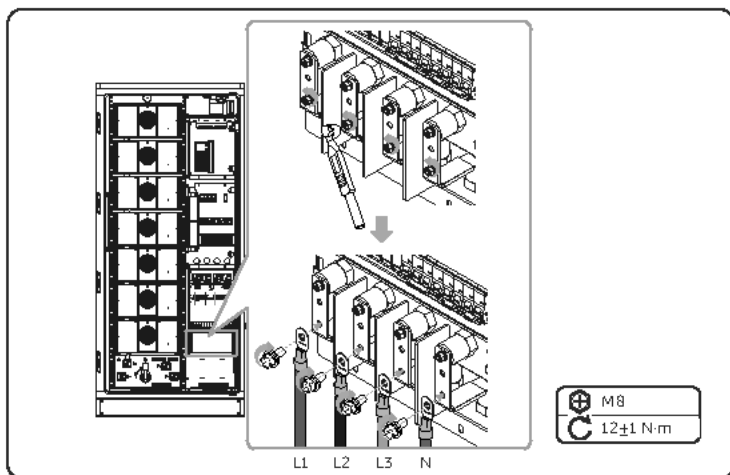


Figure 21-7 Connecting Grid wire

- Step 7:** Reattach the cover to the distribution box, and then correctly insert and tighten M4 screws (torque:  $1.6 \pm 0.2$  N·m).

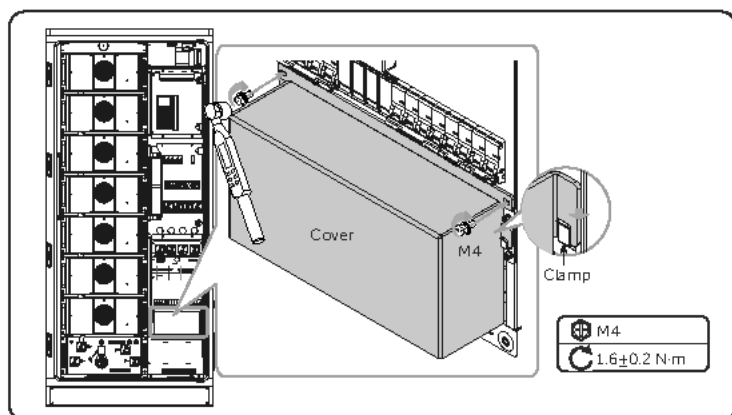


Figure 21-8 Reattaching cover

- Step 8:** Plug the terminal blocks into the ports and tighten the M3 fixing screws of the terminal blocks.

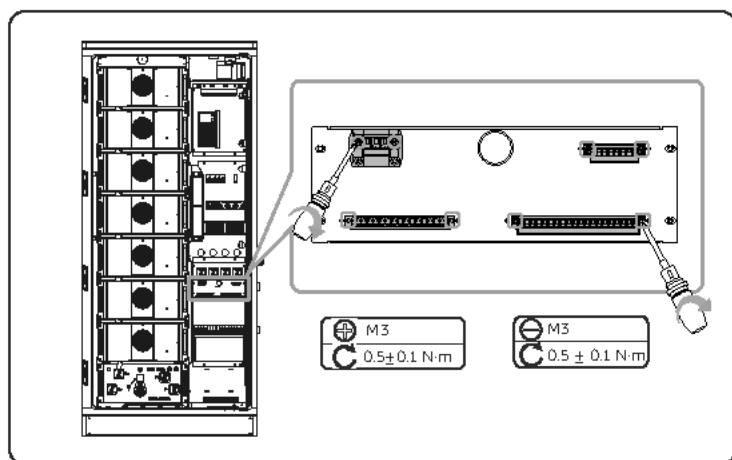


Figure 21-9 Connecting terminal blocks

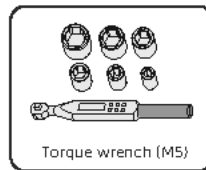
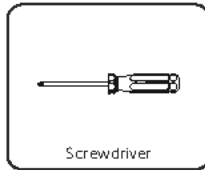
### Checking after replacement

For details of checking procedure after replacement, please refer to "30 Checking after Replacement".

## 22 Replacement of SPD Module

### Prerequisites

- Fault locating:
  - a. View alarm information via cabinet screen, EMS1000 webpage or SolaXCloud App.
  - b. Refer to the alarm handling suggestions in the alarm details.
  - c. Contact Solax and order replacement parts.
- Tools: Screwdriver, torque wrench.



### WARNING!

- Before replacing the SPD module, ensure that the system is powered off. Otherwise, electric shocks may occur.
- After the system powers off, there will still be the remaining electricity and heat which may cause electric shocks and body burns. Please wear personal protective equipment (PPE) and begin servicing the system 5 minutes after power off.
- Only qualified person can perform the maintenance for the device.

