JinkoSolar

Dual Glass Photovoltaic Module

Installation Manual

Your Trust in Solar

Contents

Edition 07/2019

1. General Information

1.1 Overview

Thanks for choosing Jinko Solar PV modules. In order to ensure the PV modules are installed correctly, please read the following installation instructions carefully before modules are installed and used.

Please remember that these products generate electricity and certain safety measures need to be taken to avoid danger.

Make sure the module array is designed in such a way not to exceed the maximum system voltage of any system component such as connectors or inverters.

The assembly is to be mounted over a fire resistant roof covering rated for the application. Before mounting the module, please consult your local building department to determine approved roofing materials.

perform maintenance work on this module.
Follow the battery manufacture„s recommendations if batteries are used with modules.

Do not stand or step on the PV module like below pictures show. This is prohibited and there is a risk of damage to the module and cause injury for you.
Only PV modules with the same cell size should be connected in series.
During transporting modules, please attempt to minimize shock or vibration to the module, as this may damage the module or lead to cell micro cracks.
During all transportation situations, never drop the module from a vehicle, house or hands. This will damage module.
Do not clean the glass with chemicals. Only use tap water. Make sure the module surface temperature is cool to the touch. Cleaning modules with cool water when module surface temp is high may result in glass breakage.
Do not disconnect any of the modules when under load.
When looking at PV modules with anti-reflection (AR) coating technology, it will be normal to see some cells with a slight color difference at different angles.
Corner protection of DV module is used to protect the module during transportation, and the customer can remove or leave it on modules.
Connector of junction box can not be contacted with oily substances, for example, lubricant, rust inhibitor etc.

2. Installation

2.1 Installation safety

Always wear protective head gear, insulating gloves and safety shoes (with rubber soles).
Keep the PV module packed in the carton until installation.
Do not touch the PV module unnecessarily during installation. The glass surface and the frame may be hot. There is a risk of burns and electric shock.
Do not work in rain, snow or windy conditions.
Due to the risk of electrical shock, do not perform any work if the terminals of the PV module are wet.
Use insulated tools and do not use wet tools.
When installing PV modules, do not drop any objects (e.g., PV modules or tools).
Make sure flammable gasses are not generated or present near the installation site.
Insert module connectors fully and correctly. An audible "click" sound should be heard. This sounds confirms the connectors are fully seated. Check all

connections.

The module leads should be securely fastened to the module frame, Wire

adequate during the rest of the year. For grid-connected installations where the PV modules are attached to a permanent structure, PV modules should be tilted so that the energy production from the PV modules will be maximized on an annual basis.

2.3 Mechanical Installation introduction

Jinko Frameless Dual glass modules usually can be mounted by the clamps.
Jinko Dual glass modules of frame usually can be mounted by the clamps and bolts.

2.3.1 The installation of Dual glass modules without frame

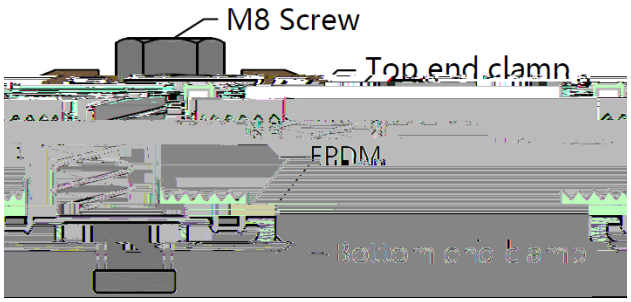
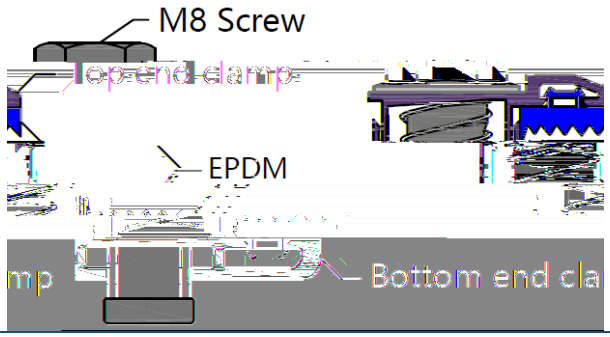
Following components are just used in manual Jinko Dual glass module.		
clamp	**Example**	**Description**
End clamp		Connect the last module of each PV row
Middle clamp		Connect two modules

