

Mysolar



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Installation Manual of Bifacial Solar Modules

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1. User Manual Introduction

This manual contains information about the installation and safe operation of Mysolar PV module (hereinafter referred to as “module”). Mysolar Manufacturing (Shanghai) Co.,Ltd. is referred to as “MYSOLAR”. Failure to follow these safety guidelines can result in personal injury or property damage.

The installer must read and understand the guide before installation. If you have any questions, please contact a customer service department or our local representative for more detailed information. The installer must follow all safety precautions, local requirements, and legal or authorized agency regulations described in this guide. Installers should be familiar with their mechanical and electrical requirements before installing a solar PV system. The operation of a photovoltaic system requires relevant expertise and must be systematically installed and maintained by qualified personnel with specialized knowledge. Keep this guide in a safe place for future reference (maintenance and maintenance) and for use when selling or handling modules.

A module has been tested by a global testing and certification organization. Please follow the terms and conditions of this installation manual. Please feel free to use it.

The module installer must inform the end customer (or consumer) of the above.

1.1 Disclaimer

MYSOLAR reserves the right to change this installation manual without prior notice. MYSOLAR does not guarantee any express or implied information contained in this manual. If the customer does not follow the requirements listed in this manual during the installation of the module, the limited warranty for the product provided to the customer will be void.

1.2 Limitation of Liability

MYSOLAR is not responsible for any of the following forms of injury and damage, including but not limited to physical damage and property damage caused by module operation, system installation errors, and failure to follow the instructions in this manual.

2. Safety measures

2.1 Warning

Read and understand all safety rules before installing, wiring, operating, or maintaining modules. Photovoltaic modules generate electricity when exposed to light source environments. Photovoltaic arrays of multiple modules can cause fatal electric shock and/or burn hazards. Unauthorized and trained personnel should not touch PV modules and terminals.

2.2 Universal security

- The installer must follow all safety precautions, local requirements, and legal or authorized agency regulations described in this guide. The operation of a photovoltaic system requires relevant expertise and must be systematically installed and maintained by qualified personnel with specialized knowledge. Personnel who are not authorized and trained should not touch the PV modules and access the installation area or module storage area.
- It is strictly forbidden to use damaged modules in the glass. Damaged modules must not be repaired. Contact with the surface of the modules may result in electric shock. Do not disassemble modules or remove any module of the assembly. Do not artificially collect sunlight on these solar modules.
- Do not connect the positive terminal of a single PV module from the positive terminal of the cable. Make sure that the polarity of each module or module string is not the opposite of other modules or module strings. Make sure there are no gaps between the individual insulating gaskets of the connector. There is a risk of fire and/or electric shock if there is a gap between the insulating gaskets.
- According to the national electrical code requirements, the maximum system voltage must not exceed 1500V.
- Do not install or operate modules while the modules are wet or during windy weather.

2.3 Operational safety

- To avoid damage to the modules, do not scratch or strike the modules. Do not use paint or adhesive on the front and back glass of the modules. To prevent module insulation from degrading, avoid scratching, cutting cables and connectors, or exposing them to the sun for extended periods of time. Do not drop the module or cause objects to fall on the module. Do not place any heavy objects or sharp objects on the modules.
- Please do not use water to extinguish the fire when the power is not disconnected.
- Work only in a dry environment and use only dry tools. Do not work in a damp environment without wearing any protective measures. In the sun, regardless of whether the PV module is connected to the system, do not touch the module's junction box, connector, cable, etc. directly without any protection.
- Do not climb, step on, stand, walk or jump directly on the package or module.

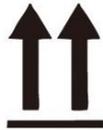
3. Unloading, transport and storage

Preventive measures and general safety rules:

- The modules should be stored in the original box before installation. Please protect the package from damage. Transport the modules and unpack the modules according to the recommended shipping method and unpacking procedure. To avoid damage to the modules, do not scratch or hit the modules. When transporting, do not apply pressure directly to the modules. Improper shipping or installation may damage the modules and void the warranty. Do not step on or stand above the module box and modules.

- Only work in a dry environment, make sure all modules and electrical contacts are clean and dry before installation. If you want to store unmounted modules outdoors for a period of time, always cover the modules and ensure that the glass is facing down and placed on a soft surface to prevent water build-up inside the modules and damage to the connectors.
- When unpacking, it must be operated by two or more people at the same time. Do not grasp the module junction box or the lead wire lifting module. Please use both hands to carry the modules, do not overlap the modules. It is forbidden to place the modules in an environment without reliable support or unfixed. Do not place any heavy objects or sharp objects on the modules.

3.1 Packing instructions

<p>3.1.1</p> <p>Do not discard, need to recycle</p>  <p>EU-28 WEEE COMPLIANT</p>	<p>3.1.2</p> <p>No rain or damp</p> 
<p>3.1.3</p> <p>Fragile items need to be handled lightly</p> 	<p>3.1.3</p> <p>Should be upright when transporting</p> 
<p>3.1.5</p> <p>Do not step on</p> 	<p>3.1.6</p> <p>Stack maximum layer limit 2</p> 

3.2 Unloading precautions

- When unloading the modules from the transport vehicle, use a reasonable lifting fixture to allow up to 2 brackets for lifting. Before lifting, make sure that the trays and cartons are damaged, skewed, and that the hoisting ropes are strong and strong. When the hoisting was on the ground, the two men placed the

carton gently on the relatively flat position of the project. Or use a forklift to remove the assembly from the truck, and the unloaded modules are placed on a level surface.

- When the modules are stored for a short time in the project, place the modules in a dry and ventilated place. Do not stack the modules at the project site, cover the modules with a tarpaulin, and reinforced the tarpaulin with a curtain or mesh belt to prevent the modules from getting wet and drenched.

3.3 Secondary transportation and precautions

- If the module requires secondary long-distance transportation or long-term storage, it is forbidden to remove the original packaging. The finished product packaged in the package can be transported by land, sea or air. During transportation, secure the box to the transport platform to ensure that the package does not roll over. Take land transportation as an example. When transporting a normal truck, stack up to 2 layers. It is forbidden to cut the strap.
- When the project is consigned, it is not allowed to dismantle the original packaging. Only one layer of transportation is allowed for transportation. During transportation, secure the box to the transport platform to ensure that the package does not roll over. It is forbidden to use tricycle transport modules, it is forbidden to use rope binding, back assembly, and single back assembly is prohibited. It is forbidden to carry or drag modules through the wires or junction boxes of the modules.

