

GOODWE



Suncake Lite Product Installation Manual

GOODWE BIPV SOLUTIONS
SOLARISE EVERY BUILDING

Suncake Lite
BMM-T1/054A

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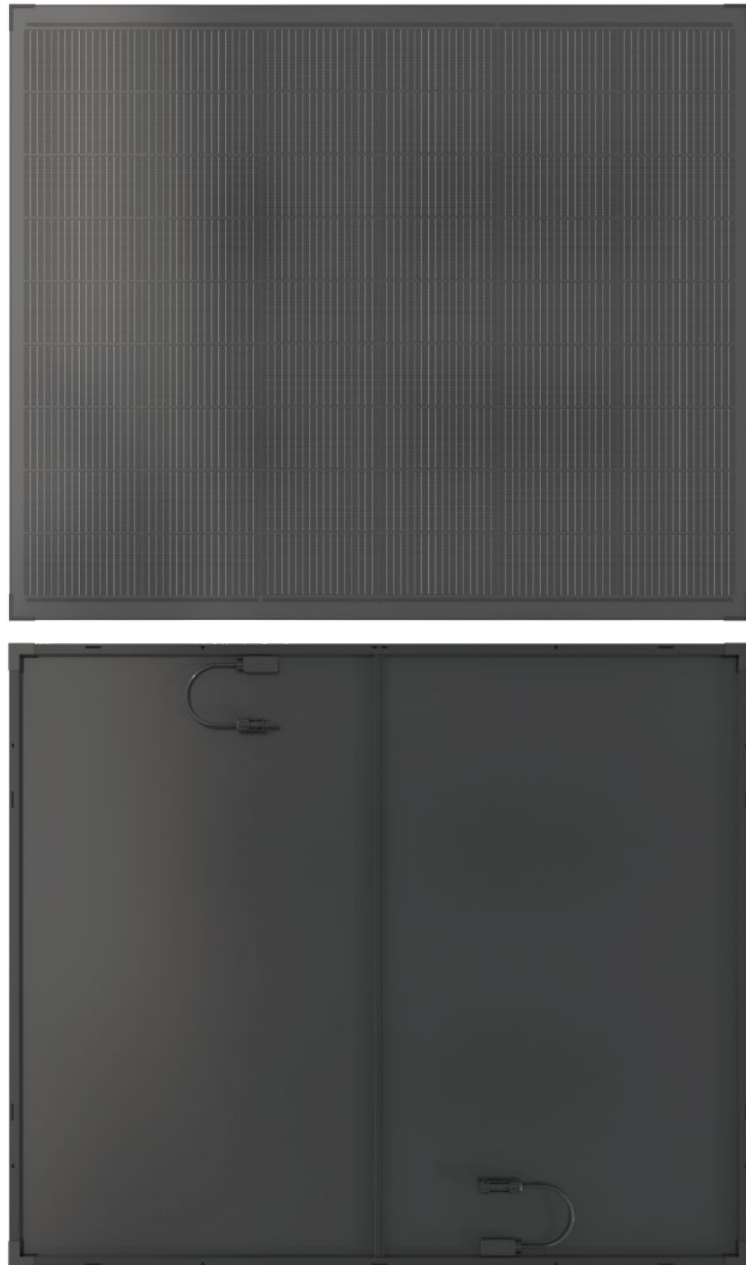
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1

DESCRIPTION OF THE MAIN STRUCTURE OF SUNCAKE LITE



BMM-T1/054A

Installation Altitude: <2000m

Fire Protection Level: CLASS C (According to the standard of IEC 61730-2-MST23)

Protection Level: Level II Maximum Mechanical load: Front 2400 Pa

2 ACCESSORY LIST

Name	Stainless Steel Strap
Illustration	

Note: This list only indicates the accessories required for the installation of the product system of Suncake Lite BMM-T1/054A, the actual use of accessories shall be as per the contract.

3 TOOL LIST

Tool name	Steel tape measure	Safety rope
Illustration		

Note: This list only indicates the main tools required for the installation of the Suncake Lite BMM-T1/054A product system.

4 PRE-INSTALLATION INSPECTION WORK OF SUNCAKE LITE



WARNING

- Please use insulated tools to reduce the risk of electric shock.
- Please adopt appropriate protective measures (non-slip gloves, work clothes, etc.) to avoid direct contact with 30V DC or higher, and avoid direct contact with sharp edges during installation
- Please do not wear metal ornaments during installation to avoid damaging the Suncake Lite product and causing electric shock hazards.
- DO NOT install the product in rainy weather or strong wind.
- Do not use or install Suncake Lite product that have been damaged.

