

KANEKA Thin Film PV
Installation Manual

MODULE TYPE: U-EA100






KANEKA CORPORATION









3-2-4, NAKANOSHIMA, KITA-KU
OSAKA 530-8288, JAPAN

reference No. U-EA100.001

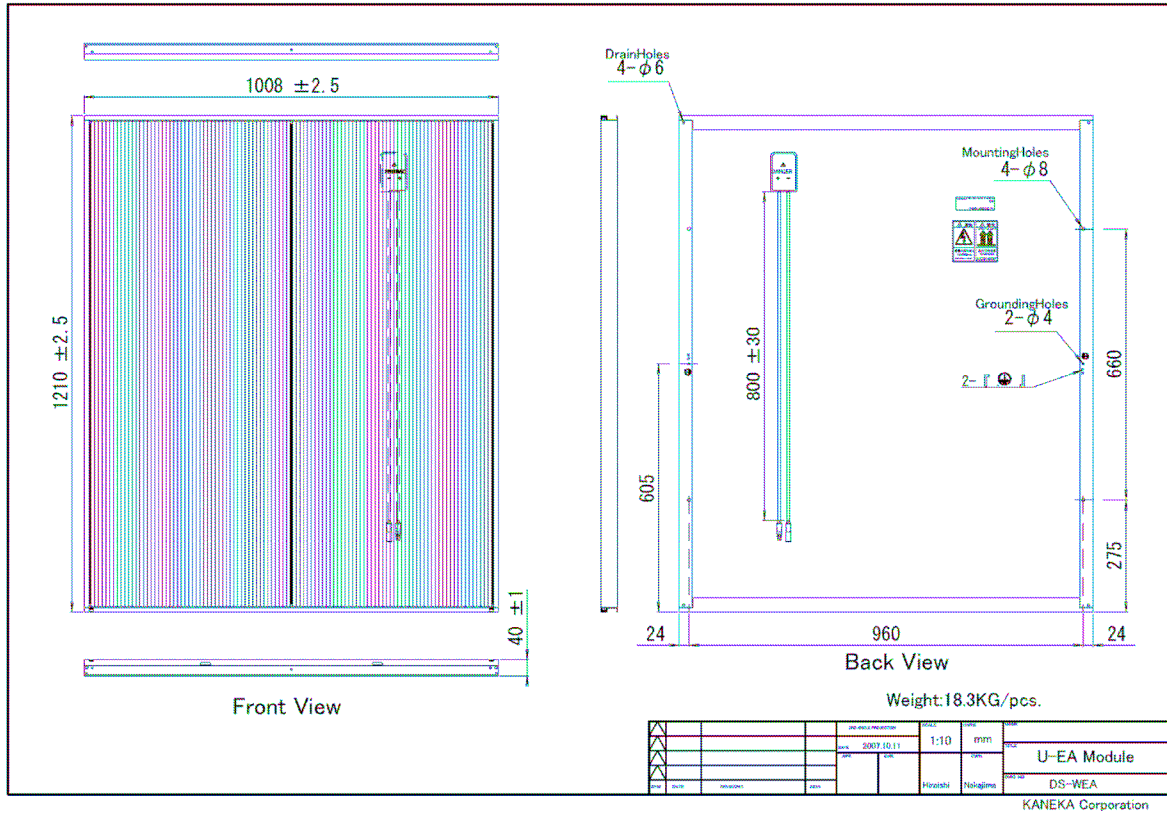
Warning

Meaning of signs

	Not Allowed		No Disassembly		No Touching
	Procedures Must be Followed.			Beware of Electric Shock	

<p>Do not disassemble Kaneka thin-film silicon photovoltaic module(s) (hereinafter referred to as the MODULE(S)), as this may cause fire, electric shock, and injury.</p> 	<p>Do not shock the MODULES (e.g. by stepping on it), as this may break the glass part and cause malfunction, electric shock and injury.</p> 
<p>Follow the procedure in this manual when installing the MODULE and its platform.</p> 	<p>Beware of electric shock and short-circuit, as the MODULE generates high-tension current when exposed to light.</p> 
<p>Wear a safety belt, protection footwear, and protection gloves when installing the MODULE to prevent falling and electric shock. (Install safety fence and scaffolding to prevent falling.)</p> 	<p>The platform, connection box, and the inverter (power conditioner) must be grounded based on the regulation about grounding method.</p> 
<p>Do not expose the MODULE to the artificially concentrated sunlight.</p> 	<p>Installers should be qualified personnel who are experienced with electrical work and the installation of PV systems.</p> 