3.4 Storage

- It is forbidden to rain or damp the modules. To store unmounted modules outdoors for a period of time, always cover the modules and keep the glass facing down and on a soft surface to prevent water build-up and damage to the connectors inside the modules.
- If the module requires long-distance transportation or long-term storage, do not remove the original packaging of the module.
- Storage of the project site (humidity <70%; temperature: -20 °C ~ +50 °C): 60 pieces of double glass modules and 72 pieces of double glass modules static stacking stack 2 trays. Storage in normal warehouse (humidity <70%; temperature: -20°C ~+50°C): The 60-piece module stacks up to 2 layers; the 72-piece module stacks up to 2 layers.

4. Unpacking instructions

4.1 Unpacking security:

- When unpacking outdoors, it is forbidden to work under the condition of rain. Because the carton will become soft after the rain, the photovoltaic modules inside will come out and cause damage to the modules or bruises. If there is wind on the site, special attention should be paid to safety. Especially in the case of high winds, it is recommended not to carry the modules and properly fix the modules that have been unpacked.

- The working floor needs to ensure that the packing box can be placed horizontally and stably. When disassembling the carton, use a supporting dis-assembly tool to prevent the modules from falling down.
- Wear protective gloves during unpacking to avoid injury and fingerprints on the glass.
- The outer package can query the module information, please read it carefully before unpacking.
- Each module needs to be lifted by 2 people. Do not grab the module junction box or the lead wire lifting module. Use both hands to carry the modules and do not place the modules overlapping.
- The unpacked modules must be completely assembled and prohibited from being stacked at the project site.

4.2 Unpacking step:

- Before unpacking, please check the product name and serial number on the A4 paper of the outer box, and prohibit the custom unpacking method.
- When unpacking, cut all vertical packing belts with a blade or scissors, first cut the long side packing belt, and then cut the short side packing belt. Remove the top cover of the carton and remove two or three upper hoisting brackets.
- When removing the modules from the box, they must stand on either side of the box while lifting the assembly, grasping one corner of the assembly with one hand and the short edge with the other hand while removing the assembly. If unpacking on a horizontal floor, remove the modules from the side of the package to the other side, and then carry them. If unpacking on a non-horizontal floor, use a supportive removal tool when removing the carton to prevent the module from falling down.
- Modules removed from the box are prohibited from leaning against the mounting post and placed in an environment where there is no reliable support or is not fixed.

5. Installation

MYSOLAR double glass series module can be used for more than 30 years according to the following conditions. PV modules after the end of their life need to be disposed of in accordance with local laws and regulations. In addition to the required IEC certification, MYSOLAR product has been tested to verify its resistance to nearby ammonia and its suitability for installation in wet (coastal) areas and areas where sandstorms occur frequently.

5.1 Installation safety

- MYSOLAR solar module can be installed horizontally or vertically, but lateral installation can minimize the effects of dust on the module.
- Do not remove the module packaging and leave the modules in the carton before installation.
- When installing modules, work only in a dry environment and use only dry tools. Do not work in a damp environment without wearing any protective measures. Do not install modules in the event of rain, snow

or strong winds. Keep the connectors dry and clean when installing modules to avoid the risk of electric shock. If the terminal of the module is wet, no work can be done to avoid electric shock. Please install it immediately after unpacking.

- Do not wear metal rings, watches, earrings, nose rings, lip rings or other metallic materials when installing or repairing PV systems.
- Use opaque materials to completely cover the modules during module installation and wiring to prevent electrical damage. Do not open the electrical connections or unplug the connectors while the circuit is under load. Do not touch the module when it is not necessary during the installation process. Glass surfaces and brackets can generate high temperatures; there is a risk of burns and electric shock.
- Do not damage the back glass of the assembly while bolting the assembly to the bracket during assembly. If you need to replace modules, do not damage the surrounding modules or mounting structure.
- When installing modules, don't work alone, and keep working with teams of 2 or more people.
- After the modules are installed, the cables should be fixed or tied so that they are not exposed to direct sunlight after installation and can prevent the cable from aging. Low-hanging cables can cause various problems, such as electric leakage and fire in the water.
- MYSOLAR The application level of the module is Class A. Different color modules are avoided from being installed in the same array or roof.

5.2 Installation method

5.2.1 Mechanical installation and precautions

The connection of the assembly to the bracket system can be mounted using clamps and bezels. The installation modules must be in accordance with the examples and recommendations below. If the installation method is different from MYSOLAR announcement, please consult a new local technical support or after-sales service, and obtain MYSOLAR agreement, otherwise the modules will be damaged and the warranty will be invalid.

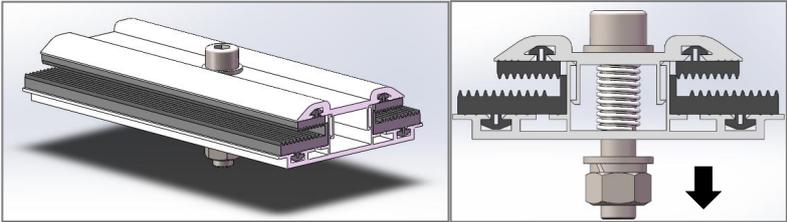
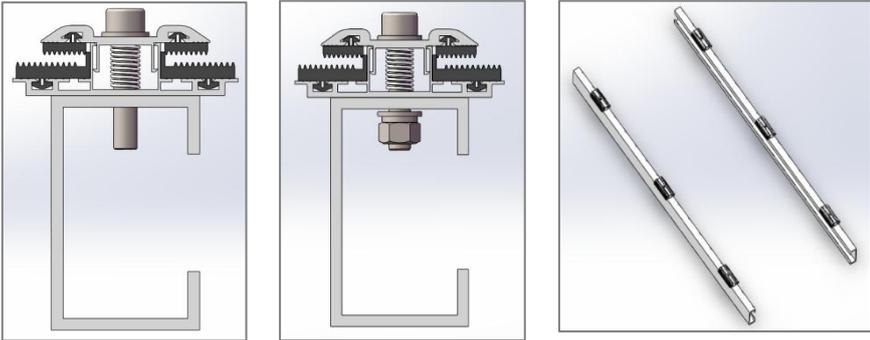
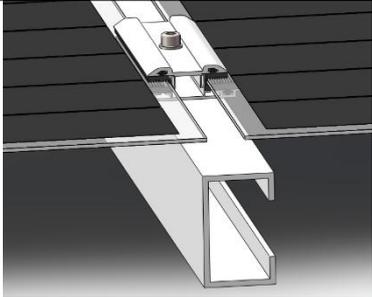
- The mechanical load of the module, including snow and wind loads, depends on how the modules are installed. Mechanical loads should be calculated by professional system designers based on actual conditions and environmental conditions. And will not withstand the excessive force generated by the thermal expansion of the support structure.
- The drain hole must not be clogged under any circumstances during installation or use.

