

SPV Module Installation Manual

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This manual provides very important information about PV Module installation, maintenance and usage. Please keep it appropriately for reference.

1, Disclaimer

With the updating PV technology, the related information in the manual will be modified without prior notice. The manual is specific to land installation, so the users and the installers should read it carefully and comply with it. In the event of not following the regulations in the manual, our company will not take any responsibility for the possible consequences.

2, Common Security Instruction

- 2.1, Installation of SPV power generation system needs professional technique and knowledge and must be finished by professional engineers.
- 2.2, As the installers try to install, operate and maintain PV modules, please ensure you understand the installation manual completely and know the possible danger.
- 2.3, PV modules can generate electricity with the adequate illumination or other light source, therefore, please take relevant measures during operation and avoid people directly touching 30V DC or higher voltage.
- 2.4, SPV module can converse solar energy into direct current power and the quantity of electricity can change with the light intensity.
- 2.5, When the modules have current or external power supply, do not connect or cut modules
- 2.6, Opaque material should be put on the front side of SPV module array to stop generating while installing or using modules and wiring.
- 2.7, The relevant laws and regulations in any locals, regions and countries should be abided by and relevant Permit should be got firstly where necessary.
- 2.8, Because of no users' maintainable originals, please do not remove, move or change any generic accessory
- 2.9, Please do not wear metal rings, watch band, earrings, nose rings, lip rings or other metal accessories while installing SPV modules
- 2.10 Please do not install or operate modules under wet or strong-wind condition.
- 2.11 Please do not use or install the damaged modules and concentrated Sunlight on the modules personally.
- 2.12, Only the same- type PV modules can be combined together. Avoid heterogeneous shadow, because the overshadowed cells can get hot ("hot spot" effect), which will damage the modules perpetually.
- 2.13, Please turn off inverters and breakers immediately when the accident occurs.
- 2.14, Defective or damaged modules can still generate power, so be sure to shield them completely, if they need carrying.
- 2.15, Keep children away from modules while their delivering and installing.
- 2.16, Please keep the PV modules in the original packages before installation.

3, Mechanical Installation

Before installing modules, the related department should be contacted to definite the necessary permission of installation location and construction, and the requirement of installation and checking which should be complied with。

3.1 Location Selection

3.1.1 Module installation location should be with abundant sun light, but without shadow or shield all year round.

3.1.2 As SPV modules generate power by light, an appropriate installing angle should be selected to ensure the modules can receive maximum sun light.

3.1.3 Modules location Selecting should meet every requirement about electrical and fire prevention code.

3.2 Bracket Selection

3.2.1 The instruction and safe rules in the manual attached to bracket should be abided by.

3.2.2 Modules have been completely finished on its design before going out, so please do not try to modify any module structure.

3.2.3 During standard installation, the module will be fixed on the racks through the four symmetrical installing holes inside the frame.

3.2.4 Mounting rack and other needed materials, like bolts, should be made of durable, anticorrosive and uvioresistant material.

3.3 Installation on Land

3.3.1 Choosing proper installing height to prevent the lower part of module from being covered by snow when it snows in winter. Otherwise, the lowest part of module should be high enough to avoid being damaged by plants, tree shadow or blowing sands and stone.

3.3.2 Checking the building specification before roof installation to make sure the building and its structure (roof, outside, bearing, etc) with enough weight capacity. While installing module, it is sure to be put on a fire-proof roof and the tilting angle of the roof is less than 5in/ft, to assure fire rating.

3.3.3 It is sure to fix the module safely on the roofs or buildings and not to be damaged by strong wind and heavy snow.

3.3.4 The backside of module should be ventilated adequately. (Minimum spacing between solar modules to the roof surface is 10CM)

3.3.5 The roof needs to be sealed after solar module installation to avoid leaking

3.4 Installation Guide

3.4.1 Module and its support should be bolted through installing holes which is on the back flange of frame. Do not need to drill extra ones

3.4.2 To use appropriate anticorrosive tighten material

3.4.3 There is many different tighten type about tighten from top and tighten from underside (see figure2), and installing way depends on installing structure.

3.4.4 Installing design should be inspected by a professional engineer. Installing design and procedure should comply with local regulations and all legal departments' rules

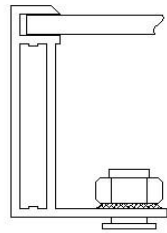


figure 1

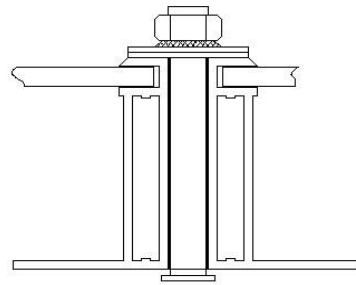


figure 2

3.4.5 To use torque spanner in the installation, the picture above shows the way to fix module and its support. In the picture two, fixed torque (using stainless steel M8 bolt) is 17Nm

4, Electrical Installation

In some cases, module may generate higher current or voltage than that in the optimum work under STC. Therefore, after fixing the original module rating and application load, the open circuit voltage and current under STC should multiply 1.25. To ensure proper wire and fuse depends on 690-8 of US NEC, and the short circuit current should multiply 1.25.

4.1 Electrical installation instruction

- 4.1.1 To use same type module on one PV generating system
- 4.1.2 In the event of PV modules in series, total voltages equals to the sum of all modules' voltages
- 4.1.3 In the event of PV modules in parallel, total current equals to the sum of all modules' current.
- 4.1.4 Modules provide prefabricating connectors which is used to electrical connection.
- 4.1.5 The cross sectional area of cables and the capacity of connectors used in the system should satisfy the maximum system short circuit
- 4.1.6 During installing modules, the backside with junction box part faces up.
- 4.1.7 While designing system, please avoid short-circuit
- 4.1.8 To check connection before start.
- 4.1.9 To ensure that the connection is tighten completely and the plug should not stand external pressure! The plug is only used for connecting circuit, not for open and close circuit.

4.2 Grounding

- 4.2.1 Module and its support should be grounded correctly. To use recommended terminals and connect the ground cables rightly.
- 4.2.2 It is better to use grounding cable accessories (connecting clip) to connect grounding cables.(connecting clip supplier is Cat.No.GBL4-DBT)
- 4.2.3 Many connections of conduction should be fixed. The metal with iron used in conduction should do preservative treatment to avoid rusting.

5. Maintenance

5.1 When the module surface gets dirty, it is better to use soft sponge to clean the glass surface of modules.

5.2 To do mechanical and electrical checking every six months to assure module connector clean and tight.

5.3 If has any question, please ask the professional people to check.

5.4 Notice: Comply with the maintaining instruction on all used system parts, such as rectifier, inverter, cells, etc.

5.5 If has snow, please use soft brush to clean the module surface.

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