PV-ezRack SolarTripod

Single/Adjustable and Double

Code-Compliant Planning and Installation guide

Based on AS/NZS 1170

CONTENTS

1 Introduction

Clenergy PV-ezRack SolarTripod is suitable for home, commercial, flat roof and even for large scale solar installations. SolarTripod divides 2 solutions, single row and double rows in portrait of modules. The advantage of SolarTripod is the pre-assembly fixed angle brackets; it reduces the time and labour in installation.

Please read the installation instructions carefully before beginning installation. First familiarize yourself with the system components. During installation and especially when working on the roof be sure to observe the appropriate safety regulations and please pay attention to the relevant regulations of your local region. Please check the current version of the installation manual under www.clenergy.com.au.

The installer is solely responsible for:

- Complying with all applicable local or national building codes, including any that may supersede this manual;
- Ensuring that PV-ezRack and other products are appropriate for the particular installation and the installation environment;
- Ensuring that the roof, its rafters, connections, and other structural support members can support the array under building live load conditions (this total assembly is hereafter referred to as the roof rafter assembly);
- Use only PV-ezRack parts as specified in this document (substitution of any PV-ezRack part may void the warranty and invalidate the letter of certification);
- Ensuring that lag screws have adequate pullout strength and shear capacities as installed;
- Maintaining the waterproof integrity of the roof, including selection of appropriate flashing;
- Ensuring safe installation of all electrical aspects of the PV array.

2 Planning

This document is designed to support installations using SolarTripod, manufactured by Clenergy (Xiamen) Technology Co., Ltd. Follow the six steps below and the installation instructions section to install Clenergy PV-ezRack SolarTripod in compliance with the AS/NZS1170.

Before proceeding, note the following:

- This document addresses only wind loads on the assumption that wind produces the maximum load factor affecting an installation. Verify that other local factors, such as snow loads and earth quake effects, do not exceed the wind loads. Give precedence to any factor that does. Wind loads are considered to act on the entire projected area, or may be perpendicular to any surface.
- The roof on which the SolarTripod will be installed must have the capacity to resist the combined Design Dead Load and Live Load per footing.

