

PV-ezRack SolarTerrace II-A Installation Guide V1.31



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1 Introduction

Clenergy PV-ezRack® SolarTerrace III-A™ is a pre-assembled ground mount system suitable for large scale commercial and utility scale installations. PV-ezRack SolarTerrace III-A has been developed to fit any PV module. The innovative and patented SolarTerrace III-A T-Rails simplify and improve the accuracy of the installation. Using high quality engineered components SolarTerrace III-A saves developers and installers, time and money when delivering large scale projects.

Please review this manual thoroughly before installing your SolarTerrace III-A system. This manual provides (1) supporting documentation for building permit applications relating to PV-ezRack SolarTerrace III-A Mounting system, and (2) planning and installation instructions for SolarTerrace III.

SolarTerrace III-A parts, when installed in accordance with this guide, will be structurally adequate and will meet the AS/NZS 1170.2:2011 Amdt. 3-2012 standard. During installation and especially when working on the ground, you will need to comply with the appropriate occupational health and safety regulations. Please also check other regulations relevant to your local region. Make sure that you are using the latest version of the installation instruction guide, which you can do by contacting Clenergy by email on sales@clenergy.com.au, or contacting your local distributor.

The installer is solely responsible for:

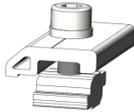
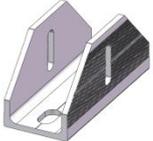
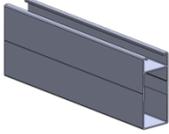
- Complying with all applicable local or national building codes, including any that may supersede this manual;
- Ensuring that ezRack and other products are appropriate for the particular installation and the installation environment;
- Using only ezRack parts and installer-supplied parts as specified by ezRack (substitution of parts may void the warranty and invalidate the letter of certification on page 2);
- Ensuring that the ground condition are suitable;
- How to recycle: according to the local relative statute.
- How to disassemble: reverse installation process.
- Ensure that there are no less than two professionals working on the panel installation.
- Ensure the installation of the electrical equipment is performed by a professional and accredited electrician.
- Ensuring safe installation of all electrical aspects of the PV array.

2 Tools & Components

2.1 Installation Tools

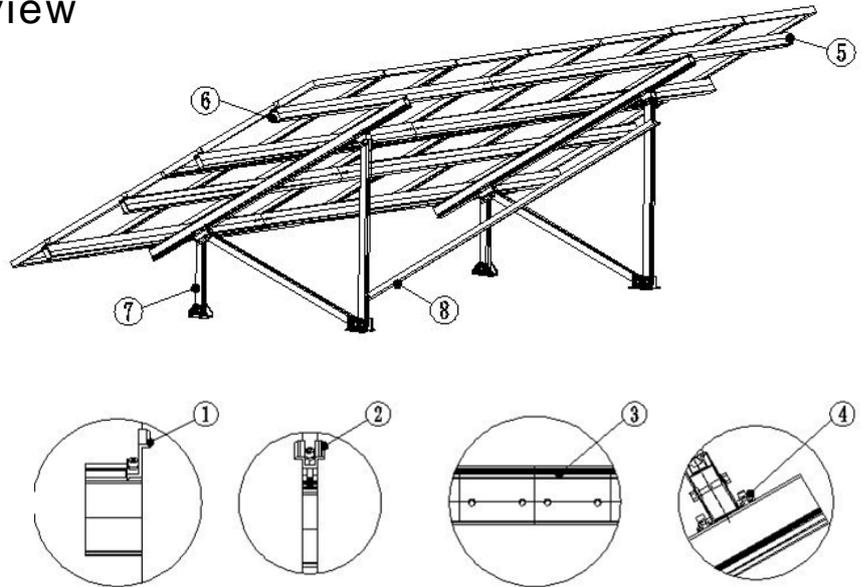
			
Allen Key 6mm (M8 Hexagon Socket Screw)	Electric Drill (ST4.8x16 self-tapping screw & M8 Hexagon Socket Screw)	Measuring Tape	Marker Pen
			
