

LightEdge Module

Installation manual

2024-2025

First Edition

INTRODUCTION



First of all, thank you very much for choosing our **ULTRATHIN FRAME PV MODULE**(hereinafter referred to as "**modules**").

This installation manual contains important electrical and mechanical installation information as well as safety information that you must be familiar with, providing important safety instructions for the installation, use and maintenance of solar modules. Users, installation, and maintenance personnel must read this manual carefully and strictly abide by it. Failure to comply with these safety guidelines may result in death, injury or property damage.

The installation and operation of solar modules requires professional skills, and only qualified professionals can perform this work. Please read the safety and installation instructions before operating, installing and maintaining the modules, and keep this manual in a safe place for future reference (maintenance and maintenance), and the installer must inform the end customer (or consumer) of the above matters accordingly.



SAFETY GUIDELINES

General Safety

Read and understand all safety rules before installing, wiring, operating, or maintaining modules. When the module is exposed to sunlight or other light sources, direct current (DC) is generated. Whether the modules are connected or not, direct contact with live parts of the modules, such as terminal blocks, may result in injury or death.

For your safety, please do not perform installation and maintenance work without safety precautions, including but not limited to fall protection, ladders or stairs, and personal protective equipment.

For your safety, do not install or handle modules in dangerous or harsh environments, including but not limited to strong winds, rain, snow, or dust storms.

Please ensure that you install or handle the integrity of the modules, do not use or install damaged modules, including but not limited to the surface (back) glass is not damaged, the backplane is not broken, the junction box lid is kept closed, the cables and connectors are not broken, and there is no bare metal.

All installation work must be in full compliance with local regulations and corresponding national or international electrical standards.

Electrical Safety

No matter whether the module is connected to the system or not, appropriate protective measures should be taken when touching the module or entering the power station, such as: insulation tools, safety hats, insulation gloves, safety belts and insulation shoes, etc., to avoid direct contact with 30V or higher DC voltage, 30V or higher DC voltage is potentially fatal.

The module has no switch and can only be stopped by removing the module from light (for example, by shielding it with cloth, cardboard, or a completely opaque material).

In some cases, the open circuit voltage or short circuit current generated by the module exceeds the corresponding values tested under its standard test conditions (STC: irradiance 1000W/m², module temperature 25°C, atmospheric mass 1.5). Therefore, the electrical design and calculation of the system need to be determined by a qualified electrical engineer, and reasonable coefficients should be multiplied when calculating the module rated voltage, rated current, safety fuse and control specifications connected to the PV output.

Use dry tools to install or maintain modules in dry conditions. Do not touch modules when they are wet unless wearing appropriate anti-electric shock equipment; When cleaning modules, follow the instructions in this manual.

To avoid the risk of arcing and electric shock, do not disconnect the module from any electrical appliance while in operation. A faulty connection can also cause arcing and electric shocks. Connectors must be kept dry and clean to ensure they are in good working order. Do not insert other metal objects into the connector or make electrical connections in any other way.

When a grounding alarm occurs in the system, wear protective devices and disconnect the system from the faulty module under safe conditions. Do not touch other parts of the module to avoid potential electric shock.

Only use compatible connectors to connect modules or connect modules to other devices. Removing the connector will result in loss of product warranty.

SAFETY GUIDELINES



Handling Safety

To ensure the safety of modules during transportation and storage, unpack modules after they arrive at the installation site.

When stacking modules, strictly comply with the upper limit on the number of layers printed on the packing case. Do not stack more than two layers of vertical packages on the short side, but allow stacking of vertical packages on the long side.

During the storage process, protect the package from damage, and store the module in a dry and ventilated environment to avoid direct sunlight and humidity. If the modules are stored in an uncontrolled environment, they shall not be stored for more than 3 months and additional measures shall be taken to protect the modules from moisture or sunlight.

When unpacking the modules, please follow our official packing and unpacking instructions.

Do not wear metal rings, watches, earrings, nose rings, lip rings or other metal materials when installing or repairing the photovoltaic system.

- In any case, do not carry a module by lifting its wires and junction boxes. You can hold the frame of the module while carrying it.
- Do not deform or bend modules due to factors other than their own weight during transportation or installation.
- Do not stand, sit, trample, walk or jump on the assembly.
- Do not apply excessive loads to modules or twist modules.
- Disassemble or remove any part of the assembly, including but not limited to nameplates, labels, junction boxes, connectors, frames, etc.
- Do not paint or apply any other adhesive to the surface of the module.
- Drilling in the frame of the module is prohibited, which will result in a reduced load resistance of the module and will lose the limited warranty of the module.
- Do not damage or scratch the front or back of the module, which may affect the safety of the module. If the front or back of the module is damaged, do not use the module.
- Do not drop or stack heavy objects, tools or sharp objects equal to modules.
- Do not pull hard. Scratch or bend the cable too much, otherwise the insulated part of the cable will be damaged, resulting in leakage or electric shock. (The minimum bending radius of a cable is 43mm.)
- Do not insert any conductive material into the connector of the module.
- Do not use mirrors or other magnifying glasses to artificially focus sunlight on the modules.
- It is prohibited to carry and secure modules by supporting them with the front or back of the modules, such as overhead modules, back modules, etc.
- Do not repair modules by yourself.
- Do not use damaged modules.