Installation Tools

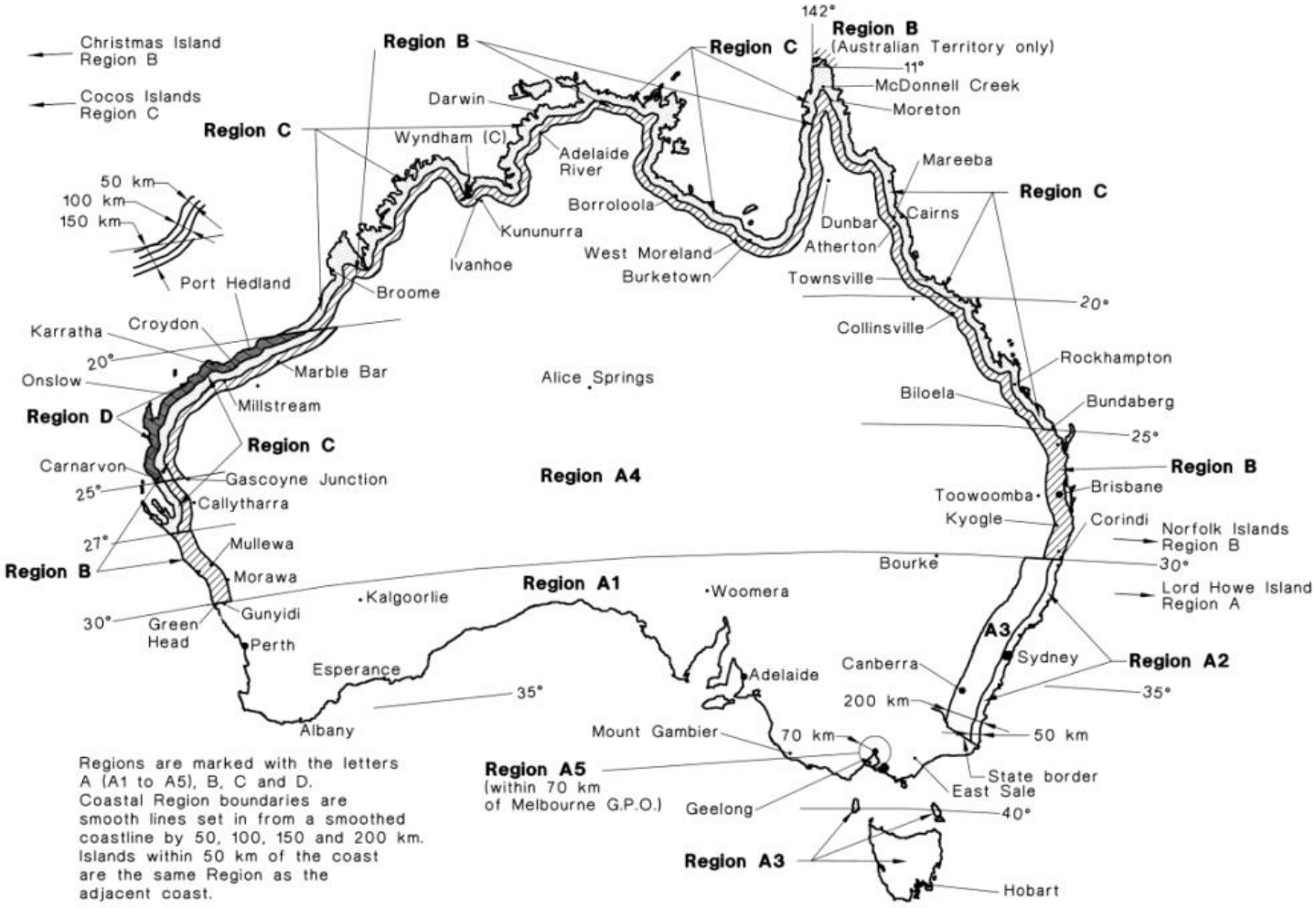
- 6mm Allen Key;
- 14mm Open end wrench;
- Power Tool(s);
- 5m Tapeline;
- Spring Thread.

2.1 Determine the wind region of your installation site

Region Definition:

Wind regions are pre defined for all of Australia by Australian Standard 1170. The Wind Region has nothing to do with surrounding topography or buildings.

- Most of Australia is designated Region A which indicates a Regional Ultimate Basic Wind Velocity of 45msec.
- Some areas are designated Region B (57m/sec). Local authorities will advise if this applies in your area.
- Region C areas (66m/sec) are generally referred to as cyclonic and are generally limited to northern coastal areas. Most Region C zones end 100km inland.
- Region D (80m/sec) Australia's worst Cyclonic Region between Carnarvon and Pardoo in Western Australia.



2.2 Determine the height of the installation site

This document provides sufficient information for the SolarTripod system installation height **up to 10 meters**. If your installation site is more than 10 meters in height, please contact Clenergy to obtain engineering data to support your installation.

2.3 Determine the Maximum Rail Support Spacing

Please use the following table to determine the base rail support spacing for sheet metal roof installations. The spacing below is suitable for a tilt angle of **maximum 30° or less**.

	Maximum Tripod frame spacing (mm)			
Wind Zone	A	B	C	D
Double Tripod	**1600**	**1400**	**1000**	**700**
Single Tripod	**1600**	**1500**	**1350**	**1250**

2.4 Determine the number of fixing points

The following fixing requirements are based on the use of M6 12G self drilling roof screws – Buildex Roofzips or similar. Use screws with **minimum 11 thread per inch** for **wooden** and also for **metal/steel purlins**.