Torque Wrench	String	Wrench	

2.2 Components List

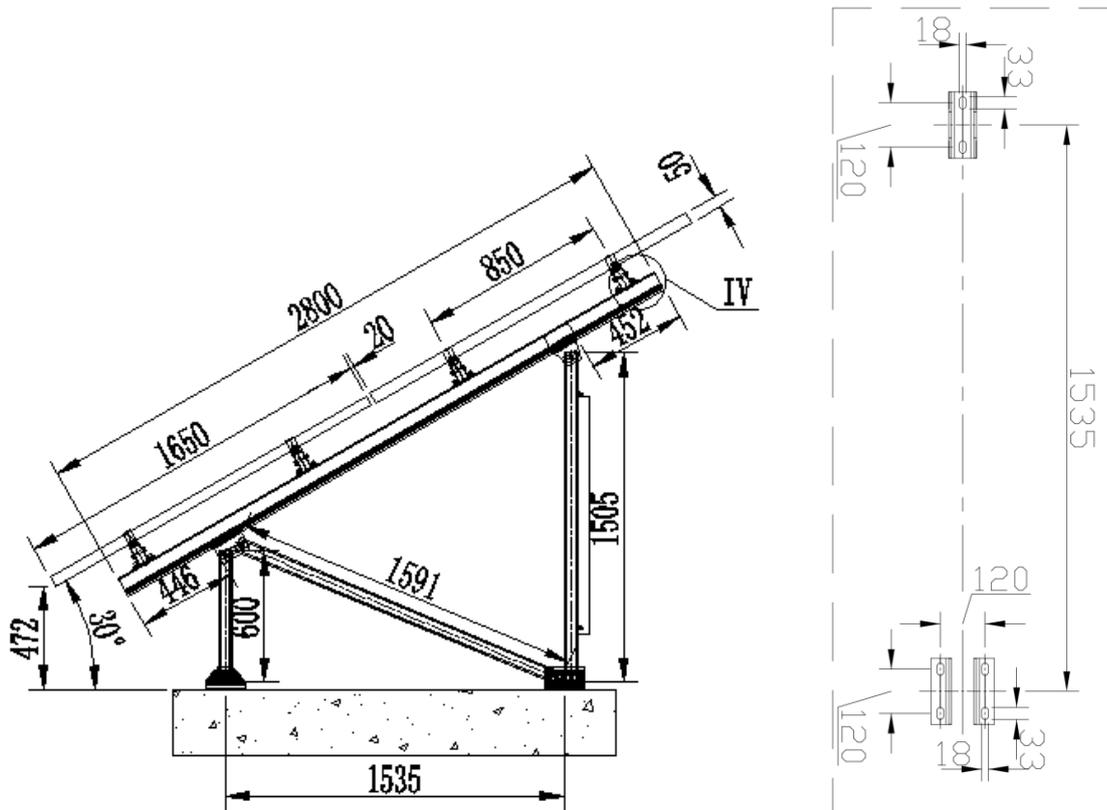
PV ezRack STIII-A			
			
End Clamp	Inter Clamp U18	T-Rail 110	Rail Clamp for T Rail
			
S-Anchor Plate	L Anchor Plate	Rail Splice	Pre-assemble support 30 degree

2.3 System Overview

- 1) End Clamp
 - 2) Inter Clamp U18
 - 3) T Rail Splice
 - 4) Rail Clamp
 - 5) T Rail 110*4200
 - 6) T Rail 110
 - 7) Truss support
 - 8) Angle Al Support
- (Optional)



2.4 System Layout (indicative)



Please note the distance between front leg and rear leg could be different for different tilt angles or for different girder lengths. Please contact Clenergy for confirmation.

