Photovoltaic modules
instruction document

PARKSUN PTY LTD.

Sales Center Address：Shop1, 382 Burwood Road, Hawthorn, VIC 3122.Australia

After sales email ：jason@parksun.com.au

Thank you very much for choosing the photovoltaic module products of PARKSUN PTY LTD.(hereinafter referred to as "PARKSUN").

Please read this installation manual carefully before installation.

The operation of the photovoltaic system requires relevant expertise, the system must be installed and maintained by professional personnel, and the installation personnel should be familiar with the mechanical and electrical requirements.

To ensure the correct installation of photovoltaic module products, the installers must read and understand this manual before installation.

If you have any questions, please contact PARKSUN's customer service department or your local representative for more details.

Contents

VERSION NUMBER:HJS20240719EN

1.PARKSUN photovoltaic modules and applications

PARKSUN photovoltaic solar module is a kind of under the light conditions has high reliability almost maintenance free dc power supply, can be ideal application in remote areas of power system, household power system, renewable energy vehicles, hydropower station, water pump, communication system or directly of solar photovoltaic power station, these systems can be associated battery, also can not joint battery and direct grid use. The photovoltaic modules described in this manual are not suitable for space, and are generally used below 2000m. If exceeded, the impact of high altitude on the module operation should be considered. For details, please consult our sales personnel.

2.Warn

All safety details shall be read and understood before installation, wiring, operating or maintenance of the Photovoltaic modules. When the Photovoltaic modules battery surface is directly exposed to sunlight or other light sources, direct current (DC) will be generated, whether the Photovoltaic modules is connected or not, direct contact with the charged part of the Photovoltaic modules, such as the terminal, etc., may cause casualties.

WARNING

Maximum series fuse rating 35A
Power production tolerance +3%
This module produces electricity when exposed to light.
Follow all applicable safety precautions.
Only qualified persommel should install or perfom maintenance work on these modules
Be aware of dangerous high Dc voltage when connecting modules.
Do not damage or scratch the rear surface of the modules.
Do not handle or install modules when they are wet.
Follow the battery manufacturer's recommendations if batteries are used with modules.

3.Safety instructions

3.1 The installer must observe all the safety instructions and precautions mentioned in this installation manual, while complying with the legal or authorized authority regulations and other local requirements. Failure to comply with the relevant safety and installation specification requirements described in this manual or with the regulations of laws or authorized authorities and other local requirements can result in failure of the limited warranty for the purchased Photovoltaic modules.
3.2 PARKSUN solar photovoltaic modules have passed the test of TUV or other global authoritative certification bodies. Please rest assured to use them on the premise of meeting the requirements and provisions of this installation manual.
3.3 Before installing the solar photovoltaic system, please contact the relevant local authority (e. g., the energy conservation and emission reduction department) to determine the installation permit and installation inspection requirements that meet the local requirements.
3.3.1 When designing the photovoltaic system, be sure to consider the voltage variation under different temperature conditions (please check the temperature coefficient of all the photovoltaic modules. When the temperature drops, the variable output voltage of the modules will rise).

3.3.2 Because the condition of photovoltaic power generation is under the sunlight, the Photovoltaic modules can work normally to generate electricity. Shadow shading has a great impact on the load, the Photovoltaic modules should be completely (shaded) (e. g., through buildings, chimneys, trees), even if partial (shaded) (e. g., through overhead lines, dirt, snow) should be avoided.
3.3.3 The Photovoltaic modules should be stored in the original packaging box before installation. Protect the packaging from damage during transportation and storage. Do not open the package unless the Photovoltaic modules reaches the installation site. Follow the recommended unpacking steps and perform carefully during shipping, opening and storage. Do not allow the packaged Photovoltaic modules to fall directly.
3.3.4 Ensure correct and proper shipping and installation methods, otherwise Photovoltaic modules damage.
3.3.5 When stacking the assembly, do not exceed the limit of the highest number of layers printed in the box in ventilated, rain-proof and dry places before unpacking the assembly.
3.3.6 No standing, climbing, walking or jumping on unpacked boxes and Photovoltaic modules.
3.3.7 Please do not place any heavy objects or sharp objects on the front or back of the Photovoltaic modules to avoid damaging the Photovoltaic modules and affecting the safety of the Photovoltaic modules.
3.3.8 When removing the carton, use the removal tool and support to prevent the Photovoltaic modules from tilting or falling off. Do not position the Photovoltaic modules in unsupported or unsecured environments.
3.3.9 At any time, it is forbidden to handle the Photovoltaic modules by pulling the wires or junction boxes, which shall be handled by 2 or more persons with non-slip gloves while holding the Photovoltaic modules; no overhead Photovoltaic modules.
3.3.10 If necessary, they should be stored in a dry and ventilated environment.
3.3.11 Before installation, ensure that all Photovoltaic modules are clean and dry in electrical contact. Do not install any Photovoltaic modules in rainy days, snow or strong wind, and do not install any Photovoltaic modules under the artificial concentrating light source.
3.3.12 For durable, rust resistant and UV resistant materials, use tested, certified and approved stent construction. The post and assembly support structures must be able to withstand the local wind and snow loads. Ensure that the Photovoltaic modules wind and snow loads do not exceed the maximum load allowed by the design.
3.3.13 When installing modules, do not use solar photovoltaic modules with damaged glass or backplane that cannot be repaired and pose a risk of electric shock when in contact with the surface or aluminum frame. Do not try to disassemble the assembly or remove or damage the nameplate or any part on the assembly.
3.3.14 Do not trample on or stand on any photovoltaic modules during installation, do not damage or scratch the glass surface of the photovoltaic modules, and do not use any paint or glue applied on the module glass panel.
3.3.15 When the solar photovoltaic module is exposed to sunlight, a current current is generated, and the solar photovoltaic system produces enough electricity to cause a fatal electric shock and combustion hazard. Only professionally trained and authorized people can access the solar photovoltaic modules. In order to avoid electric shock or combustion danger, the solar photovoltaic modules can be covered with opaque materials during the installation of solar photovoltaic modules.

3.3.16 During the installation or maintenance of photovoltaic system, do not wear metal ring, watch, earring and nose ring to avoid damage to Photovoltaic modules and cause electric shock hazard. When under circuit load, do not disconnect any electrical connections or pull out any connectors. To prevent reduced Photovoltaic modules insulation, avoid scratching and cutting any cables or connectors.