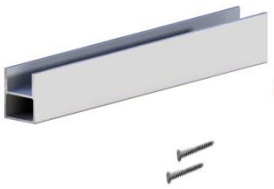
Number of Fasteners per Frame – Single Panel				
Roof Frame Material	REGION			
	A	B	C	D
0.55 Batten	2	2	4	4
0.75 Batten	2	2	2	4
1.5 Purlin	2	2	2	2
1.9 Purlin	2	2	2	2
F7 Pine*	2	2	2	2
F17 H'wood*	2	2	2	2
*Minimum 36mm embedment for Timber				

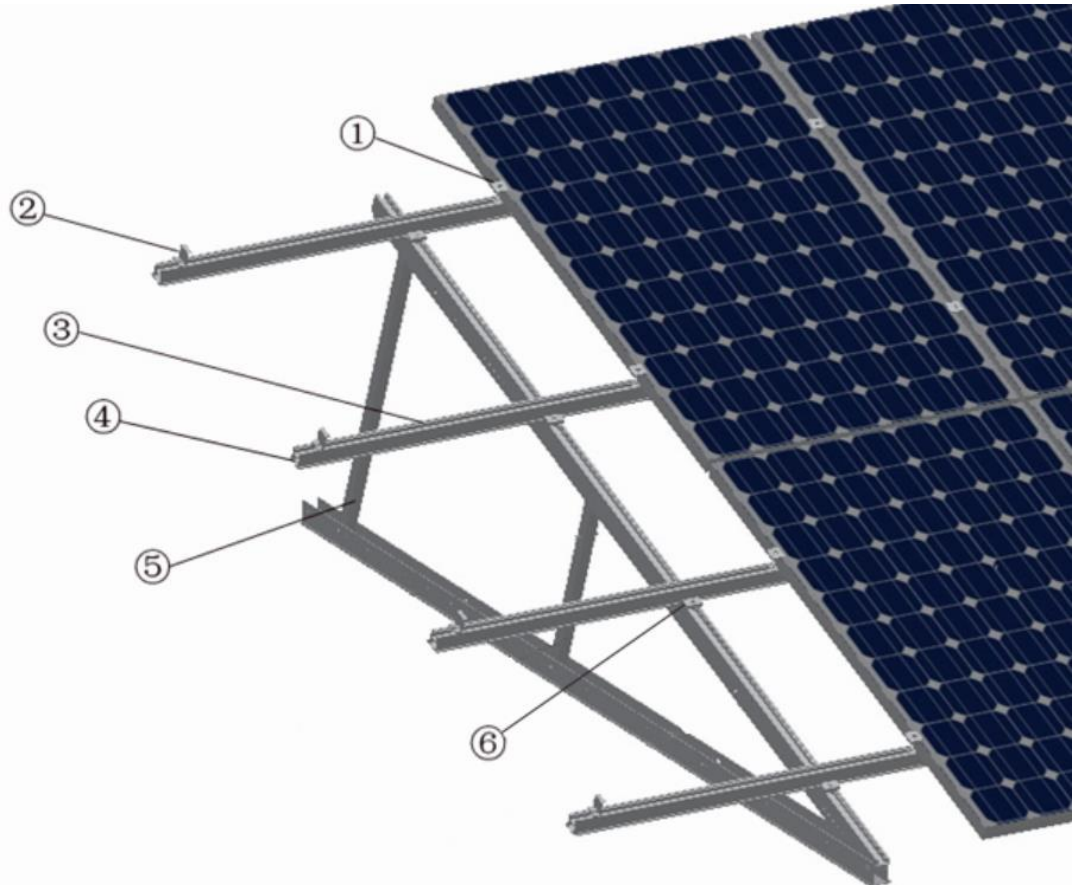
Number of Fasteners per Frame – Double Panel				
Roof Frame Material	REGION			
	A	B	C	D
0.55 Batten	4	4	4	4
0.75 Batten	2	4	4	4
1.5 Purlin	2	2	2	2
1.9 Purlin	2	2	2	2
F7 Pine*	2	2	2	2
F17 H'wood*	2	2	2	2
*Minimum 36mm embedment for Timber				