- If the surface material is damaged or worn, direct contact with the surface of Suncake Lite product may result in electric shock.
- Do not attempt to repair any part of the Suncake Lite product.
- The lid of the junction box should be kept closed all the time.
- Do not disassemble, modify, or move any part of the Suncake Lite product.
- Do not artificially concentrate light on Suncake Lite product.

**ATTENTION**

- Installation of Suncake Lite products is subject to local safety approvals, and the requirements for installation and inspection should be observed.
- Check the applicable building codes to ensure that the building and its structure (roof, exterior façade, load bearing, etc.) in which Suncake Lite product are to be installed have adequate load-bearing capacity.
- Ensure that Suncake Lite product are installed on a fireproof roof.
- Suncake Lite product are compliant with Safety Class II. These Suncake Lite product can be used in systems where the public is likely to be exposed to voltages greater than 50V or power greater than 240W.
- The installation surface should be flat and free of pits or bumps.
- Suncake Lite product must not be installed near flames or combustible objects.
- Suncake Lite product must not be exposed to artificial sources of concentrated light.
- Suncake Lite product must not be immersed in water (pure or salt water), installed in environments that are permanently wet (pure or salt water) (e.g., fountains, waves, etc.) or in locations where water is likely to accumulate (e.g., potholes, drainage inlets, etc.).
- There is a risk of corrosion if Suncake Lite product are placed in salt spray (i.e., marine environments) or environments containing sulfur (i.e., sulfur-containing sources, volcanoes, etc.).
- Ensure that other system components do not cause damaging mechanical or electrical performance effects on Suncake Lite product.
- It is allowed to connect Suncake Lite product in series to increase the voltage. When connected in series, the positive terminal of the Suncake Lite product is connected to the next negative terminal.
- To avoid (or minimize) the mismatch effect of the array, it is recommended to connect Suncake Lite product with similar electrical properties on the same string.
- To reduce the risk of indirect lightning strikes, the system should be designed to avoid the creation of loops.

- Suncake Lite product should be securely fastened so that they can withstand all possible loads, including wind and snow loads.
- When installing Suncake Lite product, it is strictly prohibited to step on, twist or collide with them.
- Secondary handling should be avoided as much as possible during the installation of Suncake Lite product.
- Please ensure that the installation location of Suncake Lite product is free from shading all year round, as shadows can cause a decrease in the power generation of Suncake Lite product. Hot spots and long-term heat generation from diodes caused by frequent shading of Suncake Lite product can affect the service life of Suncake Lite product.

5 INSTALLATION OF SUNCAKE LITE

5.1 Installation requirements

Installation direction: This product is flexible, vertical installation is recommended.

Requirements for balcony railing bearing capacity:

Balcony railing horizontal concentrated load bearing capacity: no less than 1500N

Balcony railing vertical concentrated stress bearing capacity: no less than 1500N

5.2 Storage and unpacking

- To ensure the safety of Suncake Lite product during transportation, it is better to open the packaging box of Suncake Lite product after reaching the installation site.
- Check whether the box is damaged before unpacking.
- It is advised that Installers wear non-slip gloves in advance.
- Suncake Lite product should be stored in a dry and ventilated environment.
- Suncake Lite product must be shipped in the boxes provided by GOODWE and should be stored in the original boxes before installation. Please protect the packaging from damage. Follow the recommended unpacking procedure to open Suncake Lite product packaging. Careful handling is required during unpacking, transportation, and storage.
- DO NOT apply excessive loads or twist Suncake Lite product.
- DO NOT use wires or junction boxes to carry Suncake Lite product.
- DO NOT stand, climb, walk or jump on Suncake Lite product.
- DO NOT allow Suncake Lite product to come into contact with sharp objects; scratches can directly affect the safety of Suncake Lite product.

- DO NOT place Suncake Lite product in an environment that is not reliably supported or not fixed.
- Changing the wiring of the bypass diode is prohibited.
- All electrical connectors need to be kept clean and dry.
- Suncake Lite product are not allowed to be stacked flat and the quantity should not exceed 3 pieces.
- The junction box shall not be in direct contact with the front side.