3.3.17 In accordance with the relevant electrical installation standards, in the process of transportation and installation Photovoltaic modules, please keep the child away, not near the installation site, the installation shall comply with the local safety regulations (e. g., safety regulations, power plant operation regulations), including wires and cables, connectors, charging controllers, inverters, batteries, rechargeable batteries, etc., under the requirements of the national electrical specification, the maximum system please refer to the system voltage you use.

3.3.18 The current and voltage generated by the photovoltaic module under certain conditions may be higher than those generated under the standard test conditions. If the installation conditions do not meet the requirements of IEC, then you should use the ISC and VOC values to determine the rated voltage of the module as the standard, strengthen the rating of the conductor current and overcurrent protection device and the control capacity of the output of the connected PV module.

3.3.19 Please do not operate any equipment near combustible gas.

3.3.20 Limitations to the mounting solution including slope, orientatione.g Northern hemisphere and southern hemisphere orientations.n and install the photovoltaic modules to meet the requirements of the project site.

3.3.21 Building Integrated PV Module installations must comply with therequirements of the National construction Code.

3.3.22 Design load front 3600Pa/ back 1600Pa, coefficient 1.5, safety protection level is 2, other parameters see the corresponding version of the nameplate, manual or public- i ty materials, if you have questions, you can contact our after-sales personnel.

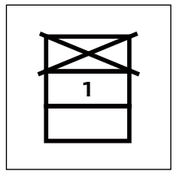
4.Unloading, transport, and storage

1.Description of the packing box identification

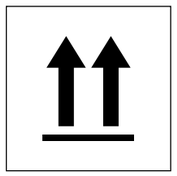
Components are prohibited from being discarded at will and require specialized recycling.

Do not expose components to rain or moisture.

The components in the cardboard box are fragile items and should be handled with care during handling.



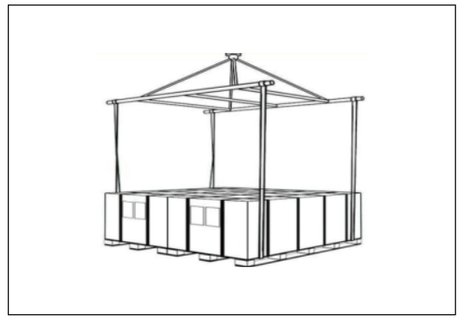
When stacking components, do not exceed the maximum layer limit of 1 layer printed on the outer packaging box.



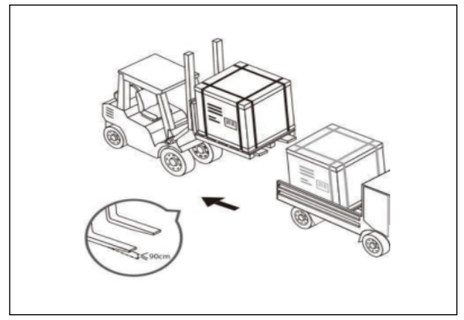
The packaging should be vertically upwards during transportation.

Materials can be recycled.

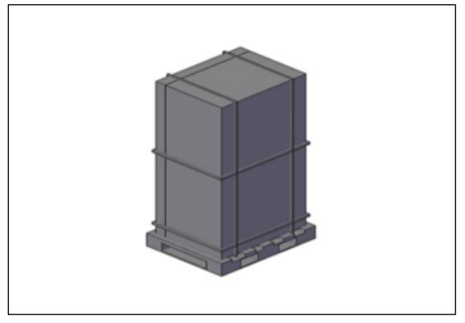
2.Notes for unloading



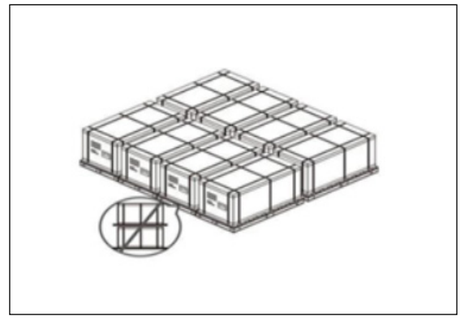
Using reasonable lifting fixtures, a maximum of 2 components can be lifted at once. Before lifting, it is necessary to confirm whether the pallets and cardboard boxes are damaged and whether the lifting ropes are firm and secure. When the lifting is about to land, two people, one by one, support the cardboard box and gently place it on a relatively flat position on the project site.



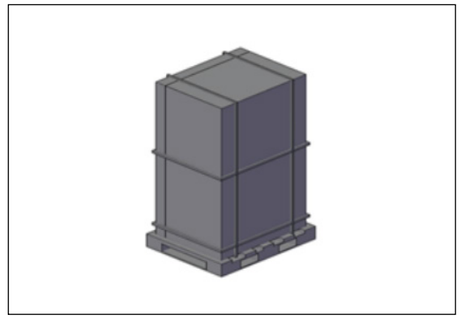
Please use a forklift to unload the components from the truck. During the loading or unloading process, the forklift must not hit the packaging box.



Place the component on a level ground.



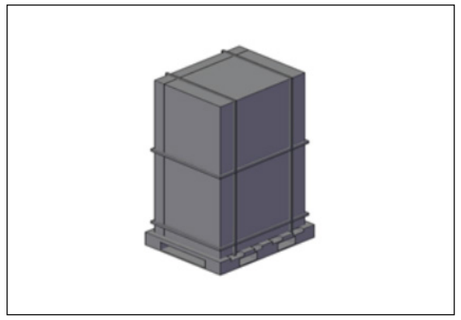
It is prohibited to stack components at the project site.



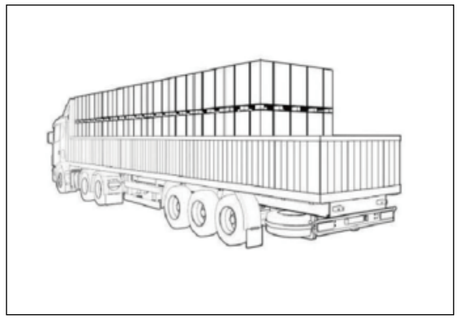
Place the components in a ventilated and dry place.

Cover the components with a rain cloth to prevent moisture from the packaging box.