2.5 Verify acceptable rail end overhang

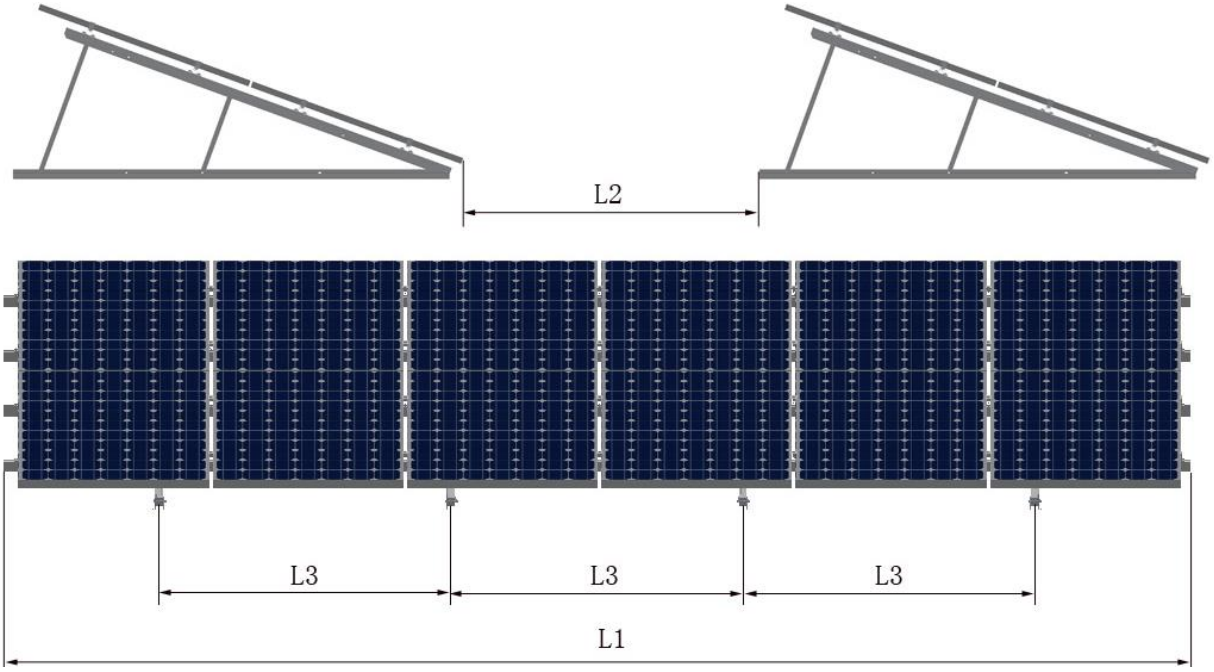
Rail End Overhang must equal 50 percent or less of foot spacing. Thus, if foot spacing is 1200mm, the Rail End Over hang can be up to 600mm. In this case, two feet can support a rail of as much as 2400mm (1200mm between the feet and 600mm of overhang at each end).

3 Component List

Overview Of The Components			
			
Inter Clamp	End Clamp	T Rail 50	Spice for T Rail 50
		1) Inter Clamp 2) End Clamp 3) T Rail 50 4) Splice for T Rail 50 5) Tripod Support 6) T-rail Clamp	
Tripod Support (single or double or adjustable)	T Rail Clamp		