5.2.1.1 Frameless double glass fixture installation

- a) The clamps used ensure that no shadows are created on the module glass. When the clamp installation method is selected, ensure that there are at least 4 clamps on each module. How many pressure blocks are used to determine the local wind and snow pressure intensity. If the pressure exceeds the expected estimate, additional clamps or brackets are required to ensure that the assembly can withstand this

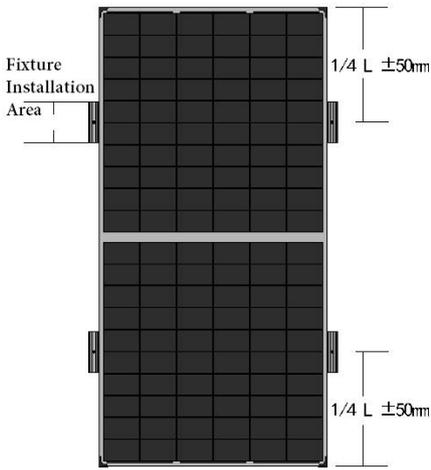
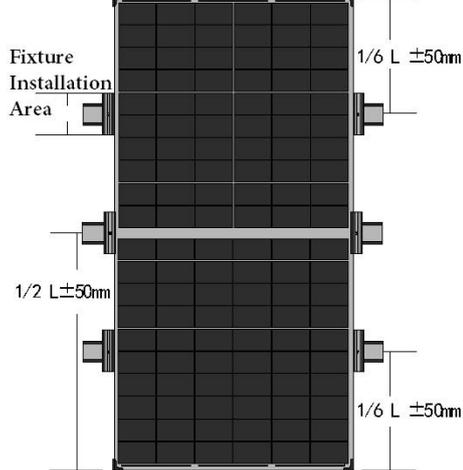
pressure. The torque used during installation should be large enough to allow the assembly to be well secured.

- b) B. Make sure the assembly is mounted on a continuous track below the assembly. If the module is installed without a continuous track, the maximum allowable load will be reduced and a new energy check is required.
- c) If the customer needs a different size of briquettes, a new level of energy is required for full evaluation.
- d) Please read the following installation process in full, familiarize yourself with the entire process before starting the installation. In addition, please do all the site preparation before starting the installation.

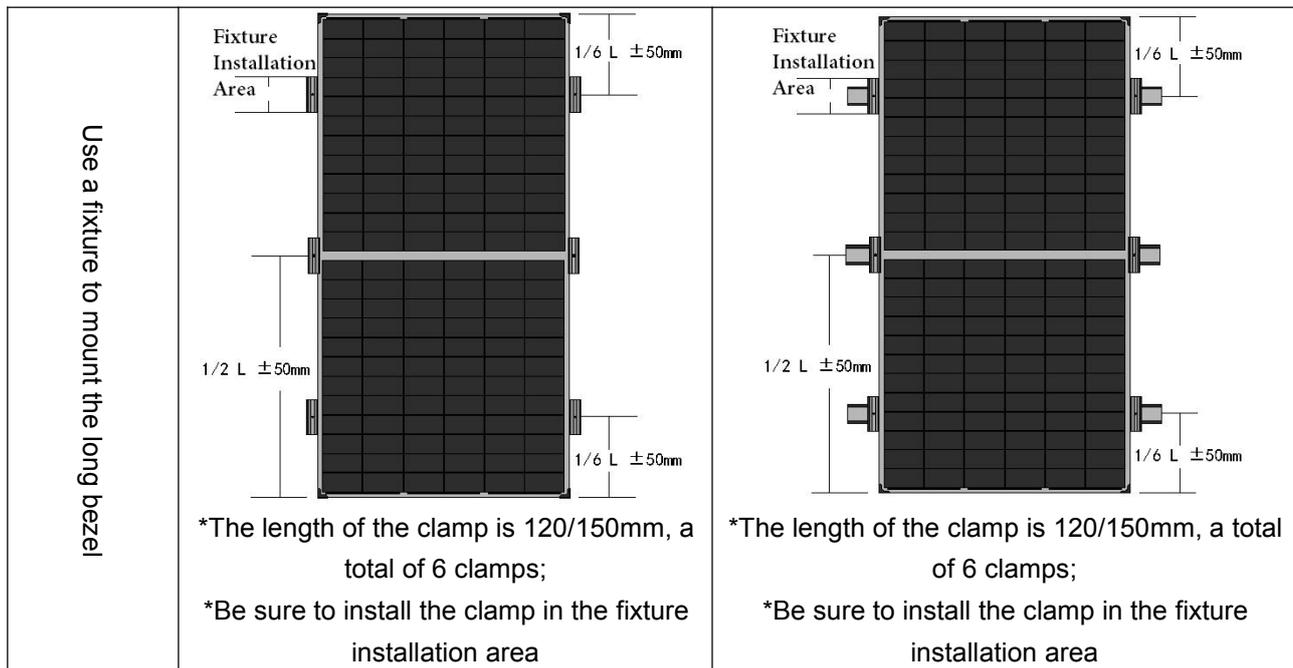
<p>The first step: remove the nut and gasket</p>	
<p>Step two: Insert the bolt into the mounting hole, screw the nut, and keep the upper and lower clamp gaps into the assembly.</p>	
<p>Step 3: Install the modules, place the modules into the fixture as required and tighten (approximately 18-22N.M)</p>	

● Double glass module installation method

<p>Installation method</p>	<p>2.5mm double glass module installation method (60 half piece, specifically refer to frameless SUPO series MSxxxM-DHBS, xxx=300 to 345W in step of 5, frameless Plati Series)</p>
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	MSxxxM-DHBP, xxx=350 to 370W in step of 5)	
Load pressure	+2400Pa/-2400Pa	+5400Pa/-2400Pa
Use a fixture to mount the long bezel	 <p>* The block length is 120/150mm, a total of 64 pressure blocks; *Be sure to install the clamp in the fixture installation area</p>	 <p>*The length of the clamp is 120/150mm, a total of 6 clamps; *Be sure to install the clamp in the fixture installation area</p>