2.5 Installation Spacing



STIII-A – Clearance and Spacing (Panels 1700 x 1000 mm)

Wind Zone	Region A, 30° tilt	Region B, 30° tilt	Region C, 20° tilt	Region D, 20° tilt
Wind Speed (m/s)	43	52	64	80
Clearance (m)	0.335	0.335	0.513	0.513
Leg Spacing (m)	3.20	3.00	3.00	2.35

STIII-A – Concrete Footing Options (Panels 1700 x 1000 mm)
(All dimensions are in meters)

	Region A, 30° tilt	Region B, 30° tilt	Region C, 20° tilt	Region D, 20° tilt
Continuous Paving Slab, L x T	2.50 x 0.15	2.50 x 0.19	2.50 x 0.19	2.70 x 0.25
Continuous Strip Footing, W x D	0.50 x 0.50	0.60 x 0.60	0.60 x 0.60	0.70 x 0.70
Individual Pad Footing, B x C x X	0.90 x 0.90 x 1.00	1.05 x 1.05 x 1.00	0.95 x 0.95 x 1.00	1.05 x 1.05 x 1.00
Transverse Strip Footing, L x A x D	2.50 x 0.70 x 0.70	2.80 x 0.75 x 0.75	2.60 x 0.75 x 0.75	2.80 x 0.80 x 0.80

STIII-A – Clearance and Spacing (Panels 2000 x 1000 mm)

Wind Zone	Region A, 30° tilt	Region B, 30° tilt	Region C, 20° tilt	Region D, 20° tilt
Wind Speed (m/s)	43	52	64	80
Clearance (m)	0.473	0.473	0.671	0.671
Leg Spacing (m)	3.10	2.80	2.85	2.00

STIII-A – Concrete Footing Options (Panels 2000 x 1000 mm)
(All dimensions are in meters)

	Region A, 30° tilt	Region B, 30° tilt	Region C, 20° tilt	Region D, 20° tilt
Continuous Paving Slab, L x T	2.60 x 0.19	2.70 x 0.25	2.50 x 0.25	3.10 x 0.30
Continuous Strip Footing, W x D	0.55 x 0.55	0.70 x 0.70	0.60 x 0.60	0.75 x 0.75
Individual Pad Footing, B x C x X	0.95 x 0.95 x 0.95	1.05 x 1.05 x 1.00	0.75 x 0.75 x 0.75	0.80 x 0.80 x 0.75
Transverse Strip Footing, L x A x D	2.80 x 0.75 x 0.75	2.95 x 0.85 x 0.85	2.80 x 0.85 x 0.85	2.80 x 0.90 x 0.90

Notes:

- * The footing example shown, recommended for “firm” soils with allowable end bearing capacity of 100 kPa minimum (damp clays, sandy clays, damp sands). Contact Clenergy for site specific conditions (to find out whether more cost effective solution is possible);
- * Concrete grade: N25 minimum, cover: 50 mm (contact Clenergy to find out whether more cost effective solution is possible, based on site specific conditions);
- * For the fixing of STIII-A to the concrete footing we recommend using M16 (Grade 5.8 Carbon Steel anchor studs or similar). Adopt minimum anchor embedment depth according the anchors manufacturer’s manual. Clenergy STIII-A has 6 anchors per frame, 2 at front and 4 at rear;
- * Other footing options are possible – contact Clenergy.

3 . Installation Guide

Tilt angle: 30 degree

Clearance is 472mm

Panel size 1650x990x50mm as an example of the installation

There are two installation solutions according to the length of the support legs.

3.1 Install Pre-assembled Support

3.1.1

Solution 1

Step 1:

Unfold pre-assembled support as shown in Figure 2;

Step 2:

Fasten the M12*100 bolts from AI Tube and H Joint first, then rotate L anchor plate and S anchor plate in order to keep them in a same line, as shown as Figure 5.