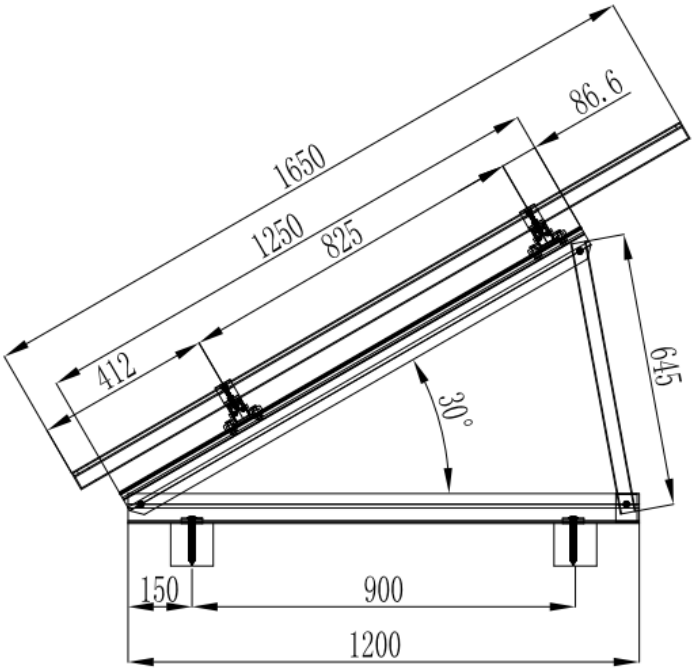
4 Array Planning



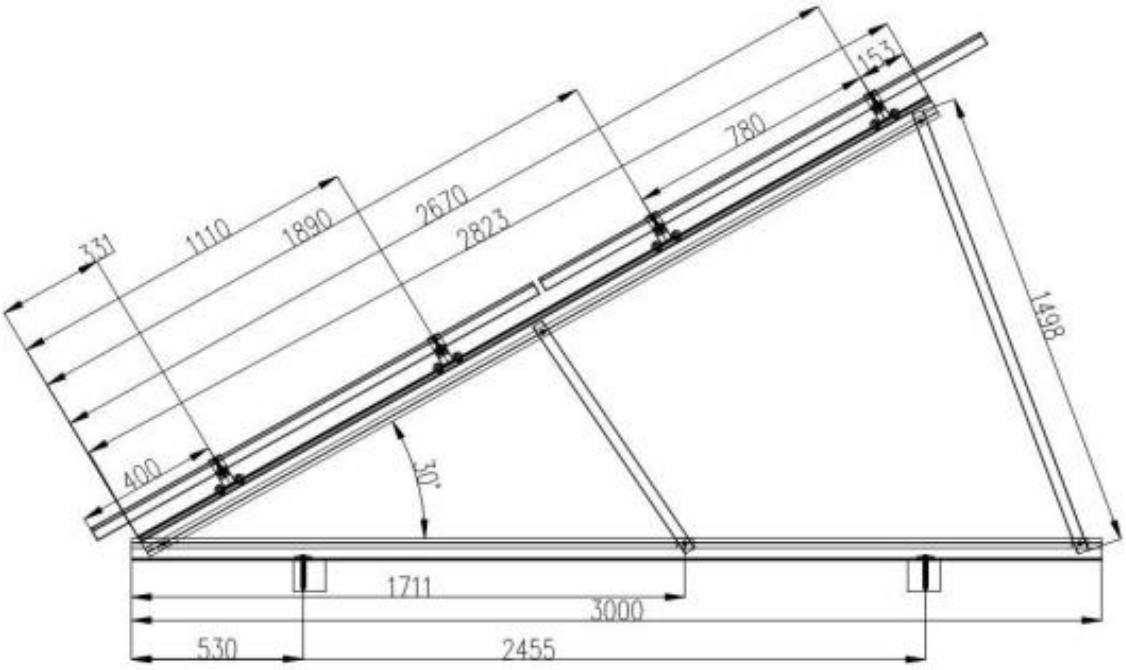
As the drawing above, mounting details are as follow:

1) Module orientation: portrait.
2) Length of rail in the same row:
   L1= Number of modules per row x (module width + 18mm) + 32mm.
3) Distance between the two rows: L2 must be determine based on the location to avoid shading
4) Distance between the two support Tripod: L3 (see 2.3 above)