Installation method	2.5mm double glass module installation method (72 half pieces, specifically refer to frameless SUPO series MSxxxM-DHBS, xxx=360 to 415W in step of 5, frameless Plati Series MSxxxM-DHBP, xxx=420 to 445W in step of 5)	
Load pressure	+2400Pa/-2400Pa	+5400Pa/-2400Pa

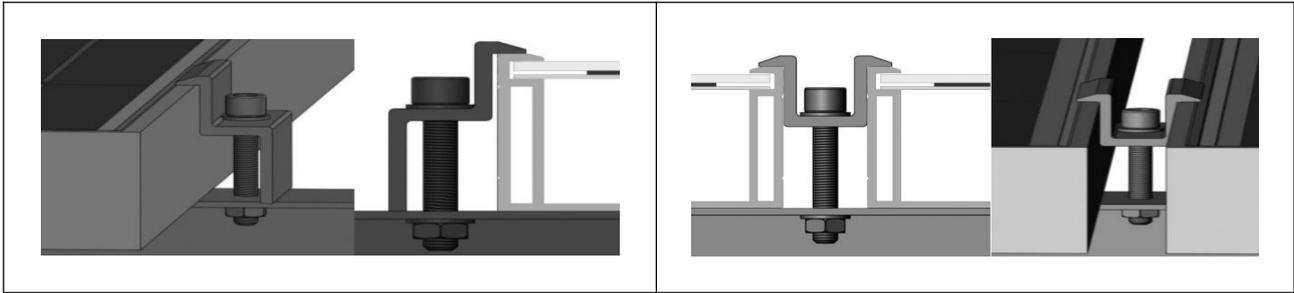


5.2.1.2 Full frame double glass installation

5.2.1.2.1 Fixture installation

- When the briquetting method is selected, ensure that there are at least 4 briquettes on each module. Two are installed on each of the long sides (longitudinal) or each short side (lateral) of the assembly. How many pressure blocks are used in the fixture to determine the local wind and snow pressure intensity. If the pressure exceeds the expected estimate, additional clamps or brackets are required to ensure that the assembly can withstand this pressure.
- MYSOLAR recommends using a fixture with EPDM or similar insulating gasket and at least M8 bolts after testing its modules with different fixtures from multiple manufacturers.
- The fixture must clamp the frame of the module more than 7mm but not more than 10mm, and the minimum spacing between the two modules is 10mm.
- The module fixture cannot be in contact with the glass on the front side and must not deform the frame. Be sure to avoid the shading effect of the module fixture.
- The frame of the module cannot be adjusted under any circumstances; the drain hole cannot be blocked under any circumstances during installation or use.
- The applied torque shall be determined according to the mechanical design criteria of the bolts used by the customer, for example: M8 ---- 16-20N. (140-180lbf.in)
- If the customer needs other sizes of compacts, MYSOLAR is required for full evaluation.

Side clamp installation (≥40mm)	Middle fixture installation (≥50mm)
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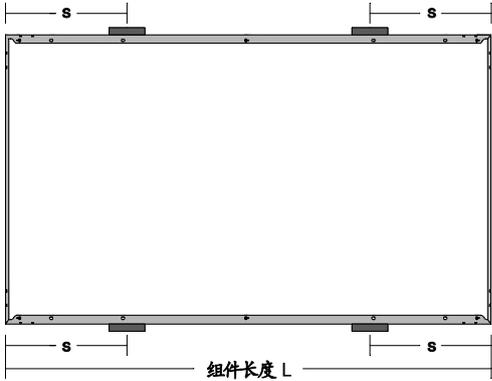
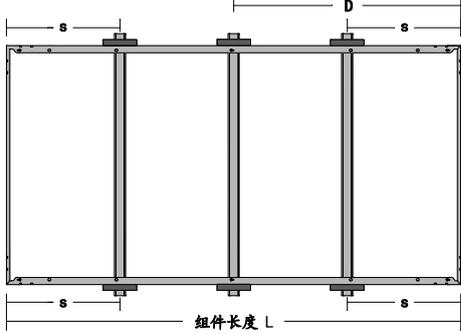
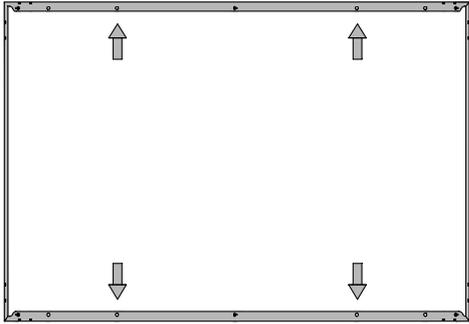
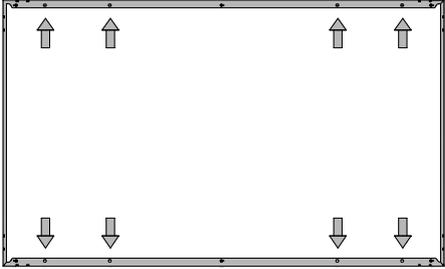
5.2.1.2.2 Mounting hole mounting

- a) Secure the assembly to the bracket with bolts through the mounting holes on the back frame of the assembly. The mounting details are shown below.
- b) Each module has a 4-φ9*14mm mounting hole on the long bezel, which allows the assembly to be securely attached to the support structure.
- c) To maximize installation life, MYSOLAR recommends the use of corrosion-resistant (stainless steel) fasteners
- d) As shown, use M8 bolts, flat washers, spring washers and nuts to secure the assembly at each fixed position and tighten to 16 to 20 N.m (140-180 lbf.in) of torque.

All parts in contact with the frame shall be flat stainless steel washers with a minimum thickness of 1.8 mm and an outer diameter of 20-24 mm (0.79-0.94 inches).