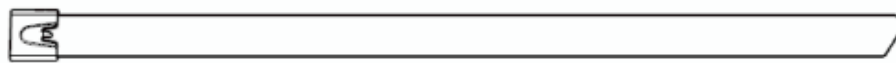
5.3 Checking

- Please check whether the surface of Suncake Lite product is damaged, if there is damage or wear on the surface of the products, please do not use the product.
- Please check whether the junction box, connectors and cables are damaged. Please do not use the product if there is damage.
- DO NOT apply adhesives, paint, label or any other product on the surface of Suncake Lite product.

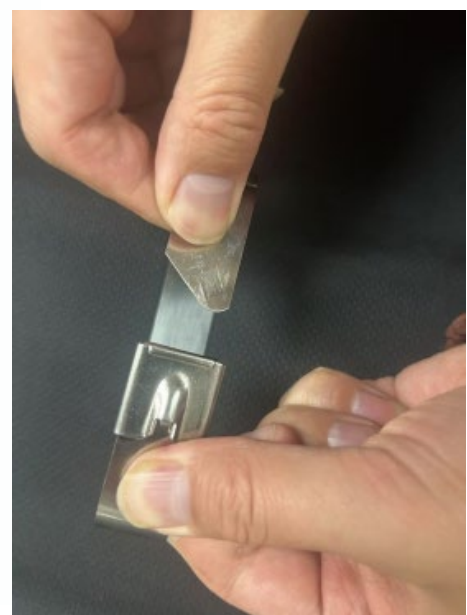
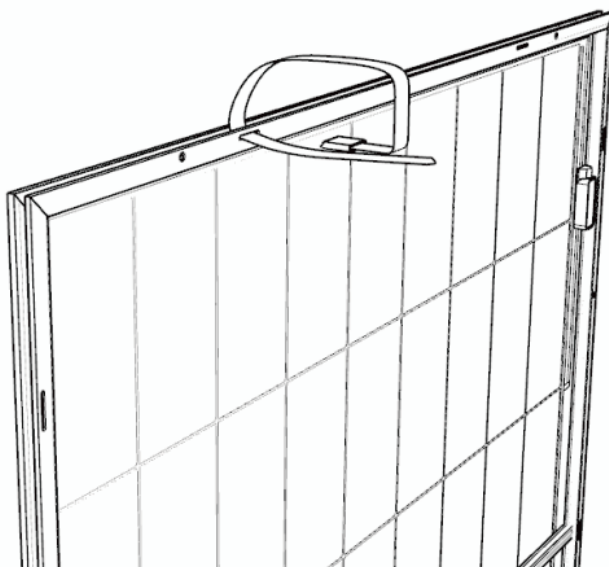
5.4 Installation

5.4.1 Suncake Lite Installation

- 1) Prepare the Stainless steel strap before installing the Suncake Lite Product.

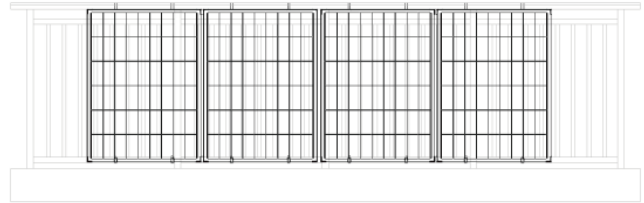
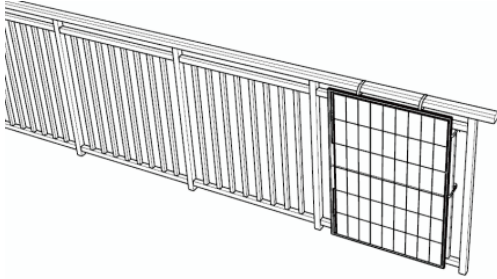


- 2) Pass the stainless steel strap through the strap holes in the frame of the Suncake Lite product, see left figure, stainless steel strap fixing method see right figure:

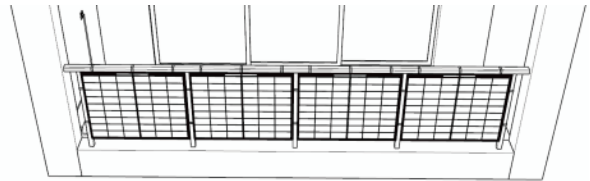
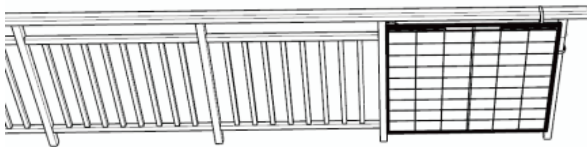


3) Install Suncake Lite product on railings.