SAFETY GUIDELINES

Place and Environment

The limit operating temperature of the modules ranges from -40°C to 85°C . It is recommended to install modules in environments where the operating temperature ranges from -40°C to 40°C .

The modules need to be installed in an area where there is no shadow all year round. Ensure that the installation site of the modules is free of obstacles that may block light. If the whole or part of the module is obscured, it will not perform under ideal conditions and result in lower power output. Persistent or frequent shading of the module from sunlight will damage the module and void the warranty.

If the module is installed in an area with frequent lightning activity, it must be protected against lightning strikes.

Do not install modules where there is a risk of flooding or constant exposure to sprinklers or fountains.

Do not install the module in an environment with highly corrosive substances such as salt, salt spray, salt water, active chemical vapors, acid rain, or any other substance that will corrode the module, affect the safety or performance of the module.

Dip Angle and Orientation

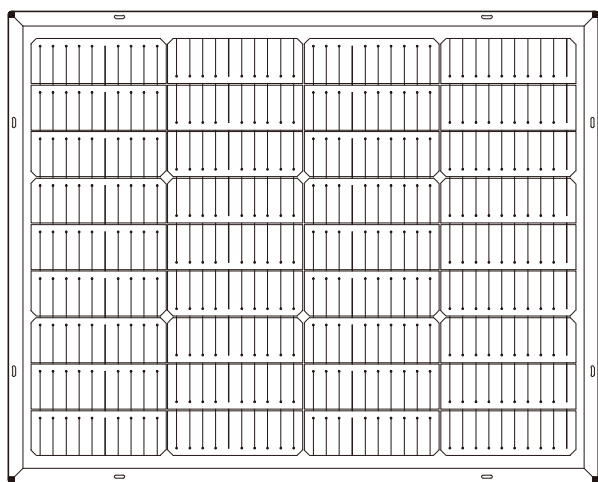
The inclination of the module refers to the Angle between the surface of the module and the ground plane, and the power output is maximum when the module is facing the sun.

In the northern hemisphere, Modules should typically face south, and in the southern hemisphere, Modules should typically face north.

Dust building up on the surface of the Modules can impair Module performance. We solarrecommends installing the Modules with a tilt angle of at least 10 degrees, making it easier for dust to be washed off by rain.

Parts List

Please check the following table, to see whether all the parts are included in the package