Table 1 Jinko Dual glass modules without frame mounted clamps

Be sure to avoid shadowing effects from the module clamps. When choosing this type of clamp-mounting method, please be sure to use at least four clamps on each modules, and two clamps should be attached on each long side of the module. Depending on the local wind and snow loads, if excessive pressure load is expected, additional clamps or support would be required to ensure the module can bear the load. The applied torque should be large enough to fix it steadily (about 16-20 N▪m) .For safety, you"d better follow the clamps manufacture"s recommendation. Please find detailed mounting information in the below illustration, and we suggest the clamps are mounted between J and K, as shown below.

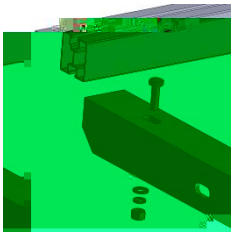
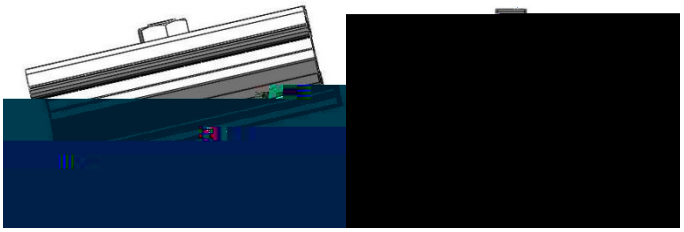
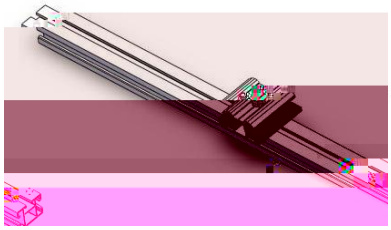
Type1	Group 1~9, Group 11	
Mechanical Load Pressure	**Length**	**Manual direction**
Front surface: ≤2400 Pa Back surface: ≤2400 Pa	120mm	

Front surface:
≤5400 Pa

Module type	Dimensions mm		
	A*B	5400Pa	
		J	K
Group 1 & Group 5	1968*992 & 2002*1002	300	400
Group 2 & Group 6	1658*992 & 1680*1002	300	400
Group 3 & Group 4	1658*992	300	400
Group 7 & Group 8	1658*992	300	400
Group 9	1978*992 & 1978*986	300	400
Group 10	2000*992 & 1994*986 & 2024*1002	300	400
Group 11	1668*992 & 1650*986	300	400
Group 12	1692*992 & 1674*986 & 1698*1002	300	400

Table 3 Mechanical dimensions when modules installed with clamps fitting method

Before the installation, please read the operation instructions of the PV system carefully. In addition, please completely prepare the site before the installation.

Step 1:Install the rail	Graphical representation
Install the rail	
Step 2:Install the clamp	Graphical representation
Put the clamp into the rails	  
Step 3:Install the module	Graphical representation

Put the module into the clamp and tighten the screw about 16-20N▪m	

Table 4 The Schematic Diagram of the installation process of clamps

2.3.2 The installation of Dual glass modules with frame.

2.3.2.1 Fixation with bolts (eight mounting holes)

The frame of each module has 8 mounting holes (Length* Width: 14mm*9mm) used to secure the modules to support structure. Always use all the eight mounting holes to secure the modules. The module frame must be attached to a mounting rail using M8 corrosion-proof bolts together with spring washers and flat washers in eight symmetrical locations on the PV module. The applied torque value should be big enough to fix the modules steadily. The reference value for M8 bolt is 16~20N*m. As to special support system or special installation requirement, please reconfirm with the support"s supplier for the torque value. Please find detailed mounting information in the below illustration as Figure 2 and Table 5.