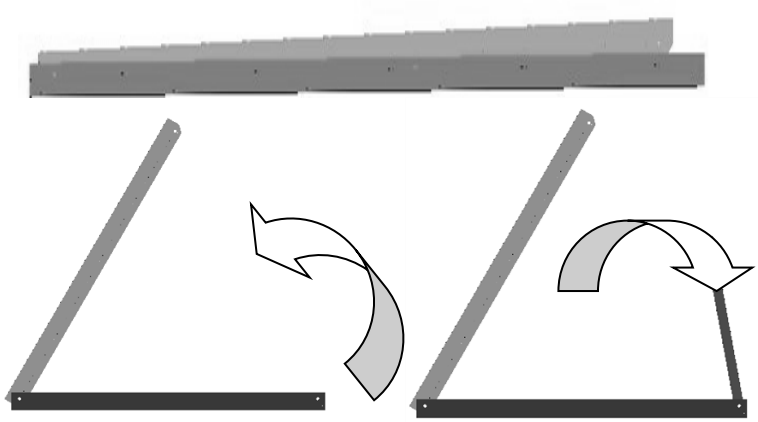
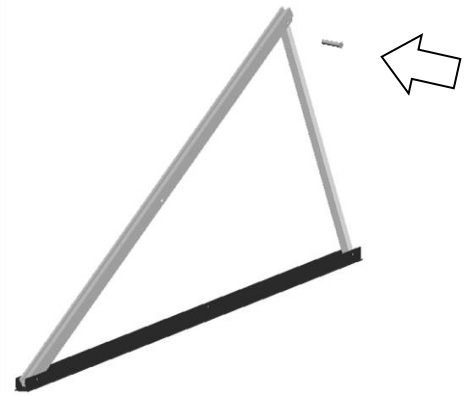
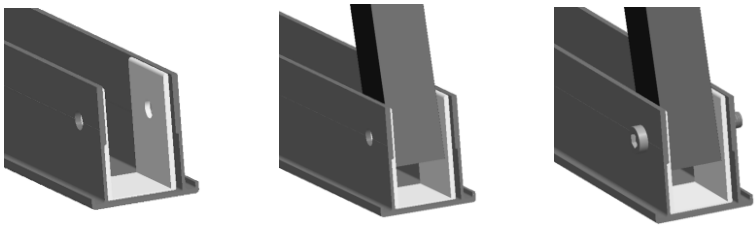
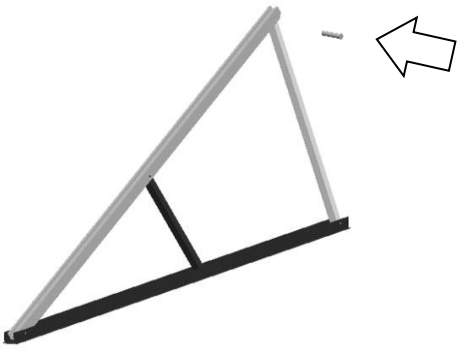
4.1 System dimensions Single/Adjustable Tripod

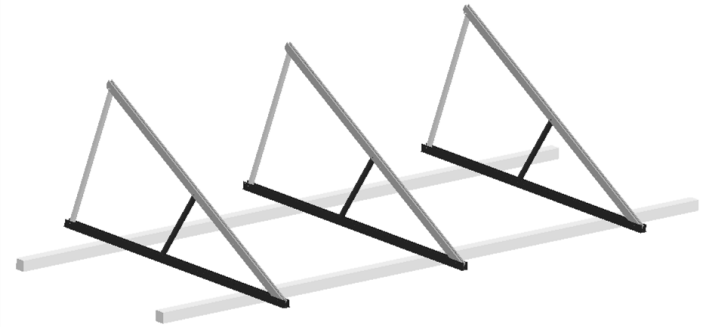
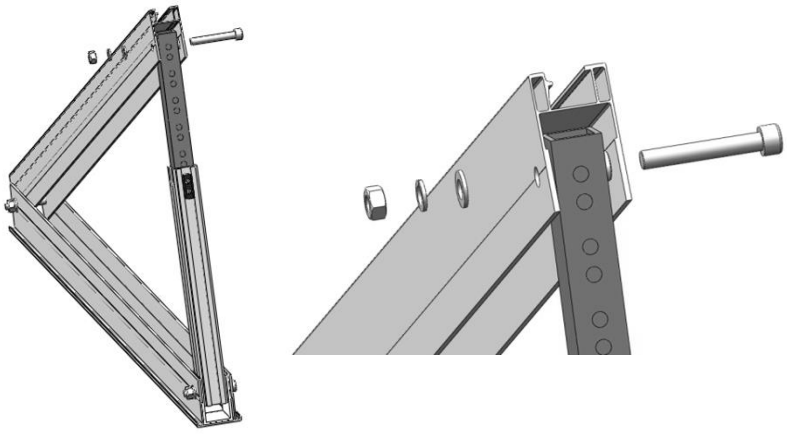
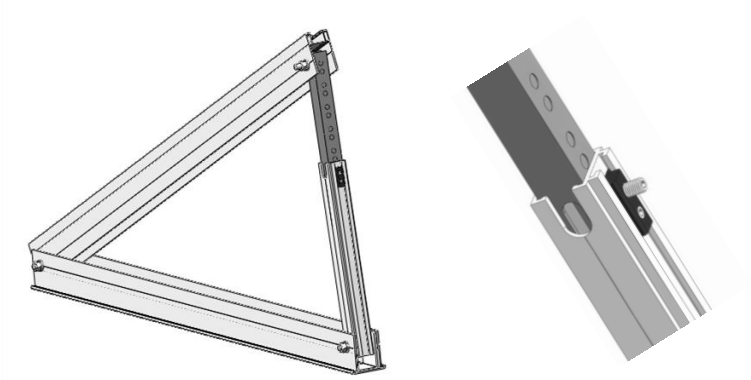