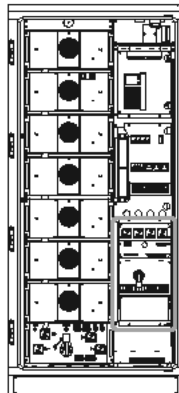


Figure 22-1 Position of the SPD module

## Procedure

**Step 1:** Unscrew the M5 screws on the front panel of the distribution box and remove the front panel.

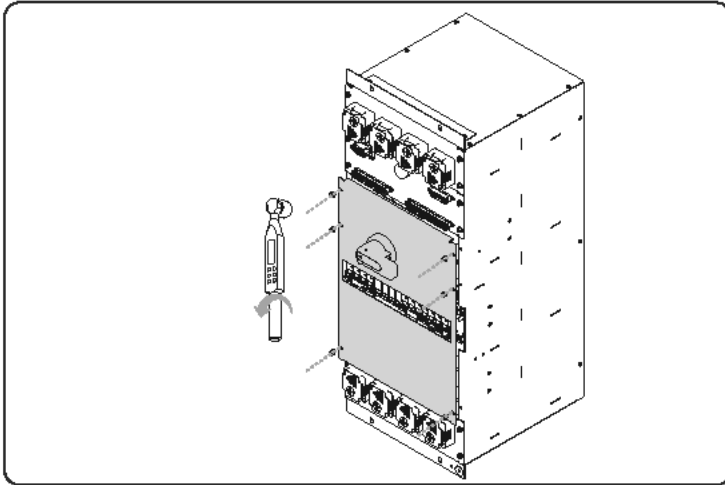


Figure 22-2 Removing the front panel

**Step 2:** Remove cables from the SPD module.

**Step 3:** Use a screwdriver to pry up the clip on the SPD and pull the SPD module out upwards.

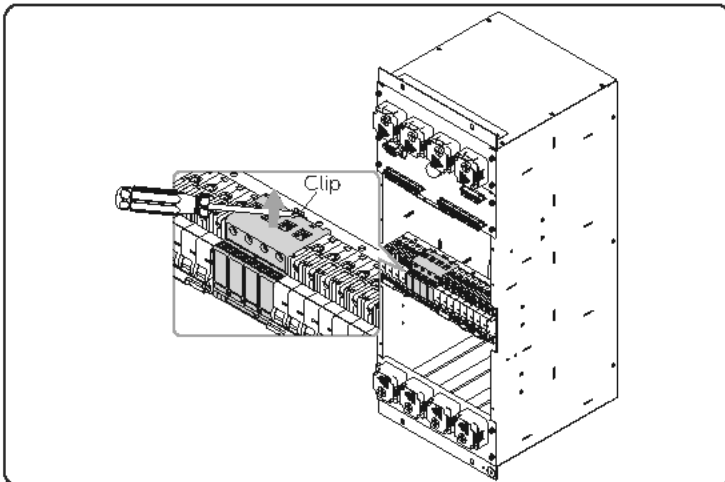


Figure 22-3 Removing the SPD module

**Step 4:** Install a new SPD module and connect the cables.

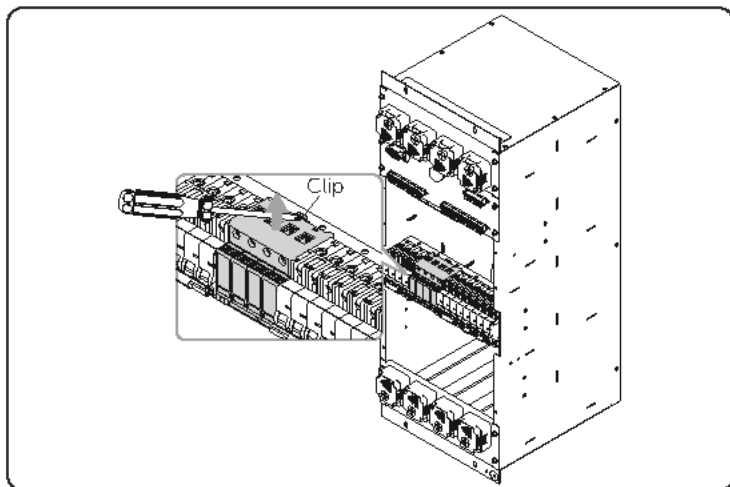


Figure 22-4 Installing SPD module

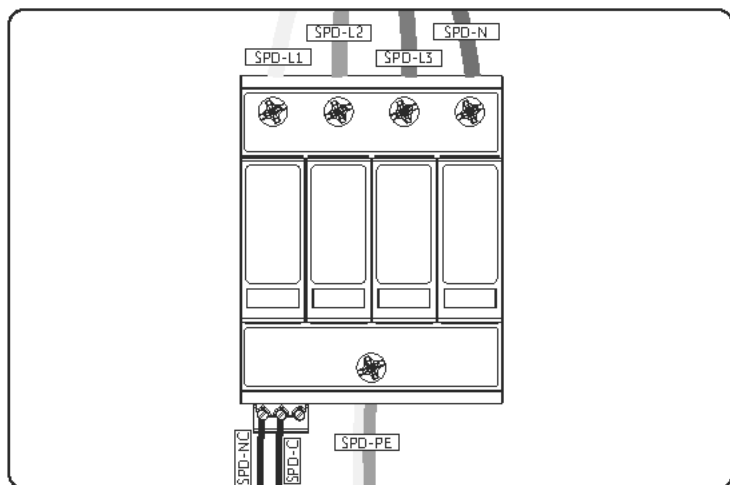


Figure 22-5 Connecting the SPD module cables

**Step 5:** Install the front panel.

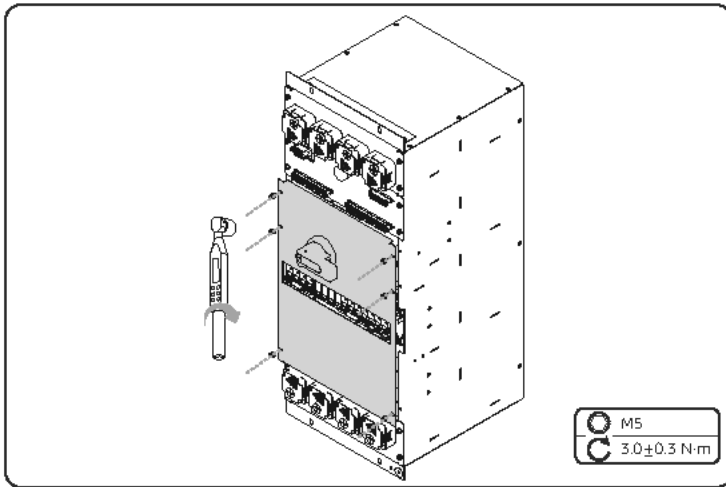


Figure 22-6 Installing the front panel

### Checking after replacement

**Step 1:** Power on the system. For details, refer to "2.4 Power On".

**Step 2:** Check whether the indicator of the SPD module is green light.

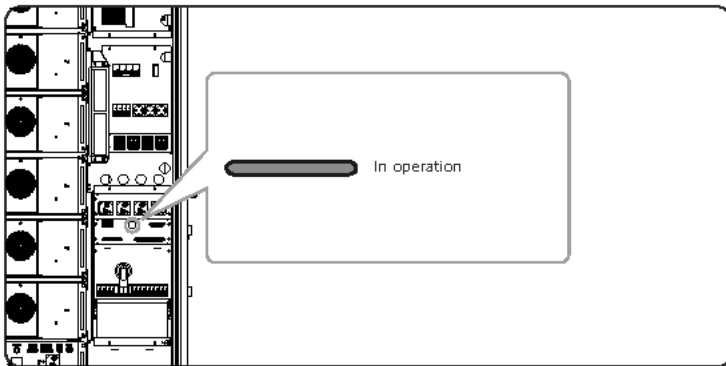


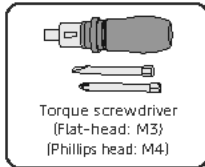
Figure 22-7 SPD module indicator

**Step 3:** Check whether the status of the SPD module is normal via EMS1000 webpage or SolaX Cloud App.

# 23 Replacement of Audible and Visible Alarm

## Prerequisites

- Fault locating:
  - a. View alarm information via cabinet screen, EMS1000 webpage or SolaXCloud App.
  - b. Refer to the alarm handling suggestions in the alarm details.
  - c. Contact Solax and order replacement parts.