- For balconies with relatively high railings (height ≥ 1150), the installation can be done vertically (which saves the width of the installation), see figure below:

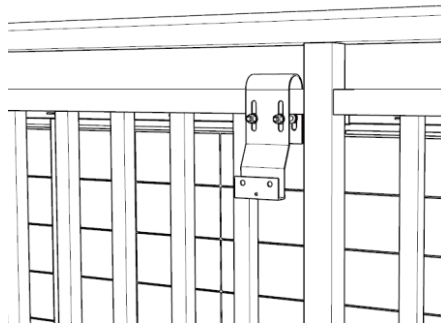


- For balconies with relatively wide railings, the installation can be done horizontally, see figure below:

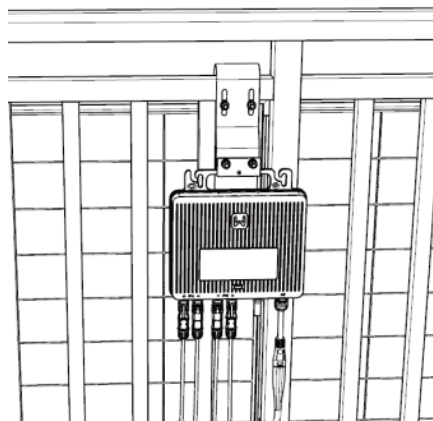


5.4.2 Micro-inverter Installation

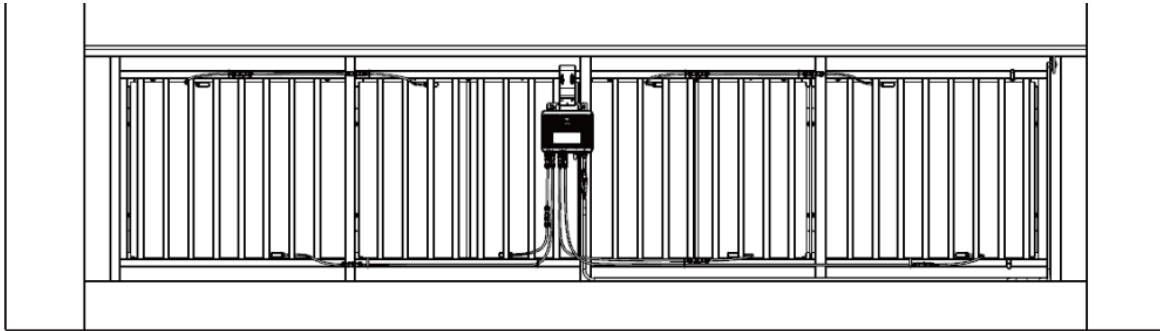
- 1) Install the micro-inverter hooks on the railings and fix them by tightening the bolts.



- 2) Then install the micro-inverter in the groove of the lower part of the hook, and fasten the bolt to fix it.



3) The installation is completed



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ELECTRICAL INSTALLATION

6.1 ELECTRICAL PERFORMANCE

The nominal values of electrical performance parameters such as I_{sc} , V_{oc} and P_{max} of Suncake Lite product have an error of $\pm 3\%$ from those under standard test conditions. Standard test conditions for Suncake Lite product: irradiance 1000 W/m^2 , cell temperature 25°C , atmospheric mass AM 1.5.

6.2 CABLE AND CONNECTING WIRES

Suncake Lite product shall be connected by using IP67-rated junction boxes, which shall provide safe protection for the conductors and their corresponding connections, and accessible protection for non-insulated live parts. The junction box consists of a connected cable and IP67 rated connectors to facilitate the series connection between Suncake Lite product.

Use dedicated solar cables and appropriate connectors (wires should be encased in age-resistant conduit or, if exposed to air, should be age-resistant themselves) and ensure that the cables are electrically and mechanically sound, in accordance with local fire, building and electrical codes. Installers should only use single-core solar cables, $2.5\text{--}16\text{mm}^2$ (5–14 AWG), 90°C rated, with appropriate insulation to withstand the maximum possible system open circuit voltage (as approved by EN 50618). Appropriate wire sizes need to be selected to minimize voltage drop. All wiring and electrical connections comply with the requirements of the appropriate National Electrical Code or standard. Avoid mechanical damage to the cable or Suncake Lite product when the cable is secured to the bracket. Do not press the cable with force. The cable shall be secured to the bracket by specially designed aging-resistant cable ties and wire clips. Although the cable is resistant to aging and water, it should be protected from direct sunlight and rain. The minimum bending radius of the cable should be 43mm.



