Lightweight Photovoltaic Module Installation Manual

Jiangsu Green Energy Power Technology Co., Ltd.

Contents

1.Introduction

First of all, thank you for choosing Green Energy Power as your component supplier. This manual contains important information such as the safety, installation and maintenance of lightweight components. This manual does not have any significance as a quality guarantee certificate. Whether express or implied, this manual does not stipulate a compensation plan for losses, component damage or other expenses arising from or caused thereby during the installation, operation, use or maintenance of components. Green Energy Power shall not be held responsible for any infringement of patent rights or the rights of third parties caused by the use of components. Green Energy Power reserves the right to modify the product manual and this manual without prior notice.

Installers must read and understand this guide before installation. Installers must follow all safety precautions, local requirements and regulations of laws or authorized authorities as stated in this guide. Green Energy Power shall not be held responsible for any damage, loss or expense resulting from non-compliance with this manual, from products of other manufacturers or from connection with products of other manufacturers. Please provide this manual to the owners of photovoltaic systems as a reference and inform them of all relevant safety, operation and maintenance requirements and suggestions. This installation and usage manual is available in different language versions. In case of any conflict between versions, the Chinese version shall prevail.

2.Regulations and Rules

The mechanical and electrical installation of components should comply with relevant regulations, including electrical laws, building laws and requirements for electrical connections. These regulations and rules vary depending on the installation location, and the requirements may also differ depending on the voltage of the installation system and whether DC or AC is

used. For specific terms, please contact the local authorities and confirm the acquisition of the corresponding permits.

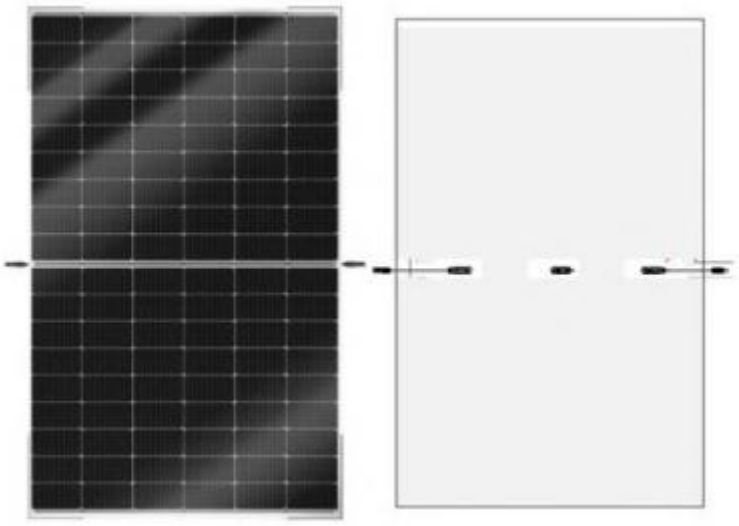
3.Component information

3.1 Nameplate information

It describes the product type, maximum power under standard test conditions, optimal operating current, optimal operating voltage, open-circuit voltage, short-circuit current, certification mark and maximum system voltage, etc.

Module Type : GEP-NM10-72F550		Maximum System Voltage : 1500 VDC	All technical data at standard test conditon(STC):	WARNING Hazardous electricity can shock, burn or cause death. Do not touch terminals.
Maximum Power (Pmax): 550W		Maximum Series Fuse Rating : 25 A	E=1000W/m² AM=1.5 Tc=25	
Open Circuit Voltage (Voc): 52.15V		Tolerance for Voc,Pmax,Isc: ±3%		
Short Circuit Current (Isc): 13.67A		Dimension: 2272×1128×3mm	Jiangsu Green Energy Power Technology Co., Ltd.	
Voltage at Pmax (Vmp): 45.58V		Weight: 6.9Kg	Service Line: +86 511 8812 9618 Fax No: +86 511 8853 2992	
Current at Pmax (Imp): 12.07A		Fire Rating: Class C		Manufactured in China
		Application Class: Class II		

3.2 Component encapsulation schematic diagram



4.Safety

The lightweight component design of green energy power complies with the international standards IEC 61215 and IEC 61730, and its application grade rating is A-level. The component can be used in systems that the public may come into contact with, which are greater than 50V

DC or 235W or above. Moreover, the component has passed both IE061730-1 and IEC 61730-2, and meets the safety requirements. All installation work must comply with local and local regulations as well as corresponding domestic or international electrical standards. Do not install on rainy, windy or snowy days. If installation is necessary, appropriate measures should be taken to avoid related safety hazards, such as water entering the connector.

4.1 Transportation and storage

- Please note that during transportation and storage, do not open the component packaging box unless the component arrives at the installation site;
- Note that when loading and unloading, the vehicle must be transferred and the operation must be carried out in accordance with the specifications to prevent risks such as falling;
- Pay attention to using reasonable hoisting fixtures. The maximum number of components allowed for hoisting at one time is 1, and the maximum stacking is 2 layers;
- Please take good care of the packaging to prevent it from being damaged or getting damp. Please store in a well-ventilated, rainproof and dry place at all times;
- Please note that the unloading ground should be flat and free of inclinations;
- Please note that when unloading, components of the same grade should be placed in one area. Each box should be stacked at least 30cm apart to facilitate installation.