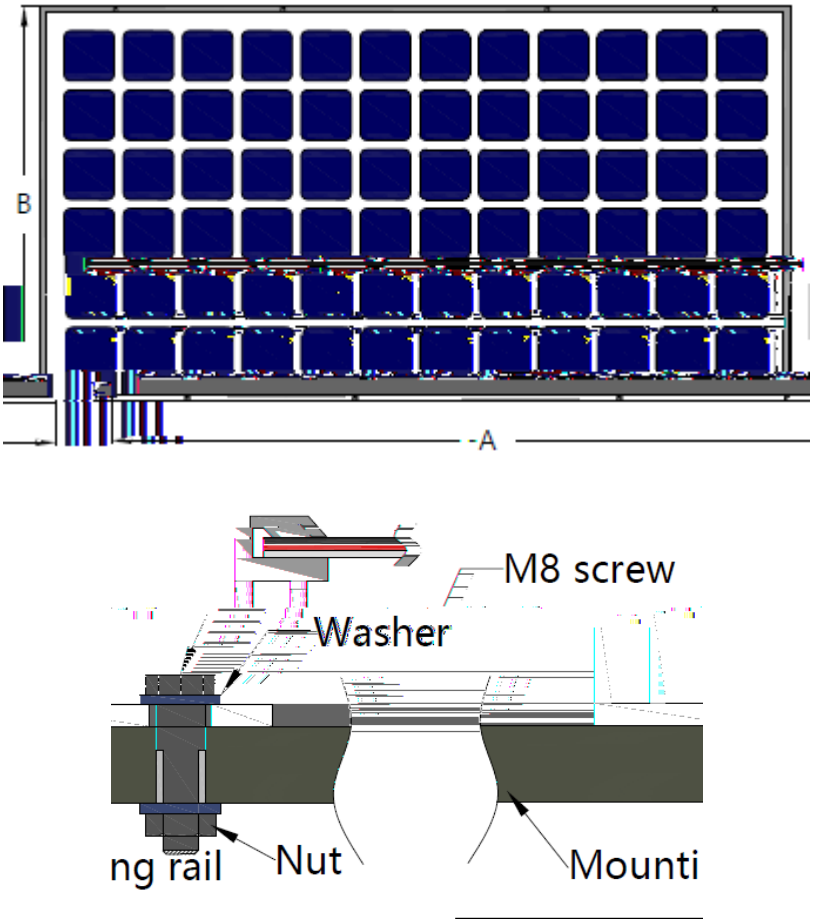


Figure 2 The mounting method of bolts for Dual glass modules with frame

Module type	Dimensions mm
	A*B
Group 13	1984*998 & 1984*992
Group 14	2006*998 & 2000*992 & 2031*1008
Group 15	1674*998 & 1656*992
Group 16	1698*998 & 1680*992 & 1704*1008
Group 17	2009*1008
Group 18	1686*1008

Table 5: Mechanical dimensions when modules installed with bolts fitting method

2.3.2.2 Fixation with clamps at long sides of frames

The module clamps should not come into contact with the front glass and must not deform the frame. Be sure to avoid shadowing effects from the module clamps. The

module frame is not to be modified under any circumstances. When choosing this type of clamp-m

Figure 3 The mounting method of clamps for Dual glass modules with frame

Module type	Dimensions (mm)		
	A*B	J	K
Group 13	1984*998 &1984*992	280	480
Group 14	2006*998 & 2000*992	280	480
	2031*1008	350	480
Group 15	1674*998 & 1656*992	280	420
Group 16	1698*998 & 1680*992 & 1704*1008		

requirement for system power, current and voltage.

b) PV module connected in series should have similar current. Modules must not be connected together to create a voltage higher than the permitted system voltage(1500VDC). The maximum number of modules in series depends on system design, the type of inverter used and environmental conditions.

c) The maximum fuse rating value in an array string can be found on the product label or in the product datasheet. The fuse rating value is also corresponding to the maximum reverse current that a module can withstand. Thus based on the maximum series fuse rating of module and local electrical installation criteria, make sure the modules strings in parallel for connection need to be assembled with appropriate string fuse for circuit protection.