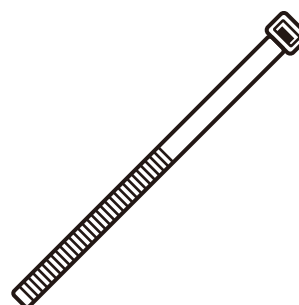


Solar Panel

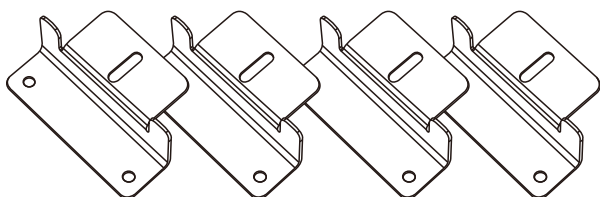
1 pc

- ZS080AG1
- ZS110AG1
- ZS170AH1
- ZS210AH1

8~12 pcs



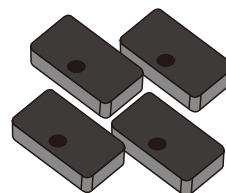
Straps



Z Bracket Kit

1 set

1 set

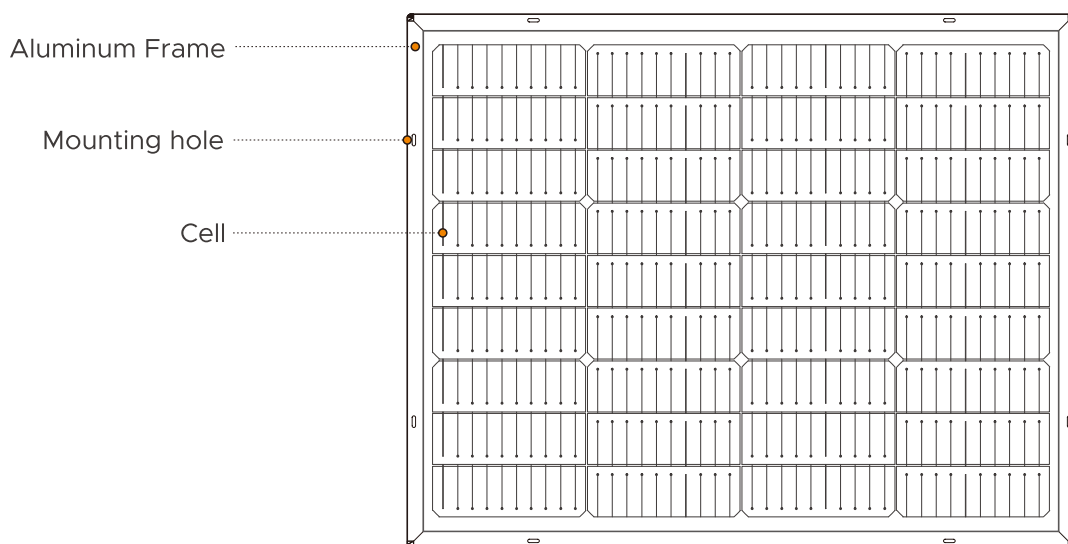


Spacer

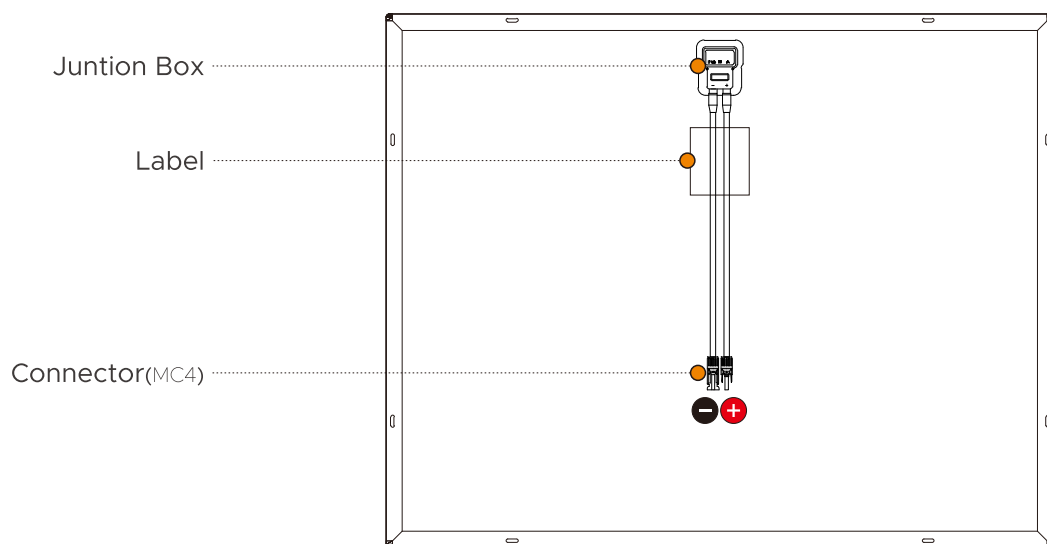


Product General Information

Ultrathin Frame PV Module



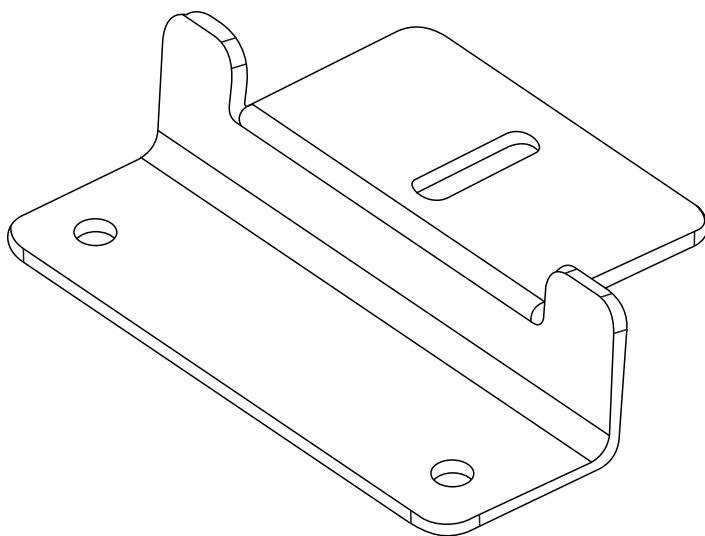
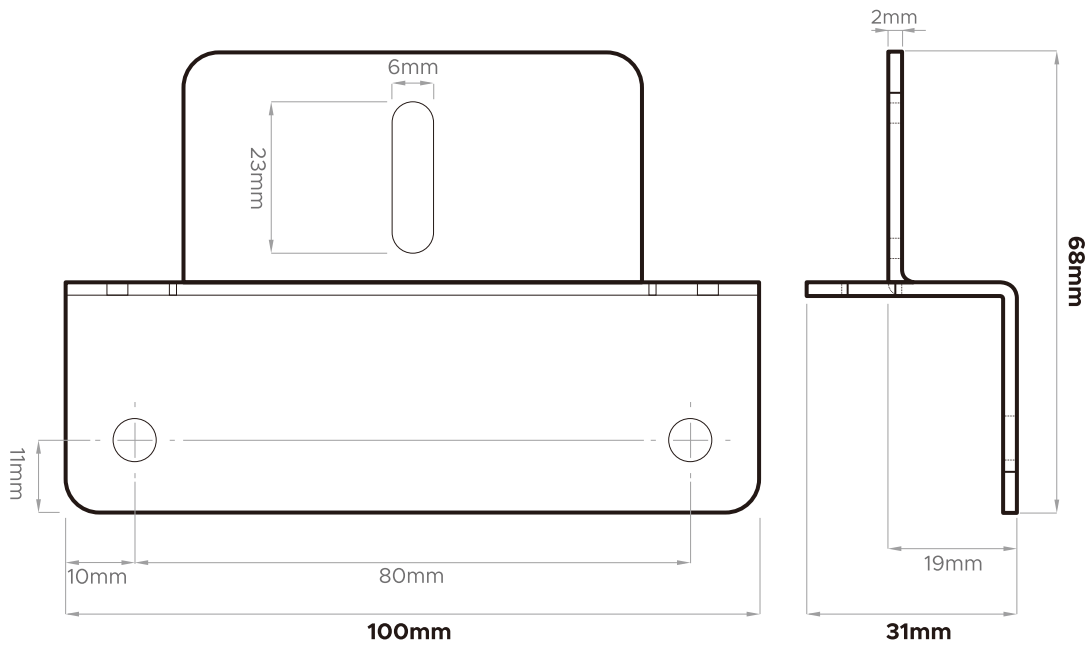
Front View