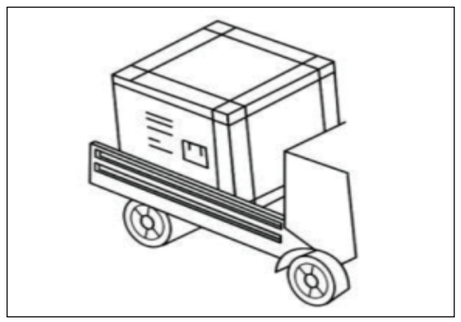
3.Secondary transportation and precautions



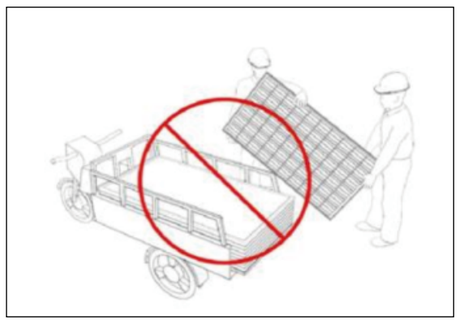
If components require long-distance transportation or long-term storage, please do not remove the original packaging.



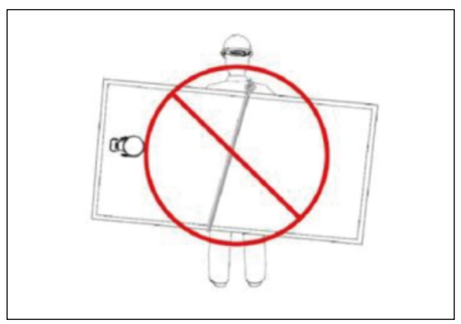
The packaged finished products can be transported by land, sea, or air. During transportation: Please fix the packaging box on the transportation platform to ensure that the packaging does not roll over. (Taking land transportation as an example).



When transferring the project site, do not open the original packaging. Please fix the packaging box on the transportation platform to ensure that it is firmly fixed.



Unpacked components are prohibited from being transported by tricycles.

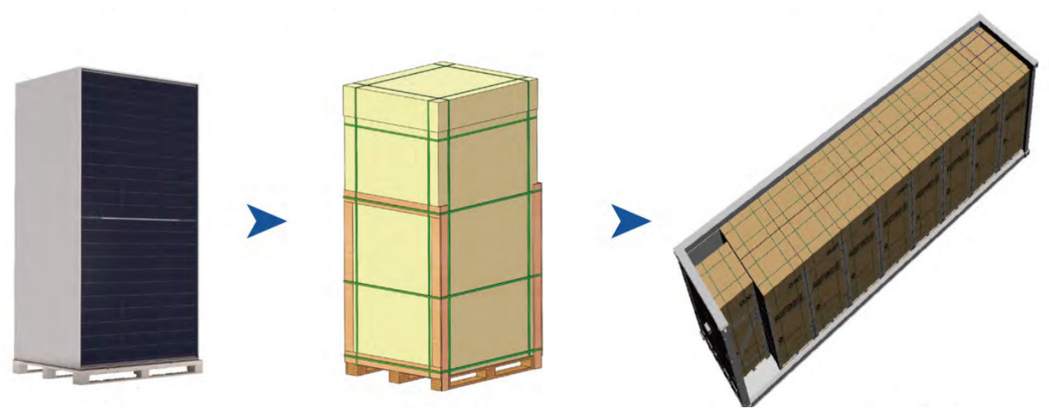


Do not use ropes to carry components.

Prohibit single person carrying components.

4.Lay in

4.1 Do not expose Photovoltaic modules to rain or wet conditions and should be stored in ventilated, rainy and dry conditions.
4.2 If long-distance transportation or long-term storage is required, do not remove the original packaging box of the Photovoltaic modules.
4.3 When the Photovoltaic modules are stored in the warehouse of the project site, please ensure that the storage environment is <85% humidity, the temperature range is 40°C ~ + 50°C, and the Photovoltaic modules are static and stacked in 1 box.
4.4 Vertical package drawing column, as shown below:



Vertical placement

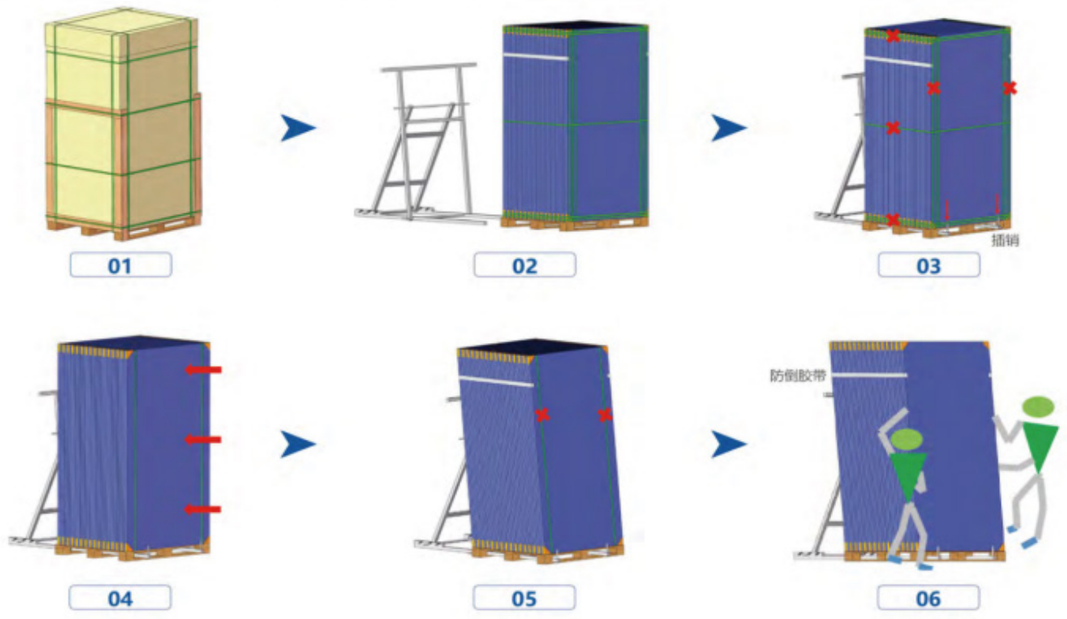
Wooden corrugated packaging

40HC container placement method

5. Precautions for unpacking

5.1 When unpacking outdoors, do not do it in the rain. Because the outer packaging carton will become soft or damaged by damp, the Photovoltaic modules in the packaging box may tilt, dump and damage, and may also cause harm to the operator.
5.2 In the case of wind, more attention needs to be paid to the safety management of the site, especially in the strong wind environment, PARKSUN does not recommend transporting Photovoltaic modules in this environment. Unpacked Photovoltaic modules need to be secured in an appropriate manner.
5.3 Unpack on the flat ground to prevent the box from tilting.
5.4 When unpacking, wear protective gloves to avoid hand injury and keep no finger marks on the Photovoltaic modules glass surface.
5.5 When handling the Photovoltaic modules, two personnel are required to operate together. Do not move the assembly by pulling the wire or the assembly junction box.