Figure: MINIMUM BENDING RADIUS OF THE CABLE

6.3 CONNECTOR

- Please keep the connector dry and clean, and make sure that the nut of the connector is tightened before connecting.
- Do not connect the connector when it is wet, dirty or in other unfavorable conditions.
- If the connector is not connected properly to the other polarity, the connector is not waterproof.
- It is necessary to connect or take appropriate measures to avoid the infiltration of water vapour and dust as soon as possible after the module is mechanically installed on the roof.
- Avoid having connectors exposed to direct sunlight and immersed in water.
- Avoid having connectors falling on the ground or on the roof.
- Incorrect connections may produce arcing and electric shock.
- Make sure all electrical connections are secure.
- Make sure that all connectors with locking are fully connected.
- It is not recommended that connectors of different models be connected or used together.

6.4 BYPASS DIODE

The cell strings within a solar module are protected by bypass diodes in parallel and encapsulated in a junction box. When a hot spot phenomenon occurs locally in a module, the diode will activate so that string current no longer flows from the hot spot cells, thus limiting module heating and performance loss. Note that the bypass diode is not an overcurrent protection device. Contact the installer or system maintainer when a diode failure is detected or suspected. Do not attempt to open the module's junction box by yourself.

6.5 ELECTRICAL REQUIREMENTS FOR THE INSTALLATION OF SUNCAKE LITE PRODUCT

Inspection before installation:

- No visible defects.
- Models and specifications should meet the requirements of the design drawings.
- Accessories and spare parts are available;

Preparation of main tools

- Multimeter: For measuring the open-circuit voltage of Suncake Lite product.
- Angle measuring instrument, level, etc.: measuring the installation angle of the Suncake Lite product.
- Installation tools and spare parts are covered in Section 3.

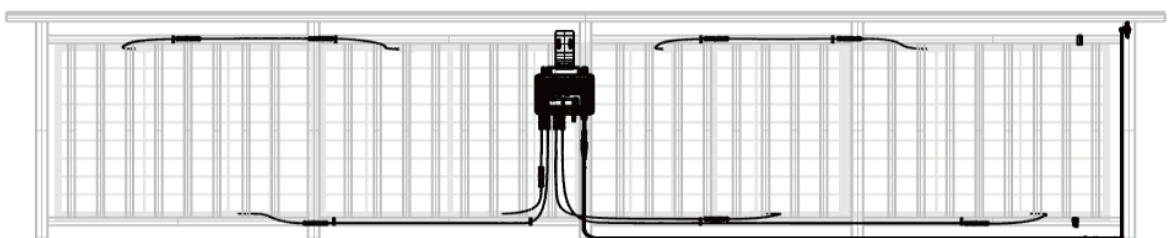
6.6 MATERIAL PREPARATION

Please check whether the type and quantity of the arriving material are correct against the material list in the configuration sheet.

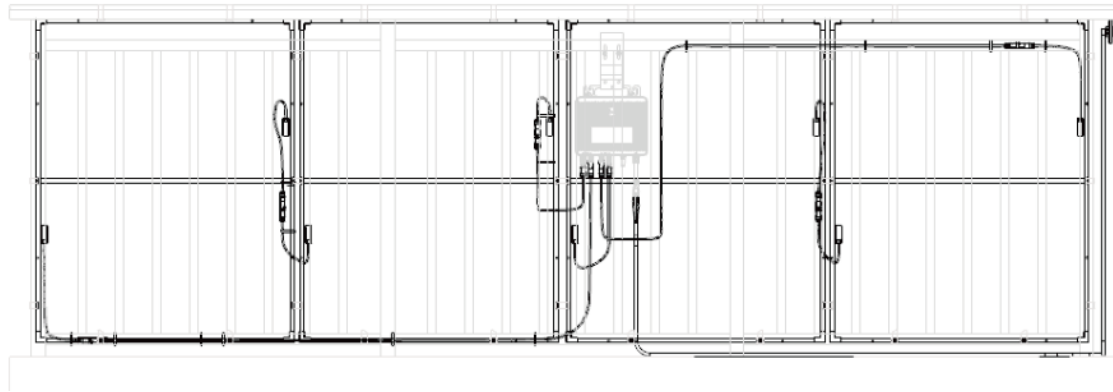
- Wiring with clear, unambiguous and easily understood wire number identification.
- DC jumper cable diameter must exceed the original Suncake Lite product cable diameter, and flame retardant and insulation performance should also be no less than that of the Suncake Lite product cable.
- Suncake Lite product should be connected in the shortest cable run possible. When Suncake Lite product require long straddle connections, try to minimize the difference in the total length of each set of string-connected cables.