4.2 Unpacking and operation safety

Before opening the package, make sure there is no damage to the packaging. If you find any damaged components, please contact us to purchase Green Energy Power so that we can obtain the information you need and file a complaint about the defective components.

- Unpacking steps: First, effectively preserve the side file materials. Then, cut the cable ties and remove the upper cover and the long cardboard;
- When opening the package, if hoisting is required, the cable ties of the upper and lower pallets that are separately packed must not be cut to facilitate the crane's hoisting of the

upper and lower pallets respectively;

●Please note that when placing individual components on the ground temporarily, it should be flat to prevent scratches from hard objects, which may cause damage;

●Pay attention to cleaning both sides of the components before installation. If there is any dirt, wipe it with a soft cloth before installation;

●When moving components, two people should lift them from head to tail together. It is not allowed to stack two or more components for moving at the same time;

●The unpacked components are not allowed to be stacked in any way to avoid component damage;

●When placing the components, two people should gently lay them flat on the ground together. Do not let one side of the edge touch the ground to avoid damaging the glass edge;

●Do not move the components by grasping the junction box by hand or lifting the wires inside;

●Do not stand, walk, jump, etc. on the components;

●It is not allowed to transport the components by carrying them on one person's back with a rope;

●Do not come into contact with, impact or subject to heavy pressure from other hard or sharp objects;

●Do not paint or label the surface of the components, or remove the labels;

●Do not install components that are scratched or damaged;

●Do not drill holes at any position of the components during installation to damage the solar panels unless confirmed by a professional in advance;

●Components must not be disassembled or modified in any way. Doing so may affect the performance and safety of the product, even cause irreparable damage, and invalidate any applicable warranty;

- Under no circumstances should components be directly damaged, disassembled or replaced. The installation manual must be followed.

4.3 Electrical safety

When there is no connection to a load or external circuit, components will generate voltage as long as they are exposed to light. Therefore, touching the component circuit poses a risk of electric shock or burns. A DC voltage of 30V or higher can even be fatal.

- When operating photovoltaic modules in the sun, please use insulated tools and wear rubber gloves;
- Note that the component does not have a switch. It can only stop working by moving the component away from the illuminated area or covering it with cloth, cardboard, or completely opaque materials, or by turning the front of the component upside down and placing it on a smooth and flat surface;
- Note that incorrect connections can also cause electric arcs and electric shocks;
- Note that the connectors must be kept dry and clean to ensure they are in good working condition;
- Note that snow and water around the components will increase the intensity of incident light on the components through light reflection, which will cause an increase in current and output power;
- Note that at low temperatures, the voltage and power of the components will also increase accordingly;
- Do not disconnect the circuit connection when there is a load to avoid the risk of electric arc and electric shock;
- Do not insert any other metal objects into the connector or make electrical connections in any incorrect way;

- Do not touch components with fallen or damaged junction boxes, unless the electrical connection of the component is disconnected and personal protective equipment is worn properly;
- Do not touch damp components directly with your hands when the power is not off, except when cleaning the components. However, the component cleaning requirements specified in this manual must be followed;
- Do not touch damp connectors when not wearing personal protective equipment or rubber gloves.

4.4 Fire safety

Before installing the components, please consult the local laws and regulations and abide by the requirements regarding the fire resistance of buildings therein. It should be noted that the component is a power generation device and may affect the fire safety of the building.

- During the operation of the component, incorrect installation methods or component defects may cause the component to generate an electric arc, resulting in a fire risk accident;
- Do not install in areas near flammable liquids, gases or hazardous materials. If flammable gases are exposed nearby after the component is installed, please suspend the use of the component;
- In a fire event, even if the components and inverters are disconnected, the components are partially or completely damaged, or the system cables are broken or even destroyed, the components may still generate dangerous DC voltages;
- In the event of a fire, it is necessary to inform the firefighters of the special dangers of the components. During and after the fire, stay away from the photovoltaic system until corresponding measures are taken to ensure the safety of the photovoltaic system before approaching;

5.Installation

5.1 Installation conditions and precautions

Lightweight components must be installed in suitable buildings or other places suitable for component installation (such as the ground, roof, etc.). When installing in the Northern Hemisphere, components are best facing south; when installing in the Southern Hemisphere, components are best facing north.

- When installing, handle the components with care and prevent the edges of the components from touching the ground;
- Before installation, make sure that the installation site or surface is free from aging, damage, dirt and rust, and that the fixed connection is firm. If not met, repair, replacement, cleaning and rectification are required. Installation can only proceed after meeting the installation conditions;
- When designing photovoltaic systems, it is necessary to take into account the drainage and water accumulation issues of the photovoltaic system. Before installation, it should be considered that the components need to maintain a certain height or Angle condition to prevent water damage caused by water accumulation during rainy days;
- In the design of photovoltaic systems, it is necessary to consider that the support strips avoid the positions of the component junction boxes and that the components can be connected to each other;
- In the design of photovoltaic systems, it is necessary to consider the suspension after the connectors between components are connected to prevent water from entering the connectors caused by rain and water accumulation. The suspension device must be firmly and reliably installed for a long time;
- In the design of photovoltaic systems, the arrangement of support rails under the modules needs to take into account avoiding the three junction boxes below the modules and ensuring that the connections between modules can be made normally;

●Component spacing requirement: Considering the later system maintenance and repair, the photovoltaic power station design requires a gap of 230mm between components;