5.6 Unpack manual, as shown below:



5.Unit mount

1. Environmental conditions and installation address selection

1.1 The environmental conditions suitable for the installation of PARKSUN solar photovoltaic modules are as follows:

Order number	Smbient condition	Scope
1	Recommended working ambient temperature	-20°C ~+50°C
2	Extreme working environment temperature	-40°C ~+85°C
3	Storage temperature	-20°C ~ +50°C
4	Humidity	RH<85%

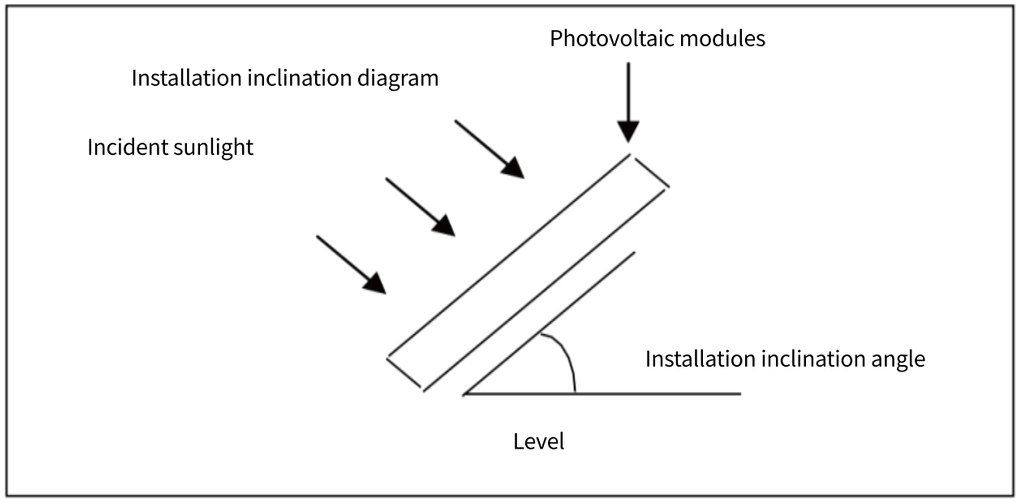
1.2 The working environment temperature is the average monthly maximum and minimum temperature of the installation site. The mechanical load that the solar photovoltaic modules can withstand is determined by the installation method. In the design of the photovoltaic system, the calculation of the mechanical load capacity requires the professional system installer to be responsible for the design.

2.Photovoltaic module installation inclination Angle

2.1 The installation of the solar photovoltaic module string should maintain the same position and the same installation Angle. Different installation orientation and installation inclination will lead to differences in the total amount of light absorbed by different solar photovoltaic modules, resulting in the mismatch of the current and voltage generated, thus reducing the operating efficiency of the system and resulting in the loss of power output.

2.2 When direct sunlight to the solar photovoltaic modules generated power is the largest, for those installed on the permanent bracket of solar photovoltaic modules, choose the best installation Angle should consider the winter of solar photovoltaic module power output, if the Angle can guarantee photovoltaic modules in winter have enough power output, it will make the whole solar photovoltaic module system in the rest of the year can also have enough power output.

2.3 The installation inclination refers to the Angle between the solar photovoltaic module and the ground plane, as shown in the figure below:



2.4 The recommended installation inclination when the fixed system is installed

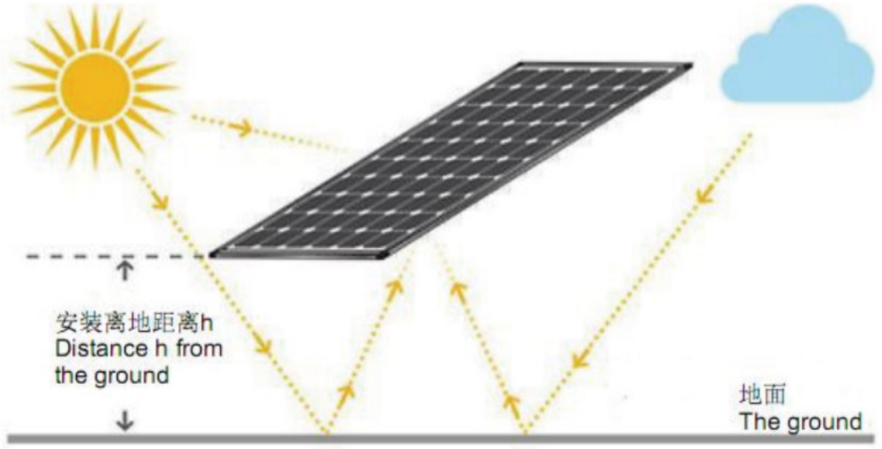
The location of the latitude	Install inclination Angle
0°- 15°	15°
15°- 25°	The same installation latitude
25°- 30°	The installation site latitude is + 5°
30°- 35°	The installation site is located at a latitude of + 10°
35°- 40°	The installation site latitude is + 15°
40°+	The installation site is located at a latitude of + 20°

3. Double-sided and double-glass assembly installation

3.1 Under certain installation conditions, the double-sided double-glass assembly will also generate electricity after receiving the reflected light on the back, which will bring additional power generation gain to the power station system.
3.2 Photovoltaic modules shall be completely protected from (shaded) throughout the year (e. g., through buildings, chimneys, trees), even if partial (shaded) shielding (e. g., through overhead lines, dirt, snow, back supports) shall be avoided.
3.3 The output gain is related to the ground reflectivity, the height of the Photovoltaic modules, the array spacing and the back shadow.
3.4 In general, different ground Photovoltaic modules have different reflectivity, and the resulting Photovoltaic modules generation gain is different. As shown in the figure below:

The ground type	The surface of the water	Meadow	Land	Concrete	Sand	Snowfield
The reflectance range is (%)	5-12	12-25	20-33	20-40	20-40	80-85

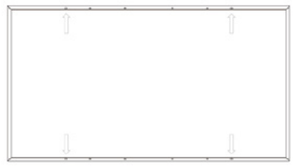
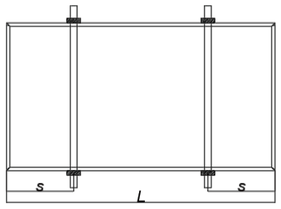
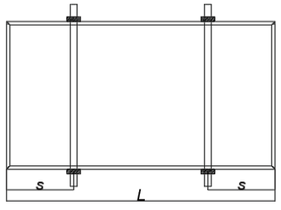
3.5 Different heights from the ground will also affect the gain of power generation of the double glass Photovoltaic modules. The recommended installation height is 1 meter to 2 meters.as shown in the figure:

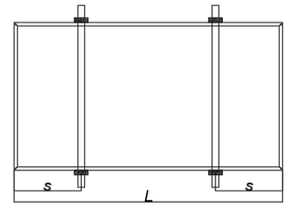
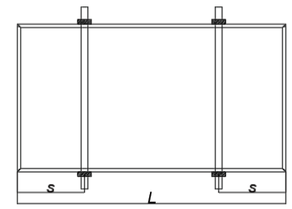


3.6 In the system design, in addition to the ground type and the ground height, the appropriate array spacing and how to avoid the back shadow occlusion need to be considered, please consult a professional system designer.

4. Installation guidance

4.1 Ensure that the stent system is strong enough and that the Photovoltaic modules must be fixed to the stent system as required;
4.2 The support system must be calculated according to the project conditions, installation methods, and the local specifications. The support system supplier must be responsible for the design, check, installation and maintenance of the photovoltaic system;
4.3 In order to reduce the adaptation loss, it is recommended to install the Photovoltaic modules of the same battery color together during the Photovoltaic modules installation process;
4.4 The Photovoltaic modules frame has a thermal expansion and cold contraction effect, and the minimum gap between two adjacent Photovoltaic modules should not be less than 20 mm;
4.5 Under any circumstances, the outlet hole of the Photovoltaic modules should not be blocked, the Photovoltaic modules is not suitable for long-term exposure to sulfur, strong acid, strong alkali, acid rain, chemical pollution and other corrosion risks of the product environment, there is corrosion risk;
4.6 Packaging Angle and Photovoltaic modules edge protection in the packaging and transportation process, Photovoltaic modules are removed during installation;
4.7 All the following load values are laboratory static mechanical load experimental test loads (recommended: block installation or "block + bolt" installation);

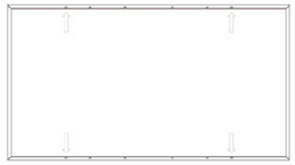
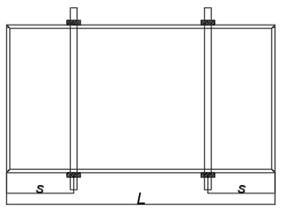
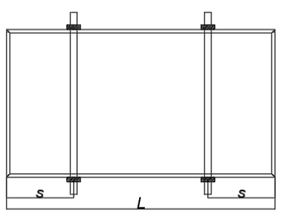
Way to install	Load	Graphic
Installation hole installation	Front payload of 5,400 pa Backside payload of 2,400 pa	Use the outer 4 mounting holes 
Installation of pressing block (2384*1096*35mm、 2384*1303*35mm Photovoltaic modules)	S=(546～646)mm The front load is 5400Pa and the back load is 2400Pa.	The long side uses 4 pressure blocks, and the installation guide rail is mounted vertically with the long frame 
Block installation (2172*1303*35mmassembly)	S=(493～593)mm The front load is 5400Pa and the back load is 2400Pa.	The long side uses 4 pressure blocks, and the installation guide rail is mounted vertically with the long frame 

Installation of pressing block (2384 * 1096 * 33mm, 2384 * 1303 * 33mm Photovoltaic modules))	S=(440～540)mm, The front load is 5400Pa and the back load is 2400Pa.	The long side uses 4 pressure blocks, and the installation guide rail is mounted vertically with the long frame 
Block installation (2172 * 1303 * 33mm Photovoltaic modules)	SS=(360～430)mm, The front load is 5400Pa and the back load is 2400Pa.	The long side uses 4 pressure blocks, and the installation guide rail is mounted vertically with the long frame 

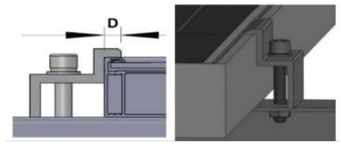
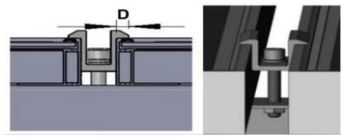
5. Install accessories

5.1 Bolt installation: There is a mounting hole on the back frame of the photovoltaic module for connecting to the bracket system, including the ϕ9x20 mounting hole and the ϕ7x10 mounting hole. When using the ϕ9x20 mounting hole, please use the M8 bolt set in the figure below, and then please use the M6 bolt set in the figure below.

Installing fasteners	IM8 bolt set	M6 bolt set	remarks
Bolt	M8	MVIOG	It is recommended to use sus304 material for anti-corrosion fasteners
Flat washer	2*8	2*6	
Spring washer	8	6	
Nut	M8	M6	
Torque range	16N · m-20 N · m	14N · m-18 N · m	

Way to install	Load	Graphic
Installation hole installation	Front payload of 5,400 pa Backside payload of 2,400 pa	Use the outer 4 mounting holes 
Installation of pressing block (2384*1096*35mm、 2384*1303*35mm Photovoltaic modules)	S=(546～646)mm The front load is 5400Pa and the back load is 2400Pa.	The long side uses 4 pressure blocks, and the installation guide rail is mounted vertically with the long frame 
Block installation (2172*1303*35mmassembly)	S=(493～593)mm The front load is 5400Pa and the back load is 2400Pa.	The long side uses 4 pressure blocks, and the installation guide rail is mounted vertically with the long frame 

5.2 Install the block: Use bolts and blocks of M8 to secure the PV module to t tion process, the aluminum frame of the photovoltaic module should not be deformed, and the front of the module should not be blocked. Each solar photovoltaic module needs to be fixed by at least four pressure blocks, with an applied torque of 16 N·m-20N · m. The size, quantity and installation method of the pressing block can be determined according to the actual load of the project site, but it needs to meet the basic requirements in the table below, and it should be confirmed by the professional technical team.