d) Open the combiner box of the control system and connect the conductor from the PV arrays to the combiner box in accordance with the the design and local codes and standards. The cross-sectional area and cable connector capacity must satisfy the maximum short-circuit of the PV system (for a single component, we recommended that the cross-sectional area of cables be 4mm^2 and the rated current of connectors be more than 10A), otherwise cables and connectors will become overheating for large current. Please pay attention to the temperature limit of cables is 85℃.

e) Follow the requirements of applicable local and national electrical codes.

f) These modules contain factory installed bypass diode .if these modules are incorrectly connected to each other, the bypass diodes, cable or junction box maybe damaged.

4. Maintenance and care

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5. Electrical specification

The module electrical rating are measured under Standard Test Conditions, which are 1000W/m^2, irradiance with AM 1.5 spectrum and 25 deg (77°F) ambient temperature. The module might produce more or less voltage or current than rating value in uncertainty condition. Accordingly, the values of I_{SC} and V_{OC} marked on this module should be multiplied by a factor of 1.25 when determining component voltage ratings, conductor current ratings, fuse sizes, and size of controls connected to the PV output.
The corresponding electrical specification can be downloaded from website www.jinkosolar.com.

6. Disclaimer of Liability

Because the use of the manual and the conditions or methods of installation, operation, use and maintenance of photovoltaic (PV) product are beyond Jinko"s control, Jinko does not accept any legal responsibility and expressly disclaims liability for any person and property damage arising from the failure to follow the installation, operation, use, maintenance provided in the manual, and for any disputes caused by no-quality reasons.
Intellectual Property Right: No responsibility is assumed by Jinko for any infringement of intellectual property or other rights of third parties, which may result from use of the PV product. No license is granted by implication or otherwise under any intellectual property rights or related use authorization.
Jinko reserve the right to change the manual, the PV produce, the specifications or product information. Any information may be changed due to business needs, technical level or other objective environment, which is not representative of the negation for the original information.
The information in this manual is based on Jinko"s knowledge and experience and is believed to be reliable, but such information and suggestions (without limitations),

Appendix Applicable Products

This document is applicable to the series of solar modules as listed below:

(1) Dual glass without frame series products

Group 1

JKMxxxPP①-72-DV②	JKMS③xxxPP-72-DV	JKMxxxPP-72-DV-J④	JKMSxxxPP-72-DV-J

(xxx=285-350, in steps of 5)

Group 2

JKMxxxPP-60-DV	JKMSxxxPP-60-DV	JKMxxxPP-60-DV-J	JKMSxxxPP-60-DV-J

(xxx=240-290, in steps of 5)

Group 3

JKMxxxPP-48-DV	JKMSxxxPP-48-DV	JKMxxxPP-48-DV-J	JKMSxxxPP-48-DV-J

(xxx=190-230, in steps of 5)

Group 4

JKMxxxPP-36-DV	JKMSxxxPP-36-DV	JKMxxxPP-36-DV-J	JKMSxxxPP

(xxx=315-420, in steps of 5, 72 cells)

Group 11

JKMxxxM-60-BDV			

(xxx=250-350, in steps of 5)

JKMxxxM-60-BDVP			

(xxx=260-350, in steps of 5)

Group 12

JKMxxxM-60H-BDV			

(xxx=250-350, in steps of 5)

JKMxxxM-60H-BDVP			

(xxx=260-350, in steps of 5)

(2) Dual glass with frame series products

Group 13

JKMxxxM-72-BDV⑤			

(xxx=300-420, in steps of 5)

JKMxxxM-72-BDVP			

(xxx=315-420, in steps of 5)

Group 14

JKMxxxM-72H⑦-BDV

(xxx=210-350, in steps of 5)

Notes:

PP: the eagle series module

DV: photovoltaic Module- Dual glass with 1500V

JKMS: the smart series module

J: customized product for Japanese market

BDV: the bifacial N type series module

BDVP: the bifacial P type series module

H:Half

Note

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