●Considering the distance between the component and the ground and the safe contact area between the component and the square tube, the cross-sectional dimensions of the backside support square tube need to be 230(width)*40mm(height);

●Make sure there are no obstructions at the installation location, such as trees, utility poles, billboards, etc;

●In areas with frequent lightning activities, lightning protection devices should be installed to prevent damage to components and systems;

●The component operates in an environment with a temperature ranging from -40℃ to 85℃;

●If the components are used in a special installation environment, it is necessary to consult the green energy power support personnel in advance (for example, at an altitude higher than 2,000 meters). If the above precautions are not followed, the component warranty will be invalid;

●It must not be installed in places with strong corrosive substances such as active chemical vapors, acid rain, seawater or other corrosive substances. If installation is necessary, the installation plan must be evaluated by GEP technicians before execution;

●It must not be installed near open flames or flammable objects;

●Do not install in an environment that is constantly immersed in water or exposed to water (such as pure water or salt water) (for example, fountains, waves, etc.);

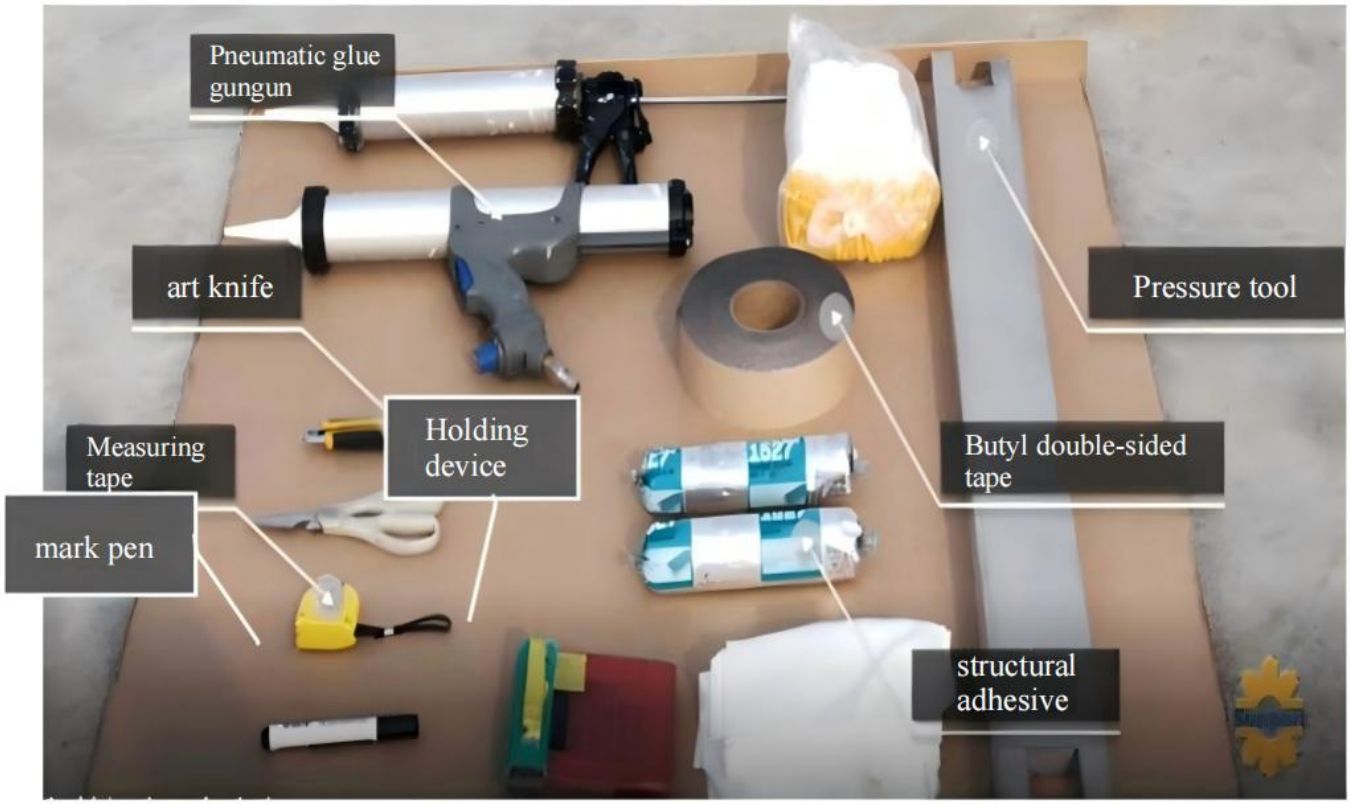
●It must not be used in environments with frequent hail, perennial snow accumulation, or frequent sandstorms, smoke, air pollution, coal smoke, etc., which may affect the safety or performance of the components. If installation is necessary, the installation plan must be evaluated by the technicians of Green Energy Power before execution;

•Do not allow focused lights such as mirrors or magnifying glasses to shine directly on the components;

•Do not install components in windy, rainy or snowy weather to prevent accidents.

5.2 Mechanical installation

Flexible components adopt different installation methods according to different installation environments. The installation methods include component bracket and clamp-assisted installation, detachable fixture installation, and component replacement installation. It is applicable to various flat roofs or irregular scenarios such as PVC surfaces, TPO, asphalt, concrete surfaces, and color steel tiles. The specific installation method of components shall be subject to the assessment of technical personnel.