Block type	Block diagram	
	Edge pressing block	Middle pressure block
Suitable for installing pressure blocks on aluminum frame components		
be careful	Ensure that the pressure block contacts surface A of the component frame by 7mm ⩽ d ⩽ 10mm;	
Block specifications	Block size: length ⩾ 50mm, thickness ⩾ 3mm (applicable to aluminum frame components)	
a fastening	M8 bolts, nuts, spring washers, flat washers, compression blocks (to maximize bracket life, it is recommended to use corrosion-resistant fasteners)	

5.3 Coastal Photovoltaic modules connector protection device: install Photovoltaic modules on offshore land and offshore sea <1km from the sea, it is necessary to install Photovoltaic modules with salt fog resistance grade 8, annual rainfall hours / annual total hours more than 25% and install waterproof cold shrink pipe to prevent connector water and corrosion; cold shrink: pipe material recommended using silicone rubber.

5.4 Pv module connector accessories:

Step	Method	Diagram
①	After unplugging the photovoltaic connector, take either end and slide the shrink tubing onto the connector in the direction shown in the right figure	
②	Insert the shrink tubing over the head of the connector, exposing the head	
③	Connect the positive and negative terminals of the connector in the correct way	
④	Move the connection interface to the middle position of the shrink tubing	
⑤	Pull the exposed inner ring strip in the shrink tubing by hand, rotate it one time and pull it out until the inner ring is completely pulled out	
⑥	The shrink tubing has been completely shrunk and sealed with a connector	

5.5 Installation of cold shrink tube and precautions

5.5.1 Before installation, ensure that there is no sand, water drops, sharp objects and other debris inside the cold shrink pipe;

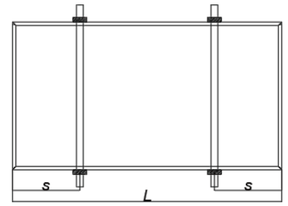
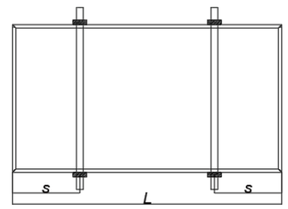
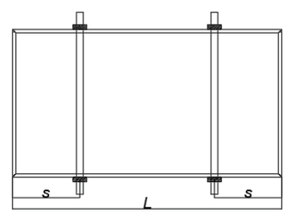
5.5.2 Pay attention to the site environmental protection (support strip / manual / bag treatment);

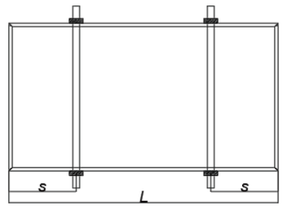
5.5.3 No cracks at both ends of the cold shrink pipe, cracks, no cracks on the surface;

5.5.4 The cold shrink pipe is smooth and natural accepted on the connector and cable, no wrinkles and bumps;

6. Way to install

Recommended: block installation or "block + bolt" installation as follows:

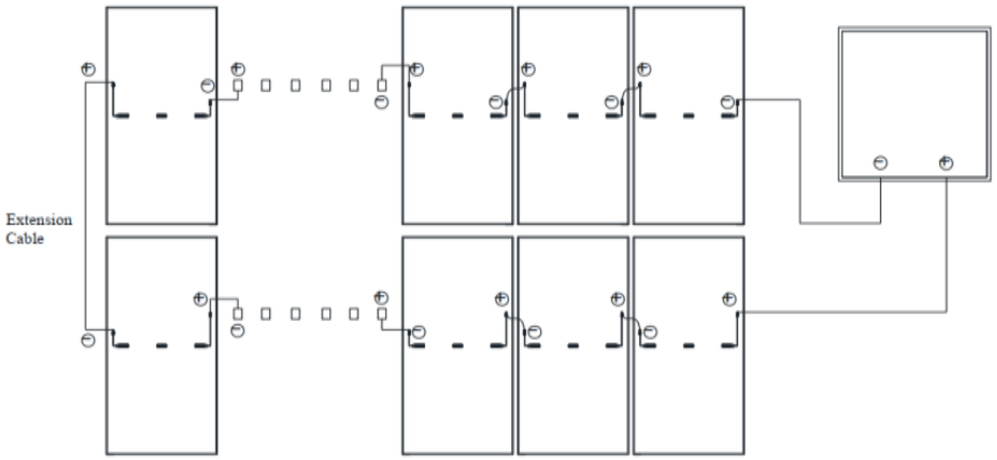
Way to install	Load	Graphic
Installation of pressing block (2384*1096*35mm、2384*1303*35mm Photovoltaic modules)	S=(546～646)mm	The long side uses 4 pressure blocks, and the installation guide rail is mounted vertically with the long frame 
Block installation (2172*1303*35mmassembly)	S=(493～593)mm	The long side uses 4 pressure blocks, and the installation guide rail is mounted vertically with the long frame 
Installation of pressing block (2384*1096*35mm、2384*1303*35mm Photovoltaic modules)	S=(440～540)mm	The long side uses 4 pressure blocks, and the installation guide rail is mounted vertically with the long frame 

Installation of pressing block (2384*1096*35mm、 2384*1303*35mm Photovoltaic modules)	S=(360～430)mm	The long side uses 4 pressure blocks, and the installation guide rail is mounted vertically with the long frame 