2. Electrical wiring method of Suncake Lite product

- Install the microinverter using the special hooks for microinverters, and connect the DC wires of each two products in series to the microinverters.
- Connect the microinverter AC end directly to the household outlet. Installation is completed as shown.



DC line wiring for horizontal mounting



DC line wiring for vertical mounting

7 OPERATION AND MAINTENANCE

Products require regular inspection and maintenance, especially during the warranty period. To ensure optimum performance, the following measures are recommended:

7.1 Visual Inspection

Visual inspection of the product for damage or other conspicuous features, focusing on the following:

- Whether the product is broken.
- Whether corrosion has occurred near the fingers of cell, which is caused by water vapour entering the product due to breakage of the surface encapsulation material during installation or transport.
- Whether the back plate of the product is broken.
- Whether the product has signs of aging, including animal damage, weathering, corrosion and whether the connection of connectors is tight and whether the products are well grounded.
- The surface of the product should not be touched with sharp objects.
- The products should not be shaded.
- Whether there is any loosening or damage to the fixing of the product. Please make timely adjustments or repair if any damage is identified.

7.2 Cleaning

- It is recommended to use a sponge or soft cloth containing water to wipe the glass surface and strictly forbids the use of cleaning agents containing acids or alkalis to clean the product.
- Remove snow and ice gently, avoiding excessive force. Please use a soft broom in order not to damage the protective layer of the product.
- Do not use rough and sharp tools to clean products.

- To reduce potential electric shock or burns, It is recommended to clean the product in the early morning or late evening when there are low irradiation levels and low temperatures which irradiance below 200W/m².
- Do not clean products with broken front plates or back plates, exposed wires or broken features to avoid the risk of electric shock.
- Always wear rubber gloves whilst servicing, washing, or cleaning the modules and pay attention to the connection of cables and electrics.
- It is strictly forbidden to wash PV products during strong wind (wind force greater than 4), heavy rain or heavy snow.
- Attention: Do not walk, stand, or sit on the product for product cleaning.

7.3 Connectors and Cable Connections

It is recommended to carry out a preventive inspection every 6 months.

- Check whether the junction box sealant has cracks or gaps.
- Check whether the connectors are sealed and the cable connections are secure.
- Inspect PV products for signs of aging. This includes possible rodent damage, weather aging, and that all connectors are tightly connected and free of corrosion.
- Do not disassemble the product by yourself if it is damaged, please inform the professional to handle it.

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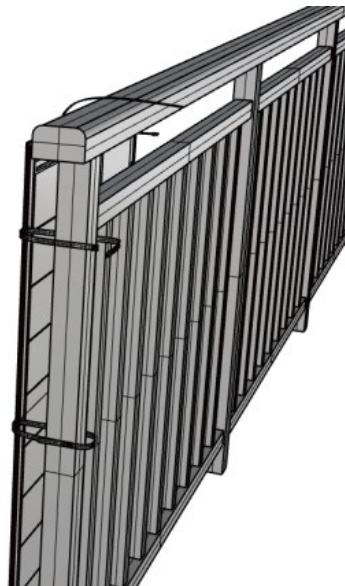
REMOVAL AND REPLACEMENT

If the installed product is damaged or malfunction and must be replaced, it is necessary to repair and replace the damaged product as soon as possible, please refer to the following detailed steps for product repair and replacement.



1. Disconnect the power at the grid-connected end, and then disconnect the MC4 cable connector of the target product;
2. Remove the target product stainless steel strap. Use a new stainless steel tie strap to dismantle the stainless steel strap that has been tied. Insert the new stainless steel strap into the strap to be dismantled in the direction shown in the figure. Hold the round steel ball inside the strap while expanding the strap to be dismantled.



3. Remove all stainless steel strap on the target product





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