Common installation tools

Metal brackets or supporting square tubes are generally made of highly corrosion-resistant and non-deformable materials such as aluminum alloy. The height and width of the guide rails or aluminum strips are recommended to be 30(width)*40mm(height) or more. The wall thickness

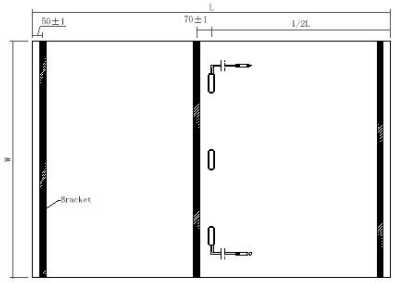
of the profiles is recommended to be 1 to 2mm. The material is recommended to be aluminum alloy 6063 or equivalent highly corrosion-resistant and anti-deformation materials. After the square tube is fixed with glue, structural glue can be applied to the surface of the square tube to install components 24 hours later.

Precautions when applying structural adhesives:

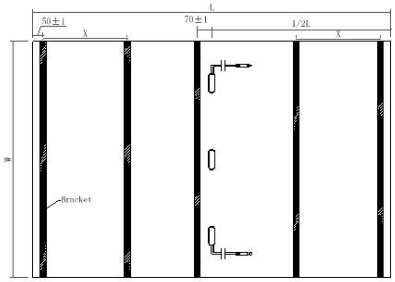
- After cleaning the construction surface, glue can be applied only when there are no water stains on it;
- Apply glue along the center of the wave peak, with a width of 6 to 10mm and a height of approximately 3 to 5mm;
- The application must be even and continuous. Before pasting, it is not allowed to flatten the adhesive strip. The adhesive should spread by squeezing;
- The time for gluing and component bonding installation should be controlled to be completed within the shortest possible time (it is recommended not to exceed 5 minutes);
- The structural adhesive will cure to a depth of 2 to 3mm within 48 hours. Do not apply force before it is fully cured;

Bracket arrangement and component installation method:

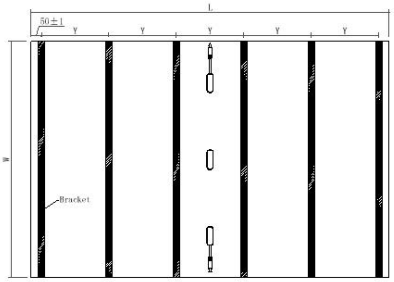
- Horizontal installation of components: Select 3/5/6 pieces for installation. The middle bracket must avoid the position of the junction box to ensure normal wiring between components;
- Component longitudinal installation: Select 4-row installation, with a distance of more than 110mm between the upper and lower sections to ensure that the cable passes through;



3-piece brackets for installation
L:Length
W:Width

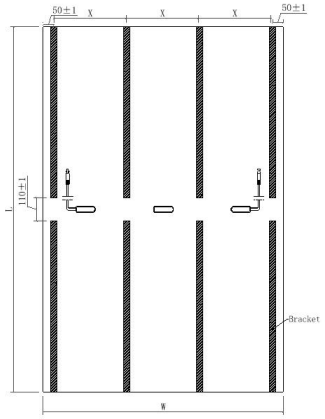


5-piece brackets for installation
L:Length
W:Width
X=1/4 (L-100)



5-piece brackets for installation
L:Length
W:Width
Y=1/5 (L-100)

Installation method of horizontal brackets for photovoltaic modules



4-piece brackets for installation
L:Length
W:Width
X=1/3 (W-100)

Installation method of longitudinal brackets for photovoltaic modules

- When installing the components, two people carry the components to the installation position. The other person needs to first connect the cable of the second component to the connector of the first component. After hearing the "click" sound of tightening, the two people should then lay the second component flat to the installation position;
- After installation, use wooden strips or a hand-held roller to press the surface of the component to ensure a tight bond between the adhesive and the component;
- When arranging and designing the same component, the joints of two brackets should be avoided to prevent relative displacement caused by thermal expansion and contraction, which may lead to tensile damage to the component;

- When arranging and installing components, it is necessary to leave appropriate operation and maintenance channels. Stepping on components is strictly prohibited;
- The cantilever height at both ends of the component installation should be ≤50mm. When it is too long, the excess height should be leveled with aluminum square strips, and the height of the aluminum strips should be consistent with the height of the wave peaks.

5.2.1 Install on flat, arc-shaped and trapezoidal color steel tiles

For the installation of flat and curved roofs: The support square tubes should be evenly distributed on the roof as much as possible. The distance between the square tubes should be no more than 500mm, and the edge support distance of the components should be no more than 50m. The aluminum square tube floor and roof are fixed with structural adhesive. Then, apply structural adhesive to the upper surface of the aluminum square tube and install the components.

For the installation of trapezoidal color steel tiles: According to the structural conditions of the color steel tiles, the support square tubes are adhered to the trapezoidal wave peaks (if there are wave troughs, it is necessary to ensure that the height after installation exceeds the wave peak height by 40m). The bottom surface of the aluminum square tubes and the roof are fixed with structural adhesive. Then, apply structural adhesive to the upper surface of the aluminum square tubes and install the components. Note: The distance between square tubes should be arranged as evenly as possible. The distance between square tubes should be no more than 500mm, and the edge support distance of components should be no more than 50mm.