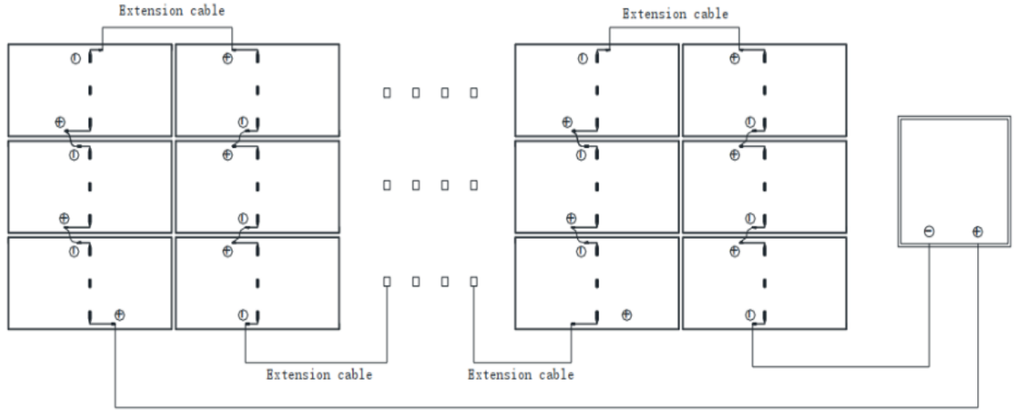
7. Wire way

7.1 The schematic diagram of half-module cable length 300mm positive electrode 300mm recommended vertical connection scheme is as follows (extended cable):

7.1.1 The vertical installation mode of the junction box in the middle



7.1.2 The horizontal installation mode of the junction box in the middle



7.2 Note is required for installation

7.2.1 Pay attention to the direction of the Photovoltaic modules installation, should be along the direction of the wire, avoid wire bending.

7.2.2 In order to avoid poor connection or damage of cables and connectors and junction boxes, which affect the electrical safety or service life of the product, it is recommended that the force applied between the cables and connector, cables and junction boxes shall not be greater than 60N during the installation, disassembly, maintenance and any other related processes.

8. Electrical installation and connection

8.1 The direct current generated by the photovoltaic system can be converted into alternating current and connected to the public grid. Different regions may have different policies and laws and regulations to stipulate the installation requirements and grid connection requirements of photovoltaic systems, so please comply with the local policies and legal and regulatory requirements during the design, installation and grid connection process of photovoltaic systems.

8.2 Photovoltaic modules can obtain different current and voltage output through series and parallel connection. Before electrical connection and connection, please read this installation manual carefully, and design and connect according to the current and voltage required by the customer. Make sure the connection part is free of corrosion and kept clean and dry before connection.

8.3 To ensure proper system operation, make sure the cable is properly connected when connecting Photovoltaic modules or loads. If the Photovoltaic modules are not correctly connected, the bypass diode and the junction box may be damaged. The photovoltaic modules are connected in series (Figure 10-1), parallel (Figure 10-2) and string and parallel (Figure 10-3). The number of Photovoltaic modules in series and parallel should be reasonably designed according to the system configuration. Also note that if the number is 2 in parallel, there must be an overcurrent protection device on each string assembly.

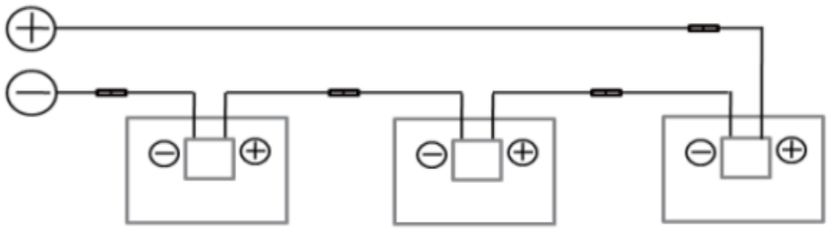


Figure 10-1 Series Connection

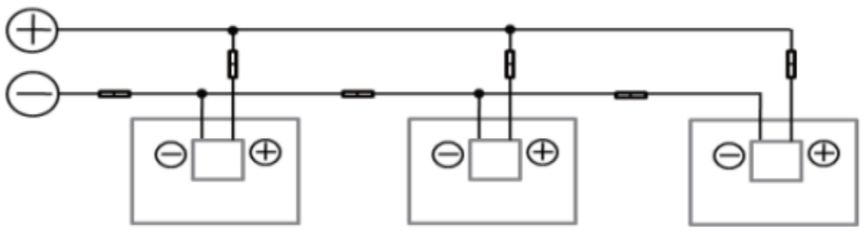


Figure 10-2 Parallel Connection

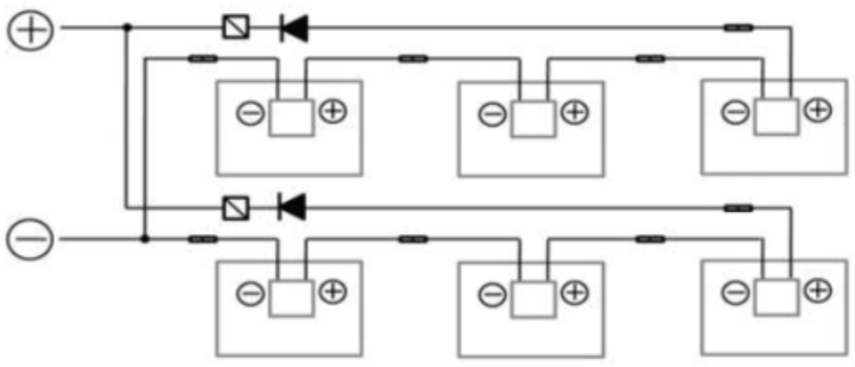


Figure 10-3 Series parallel connection

8.4 Different types of Photovoltaic modules products cannot be connected in series, and the Photovoltaic modules products connected in series should ensure the consistency of their current. The voltage of the Photovoltaic modules string should not exceed the allowed voltage value of the Photovoltaic modules system, and the voltage value can be found in the nameplate or specification of the Photovoltaic modules.

8.5 The maximum number of series Photovoltaic modules depends on the system design, the type of inverter used, and the environmental conditions. Usually, the maximum number of series solar photovoltaic modules (N) can be calculated by dividing the maximum voltage of the system by the open circuit voltage of the relevant solar photovoltaic modules. However, when designing the solar photovoltaic system, the characteristics of the voltage of the solar photovoltaic module must be taken into account. Considering the voltage increase caused by the temperature drop in extreme environments in winter, the maximum series number of solar photovoltaic modules can be calculated using the following formula:

Formula	Maximum system voltage VN * Voc * [1 + Bx (Tmin-25)]
V	Maximum system voltage
N	The maximum number of Photovoltaic modules that can be connected together
Voc	Open circuit voltage of the assembly under STC condition (you can view the label or specification of the Photovoltaic modules)
β	Temperature coefficient of the assembly's open-circuit voltage (refer to the assembly specification)
Tmin	Minimum ambient temperature where the assembly is installed

Note: If the number of parallel strings is 2, there must be an overcurrent protection device on each string assembly.

