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Clenergy PV-ezRack SolarRoof
Aeri Rail Non-Penetrative Solution
Installation Guide V1.0

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1. Introduction

Aeri Rail and Accessories constitute a system that is widely used for PV Module mounting on tin roofs. To make it robust and longevity, it is manufactured from aluminium alloy and stainless steel. With unique design, Aeri Omega Module, it provides high efficient installation and the compatibility with most of frame PV-Modules in the market.

Before system installation, please read the installation manual carefully. The manual provides the following content: (1) simple introduction of installation; (2) product installation specification；

Please use it according to the installation instruction manual. Please pay attention to safety when installing the product, and construct it according to local laws and regulations. You can confirm the latest installation manual on www.clenergy.com if necessary.

Contents

The installer is solely responsible for:

- Complying with all applicable local or national building codes, including any updates that may supersede this manual;
- Ensuring that PV-ezRack and other products are appropriate for the particular installation and the installation environment;
- Using only PV-ezRack parts and installer supplied parts as specified by PV-ezRack project plan (substitution of parts may void the warranty and invalidate the letter of certification);
- During installation, ensure that the self-tapping screws and metal screw have sufficient strength and shear force;
- Keep the roof waterproof system intact;
- Recycling: Recycle according to the local relative statute;
- Removal: Reverse installation process;
- Ensuring that there are no less than two professionals working on panel installation;
- Ensuring the installation of related electrical equipment is performed by licenced electricians;
- The upper and lower limit of the torque of the locking screws must be checked regularly at least once a year.
- Changes and deviations from the planning documents must be approved by Clenergy.

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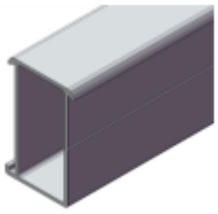
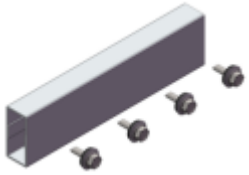
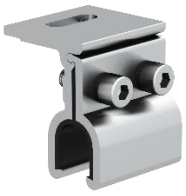
2. Tools & Components

2.1 Tools

Tools		
		
Marker Pen	Screw Driver	Torque Wrench
		
Allen Key 6mm for M8 Hexagon Socket Screw	Tape	String

Note：The tools in the figure are only used for installation of rack system (not included in supply scope), please consult system installation personnel about installation of electronic parts.

2.2 Components

Components		
		
ER-IC-AE/XX-XX Inter Clamp	**ER-EC-AE/XX** End Clamp	**ER-R-AE/XXXX** Aeri Rail
		
ER-SP-AE Splice for Aeri Rail	**ER-I-31/SH** Klip-lok Interface 400-700HS, L50*45	**ER-I-32/SH** Klip-lok Interface 406

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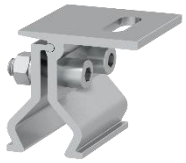
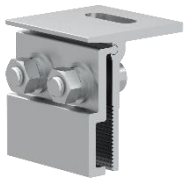
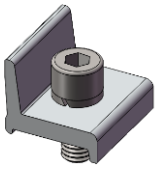
		
ER-I-43 Klip-lok Interface for Angularity 25	**ER-I-44** Klip-lok Interface for standing seam 8	**ER-I-45** Klip-lok Interface for standing seam 20
		
ER-I-46 Klip-lok Interface for Angularity 18	**ER-I-47/SH** Klip-lok Interface 326	**ER-RC-AE** Rail Clamp for Aeri Rail