Note: Select the appropriate size of the supporting square tube. If it is attached to the trough of the color steel tile, the height of the square tube should be 40mm or more greater than the peak height. If it is pasted on the crest of the color steel tile, the height of the square tube should be 40mm more.

Installation steps:

- (Pre-treatment) Grind the roof and remove the powdering layer (for concrete substrates); The surfaces of base materials such as PVC/TPO/ asphalt need to be cleaned, and any damaged or uneven conditions should be repaired and other effective treatments should be carried out. Replace the surface damage and severe rust of the color steel sheet, and carry out rust removal and pre-treatment.
- Carry out waterproof repair on the leakage point; The installation positions of components or the entire installation area should be coated with high-viscosity waterproof paint. After the coating has cured, ensure that there is no glue overflow or water leakage in the gaps before installing the components. (Concrete, PVC/ asphalt substrates, etc.
- After installation, the components and the roof form an integrated waterproof roof, providing additional protection for waterproof performance.
- Clean the surface of the square tube and apply structural adhesive to the upper surface position of the contact component of the square tube.
- Apply structural adhesive to the lower surface of the square tube to bond it firmly to the roof.
- Place the components and use a pressing tool or roller to press the gluing positions in sequence to fix them, ensuring good contact between the structural adhesive and the components as well as the guide rail square tubes.

5.2.2 Installation of vertical joint type and corner type metal roofs

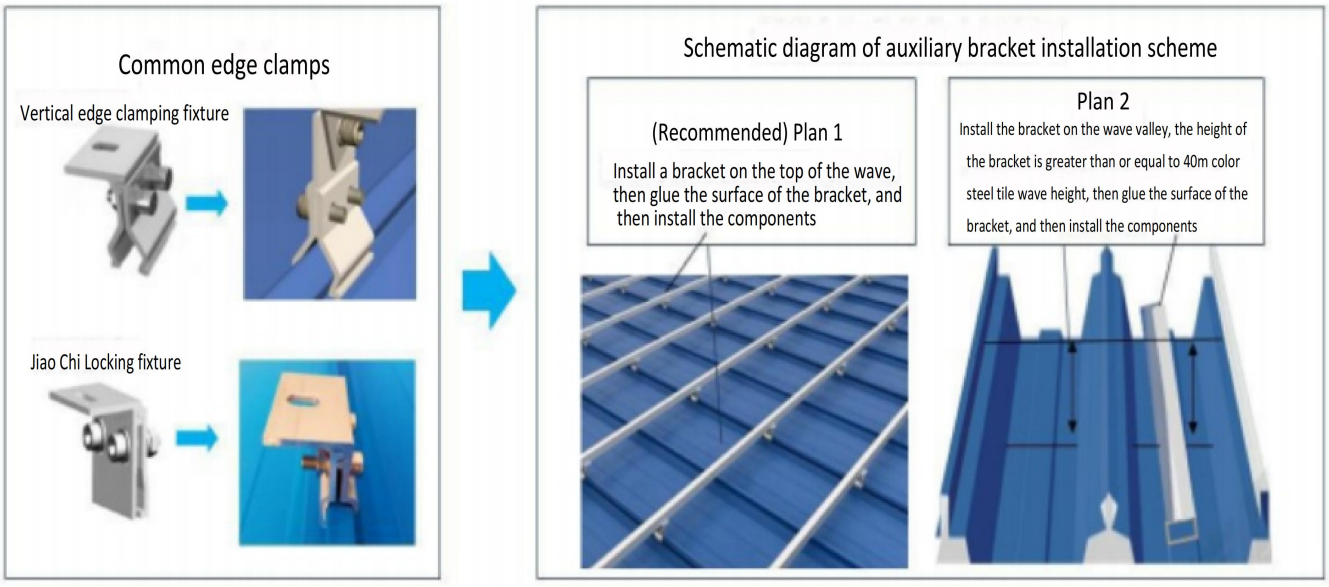
According to the design plan, install the aluminum strips at the troughs or peaks of the color steel tiles. Fix the aluminum strips to the color steel tiles with structural adhesive. The upper surface of the aluminum strips should extend 40mm beyond the height of the color steel tile's wave peaks. Apply structural adhesive to the aluminum strips and install the components. This solution can be used alone or in combination with the wave peak guide rail solution.

- Use a standing seam or angle-shaped special fixture to connect the fixture to the color steel tile;

•Connect and tighten the guide rail and the fixture, and then connect the corner code and the fixture. Note: The fixture needs to be pull-out tested on site to ensure its firmness;

•Clean the surface of the guide rail and then apply structural adhesive to the back of the guide rail contact component;

•Place the components and use a pressing tool or roller to press the gluing positions in sequence to fix them, ensuring good contact between the structural adhesive and the components as well as the guide rails.



5.3 Electrical installation

Components can be connected in series or parallel to achieve the required output voltage. In a combined circuit, only components of the same model can be used. All relevant electrical performance parameters on the component nameplate should be detailed and pasted on the back of the component. Component specifications refer to Part 7 of this manual。

Under normal circumstances, photovoltaic modules may generate more current and voltage than under standard test conditions. Therefore, when determining the rated power of the component, the rated current of the conductor, the size of the fuse and the size of the controller connected to the PV output terminal, the values of ISC (short-circuit current) and VOC (open-circuit voltage) should be multiplied by 1.25.