- Tools: Cross screwdriver, ladder.



### WARNING!

- Before replacing the audible and visible alarm, ensure that the system is powered off. Otherwise, electric shocks may occur.
- After the system powers off, there will still be the remaining electricity and heat which may cause electric shocks and body burns. Please wear personal protective equipment (PPE) and begin servicing the system 5 minutes after power off.
- Only qualified person can perform the maintenance for the device.

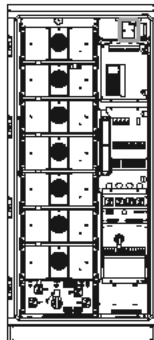


Figure 23-1 Position of the audible and visible alarm

## Procedure

**Step 1:** Remove the cover of audible and visible alarm.

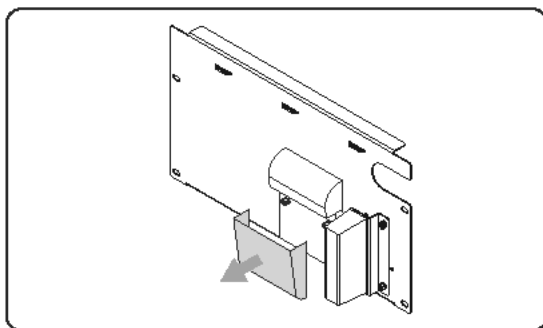


Figure 23-2 Removing the cover

**Step 2:** Loosen the M4 fixing screws of the cables and disconnect the cables. Remove the audible and visible alarm.

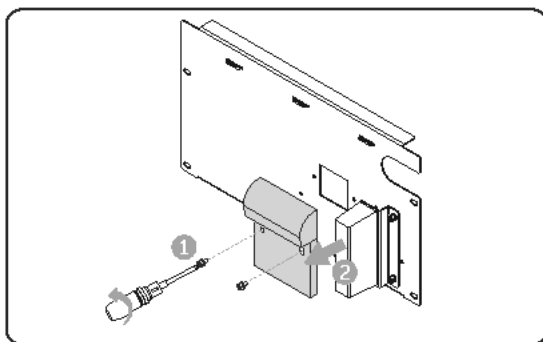


Figure 23-3 Removing the audible and visible alarm

**Step 3:** Install a new audible and visible alarm, connect the cables and tighten the M3 fixing screws with a flat-head screwdriver (torque:  $0.5\pm 0.1$  N·m). Snap the cover.

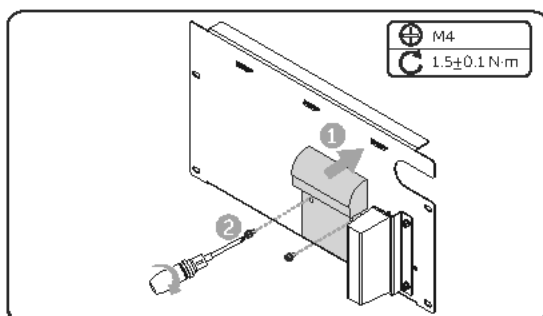


Figure 23-4 Installing the audible and visible alarm

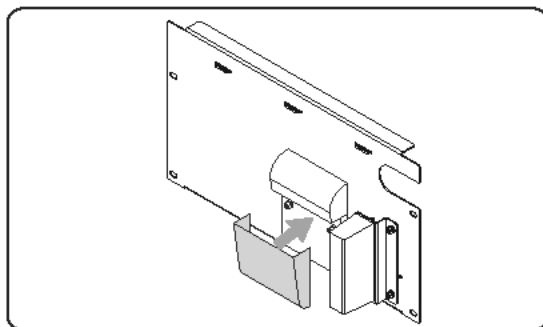


Figure 23-5 Snap the cover

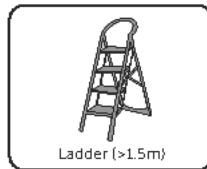
### Checking after replacement

- Step 1:** Power on the system. For details, refer to "2.4 Power On".
- Step 2:** Use the IO module to control the D03 close, check whether the audible and visible alarm will buzz and light up.