1. Dimensions



2. Electrical Characteristics of MODULES

PRODUCT : THIN-FILM SILICON PV MODULE			
MODEL: U-EA100	DATE: April 01, 2009		
SPECIFICATION LISTS	UNIT	VALUE	REMARK
Performance at STC (stabilized)			
Nominal Power (Pmax)	W	100	
Open Circuit Voltage (Voc)	V	71.0	
Short Circuit Current (Isc)	A	2.25	
Voltage at Pmax (Vpm)	V	53.5	
Current at Pmax (Ipm)	A	1.87	
Max. System Voltage	V	600	
Maximum over-current protection rating	A	3.5	
Application class		Class A	
Fire Rating (ANSI/UL790)		Class C	
Dimension	mm	1210.0 ± 2.5 x 1008.0 ± 2.5	
Depth	mm	40.0 ± 1.0	
Weight	kg	18	

(REMARK)

1. During initial 6 weeks of operation, the MODULE has higher electrical output than rated output (See Performance at STC (stabilized)). The Pmax, Voc and Isc may be higher by 30%, 15% and 15% respectively.
2. The Electrical characteristics are within ±10% of the indicated values of Voc and Isc, and within +10/-5% of that of Pmax under standard test conditions (irradiance of 100mW/cm², AM1.5 spectrum, and a cell temperature of 25°C). Even though we don't define the tolerances of Vpm and Ipm, those tolerances are close to ±10% according to the tolerances of Voc and Isc.

3. Specifications subject to change without notice.
4. Under normal conditions, the MODULES may experience conditions that produce more current and/or voltage than reported at Standard Test Conditions. Accordingly, the values of Voc and Isc marked on the MODULES should be multiplied by a factor of 125% when determining component voltage ratings, conductor capacities, fuse sizes and size of controls connected to the MODULE output.
5. The type of over current protection is described as Series Fuse 3.5A, Bypass Diode 3.5A
6. The MODULE is applied to application class A. Application class A for PV-modules is defined as follows:
Class A: General access hazardous voltage, hazardous power applications.
Module rated for use in this application class may be used in systems operating at greater than 50 V DC or 240 W, where general contact access is anticipated. Modules qualified for safety through this part of IEC 61730-1 and IEC 61730-2 and within this application class are considered to meet the requirements for safety class II.

3. Installation of the MODULES

The assembly is to be mounted over a fire resistant roof covering rated for the application.

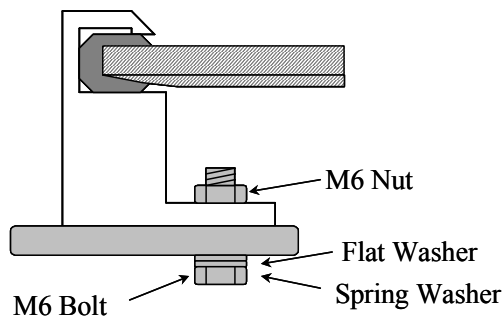
5 in/ft (127mm/305mm) required to maintain UL fire class rating.

Artificially concentrated sunlight shall not be directed on the MODULE.

See the Attachment A: Instruction for using U-type .

Method (1)

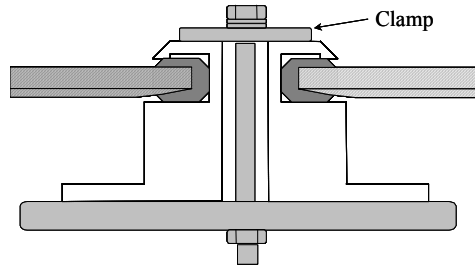
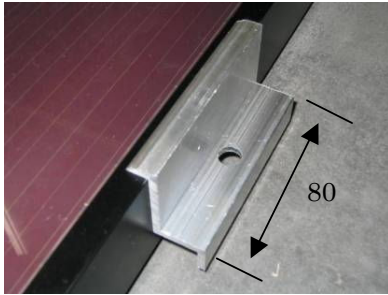
Fix the MODULES to rails with M6 bolts and nuts (4 pairs per module). The platform of the MODULES should have sufficient strength.



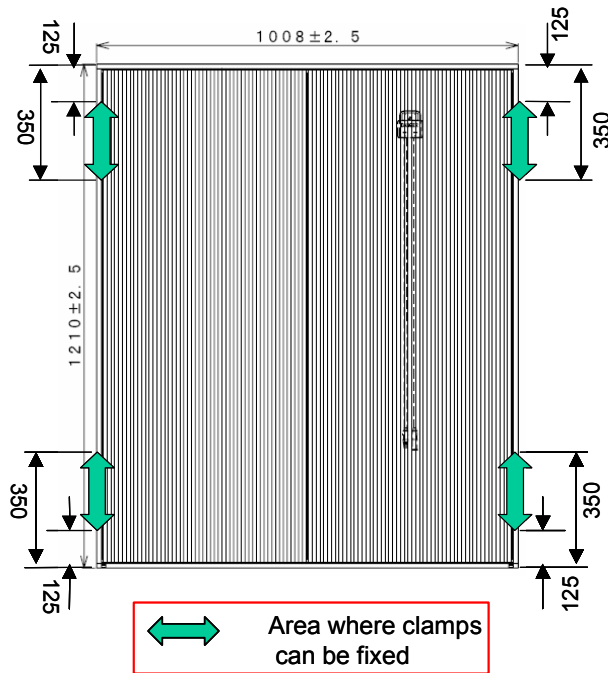
[the MODULE mounting diagram 1]