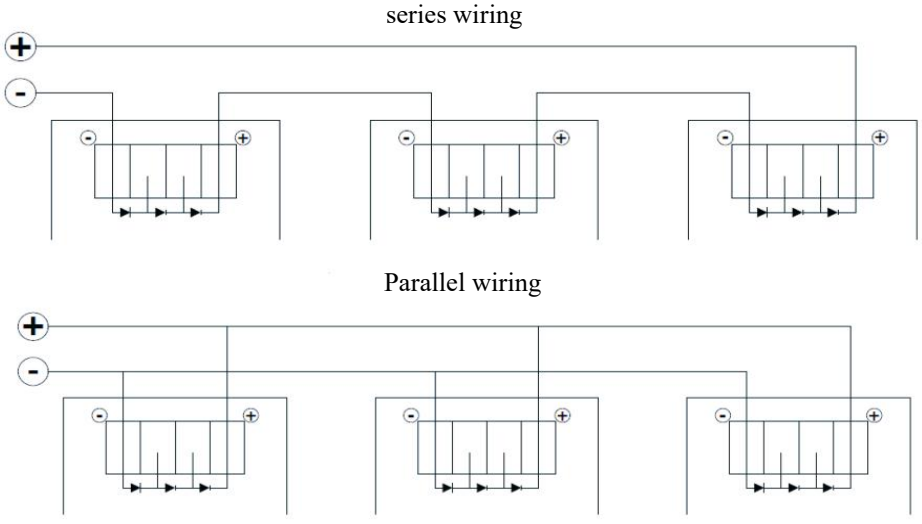
5.4 Component wiring

●Each component is equipped with two 4mm ^{2} thick UV-resistant interconnection cables, and the end of each cable is connected to a cable connector compatible with MC4. The positive terminal (+) has a male connector, while the female connector is equipped with a negative terminal (-). Please refer to the wiring method shown in the following figure;

●When the components are connected to the battery or other components, it is essential to pay attention to the correctness of the polarity of the cable connection to ensure the normal operation of the system. If the components are not connected correctly, the bypass diode will be burned out;

●For series or parallel connections, photovoltaic cables with a cross-sectional area of at least 4mm ^{2} should be used, which are UV-resistant and have a temperature rating of 90℃;

●Under load current, the cable connector must not be plugged in or unplugged.



Cabling method

6.Maintenance

The component design has a long service life and requires almost no maintenance measures. However, to ensure the best output of the component, we recommend the following checkpoints and some tasks during the component's operation.

- In cases of excessive contamination (such as dust, bird droppings), clean the surface of the components with clean water and a soft cloth or non-abrasive sponge. Non-corrosive cleaners, acids or filters can remove stubborn dirt;
- Electrical and mechanical connections must be inspected every six months to ensure they are clean, undamaged and free from corrosion;
- Check the installed hardware at least once a year to ensure sealing, as loose connections may cause component damage;
- Remove all vegetation that might shade the solar array;
- Component replacement must use components of the same model.

7.Electrical parameters

GEP reserves the right to modify the installation manual, photovoltaic products, electrical specifications or product information sheets without prior notice。

All electrical data were measured under the following test conditions:

STC: AM= 1.5, E= 1000 W/m^2 , Tc=25 ° C

Model	Maximum power output (Pmax)	Optimum operation voltage (Vmp)	Optimum operation current (Imp)	Open circuit voltage (Voc)	Short circuit current (Isc)	Maximum system voltage (IEC)	Maximum series fuse rating (A)
GEP-NM10-54L	410	32.12	12.79	38.91 ± 3%	13.88 ± 3%	1500	25
	415	32.34	12.85	39.03 ± 3%	13.95 ± 3%	1500	25
	420	32.54	12.91	39.14 ± 3%	14.00 ± 3%	1500	25
	425	32.80	12.97	39.25± 3%	14.08 ± 3%	1500	25
	430	33.06	13.03	39.36 ± 3%	14.16 ± 3%	1500	25
	435	33.28	13.09	39.47± 3%	14.22 ± 3%	1500	25
	440	33.50	13.15	39.59± 3%	14.28 ± 3%	1500	25
	445	33.72	13.21	39.70± 3%	14.34 ± 3%	1500	25
	450	33.92	13.27	39.81± 3%	14.40 ± 3%	1500	25
GEP-NM10-60L	460	36.48	12.61	43.23 ± 3%	13.79 ± 3%	1500	25
	465	36.65	12.70	43.36 ± 3%	13.87 ± 3%	1500	25
	470	36.84	12.78	43.48 ± 3%	13.95 ± 3%	1500	25
	475	36.98	12.85	43.61 ± 3%	14.03 ± 3%	1500	25