# 24 Replacement of Toxic Gases Detector

## Prerequisites

- Fault locating:
  - a. View alarm information via cabinet screen, EMS1000 webpage or SolaXCloud App.
  - b. Refer to the alarm handling suggestions in the alarm details.
  - c. Contact Solax and order replacement parts.
- Tools: Ladder.



### WARNING!

- Before replacing the toxic gases detector, ensure that the system is powered off. Otherwise, electric shocks may occur.
- After the system powers off, there will still be the remaining electricity and heat which may cause electric shocks and body burns. Please wear personal protective equipment (PPE) and begin servicing the system 5 minutes after power off.
- Only qualified person can perform the maintenance for the device.

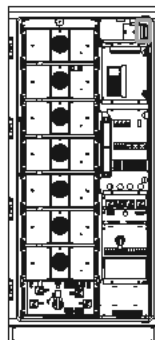


Figure 24-1 Position of the toxic gases detector

### Procedure

**Step 1:** Unplug the cables in the top of the toxic gases detector and remove the toxic gases detector from the base.

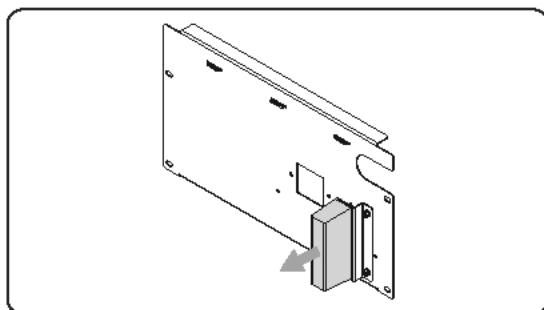


Figure 24-2 Removing the toxic gases detector

**Step 2:** Snap a new toxic gases detector on the base and plug the cables.

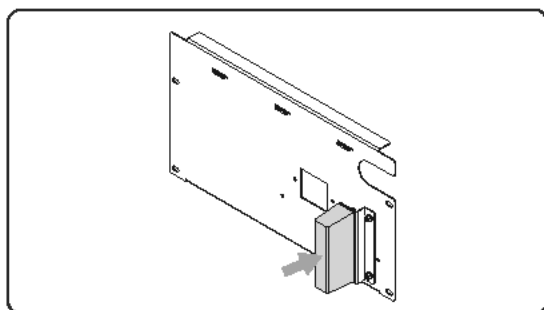


Figure 24-3 Installing the toxic gases detector

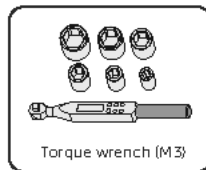
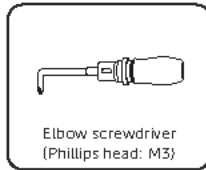
### Checking after replacement

For details of checking procedure after replacement, please refer to "30 Checking after Replacement".

# 25 Replacement of Water Sensor

## Prerequisites

- Fault locating:
  - a. View alarm information via cabinet screen, EMS1000 webpage or SolaXCloud App.
  - b. Refer to the alarm handling suggestions in the alarm details.
  - c. Contact Solax and order replacement parts.
- Tools: Elbow cross screwdriver.



### WARNING!

- Before replacing the water sensor, ensure that the system is powered off. Otherwise, electric shocks may occur.
- After the system powers off, there will still be the remaining electricity and heat which may cause electric shocks and body burns. Please wear personal protective equipment (PPE) and begin servicing the system 5 minutes after power off.
- Only qualified person can perform the maintenance for the device.

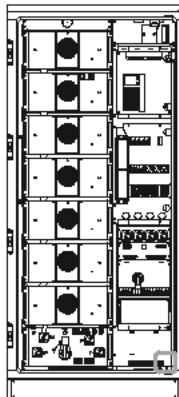


Figure 25-1 Position of the water sensor

### Procedure

**Step 1:** Unscrew the M3 screws on the water sensor and remove the water sensor.

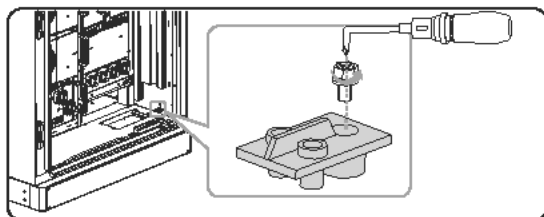


Figure 25-2 Removing the water sensor

**Step 2:** Unscrew the M3 nut counterclockwise to remove the water sensor cable.

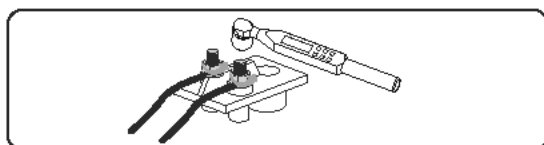


Figure 25-3 Removing the cable

**Step 3:** Install a new water sensor and connect the cable.

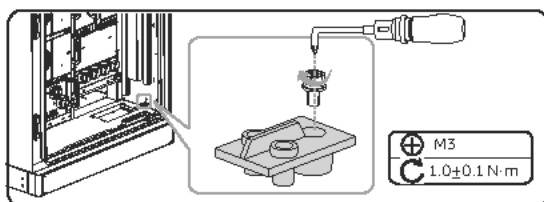


Figure 25-4 Installing the water sensor

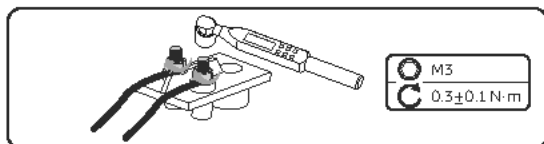


Figure 25-5 Connecting the cable

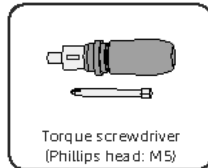
### Checking after replacement

Use a multimeter to measure the water sensor ON-OFF status (OFF for normal, ON for abnormal).