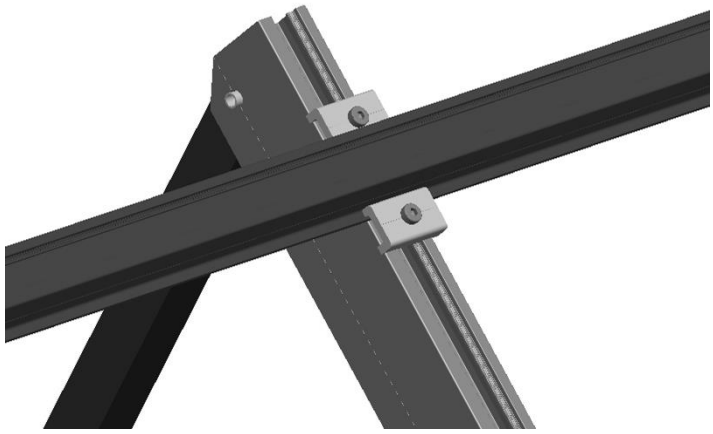
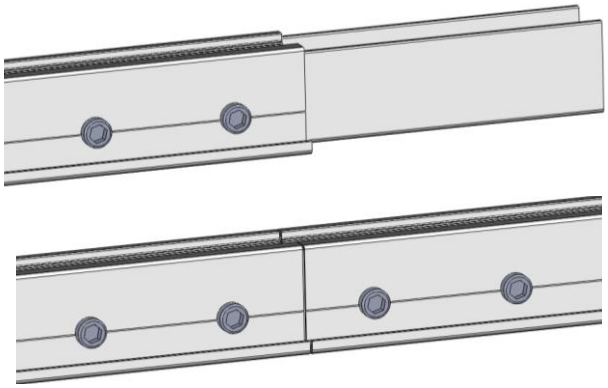
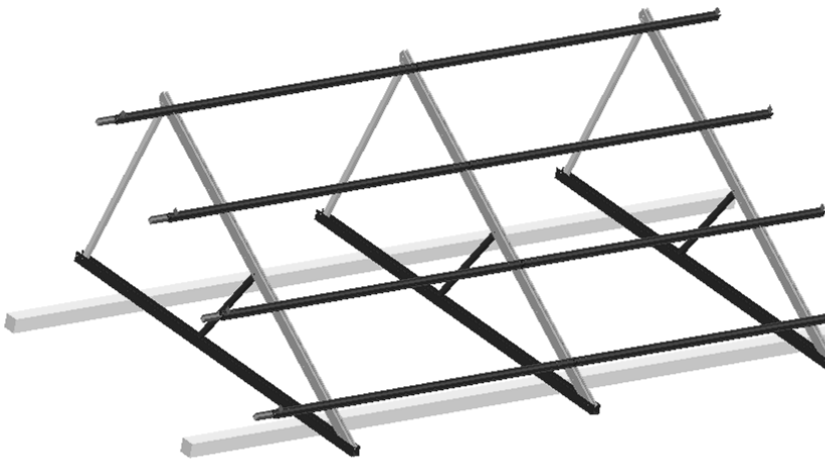
4.2 System dimensions Double Tripod