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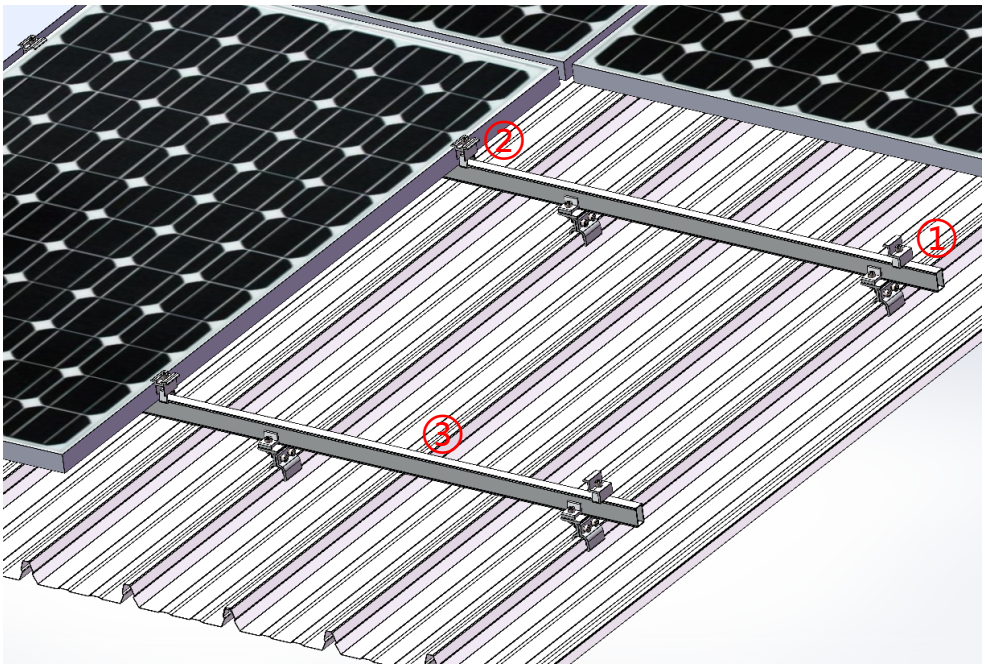
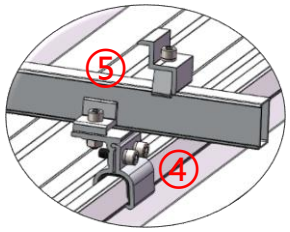
3. System Overview

3.1 Overview of PV-ezRack SolarRoof Aeri Rail Non-Penetrative Solution





① End Clamp
② Inter Clamp
③ Aeri Rail
④ Klip lok Interface
⑤ Rail Clamp for Aeri Rail

3.2 Precautions during Stainless Steel Fastener Installation

Improper operation may lead to deadlock of Nuts and Bolts. The steps below should be applied to stainless steel nut and bolt assembly to reduce this risk.

3.2.1 General installation instructions:

(1) Apply force to fasteners in the direction of thread

(2) Apply force uniformly, to maintain the required torque

(3) Professional tools and tool belts are recommended

(4) In some cases, fasteners could be seized over time. As an option, if want to avoid galling or seizing of thread, apply lubricant (grease or 40# engine oil) to fasteners prior to tightening.

3.2.2 Safe Torques

Please refer to safe torques defined in this guide as shown in Installation Instructions. In case power tools are required, Clenergy recommends the use of low speed only. High speed and impact drivers increase the risk of bolt galling (deadlock) If deadlock occurs and you need to cut fasteners please make sure that there is no load on the fastener before you cut it. Avoid damaging the anodized or galvanized surfaces.

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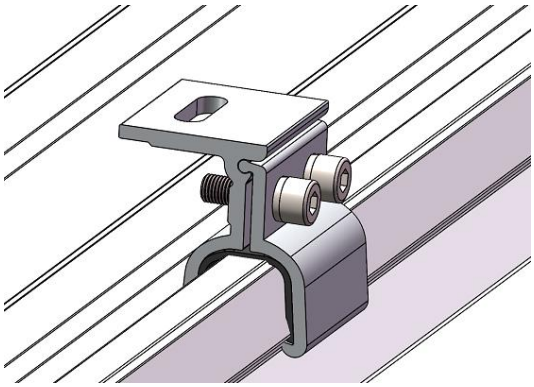
4. Installation Instructions

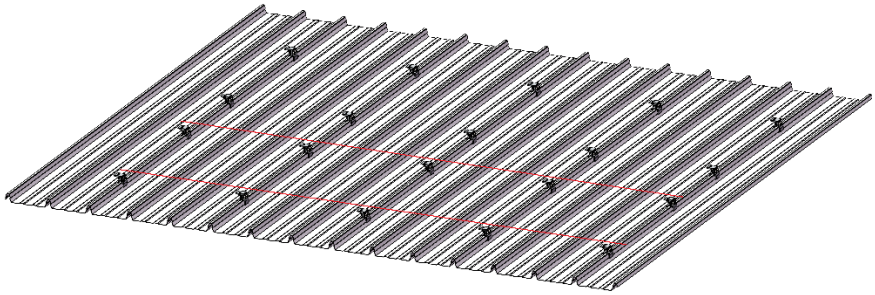
4.1 Klip-lok Interface Installation (take Klip-lok Interface 400-700HS for an example)

According to the installation plan, after determining the position of the first Klip-lok Interface, fix it on the rib of tin roof and fasten lightly.