5.2.1.2.3 Module installation method:

Load pressure	+2400Pa/-2400Pa	+5400Pa/-2400Pa
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Use a fixture to mount the long bezel	<p>  </p> <p> Fixture allows installation range $(1/4 L - 50) < S < (1/4 L + 50)$ </p> <p>Module Length</p>	<p>  </p> <p> Fixture allows installation range $(1/5 L - 50) < S < (1/5 L + 50)$ $(1/2 L - 50) < D < (1/2 L + 50)$ </p> <p>Module Length</p>
Use a fixture to mount the long bezel	<p>  </p> <p>○ Mounting holes</p> <p>Use 4 mounting holes</p>	<p>  </p> <p>○ Mounting holes</p> <p>Use 8 mounting holes</p>

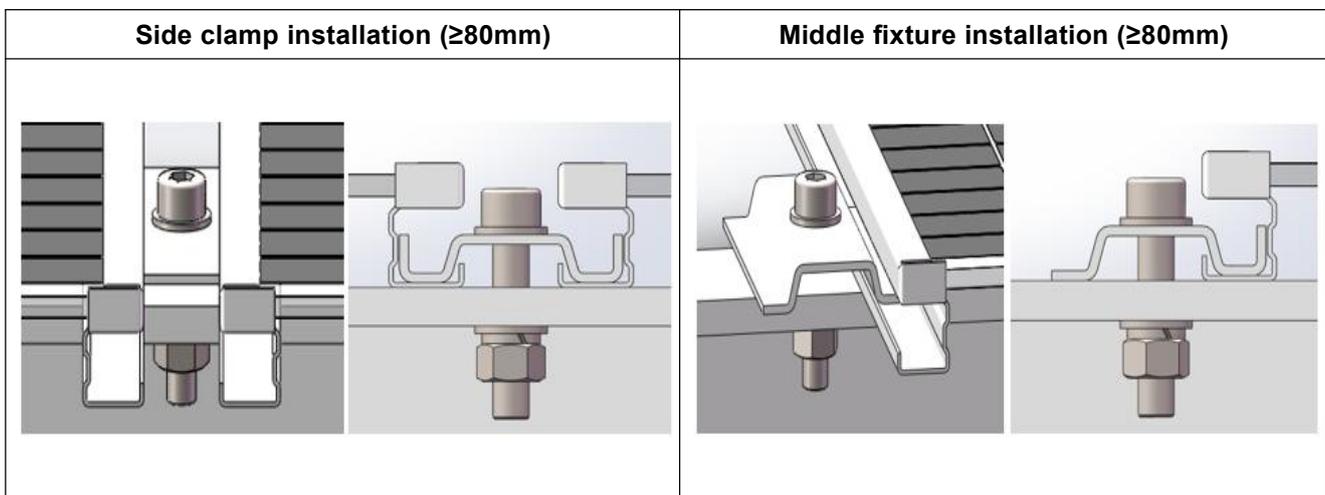
5.2.1.3 Long frame double glass installation

5.2.1.3.1 Fixture installation

- When the clamp mounting method is selected, ensure that there are at least 4 clamps on each module. Install two on each long side (longitudinal) or each short side (lateral) of the assembly. How many pressure blocks are used in the fixture to determine the local wind and snow pressure intensity. If the pressure exceeds the expected estimate, additional clamps or brackets are required to ensure that the assembly can withstand this pressure.
- MYSOLAR recommends using a fixture with EPDM or similar insulating gasket and at least M8 bolts after testing its modules with different fixtures from multiple manufacturers.
- The fixture must clamp the frame of the assembly on the inside of the C plane, and the minimum spacing

between the two modules is 10mm.

- d) The module fixture cannot be in contact with the glass on the front side and must not deform the frame. Be sure to avoid the shading effect of the module fixture.
- e) The frame of the module cannot be adjusted under any circumstances; the drain hole cannot be blocked under any circumstances during installation or use.
- f) The applied torque shall be determined according to the mechanical design criteria of the bolts used by the customer, for example: M8 ---- 16-20N. (140-180lb.in)
- g) If the customer needs other sizes of compacts, MYSOLAR is required for full evaluation.



5.2.1.3.2 Module installation method:

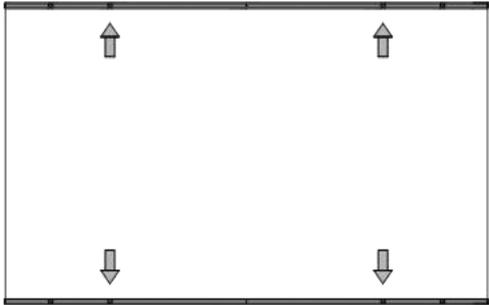
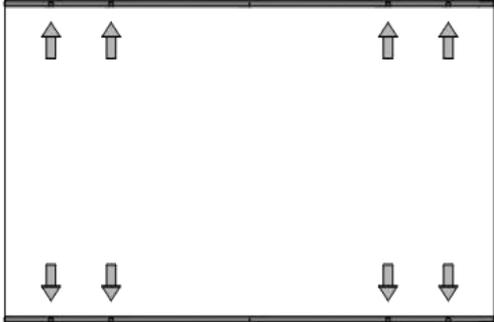
Installation method	Double glass long bezel assembly installation method (60 half pieces specifically refer to framed SUPO series MSxxxM-DHBS, xxx=300 to 345W in step of 5, framed Plati Series MSxxxM-DHBP, xxx=350 to 370W in step of 5)	
Load pressure	+2400Pa/-2400Pa	+5400Pa/-2400Pa

Use a fixture to mount the long bezel	<p>*The length of the clamp is 120/150mm *Be sure to install the clamp in the fixture installation area</p>	<p>*The length of the clamp is 120/150mm *Be sure to install the clamp in the fixture installation area</p>

Installation method	Double glass long bezel assembly installation method (72 half pieces specifically refer to framed SUPO series MSxxxM-DHBS, xxx=360 to 415W in step of 5, framed Plati Series MSxxxM-DHBP, xxx=420 to 445W in step of 5)	
Load pressure	+2400Pa/-2400Pa	+5400Pa/-2400Pa
Use a fixture to mount the long bezel	<p>*The length of the clamp is 120/150mm *Be sure to install the clamp in the fixture installation area</p>	<p>*The length of the clamp is 120/150mm *Be sure to install the clamp in the fixture installation area</p>

5.2.1.3.3 Hole mounting

- a) Use the bolts to secure the assembly to the bracket through the mounting holes on the back frame of the assembly. The mounting details are shown below.
- b) Each module has a 4-φ9*20mm mounting hole on the long bezel, which allows the assembly to be well secured to the support structure to optimize its load bearing capacity.
- c) To maximize installation life, MYSOLAR recommends the use of corrosion-resistant (stainless steel) fasteners
- d) Secure the assembly at each fixed position with M8 bolts, flat washers, spring washers and nuts as shown, and tighten to 16 to 20 N.m (140-180 lbf.in) of torque.
- e) Flat stainless steel washers with a minimum thickness of 1.8 mm and an outer diameter of 20-24 mm (0.79-0.94 inches) shall be used for all parts in contact with the frame.