Method (2)

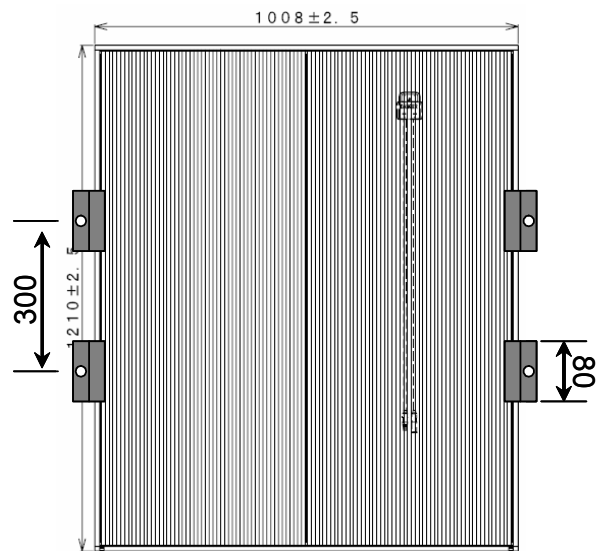
Fix the MODULES to rails with clamps as shown in the picture below, Module mounting diagram 2 and Clamping Method 1 to 2. The clamp length shall be 80mm or more.



[MODULE mounting diagram 2]



Clamping Method 1 (for roofing)



Clamping Method 2 (for free-land)

Handling Instruction to install a mounting system

- *Do not shock the MODULES (e.g. by stepping on it), as this may break the glass part and electric shock.
- *Wear a safety belt, protection footwear, and protection gloves when installing the module and mounting system to prevent falling and electric shock.
- * Beware of electric shock and as the MODULE generate high- tension current when exposed to

light.

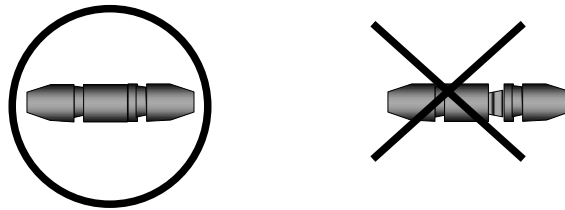
4. Connecting cables

All wiring should be done in accordance with applicable electrical codes.

Use 14 AWG (2.0 mm²) minimum, insulated for 90°C minimum cables.

Stranded Copper only.

When connecting cables, push the plus and minus connectors against each other while twisting them until they are fully engaged.



Plus cable connector: PV-KST3II (Multi-Contact)
Minus cable connector: PV-KBT3II (Multi-Contact)

Each PV has MC Connector system for photovoltaic, which is supplied from Multi-Contact. You can use the same connector as written above.

The MODULES employ factory assembled Multi-Contact connectors for interconnection between the MODULES during array assembly in the field.

More than six (6) MODULES should not be connected in series.

When the Modules are connected in parallel, each string should have a blocking diode or a fuse, which is a 3.5 A of capacity.

See the Attachment A: Instruction for using U-type.

5. Ground-connecting

Grounding should be done in accordance with the applicable regional and local codes. All the MODULES should be ground-connected with the ground holes of the MODULES.

Each exposed conductive part of the module that is accessible during normal use shall be bonded together, as verified by 10.4 of IEC 61730-2.

Routine maintenance of a module shall not involve breaking or disturbing the bonding path. A bolt, screw, or other part used for bonding purposes within a module or panel shall not be intended for securing the complete device to the supporting surface or frame.

Bonding shall be by a positive means, such as clamping, riveting, bolted or screwed connections, or welding, soldering or brazing. The bonding connection shall penetrate all

nonconductive coatings, such as paint, anodised coatings or vitreous enamel.

All joints in the bonding path shall be mechanically secure, independently of any soldering.

If the bonding connection depends upon screw threads, two or more screws or two full threads of a single screw shall engage the metal.

The diameter of the grounding screw or bolt shall be sized appropriately to the gauge of the bonding conductor, as per Table 2 of IEC 61730-1.

A ferrous metal part in the grounding path shall be protected against corrosion by metallic or non-metallic coatings, such as painting, galvanising, or plating. Stainless steel is acceptable without additional coating.

A metal-to-metal multiple-bearing pin-type hinge is considered to be an acceptable means for bonding.

6. Maintenance

Under the normal use maintenance is not necessary. The dirt on the surface of the MODULES will be washed away by rain.

7. Limitation

See the Attachment A: Instruction for using U-type.