	480	37.12	12.95	43.73 ± 3%	14.11 ± 3%	1500	25
	485	37.26	13.02	43.86 ± 3%	14.19 ± 3%	1500	25
	490	37.40	13.12	43.98 ± 3%	14.27 ± 3%	1500	25
GEP-NM10-66L	510	40.32	12.65	47.56 ± 3%	14.00 ± 3%	1500	25
	515	40.49	12.72	47.69 ± 3%	14.05 ± 3%	1500	25
	520	40.62	12.81	47.83 ± 3%	14.10 ± 3%	1500	25
	525	40.75	12.90	47.97 ± 3%	14.15 ± 3%	1500	25
	530	40.90	12.99	48.11 ± 3%	14.20 ± 3%	1500	25
	535	41.04	13.06	48.24 ± 3%	14.25 ± 3%	1500	25
	540	41.18	13.13	48.38 ± 3%	14.30 ± 3%	1500	25
GEP-NM10-72L	560	44.09	12.72	51.88 ± 3%	13.92 ± 3%	1500	25
	565	44.23	12.79	52.03 ± 3%	13.98 ± 3%	1500	25
	570	44.37	12.86	52.18 ± 3%	14.04 ± 3%	1500	25
	575	44.51	12.92	52.33 ± 3%	14.10 ± 3%	1500	25
	580	44.65	13.01	52.48 ± 3%	14.16 ± 3%	1500	25
	585	44.79	13.08	52.63 ± 3%	14.22 ± 3%	1500	25
	590	44.93	13.15	52.78 ± 3%	14.28 ± 3%	1500	25
GEP-NM10-54F	385	38.95	13.40	32.08 ± 3%	12.01 ± 3%	1500	25
	390	38.98	13.45	32.50 ± 3%	12.02 ± 3%	1500	25
	395	39.01	13.50	32.84 ± 3%	12.03 ± 3%	1500	25
	400	39.04	13.55	33.24 ± 3%	12.04 ± 3%	1500	25
	405	39.08	13.60	33.65 ± 3%	12.05 ± 3%	1500	25
	410	39.11	13.65	34.01 ± 3%	12.07 ± 3%	1500	25
	415	39.15	13.70	34.35 ± 3%	12.09 ± 3%	1500	25
GEP-NM10-60F	435	43.28	13.40	36.25 ± 3%	12.01 ± 3%	1500	25
	440	43.31	13.45	36.64 ± 3%	12.02 ± 3%	1500	25
	445	43.34	13.50	36.99 ± 3%	12.03 ± 3%	1500	25
	450	43.38	13.55	37.41 ± 3%	12.05 ± 3%	1500	25
	455	43.42	13.60	37.73 ± 3%	12.07 ± 3%	1500	25
	460	43.46	13.65	38.08 ± 3%	12.08 ± 3%	1500	25
	465	43.50	13.70	38.43 ± 3%	12.10 ± 3%	1500	25
GEP-NM10-66F	480	47.60	13.40	40.00 ± 3%	12.01 ± 3%	1500	25
	485	47.64	13.45	40.36 ± 3%	12.02 ± 3%	1500	25
	490	47.68	13.50	40.75 ± 3%	12.04 ± 3%	1500	25
	495	47.71	13.55	41.12 ± 3%	12.05 ± 3%	1500	25
	500	47.76	13.60	41.43 ± 3%	12.07 ± 3%	1500	25

	505	47.80	13.65	41.84 ± 3%	12.08 ± 3%	1500	25
	510	47.85	13.70	42.23 ± 3%	12.09 ± 3%	1500	25
GEP-NM10-72F	515	51.84	13.43	42.97 ± 3%	12.00 ± 3%	1500	25
	520	51.89	13.47	43.34 ± 3%	12.01 ± 3%	1500	25
	525	51.93	13.50	43.71 ± 3%	12.02 ± 3%	1500	25
	530	51.97	13.54	44.08 ± 3%	12.03 ± 3%	1500	25
	535	52.01	13.57	44.45 ± 3%	12.04 ± 3%	1500	25
	540	52.05	13.60	44.82 ± 3%	12.05 ± 3%	1500	25
	545	52.10	13.64	45.20 ± 3%	12.06 ± 3%	1500	25
	550	52.15	13.67	45.58 ± 3%	12.07 ± 3%	1500	25
	555	52.20	13.70	45.96 ± 3%	12.08 ± 3%	1500	25
GEP-NM10-54FF	385	38.95	13.40	32.08 ± 3%	12.01 ± 3%	1500	25
	390	38.98	13.45	32.50 ± 3%	12.02 ± 3%	1500	25
	395	39.01	13.50	32.84 ± 3%	12.03 ± 3%	1500	25
	400	39.04	13.55	33.24 ± 3%	12.04 ± 3%	1500	25
	405	39.08	13.60	33.65 ± 3%	12.05 ± 3%	1500	25
	410	39.11	13.65	34.01 ± 3%	12.07 ± 3%	1500	25
	415	39.15	13.70	34.35 ± 3%	12.09 ± 3%	1500	25
GEP-NM10-60FF	435	43.28	13.40	36.25 ± 3%	12.01 ± 3%	1500	25
	440	43.31	13.45	36.64 ± 3%	12.02 ± 3%	1500	25
	445	43.34	13.50	36.99 ± 3%	12.03 ± 3%	1500	25
	450	43.38	13.55	37.41 ± 3%	12.05 ± 3%	1500	25
	455	43.42	13.60	37.73 ± 3%	12.07 ± 3%	1500	25
	460	43.46	13.65	38.08 ± 3%	12.08 ± 3%	1500	25
	465	43.50	13.70	38.43 ± 3%	12.10 ± 3%	1500	25
GEP-NM10-66FF	480	47.60	13.40	40.00 ± 3%	12.01 ± 3%	1500	25
	485	47.64	13.45	40.36 ± 3%	12.02 ± 3%	1500	25
	490	47.68	13.50	40.75 ± 3%	12.04 ± 3%	1500	25
	495	47.71	13.55	41.12 ± 3%	12.05 ± 3%	1500	25
	500	47.76	13.60	41.43 ± 3%	12.07 ± 3%	1500	25
	505	47.80	13.65	41.84 ± 3%	12.08 ± 3%	1500	25
	510	47.85	13.70	42.23 ± 3%	12.09 ± 3%	1500	25
GEP-NM10-72FF	515	51.84	13.43	42.97 ± 3%	12.00 ± 3%	1500	25
	520	51.89	13.47	43.34 ± 3%	12.01 ± 3%	1500	25
	525	51.93	13.50	43.71 ± 3%	12.02 ± 3%	1500	25
	530	51.97	13.54	44.08 ± 3%	12.03 ± 3%	1500	25