8.6 If an array of Photovoltaic modules is connected to another with opposite polarity, irreparable damage to the product. Be sure to confirm the voltage and polarity of each column before going in parallel. If the measurement finds the opposite polarity between the columns or the voltage difference is greater than 10V, then the structural configuration is checked before making the connection.

8.7 Before Photovoltaic modules wiring, ensure the contact points are corrosion resistant, clean and dry; if a Photovoltaic modules has positive and negative electrodes back, irreparable damage may occur.

8.8 For relatively large installations, PARKSUN suggests that you use lightning protection in line with local requirements and regulations. When selecting the cable, the minimum load capacity of the cable can be calculated by the following formula. Minimum load capacity of cable =1.25 x Isc x NpIsc: Short circuit current of photovoltaic module (unit: A) Np: number of parallel modules or number of module strings.

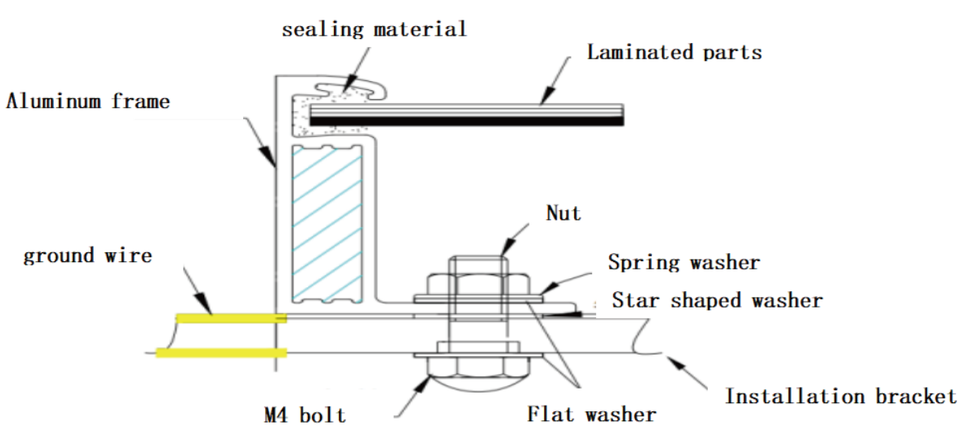
8.9 Clean or organize excess cables, PARKSUN suggests that all cables should be placed in appropriate pipes and away from water. PARKSUN suggested the use of lightning protection devices in accordance with the requirements of local laws and regulations and electrician regulations.

9. Landing

9.1 All solar PV module frames and installation brackets must be properly grounded in accordance with the corresponding National Electrical Regulations or local electrical regulations.

9.2 Correct grounding is achieved by continuously connecting the photovoltaic module frame and all metal Photovoltaic modules by using a suitable grounding conductor. The grounding wire may be copper, copper alloy or other material used as an electrical conductor that can be used as a conductor and comply with the requirements of the corresponding national electrical regulations. A 4-14mm2 copper wire (AWG 6-12) is recommended as the ground conductor. The grounding hole position of the Photovoltaic modules has the grounding mark "" ⏚ "". The grounding wire must also be connected to the earth through a suitable grounding electrode. All the conductive connection points must be firmly connected.

9.3 SoleFiori grounding hole design on the back of the photovoltaic modules of aluminum alloy frame, diameter of 4mm, using separate grounding wire and related accessories connected solar photovoltaic modules of aluminum alloy frame and grounding wire connected to the earth, suggest to use M4 x 12mm grounding bolt and have M4 nut, star gasket and flat gasket, so as to ensure that the Photovoltaic modules is firmly ground. You can find the corresponding product drawings in the SoleFiori Photovoltaic modules product manual to understand the detailed number, size and position of the product grounding hole, and the torque torque is 4 N·m-8N · m.



10. Photovoltaic modules maintenance and maintenance

10.1 In order to ensure that the installed photovoltaic system can be used for a long time and maximize the power output performance of the modules, the installed photovoltaic modules need to be checked and maintained regularly. The inspection and maintenance of modules in the photovoltaic array requires professional training in photovoltaic system maintenance and relevant qualifications and authorization.

a) Regular visual inspection to remove dirt, dust, guano, leaves and other falling objects.
b) If there is dust or dirt accumulation on the surface of the assembly, please clean the glass with a soft cloth or sponge dipped in mild detergent and water.
c) If there is snow on the surface of the Photovoltaic modules, use a soft brush with soft hair for cleaning.
d) Do not use cold water to clean the Photovoltaic modules at high temperature to avoid heat shock to damage the Photovoltaic modules.
e) It is recommended to check the torque of the fixing screw, the overall wiring and the installation device at least once a year.
f) To keep the system safe and work at maximum efficiency, conventional electrical and mechanical failures need to be detected by authorized personnel.

6. Disclaimer

Since the installation, operation and use of SoleFiori solar photovoltaic modules are beyond the company's control scope, SoleFiori is not responsible for the power loss, damage, casualties or additional costs caused by the incorrect installation, operation, use and maintenance. SoleFiori shall not be responsible for the infringement of third-party patent rights or any other rights arising from the use of solar photovoltaic modules. SoleFiori reserves the right to update product, parameters, product specifications and specifications or installation manuals without prior declaration. The information in this installation and service manual comes from knowledge and experience and such information and recommendations do not constitute any warranty.

7. Applicable PV module models

HJH-AB132DS0-730	HJH-AB120DS0-665	HJH-AB110DS0-610
HJH-AB132DS0-725	HJH-AB120DS0-660	HJH-AB110DS0-600
HJH-AB132DS0-720	HJH-AB120DS0-655	HJH-AB110DS0-605
HJH-AB132DS0-715	HJH-AB120DS0-650	HJH-AB110DS0-595
HJH-AB132DS0-710		HJH-AB110DS0-590
HJH-AB132DS0-705		HJH-AB110DS0-585
HJH-AB132DS0-700		HJH-AB110DS0-580
HJH-AB132DS0-695		
HJH-AB132DS0-690		