Recommended torque for M8 bolts is 16- 20N·m.

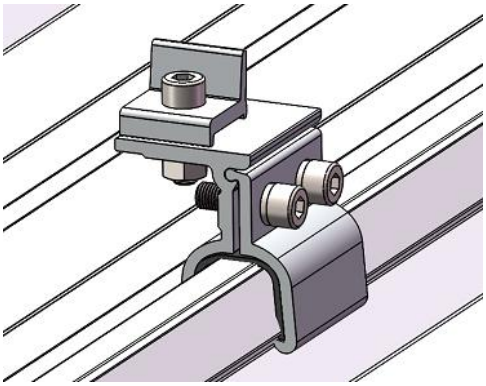
Fix the other Klip-lok Interfaces on the tin roof with the string as shown in the figure on the right.





4.2 Rail Clamp Installation

Place Rail Clamp on top of Klip-lok Interface and adjust its direction, as shown in figures on the right.



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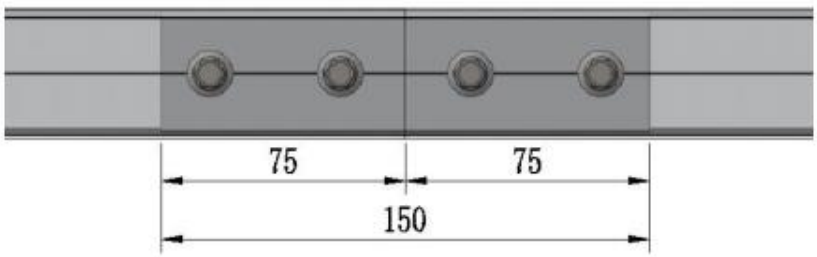
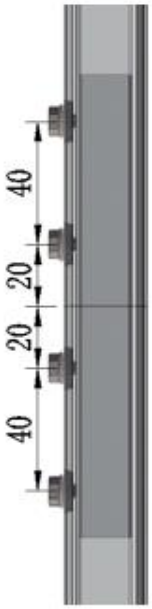
4.3 Rail Installation

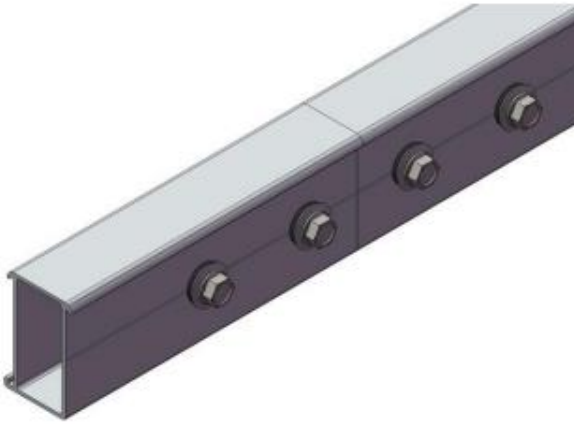
4.3.1

To splice two adjacent Rails, insert half of the Splice into one end of the Rail and bound them with self-tapping screws. Insert the rest of the Splice into one end of the next Rail and bound with self-tapping screws, as shown in figures on the right.

Note:
Skip this step if the rail is long enough and no need splice.







4.3.2

Fix Rails on top of Klip-lok. To make the following adjustment easier, fasten all bolts.