Recommended Torque:
M8: 18~20N m
M12: 40~45N m



Fig. 1

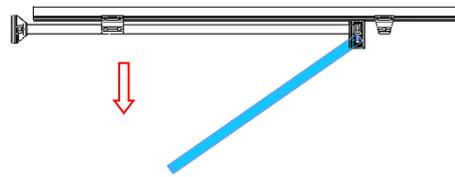


Fig. 2

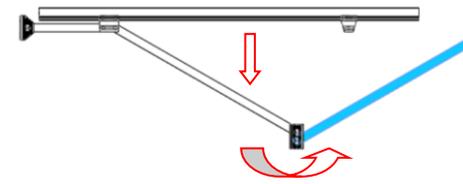


Fig. 3

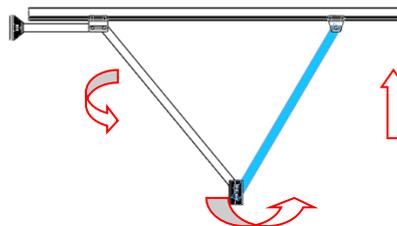


Fig. 4

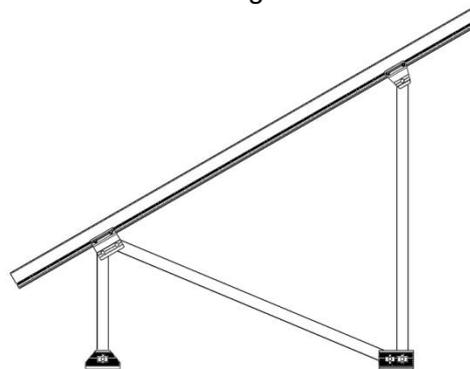


Fig. 5

Solution 2:

Step 1:

Unfold pre-assembled support as shown in Figure 2;

Step 2:

Fasten the M12*100 bolts from Al Tube and H Joint first, then rotate L anchor plate and S anchor plate in order to keep them in a same line, as shown as Figure 5.

Recommended Torque:

M8: 18~20N·m

M12: 40~45N·m

NOTE: The screw heads have to keep in a same direction



Fig. 1

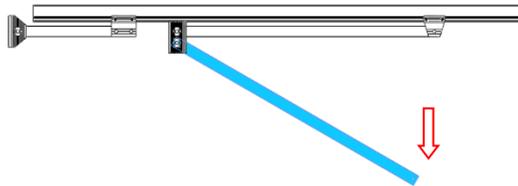


Fig. 2

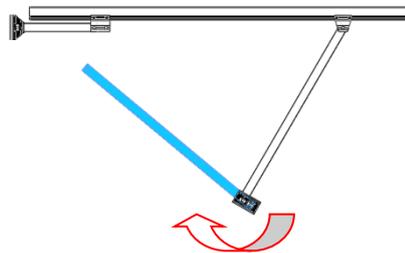


Fig. 3

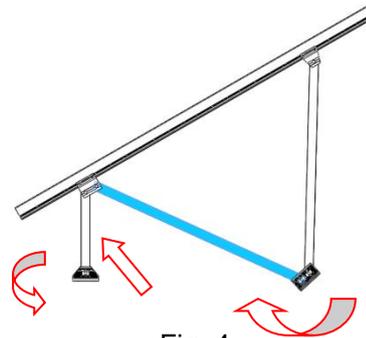


Fig. 4

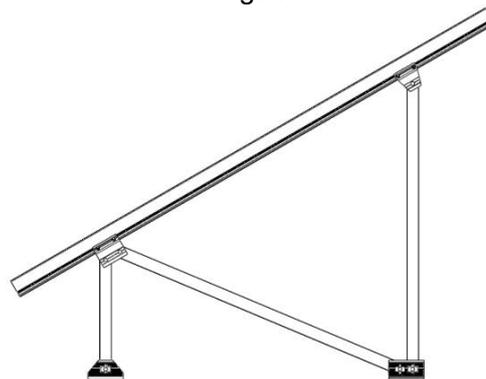
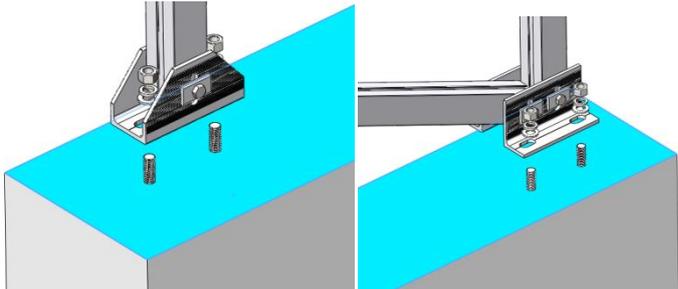
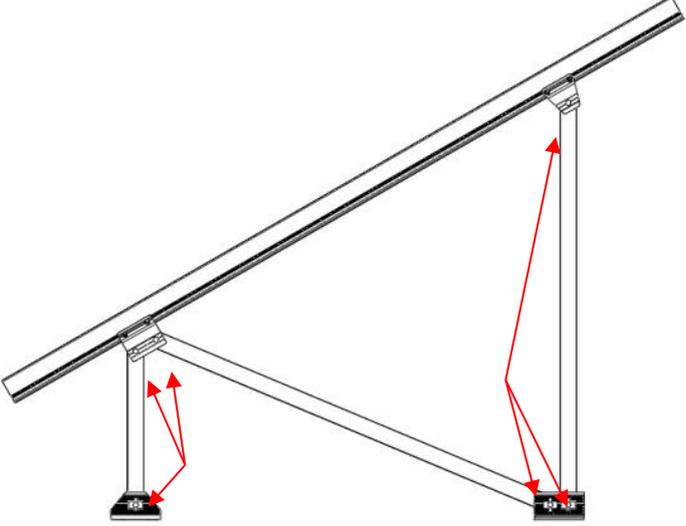
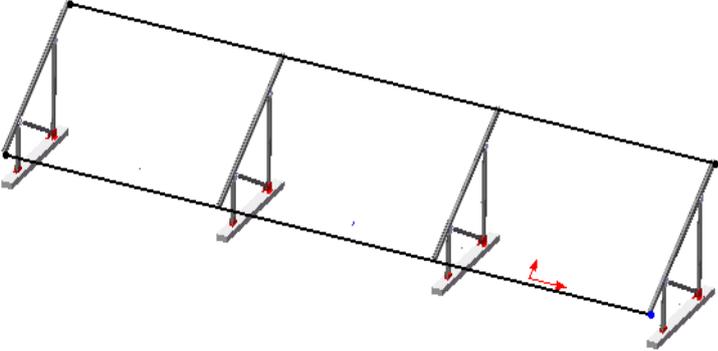


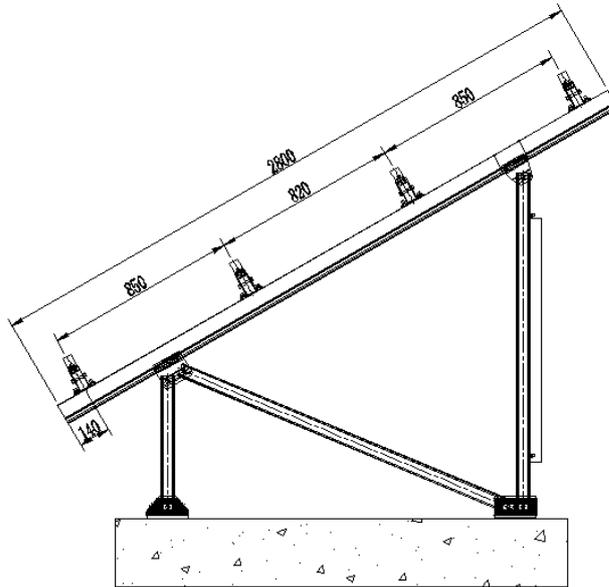
Fig. 5

<p>3.1.2 Connect the Pre-assembled Support and Concrete Base by using Foundation Bolts (M16x240) Recommended Torque: M16: 135~150N m</p>	
<p>3.1.3 Check the system and fasten the rest of bolts. Recommended Torque: M8: 18~20N m M12: 40~45N.m</p>	
<p>3.1.4 According to the planning, repeat the above operation. Note that all the Tri-Groove Beam must be in the same line.</p>	