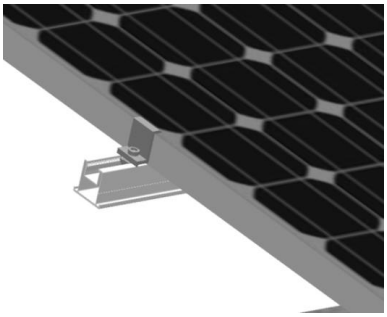
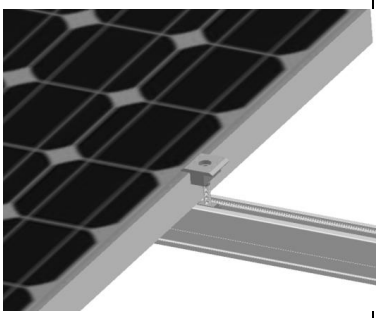
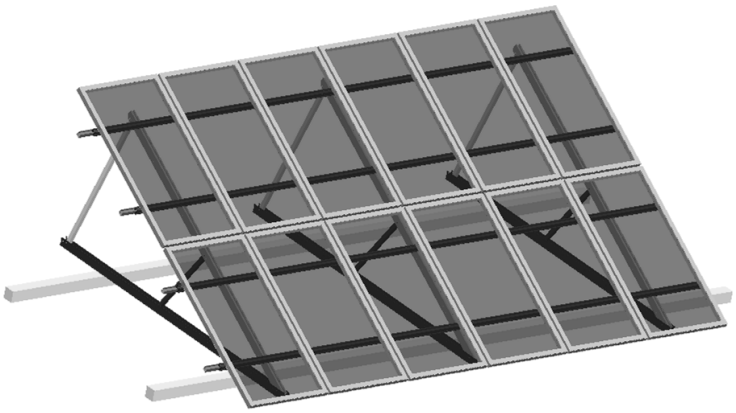


5 Step by step installation

5.1 Installation of the Tripod support (based on Double tripod)	
5.1.1 Unfold the tripod support. Check the purlin distance and pre drill the holes on the base of the Tripod support. In case the predrilled holes on the support base are covered/not accessible by the back or front tubes fix the base of the support to the roof first, otherwise proceed with 5.1.2	
5.1.2 Fix the back tubes to the upper support by using hex head bolts M10*65, Spring Washer, Flat Washer and Hex nuts M10.	
5.1.3 Fix the tubes with U Bracket to the base support by using hex head bolts M10*65, Spring Washer, Flat Washer and Hex nuts M10.	
5.1.2 Unfold the middle tubes in the upper support (if you use double Tripod), fix them to the base support by using hex head bolts M10*65 and Spring Washer, Flat Washer and Hex nuts M10.	

5.1.3 Repeat the step above for each support that you need to install. Fix the support Tripod to the purlin following the planning guide.	
5.2 If installing Adjustable Tripod	
5.2.1Fix two freeness al-tubes together by using hex head bolts M10*65, Spring Washer, Flat Washer and Hex nuts M10	
5.1.2 Tighten the screws through the leg strug to go along with the positioning groove on the leg tube, in order to achieve accurate positioning purposes.	 (Every 2 degrees set a positioning groove)

5.3 Installing T rails	
5.3.1 Use T-rail clamp to fix the T-rail 50 on to the upper support, two per rails and per support.	
5.3.2 If the rail is not long enough, please connect the rails by using the splice for T rail 50 using 2 tek screws on each side.	
5.3.3 Fix all the rails on to the upper support as the step above.	

5.4 Install the PV modules	
5.4.1 Use Clenergy patented Inter- and End-clamps to fix the panels on to the rails.	 
5.4.2 Finish installing all the panels.	

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.