## 26 Replacement of EPS Switch

### Prerequisites

- Fault locating:
  - a. View alarm information via cabinet screen, EMS1000 webpage or SolaXCloud App.
  - b. Refer to the alarm handling suggestions in the alarm details.
  - c. Contact Solax and order replacement parts.
- Tools: Cross screwdriver.



### WARNING!

- Before replacing the EPS switch, ensure that the system is powered off. Otherwise, electric shocks may occur.
- After the system powers off, there will still be the remaining electricity and heat which may cause electric shocks and body burns. Please wear personal protective equipment (PPE) and begin servicing the system 5 minutes after power off.
- Only qualified person can perform the maintenance for the device.

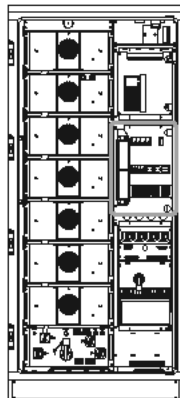


Figure 26-1 Position of the EPS switch

Procedure

**Step 1:** Unscrew the M5 screws on the front panel and remove the front panel.

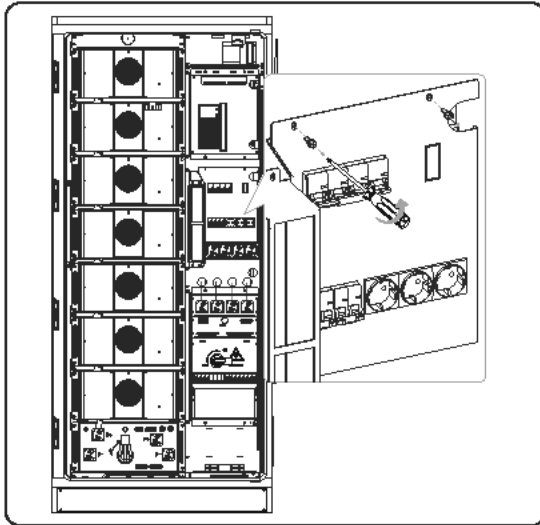


Figure 26-2 Removing the front panel

**Step 2:** Remove cables from the EPS switch and remove the EPS switch.

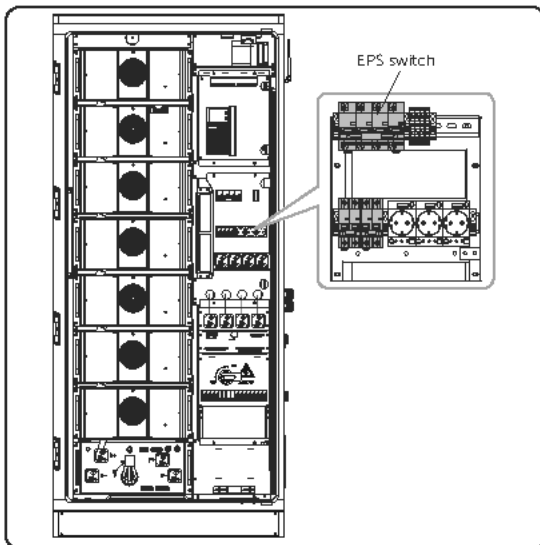


Figure 26-3 Removing the EPS switch

**Step 3:** Install a new EPS switch and connect the cables.

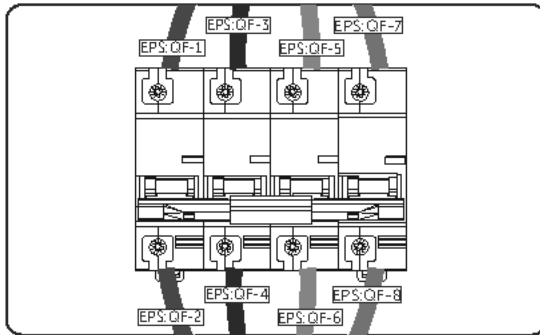


Figure 26-4 Connecting EPS switch cables

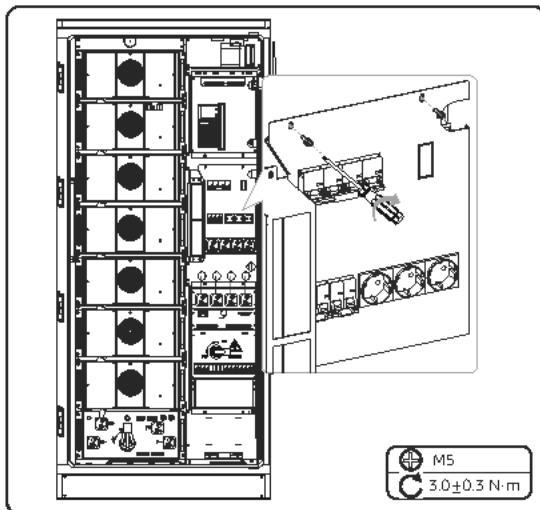


Figure 26-5 Installing the front panel

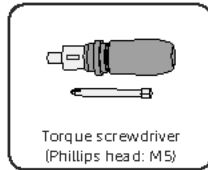
### Checking after replacement

Check whether the EPS switch can be switched on and off normally.

# 27 Replacement of UPS Switch

## Prerequisites

- Fault locating:
  - a. View alarm information via cabinet screen, EMS1000 webpage or SolaXCloud App.
  - b. Refer to the alarm handling suggestions in the alarm details.
  - c. Contact Solax and order replacement parts.
- Tools: Cross screwdriver.