Back View

Product General Information

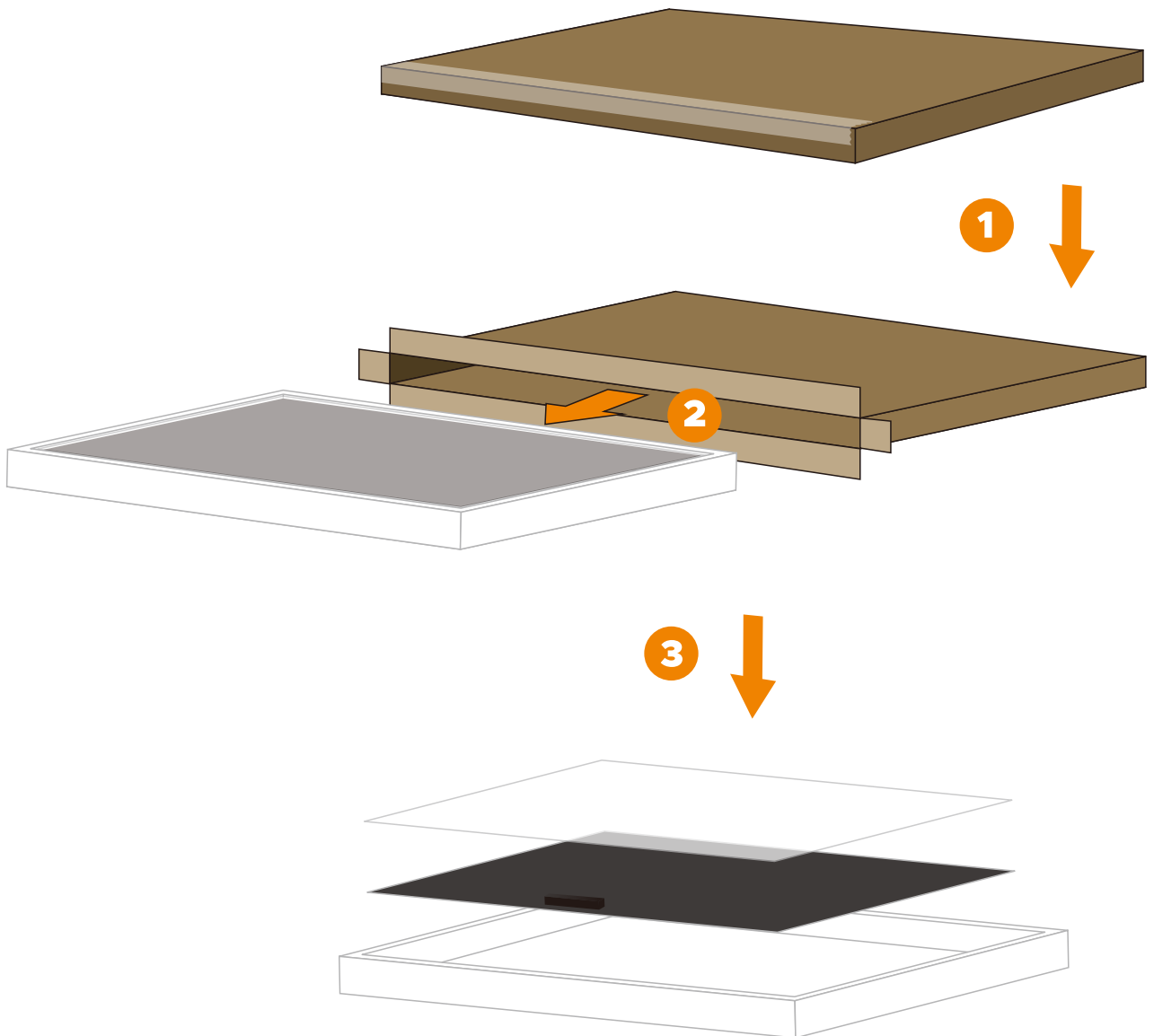
Z-type Mounting Bracket



step

1

Split Open A Case

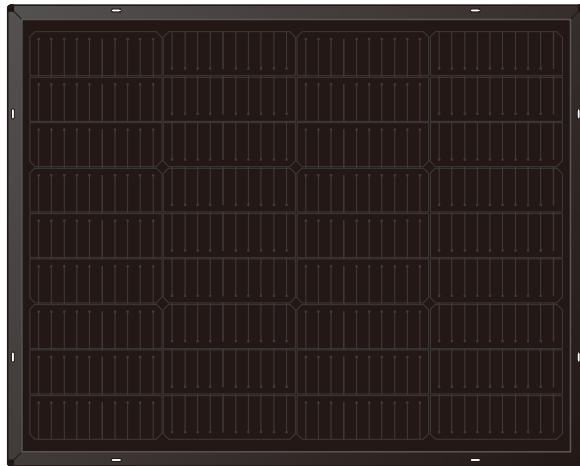



Remove Dust From Panels

step
2

Use a damp cloth to wipe the solar panels.

We have no additional protective plastic packing for environmental reasons, so the solar panels may get a little dusty during transportation.