3.2 Install the T Rail

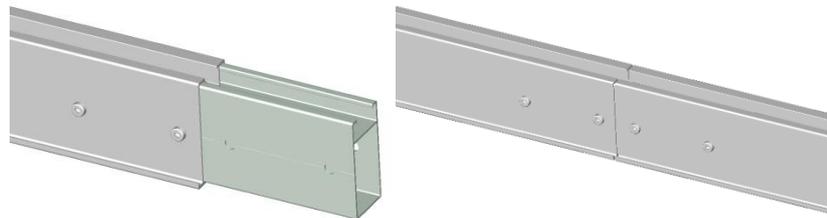
3.2.1

Mark the locations for Rail on Tri-groove beam according to Planning layout. (The dimensions shown on the right is based on an example of panel size)



3.2.2

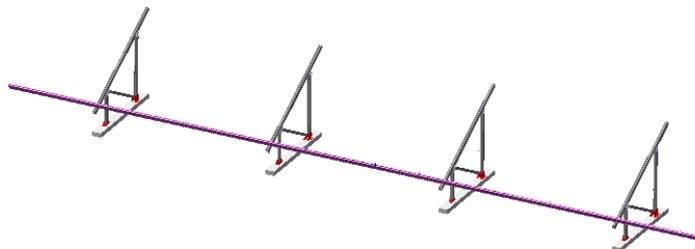
Before installing the T rails to the Tri-groove beam, make sure the rail is long enough, otherwise connect the T rails using T rail splice.



It is recommended to connect the rails before installing them on the Tri-groove Beam

3.2.3

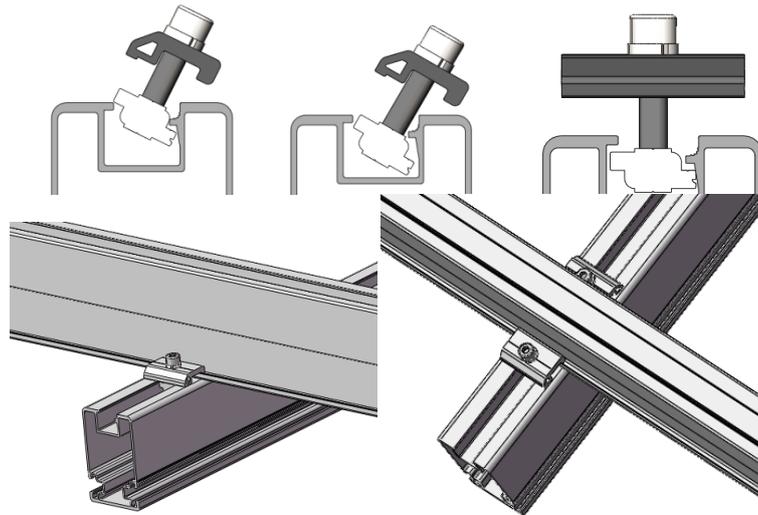
Before installing the T rails, mark the position of the rails on the beam



3.2.4

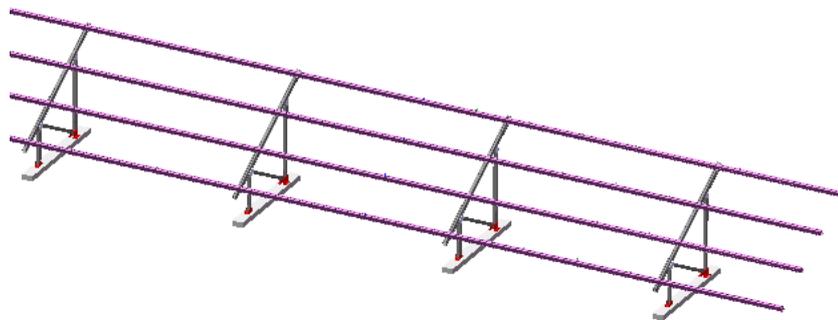
Mark the panel array perimeter and attach T rail to Tri-groove beam with one T rail clamp on each side

Recommended Torque:
M8: 18~20Nm



3.2.5

Install the other rails.
Note: The end of the rails must line up.