### WARNING!

- Before replacing the UPS switch, ensure that the system is powered off. Otherwise, electric shocks may occur.
- After the system powers off, there will still be the remaining electricity and heat which may cause electric shocks and body burns. Please wear personal protective equipment (PPE) and begin servicing the system 5 minutes after power off.
- Only qualified person can perform the maintenance for the device.

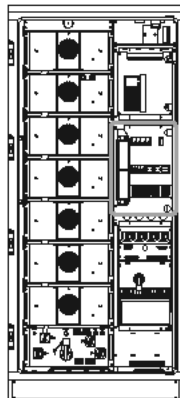


Figure 27-1 Position of UPS switch

## Procedure

**Step 1:** Unscrew the M5 screws on the front panel and remove the front panel.

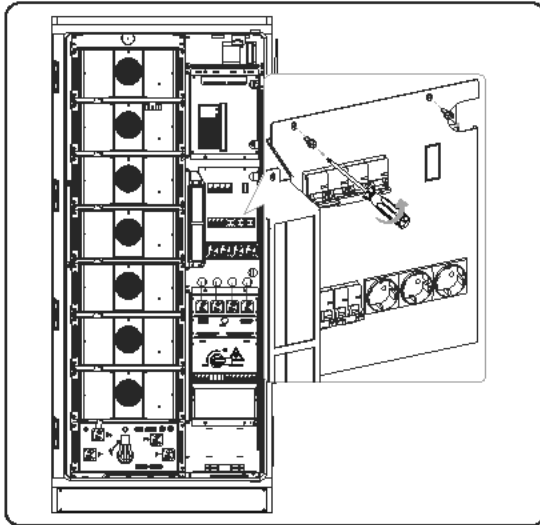


Figure 27-2 Removing the front panel

**Step 2:** Remove cables from the UPS switch and remove the UPS switch.

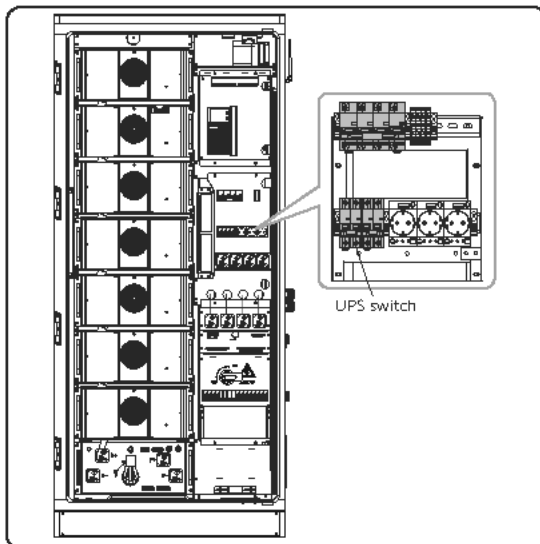


Figure 27-3 Removing the UPS switch

**Step 3:** Install a new UPS switch and connect the cables.

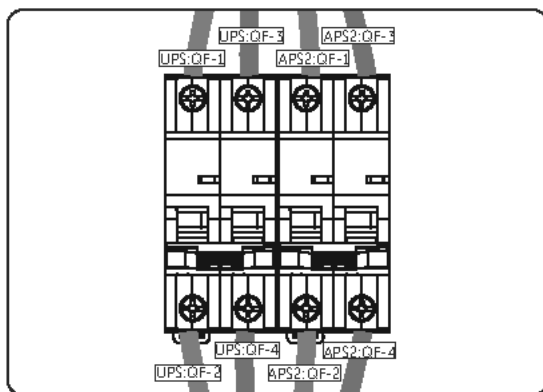


Figure 27-4 Connecting UPS switch cables

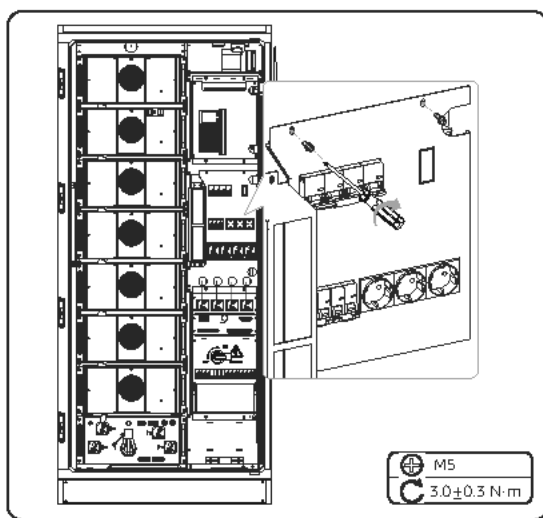


Figure 27-5 Installing the front panel

### Checking after replacement

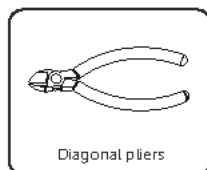
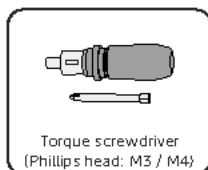
Check whether the UPS switch can be switched on and off normally.

## 28 Replacement of Inverter Fans

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### Prerequisites

- Fault locating:
  - a. View alarm information via cabinet screen, EMS1000 webpage or SolaXCloud App.
  - b. Refer to the alarm handling suggestions in the alarm details.
  - c. Contact Solax and order replacement parts.
- Tools: Cross screwdriver, diagonal plier.



### WARNING!

- Before replacing the fan, ensure that the system is powered off. Otherwise, electric shocks may occur.
- After the system powers off, there will still be the remaining electricity and heat which may cause electric shocks and body burns. Please wear personal protective equipment (PPE) and begin servicing the system 30 minutes after power off.
- Only qualified person can perform the maintenance for the device.