Next step
Installing Solar Panel 

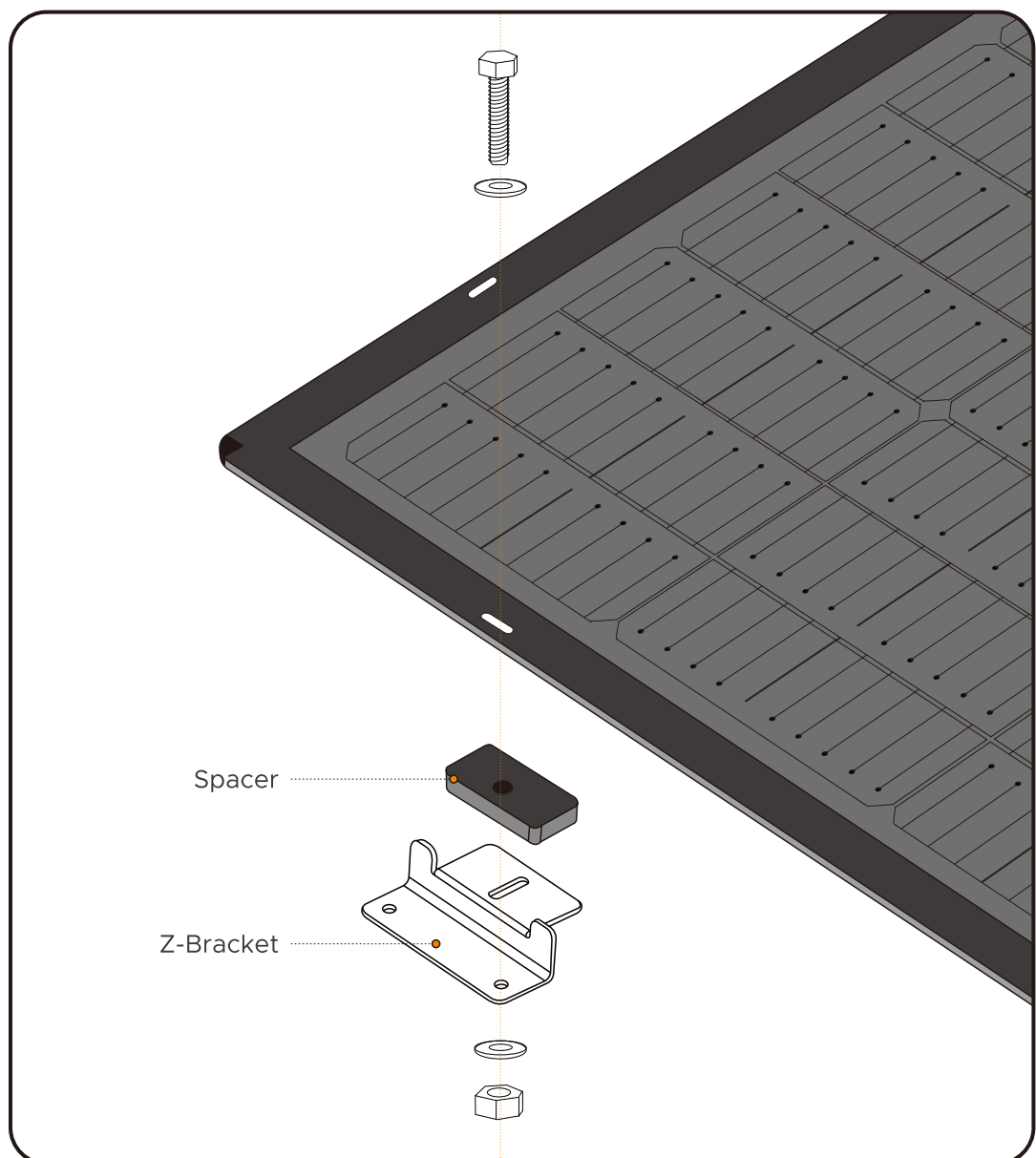
step

3

Installing PV Module(Z-Bracket)

Making Brackets To Module Frame

Z-Bracket Mount System is designed to support the installation of single panel units, generally in off-grid installations. These units are ideal for installation on RV roofs and non-inhabited dwellings such as sheds or garages. The system comes complete with all fasteners to secure the system to the installation surface. This system makes the installation of small solar systems easy, affordable and quick.

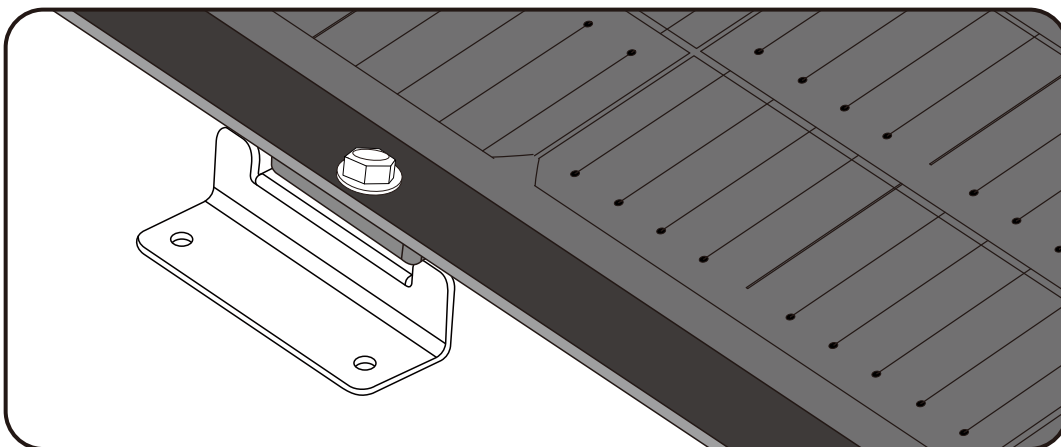
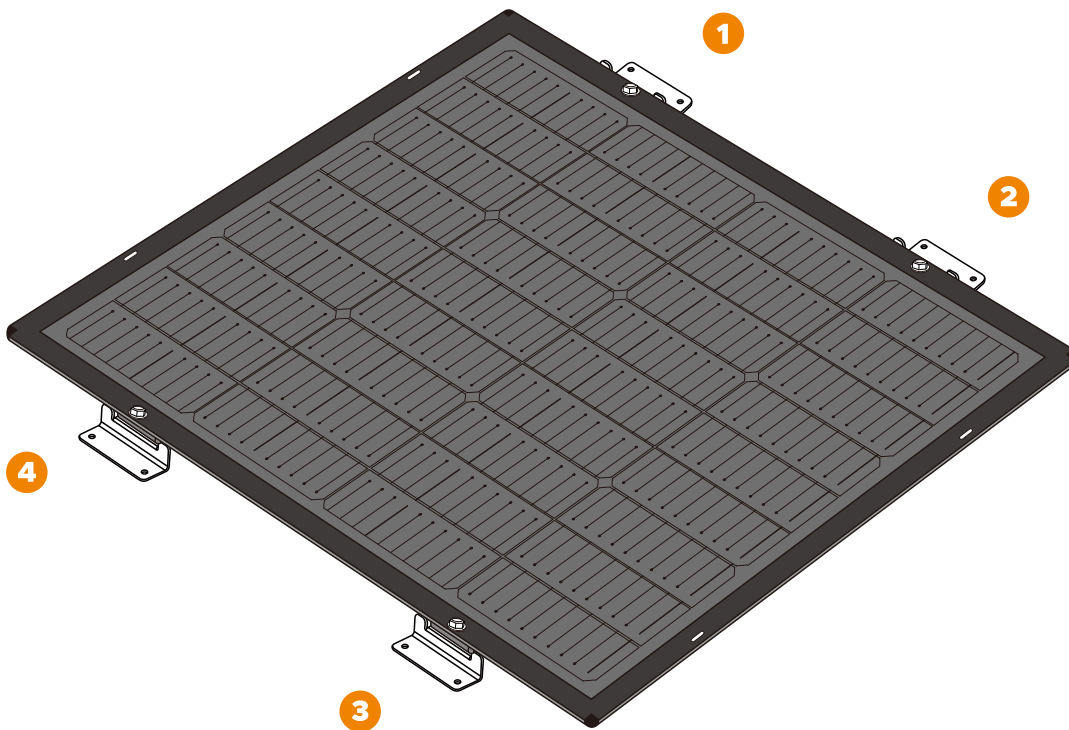