Installation method	+2400Pa/-2400Pa	+5400Pa/-2400Pa
Mounted with screws through the mounting holes	<p>○ Mounting holes</p>  <p>Use 4 mounting holes</p>	<p>○ Mounting holes</p>  <p>Use 8 mounting holes</p>

Note:

All installation methods described here are for reference only. A new energy is not responsible for providing related installation components, component system design and installation. Mechanical loads and safety must be done by a professional system installer or an experienced person.

Before installing, you need to confirm the following important items.:

- a) Check for bugs or other debris before installation and, if available, erase.
- b) Check that the serial number of the component is correct.

5.2.2 Grounding

The components need to be grounded, and the components have been confirmed to meet Safety Class II and to ensure that the grounding method meets local electrical codes and regulations.

The ground connection should be performed by a qualified electrician.

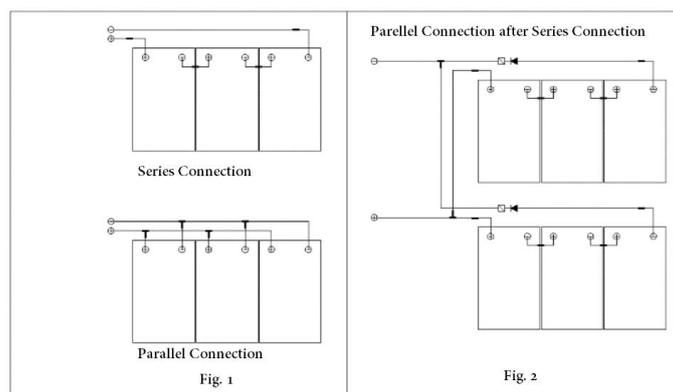
5.2.3 Electrical installation

All wiring should be performed by qualified and trained personnel in accordance with local regulations and procedures. The components can be connected in series to increase the operating voltage by inserting the positive plug of one component into the negative socket of the next component. Always ensure that the contacts are free of corrosion, clean and dry before connecting the components. If a group of arrays are connected to one another in opposite polarity, it can cause irreparable damage to the product. Be sure to check the voltage and polarity of each column before making parallel connections. If the measurement finds that the polarity between the columns is reversed or the voltage difference is greater than 10V, check its structural configuration before making the connection.

- All other cables and connectors used to connect to the DC system should have similar (or higher) specifications. A new energy suggest that all cables should be routed in appropriate piping and away from water accumulation.
- Each component has two standard 90°C shaded output cables with a plug-and-play connector on each terminal. One component is equipped with a DC copper stranded cable with a cross-section of 4 mm², rated voltage of 1500 V DC, insulation layer resistant to 90 ° C, UV-resistant, all cables used to connect to DC systems must have similar or better parameters as described above. We require all wiring and electrical connections to comply with the appropriate National Electrical Code.

5.2.3.1 Wiring

In order to ensure the normal operation of the system, when connecting components or connecting loads (such as inverters, batteries, etc.), observe that the polarity of the cables is properly connected (Figure 1 and Figure 2). If the components are not connected properly, the bypass diode may be damaged. Components can be wired in series to increase voltage. A series connection connects the wires from the positive terminal of one component to the negative terminal of the next component. Figure 1 shows the serial connection of the components. Components can be connected in parallel to increase current (shown in Figure 2). Parallel connection is to connect the wiring from the positive terminal of one component to the positive terminal of the next component. The number of components connected in series and parallel needs to be designed according to the system configuration. All instructions above must be followed to meet a new warranty.



5.2.3.2 Fuse

When installing the fuse, connect its rated maximum DC voltage to each non-grounded pole of the array (in other words, if the system is not grounded, connect the fuse to the positive and negative poles).

- The maximum rating of the fuses connected in series with the array is typically 20A, but the actual component-specific ratings are available on the product label and product data sheet.
- The fuse rating also corresponds to the maximum reverse current value that the component can withstand (when an array is shielded, the array is loaded into other parallel component arrays to generate current). This will have an impact on the number of parallel connected arrays.
- It is forbidden to connect two or more strings in parallel and then connect the fuses.

6. Component maintenance

6.1 Component visual inspection and replacement

The components in the PV array should be regularly inspected for damage. If damage is found, the same type of components must be replaced. Factors such as broken glass, broken cables, and damage to the junction box can cause functional and safety failures in the components.

Well-designed solar systems require minimal maintenance, but some simple steps can be taken to improve system performance and reliability.

- It should be maintained at least once a year by trained personnel. At maximum operating voltages of not less than 1500V DC, maintenance personnel should always wear rubber gloves and wear insulated boots during work to remove any vegetation that may obscure the solar array and affect its performance.
- Check that the installed hardware is securely in place.
- Check that all array fuses in each of the non-grounded poles are working properly.
- If the component is damaged (glass breakage or scratches on the back glass), it needs to be replaced. Components must be replaced with the same type. Do not touch the live parts of the cables and connectors when replacing components. Use appropriate safety guards (insulation tools, insulated gloves, insulated boots, etc.) when handling components.
- The opaque material is applied to the front surface of the assembly during repair. Components exposed to the sun can generate high voltages and are extremely dangerous.
- MYSOLAR PV module junction box with a bypass diode minimizes component heating and current losses.

6.2 Connector and cable inspection

- Check all cables to verify that they are securely connected; it is recommended that all cables be operated in the appropriate pipelines and located away from the easy catchment area.
- It is recommended to check the electrical, grounding and mechanical connections every 6 months to

ensure they are clean, safe, undamaged and free of rust. Check that the mountings are properly tightened; check all cables to make sure the connectors are tight.

6.3 Cleaning

The amount of electricity produced by the solar module is proportional to the amount of light that falls on it. Components that are blocked by the battery generate relatively little power, so it is important to keep the components clean.