3.3 Install Angle Al Support (Optional)

① Insert M8 * 25 T -head bolt in the slot on the angle Al and rotate the bolt slightly.

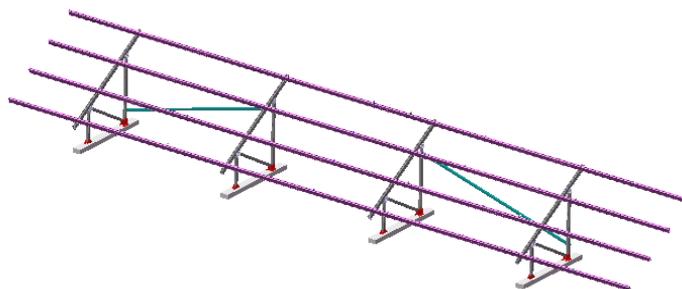
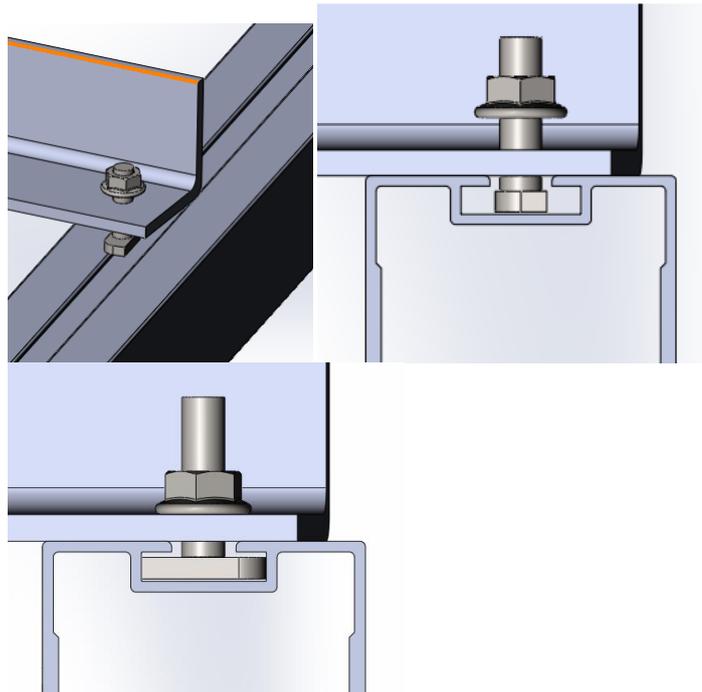
② Place the T-head bolt in the planned position of the Slotted Al-Tube

③ Fasten the T-bolt

④ Repeat the above operations and install T head bolt in another side of Al tube.

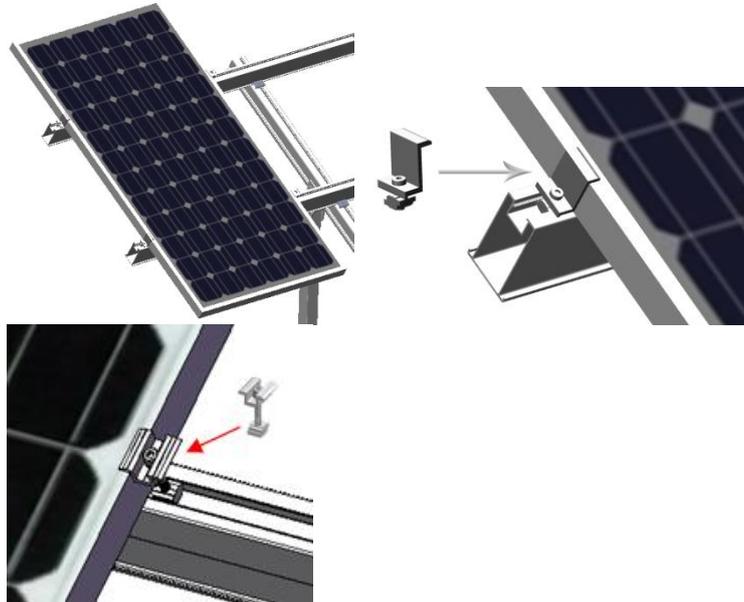
⑤ The installation is now completed.