	535	52.01	13.57	44.45 ± 3%	12.04 ± 3%	1500	25
	540	52.05	13.60	44.82 ± 3%	12.05 ± 3%	1500	25
	545	52.10	13.64	45.20 ± 3%	12.06 ± 3%	1500	25
	550	52.15	13.67	45.58 ± 3%	12.07 ± 3%	1500	25
	555	52.20	13.70	45.96 ± 3%	12.08 ± 3%	1500	25
GEP-PM10-54L	390	30.79	12.67	36.69 ± 3%	13.42 ± 3%	1500	25
	395	31.03	12.73	36.93 ± 3%	13.48 ± 3%	1500	25
	400	31.28	12.79	37.18 ± 3%	13.54 ± 3%	1500	25
	405	31.52	12.85	37.42 ± 3%	13.60 ± 3%	1500	25
	410	31.76	12.91	37.67 ± 3%	13.66 ± 3%	1500	25
GEP-PM10-60L	440	34.71	12.68	41.50 ± 3%	13.43 ± 3%	1500	25
	445	34.93	12.74	41.73 ± 3%	43.49 ± 3%	1500	25
	450	35.16	12.8	41.96 ± 3%	13.55 ± 3%	1500	25
	455	35.38	12.86	42.18 ± 3%	13.61 ± 3%	1500	25
	460	35.6	12.92	42.40 ± 3%	13.67 ± 3%	1500	25
GEP-PM10-66L	485	37.81	12.83	45.20 ± 3%	13.72 ± 3%	1500	25
	490	37.99	12.90	15.33 ± 3%	13.79 ± 3%	1500	25
	495	38.17	12.97	15.45 ± 3%	13.85 ± 3%	1500	25
	500	38.35	13.04	15.59 ± 3%	13.93 ± 3%	1500	25
	505	38.53	13.11	15.72 ± 3%	14.00 ± 3%	1500	25
GEP-PM10-72L	530	41.35	12.82	49.20 ± 3%	13.71 ± 3%	1500	25
	535	413.5	12.90	49.35 ± 3%	13.78 ± 3%	1500	25
	540	41.65	12.97	49.50 ± 3%	13.85 ± 3%	1500	25
	545	41.80	13.04	49.65 ± 3%	13.92 ± 3%	1500	25
	550	41.95	13.11	49.80 ± 3%	13.99 ± 3%	1500	25
GEP-PM10-54F	390	30.79	12.67	36.69 ± 3%	13.42 ± 3%	1500	25
	395	31.03	12.73	36.93 ± 3%	13.48 ± 3%	1500	25
	400	31.28	12.79	37.18 ± 3%	13.54 ± 3%	1500	25
	405	31.52	12.85	37.42 ± 3%	13.60 ± 3%	1500	25
	410	31.76	12.91	37.67 ± 3%	13.66 ± 3%	1500	25
GEP-PM10-60F	440	34.71	12.68	41.50 ± 3%	13.43 ± 3%	1500	25
	445	34.93	12.74	41.73 ± 3%	43.49 ± 3%	1500	25
	450	35.16	12.8	41.96 ± 3%	13.55 ± 3%	1500	25
	455	35.38	12.86	42.18 ± 3%	13.61 ± 3%	1500	25
	460	35.6	12.92	42.40 ± 3%	13.67 ± 3%	1500	25
GEP-PM10-66F	485	37.81	12.83	45.20 ± 3%	13.72 ± 3%	1500	25

	490	37.99	12.90	15.33 ± 3%	13.79 ± 3%	1500	25
	495	38.17	12.97	15.45 ± 3%	13.85 ± 3%	1500	25
	500	38.35	13.04	15.59 ± 3%	13.93 ± 3%	1500	25
	505	38.53	13.11	15.72 ± 3%	14.00 ± 3%	1500	25
GEP-PM10-72F	530	41.35	12.82	49.20 ± 3%	13.71 ± 3%	1500	25
	535	413.5	12.90	49.35 ± 3%	13.78 ± 3%	1500	25
	540	41.65	12.97	49.50 ± 3%	13.85 ± 3%	1500	25
	545	41.80	13.04	49.65 ± 3%	13.92 ± 3%	1500	25
	550	41.95	13.11	49.80 ± 3%	13.99 ± 3%	1500	25

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