Recommend torque of M8 bolt is 18N.m

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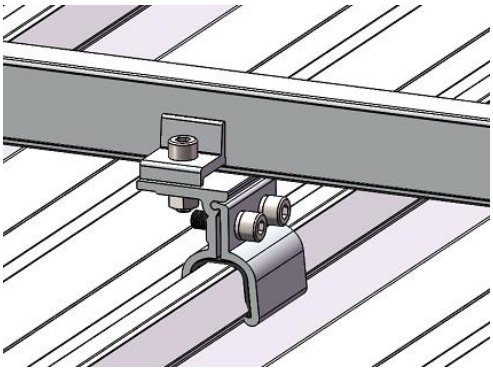
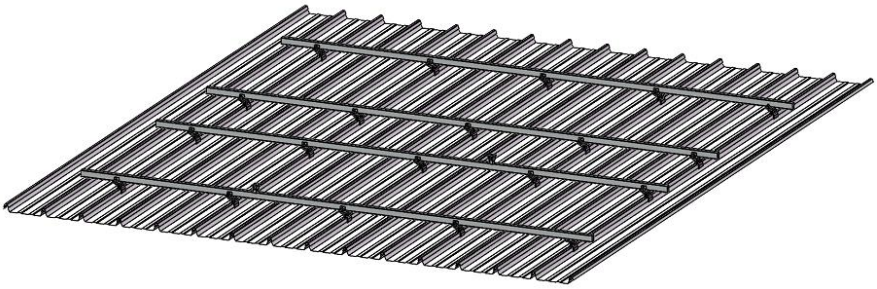
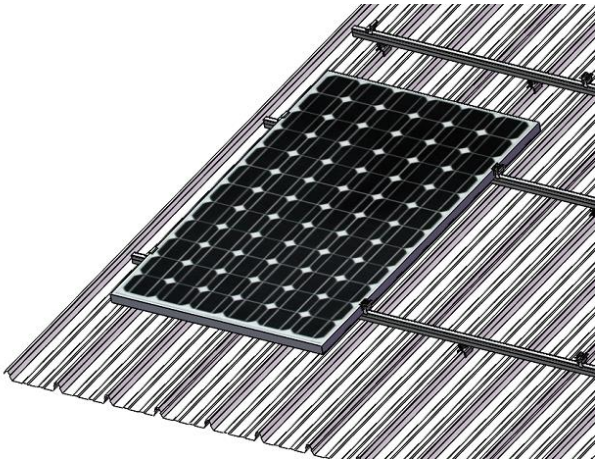
4.3.3 Repeat above steps and install rest of Rails. Adjust Rails' position with String, and align all ends of Rails.	

4.4 PV Module Installation

4.4.1 According to your plan, install all Rails.	
4.4.2 Mark the position of PV-Module on Rails with Marker Pen. Stretch a String as a reference to align PV-Module. Place the first PV-Module on the marked position.	

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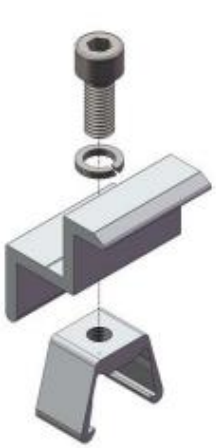
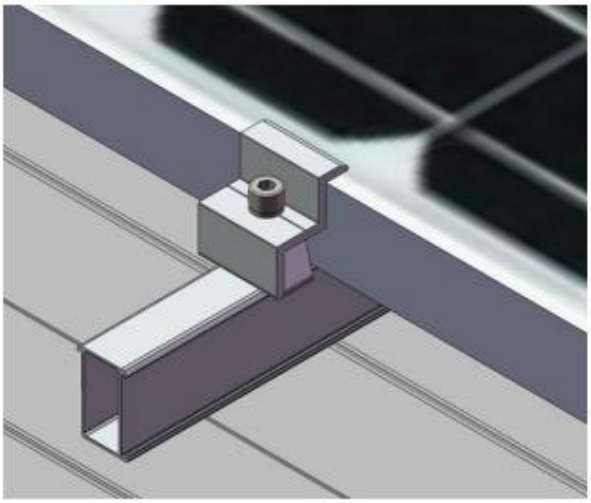
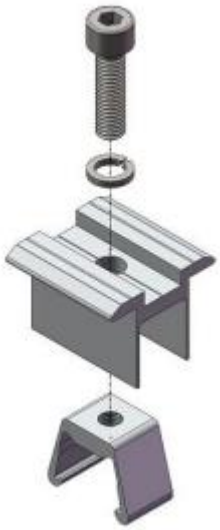
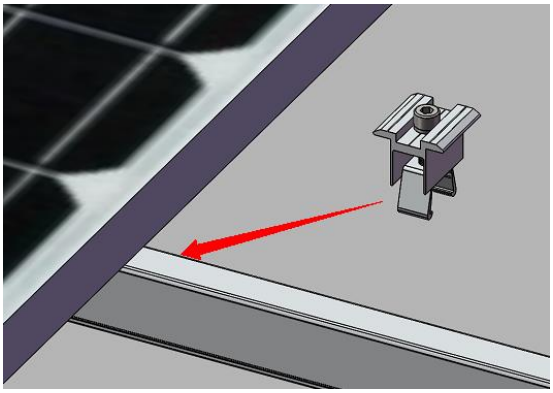
4.4.3 Slide and affix the End Clamp to the side face of PV-Module, as shown in the figures on the right. Fasten the bolt refer to below recommend torque. Recommend torque of M8 bolt is 13N.m	 
4.4.4 To buckle to Clamps with Omega-module, put one leg of Omega-module onto the side of the Rail first, then press second leg of Omega-module onto the other side of the rail.	
4.4.5 Buckle the Inter Clamp into the Rail and affix it to the side face of PV-Module. Don't fasten the bolt to make the installation of second PV Module easier.	 