### Procedure

- Step 1:** Loosen the M4 screws on the right side of the inverter with a cross screwdriver, and the nuts on the left side of the inverter.

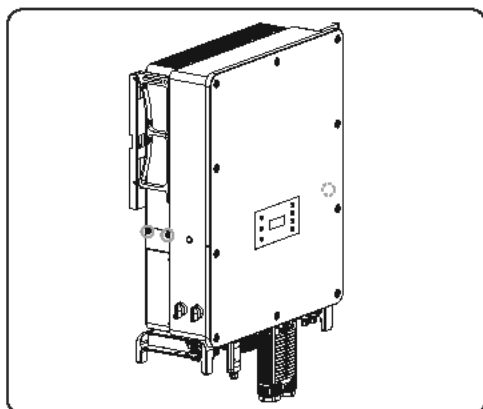


Figure 28-1 Dismantling screws

- Step 2:** Pull out the fan bracket, stop at the position about 150 mm, then press the protruding block with a screwdriver to release the fan waterproof connectors, then pull the fan bracket again to pull out the whole bracket.

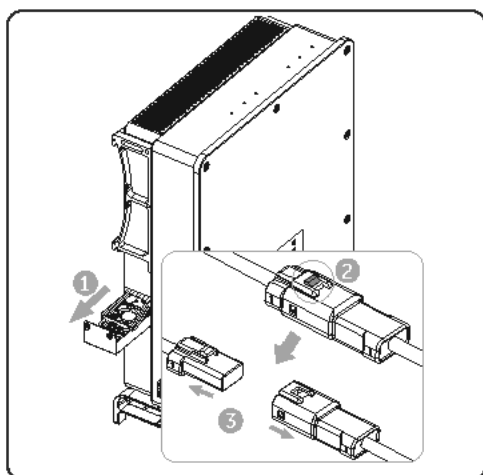


Figure 28-2 Releasing the fan waterproof connectors

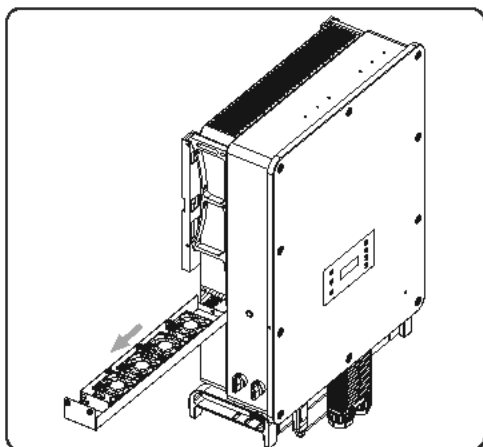


Figure 28-3 Pulling out the whole fan bracket

**Step 3:** Clean, repair, or replace the fan.

- a. Identify the fan to be replaced by cable markings.

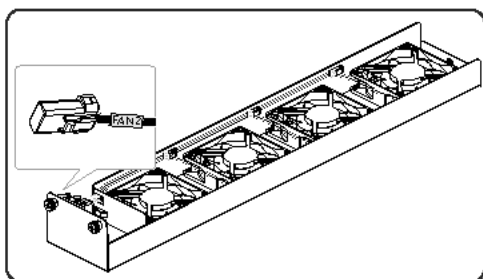


Figure 28-4 Identify the fan to be replaced

- b. Cut the cable ties with diagonal plier.

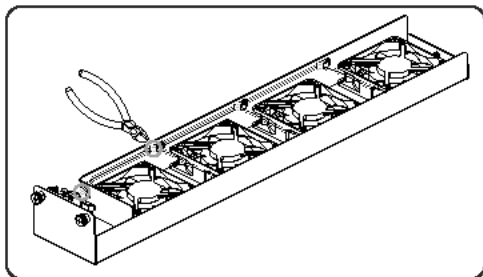


Figure 28-5 Cut the cable ties

- c. Unscrew the M3 screws on the bottom of the bracket.

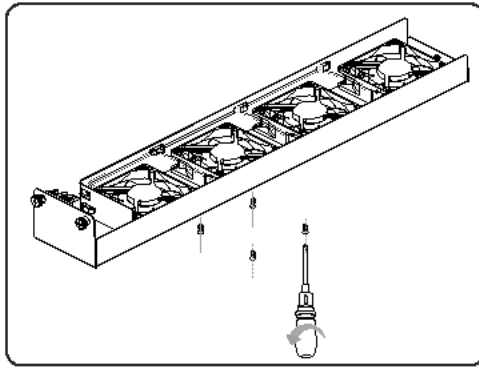


Figure 28-6 Unscrew the fan screws

- d. Remove the damaged fan, replace a new fan.

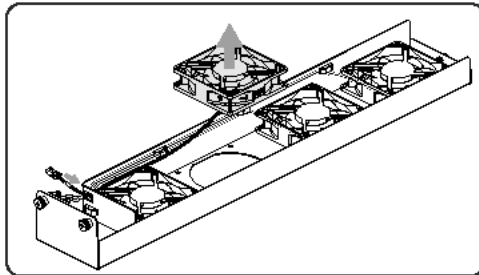


Figure 28-7 Remove the damaged fan

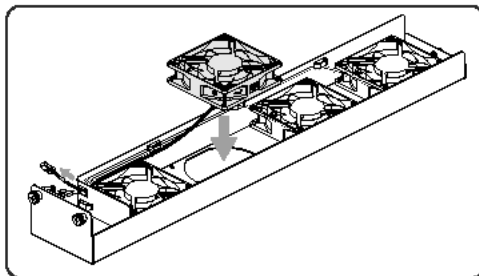


Figure 28-8 Replace a new fan

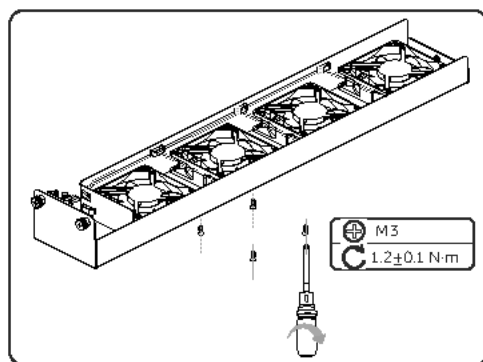


Figure 28-9 Lock the screws

- e. Secure the cable with the cable ties.