Recommended Torque:
M8: 18~20Nm

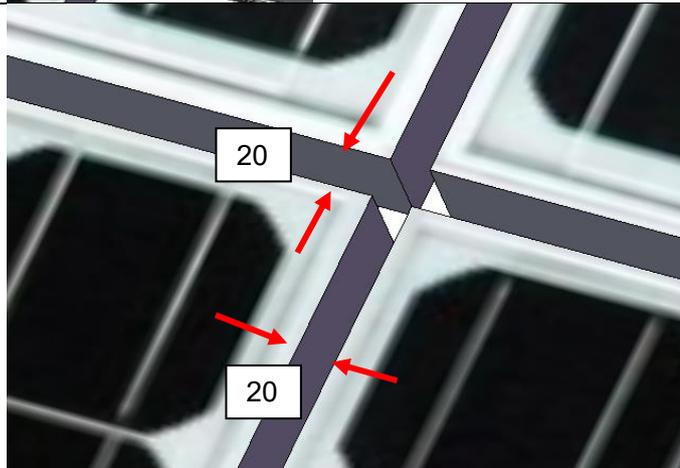


3.4 Install Panel

3.4.1
Install PV panel by Inter
Clamps and End Clamps.



3.4.2
Keep 20mm vertical gap
and 20mm horizontal gap
between the two rows.
Please take Inter Clamp
U18 as the gap location.



3.4.3
Now the installation is
completed.



4 Service

10 year limited Product Warranty, 5 year limited Finish Warranty

Clenergy co. Ltd warrants to the original purchaser ("Purchaser") of product(s) that it manufactures ("Product") at the original installation site that the Product shall be free from defects in material and workmanship for a period of ten (10) years, except for the anodized finish, which finish shall be free from visible peeling, or cracking or chalking under normal atmospheric conditions for a period of five (5) years, from the earlier of 1) the date the installation of the Product is completed, or 2) 30 days after the purchase of the Product by the original Purchaser ("Finish Warranty").

The Finish Warranty does not apply to any foreign residue deposited on the finish. All installations in corrosive atmospheric conditions are excluded. The Finish Warranty is VOID if the practices specified by AAMA 609 & 610-02 – "Cleaning and Maintenance for Architecturally Finished Aluminum" (www.aamanet.org) are not followed by Purchaser. This Warranty does not cover damage to the Product that occurs during its shipment, storage, or installation.

This Warranty shall be VOID if installation of the Product is not performed in accordance with Clenergy's written installation instructions, or if the Product has been modified, repaired, or reworked in a manner not previously authorized by Clenergy IN WRITING, or if the Product is installed in an environment for which it was not designed. Clenergy shall not be liable for consequential, contingent or incidental damages arising out of the use of the Product by Purchaser under any circumstances.

If within the specified Warranty periods the Product shall be reasonably proven to be defective, then Clenergy shall repair or replace the defective Product, or any part thereof, in Clenergy's sole discretion. Such repair or replacement shall completely satisfy and discharge all of Clenergy's liability with respect to this limited Warranty. Under no circumstances shall Clenergy be liable for special, indirect or consequential damages arising out of or related to use by Purchaser of the Product.

Manufacturers of related items, such as PV modules and flashings, may provide written warranties of their own. Clenergy's limited Warranty covers only its Product, and not any related items.