Installing PV Module(Z-Bracket)

Making Brackets To Module Frame

step
3

Repeat for each **Z-Bracket** in the set at each corner

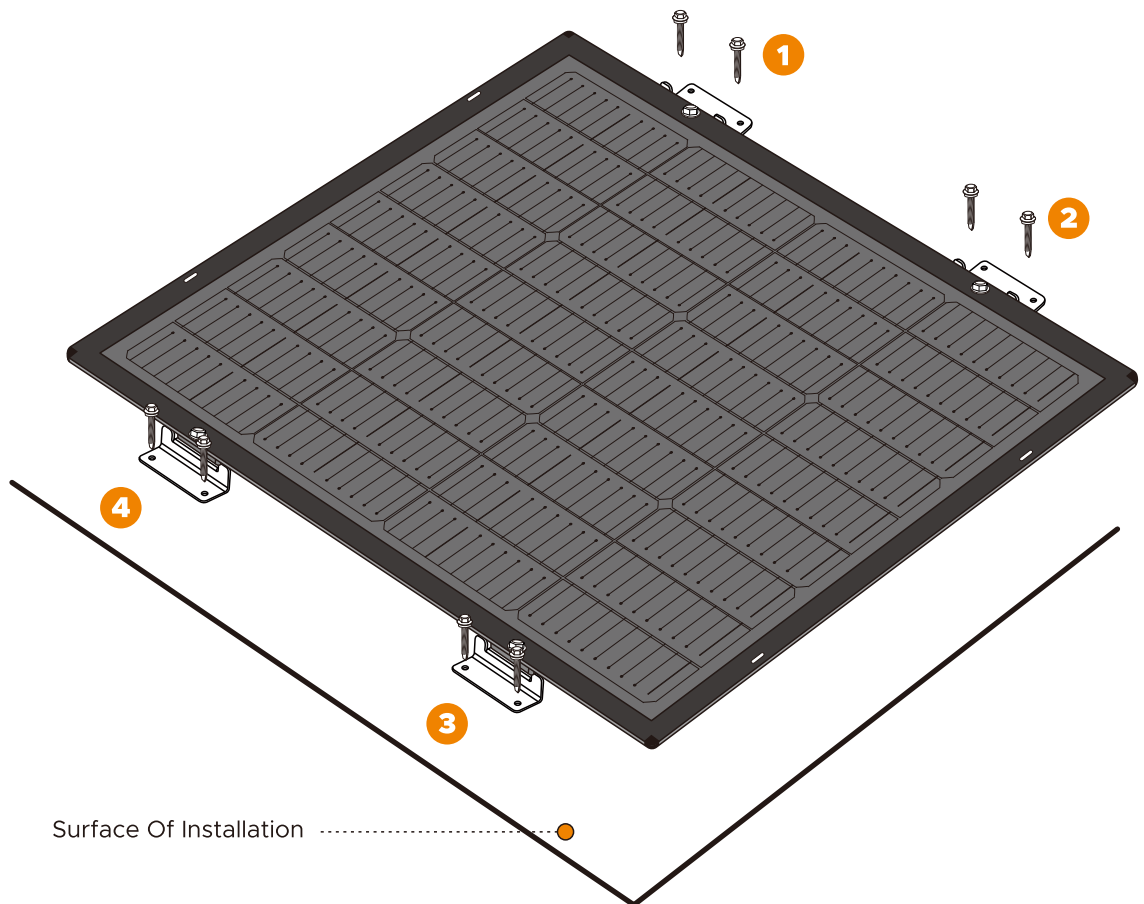


step
4

Installing PV Module(Z-Bracket)