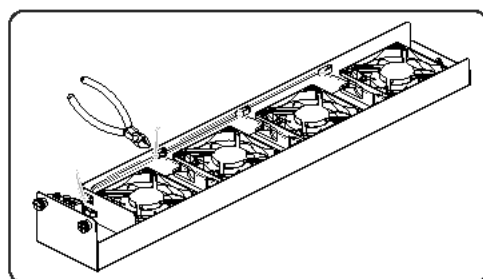


Figure 28-10 Unscrew the fan screws

- f. Slide the fan bracket into the inverter, connect fan waterproof connectors.

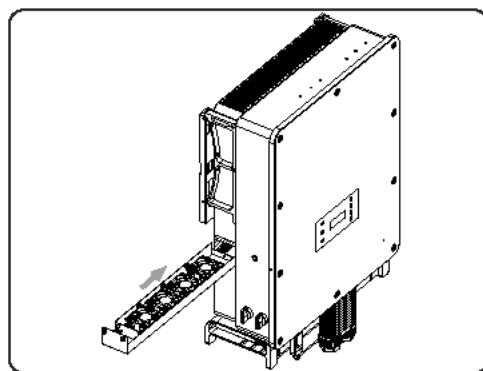


Figure 28-11 Slide the fan bracket

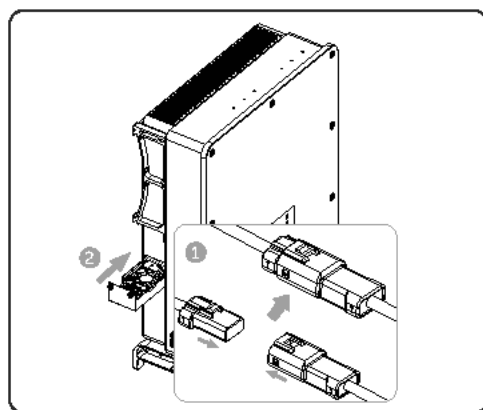


Figure 28-12 Connect fan waterproof connectors

**Step 4:** Lock the fixing screws.

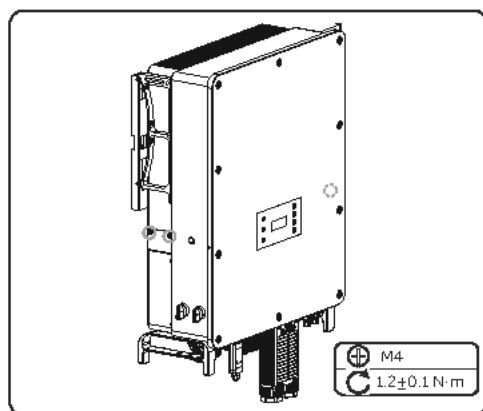


Figure 28-13 Lock the screws

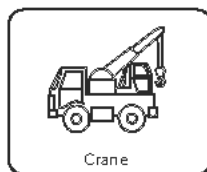
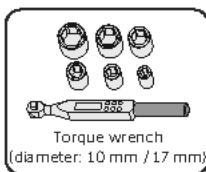
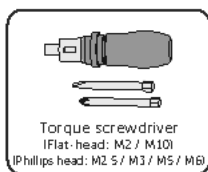
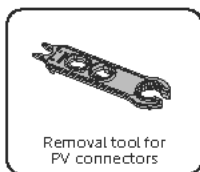
### Checking after replacement

For details of checking procedure after replacement, please refer to "30 Checking after Replacement".

## 29 Replacement of Inverter

### Prerequisites

- Fault locating:
  - a. View alarm information via cabinet screen, EMS1000 webpage or SolaXCloud App.
  - b. Refer to the alarm handling suggestions in the alarm details.
  - c. Contact Solax and order replacement parts.
- Tools: Removal tool for PV connectors, cross screwdriver, torque wrench, crane.



### WARNING!

- Before replacing the inverter, ensure that the system is powered off. Otherwise, electric shocks may occur.
- After the system powers off, there will still be the remaining electricity and heat which may cause electric shocks and body burns. Please wear personal protective equipment (PPE) and begin servicing the system 30 minutes after power off.
- Only qualified person can perform the maintenance for the device.

### NOTICE!

- The replaced devices should be sent back to the local Solax warehouse.

### Procedure

Please refer to X3-AELIO Series User Manual for inverter replace procedures.

### Checking after replacement

**Step 1:** Power on the system. For details, refer to "2.4 Power On".

**Step 2:** Check whether the inverter LCD lights up and ensure the functions are restored.

## 30 Checking after Replacement

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- Step 1:** Check that the replacement parts are installed and connected correctly and securely.
- Step 2:** Check the cable jacket for damage, especially the cable jacket connecting with the metal parts.
- Step 3:** Power on the system. For details, refer to "2.4 Power On".
- Step 4:** Check the running status of the system and ensure that the functions are restored.
- Step 5:** Check whether the alarm status is displayed as resolved and no new alarms are generated via the cabinet screen, EMS1000 webpage or SolaX Cloud App.

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