- The PV module should be cleaned with an irradiance of less than 200 W/m² to avoid a large difference between the water temperature and the air temperature used in the cleaning to cause cracks. The hard water needs to be softened to clean the components and dry the water remaining on the glass surface.
- It is strictly forbidden to clean PV modules under meteorological conditions where the wind is greater than 4, heavy rain or heavy snow.
- When the pressure water is cleaned, the water pressure on the surface of the component glass shall not exceed 700 kPa (14619.80 lb / ft²), and the component is not allowed to withstand additional external force.
- During the cleaning of PV modules, it is strictly forbidden to step on the components, and it is strictly prohibited to sputter water to the back of the components and cables. To ensure the cleaning and drying of the connectors, to prevent electric shock and fire. Steam cleaners are strictly prohibited. When cleaning components, use a soft cloth and a mild detergent and water. Do not put the components directly into the water. Take care to avoid serious thermal shock that could damage the components.
- The surface of the PV module has difficult-to-clean substances such as oil. Use a non-friction neutral liquid cleaner. Do not use an organic solvent containing alkali or acid to clean the components. Do not use corrosive solvents or wipe the PV modules with a hard object.
- If you are not sure if you need to clear the array or section, first select a column of particularly dirty arrays to begin cleaning. If the improvement percentage is less than 5%, cleaning is usually not required. The above verification should be carried out only with a constant sunshine rate (sunny, strong sunshine, no cloud).
- The back of the assembly usually does not need to be cleaned. If you need to clean the back of the component, take care to avoid the cleaning solution seeping into the bottom of the material.
- Vegetation should be regularly cut to avoid vegetation obstructing PV modules.

6.3.1 Water quality requirements

PH: 5 ~7;

Chloride or salt content: 0 - 3,000 mg/L

Turbidity: 0-30 NTU

Conductivity: 1500~3000 μ s/cm

Total dissolved solids: ≤ 1000 mg/L

Water hardness: 0-40 mg/L

Non-alkaline water must be used, and demineralized water is used when conditions are met.

6.3.2 Component inspection after cleaning

- The overall appearance of the visual components is clean, bright and free of stains. Sampling checks for the presence of ash on the surface of the component. There are no obvious scratch marks on the surface of the component. There is no rupture caused by the surface of the component.
- Whether the component bracket is tilted or bent after cleaning. Whether the component terminals are disconnected or the like.
- After the PV modules are cleaned, the PV module cleaning records are completed.

6.3.3 Troubleshooting

If it does not work properly after installation, please notify the installer immediately.

7. Diodes informationm

Mysolar module connecting box contains bypass diode which is in parallel connection with the cell strands. If heat spot occurs locally with the module, the diode will come into operation to stop the main current from flowing through the heat spot cells with the view to restrain module heating and performance loss. But bypass diode is not the overcurrent protection device.

If the diode is found or doubted to get out of order, the installer or system maintenance supplier shall contact Mysolar. Please do not try to open the module connecting box on your own.

Based on the maximum series fuse rating of module and local electrical installation code, always make sure Mysolar PV modules are assembled with the appropriate string fuse for circuit protection. In Usually Mysolar PV modules' maximum series fuse rating is 20A. Type: 1.FR3045/ 2.SB3050DY

8. Product Information

8.1 Production Identification

Each individual module has a unique serial number laminated behind the glass and another permanently attached to the back-side of the module. Note all serial numbers in an installation for your future records.

Each module has only one barcode. It is permanently attached to the interior of the module and is visible from

the front of the module. This bar code is inserted prior to laminating.



Do not remove any labels. Removing a label will make the warranty void.

How to read the series numbers on the barcodes:



8 = Mysolar

4 = bifacial panel

7 = Mono crystalline

03=Production line

202001=Production year 2020, month January

0001 = production series numbers of each module, ranges from 1 to 9999

8.2 Nameplate

Nameplate describes the product type; rated power, rated current, rated voltage, open circuit voltage, short circuit current, all as measured under standard test conditions; weight, dimensions etc.; the maximum system voltage of 1500 volts DC.

 	Model Type	MS440M-DHBP	Open Circuit Voltage(Voc)	48.95V	Power Production Tolerance	±3%	Made in China
	Rated Max Power(Pmax)	440W	Short Circuit Current(Isc)	11.29A	Open Circuit Voltage Tolerance	±2%	
	Power Selection	0→6W	Max.power Voltage (Vmp)	40.63V	Short Circuit Current Tolerance	±4%	
	Max Series Fuse Rating	20A	Max.power Current (Imp)	10.83A	Mysolar Manufacturing (Shanghai) Co.,Ltd.		
	Maximum System Voltage	1500V	Safety Class	Class II	Room J8097, Bldg 2, No. 4268, Zhennan Rd, Jiading District, Shanghai,201800, P.R.C		
	At technical data standard test condition:AM=1.5 E=(1+0.2BIFI)1000W/m² To=25°C IEC 61215-1/-1-1/-2: 2016 and IEC 61730-1/-2:2016						

8.3 Electrical ratings

MSxxxM-DHBS (XXX=360-415) Electrical Characteristics

STC: front side irradiance 1000 W/m², 25 °C, AM 1.5:

Rated Power (Pmp)	360	365	370	375	380	385
Power Tolerance There is ±3% uncertainty at Max Power at STC.	±3%	±3%	±3%	±3%	±3%	±3%
Maximum Power Voltage (Vmp)	39.13	39.28	39.48	39.68	39.87	40.06
Maximum Power Current (Imp) ±3%	9.20	9.29	9.37	9.45	9.53	9.61
Open Circuit Voltage (Voc) ±3%	47.64	47.74	48.02	48.21	48.40	48.59
Short Circuit Current (Isc)	9.70	9.80	9.86	9.94	10.02	10.10
Rated Power (Pmp)	390	395	400	405	410	415
Power Tolerance There is ±3% uncertainty at Max Power at STC.	±3%	±3%	±3%	±3%	±3%	±3%
Maximum Power Voltage (Vmp)	40.24	40.47	40.65	40.74	40.95	41.17
Maximum Power Current (Imp) ±3%	9.69	9.76	9.84	9.94	10.01	10.08
Open Circuit Voltage (Voc) ±3%	48.74	48.99	49.19	49.24	49.46	49.66
Short Circuit Current (Isc)	10.19	10.26	10.34	10.45	10.52	10.58

MSxxxM-DHBSB (XXX=420-465) Electrical Characteristics

BSTC: front side irradiance 1000 W/m², backside irradiance 200 W/m², 25 °C, AM 1.5:

Rated Power (Pmp)	420	425	430	435	440	445
Power Tolerance There is ±3% uncertainty at Max Power at STC.	±3%	±3%	±3%	±3%	±3%	±3%
Maximum Power Voltage (Vmp)	39.49	39.69	39.88	40.07	40.25	40.48
Maximum Power Current (Imp) ±3%	10.63	10.70	10.78	10.85	10.93	10.99
Open Circuit Voltage (Voc) ±3%	48.03	48.22	48.41	48.60	48.75	49.00
Short Circuit Current (Isc)	11.17	11.25	11.32	11.40	11.48	11.55
Rated Power (Pmp)	450	455	460	465		
Power Tolerance There is ±3% uncertainty at Max Power at STC.	±3%	±3%	±3%	±3%		
Maximum Power Voltage (Vmp)	40.66	40.75	40.96	41.18		
Maximum Power Current (Imp) ±3%	11.06	11.16	11.23	11.29		
Open Circuit Voltage (Voc) ±3%	49.20	49.25	49.47	49.67		
Short Circuit Current (Isc)	11.62	11.72	11.79	11.83		

MSxxxM-DHBS (XXX=300-345) Electrical Characteristics

STC: front side irradiance 1000 W/m², 25 °C, AM 1.5:

Rated Power (Pmp)	300	305	310	315	320	325
Power Tolerance There is ±3% uncertainty at Max Power at STC.	±3%	±3%	±3%	±3%	±3%	±3%
Maximum Power Voltage (Vmp)	32.08	32.34	32.59	32.84	33.09	33.33
Maximum Power Current (Imp) ±3%	9.35	9.43	9.51	9.59	9.67	9.75
Open Circuit Voltage (Voc) ±3%	39.29	39.55	39.79	40.05	40.31	40.57
Short Circuit Current (Isc)	9.76	9.84	9.92	10.00	10.08	10.16
Rated Power (Pmp)	330	335	340	345		
Power Tolerance There is ±3% uncertainty at Max Power at STC.	±3%	±3%	±3%	±3%		
Maximum Power Voltage (Vmp)	33.60	33.87	34.13	34.32		
Maximum Power Current (Imp) ±3%	9.82	9.89	9.96	10.05		
Open Circuit Voltage (Voc) ±3%	40.82	41.09	41.35	41.52		
Short Circuit Current (Isc)	10.24	10.32	10.40	10.49		

MSxxxM-DHBSB (XXX=350-385) Electrical Characteristics

BSTC: front side irradiance 1000 W/m², backside irradiance 200 W/m², 25 °C, AM 1.5:

Rated Power (Pmp)	350	355	360	365	370	375	380	385
Power Tolerance There is ±3% uncertainty at Max Power at STC.	±3%	±3%	±3%	±3%	±3%	±3%	±3%	±3%
Maximum Power Voltage (Vmp)	32.6	32.85	33.10	33.34	33.61	33.88	34.14	34.33
Maximum Power Current (Imp) ±3%	10.73	10.80	10.87	10.94	11.00	11.06	11.13	11.21
Open Circuit Voltage (Voc) ±3%	39.8	40.06	40.32	40.58	40.83	41.10	41.36	41.53
Short Circuit Current (Isc)	11.18	11.26	11.33	11.40	11.47	11.54	11.62	11.70

MSxxxM-DHBP (XXX=420-445) Electrical Characteristics

STC: front side irradiance 1000 W/m², 25 °C, AM 1.5:

Rated Power (Pmp)	420	425	430	435	440	445
Power Tolerance There is ±3% uncertainty at Max Power at STC.	±3%	±3%	±3%	±3%	±3%	±3%
Maximum Power Voltage (Vmp)	39.82	40.02	40.23	40.43	40.63	40.83
Maximum Power Current (Imp) ±3%	10.55	10.62	10.69	10.76	10.83	10.90
Open Circuit Voltage (Voc) ±3%	48.12	48.32	48.52	48.72	48.95	49.13
Short Circuit Current (Isc)	11.05	11.11	11.17	11.23	11.29	11.35

MSxxxM-DHBPB (XXX=475-500) Electrical Characteristics

BSTC: front side irradiance 1000 W/m², backside irradiance 200 W/m², 25 °C, AM 1.5:

Rated Power (Pmp)	475	480	485	490	495	500
Power Tolerance There is ±3% uncertainty at Max Power at STC.	±3%	±3%	±3%	±3%	±3%	±3%
Maximum Power Voltage (Vmp)	39.88	40.08	40.29	40.47	40.69	40.89
Maximum Power Current (Imp) ±3%	11.92	11.98	12.04	12.11	12.17	12.23
Open Circuit Voltage (Voc) ±3%	48.18	48.38	48.58	48.89	49.01	49.19
Short Circuit Current (Isc)	12.57	12.62	12.65	12.69	12.76	12.82

MSxxxM-DHBPB (XXX=350-370) Electrical Characteristics

STC: front side irradiance 1000 W/m², 25 °C, AM 1.5:

Rated Power (Pmp)	350	355	360	365	370	
Power Tolerance There is ±3% uncertainty at Max Power at STC.	±3%	±3%	±3%	±3%	±3%	
Maximum Power Voltage (Vmp)	33.15	33.37	33.59	33.80	34.01	
Maximum Power Current (Imp) ±3%	10.56	10.64	10.72	10.80	10.88	
Open Circuit Voltage (Voc) ±3%	40.01	40.21	40.41	40.61	40.81	
Short Circuit Current (Isc)	11.01	11.09	11.17	11.25	11.33	

MSxxxM-DHBPB (XXX=395-415) Electrical Characteristics

BSTC: front side irradiance 1000 W/m², backside irradiance 200 W/m², 25 °C, AM 1.5:

Rated Power (Pmp)	395	400	405	410	415	
Power Tolerance There is ±3% uncertainty at Max Power at STC.	±3%	±3%	±3%	±3%	±3%	
Maximum Power Voltage (Vmp)	33.16	33.38	33.60	33.81	34.02	
Maximum Power Current (Imp) ±3%	11.92	11.99	12.06	12.13	12.21	
Open Circuit Voltage (Voc) ±3%	40.02	40.22	40.42	40.62	40.82	
Short Circuit Current (Isc)	12.41	12.47	12.53	12.61	12.68	

9. Amendments editions and dates

Edition	Date	Revised info	Remarks
Feb2020	Feb 1-2020	N/A	The 1 st edition
Mar2020	Mar 10-2020	Adjust images in Page 10 and 12; changed “length of clamps should be 200mm” to “length of clamps should be 120/150mm”	The 2 nd edition
July2020	July 26-2020	Added in Clause 8.3: Data sheet of MSxxxM-DHBP,xxx=350-370W, MSxxxM-DHBP xxx=420-445W	The third edition
Oct2020	Oct 14-20020	Added specific module numbers and power range in Clause 5. in respect of installation method	The fourth edition

10. Contact Information

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