Install of Panel to General Mounting Surface

10 x 1 1/4 in Self-Drilling Cap Screw
Plastic Retaining Ring

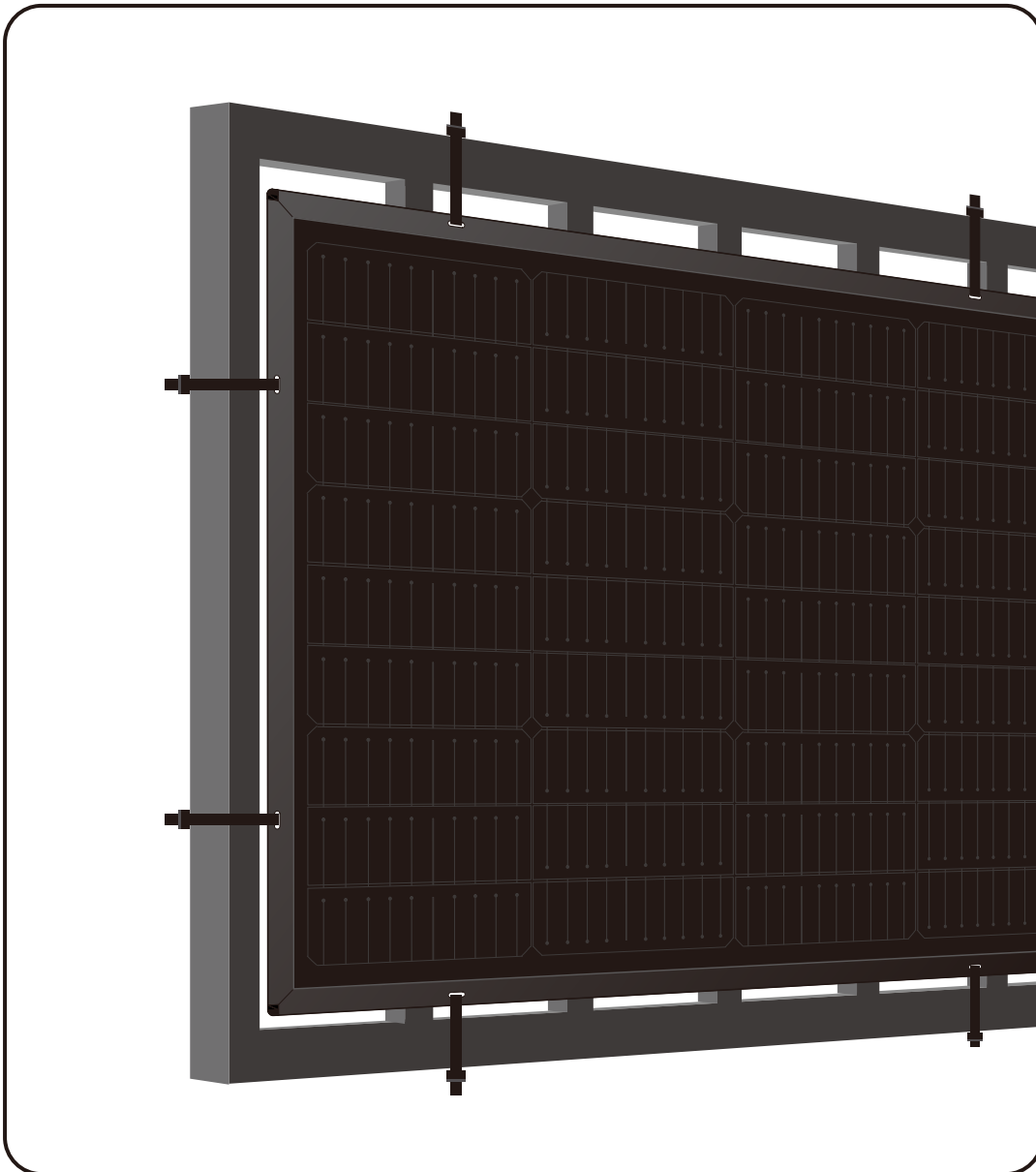


Use the Sealant Seal around all edges of bracket and screws.

Installing PV Module(Straps)

Install PV Modules On The Installation Surface Using Straps

step
5



step

6

Operation and Maintenance

Cleaning | Visual Inspection | Inspection connector and cable

It is required to perform regular inspection and maintenance of the Modules, especially within warranty scope. it is the user' sresponsibility to report to the supplier regarding the damages found within 2 weeks.

Cleaning

The dust accumulated on the front transparent substrate may reduce the power output, and may even cause regional hot-spot effect. Industrial effluents or bird drops may be a serious case, and the extent of the severity depends on the transparency of the foreign objects. It's usually not dangerous for the accumulated dust to reduce the sunshine, because the light intensity is still homogeneous and the power reduction usually is not obvious.

When Modules are operational, there may exist environmental factors that cast dust, plants and so on, that may distinctly reduce the power output. We advises that there should be no obstructed object over the Modules surface at any time.

The cleaning frequency depends on the accumulating velocity of the fouling. in many instances the front substrate is cleaned with the rain, and we can decrease the cleaning frequency. It is recommended to wipe the glass surface with wet sponge or soft cloth. Please do not clean the glass with cleaning agent which contains acid or alkali.

The visual inspection of the Modules

Inspect the Modules visually to find if there are appearance defect, the following three types need more attention especially:

- A. Whether the glass is broken;
- B. Corrosion along the cells' bus-bar. The corrosion is caused by the dampness infiltrated into the Modules when the surface encapsulation material is damaged during the installation or transportation.
- C. If there is burning vestige on the backsheet.

Inspection Of The Connector And Cable

It's recommended to implement the following preventive maintenance every 6 months:

- A. Check the encapsulation of the connector with the cable.
- B .Check the sealing gel of the junction box to ensure it is not cracked or creviced.

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