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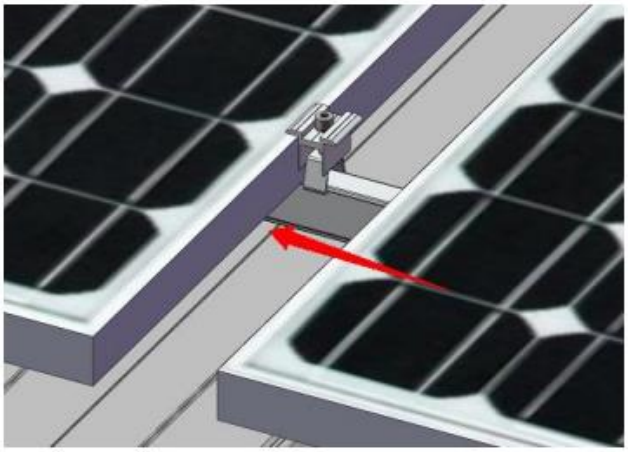
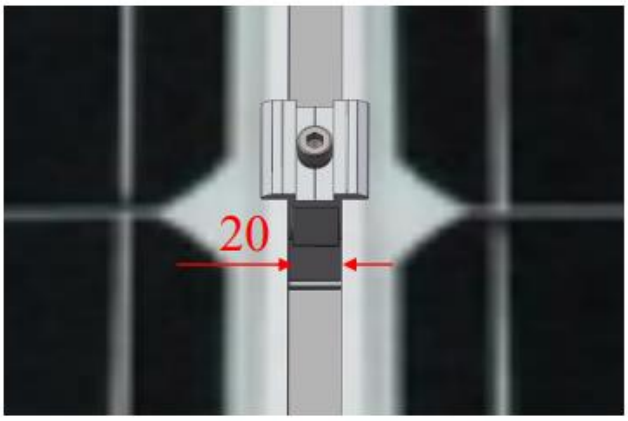
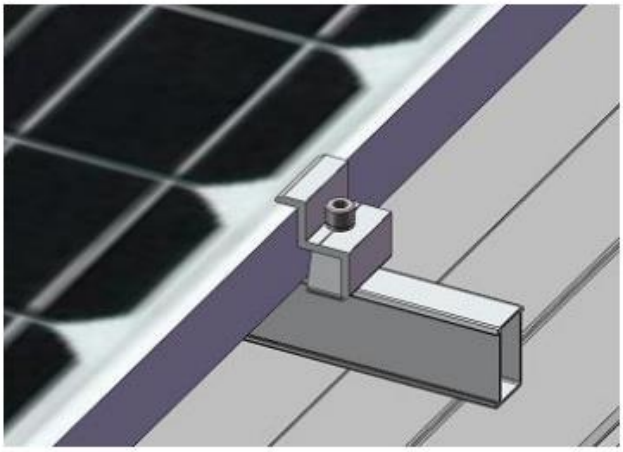
4.4.6 Place the second PV Module, with its side face parallel to the stretched String, and fasten the Inter Clamp. Note: Pay attention not to touch the stretched String when placing the PV Modules Recommend torque of M8 bolt is 13N.m	 
4.4.7 Follow above steps to install other PV-Modules of this row and fasten the End Clamp of another side.	

4.4.8 Repeat above steps to install the rest PV-Modules. The distance of any adjacent face of PV-Module should be 20mm.