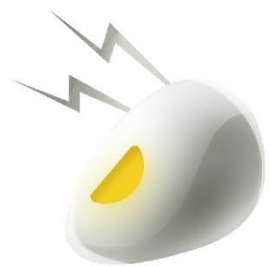


# INSTALLATION INSTRUCTION

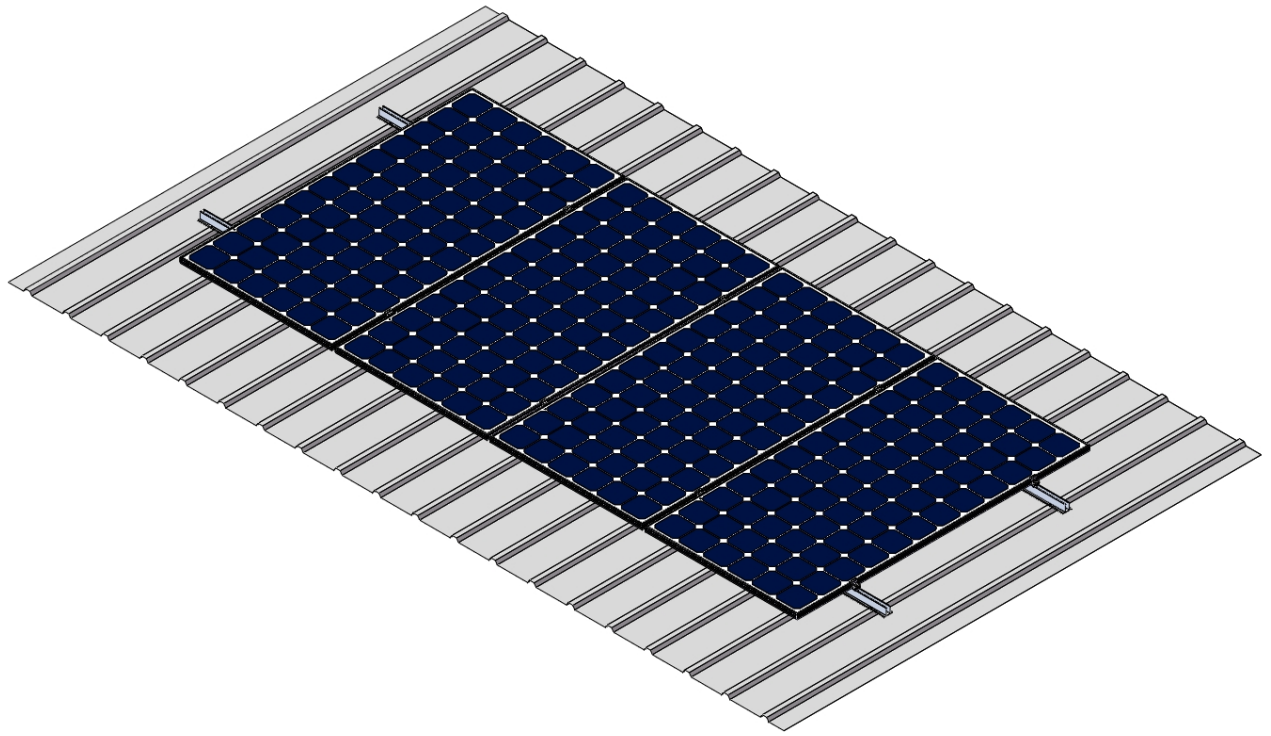


## **Installation Manual** **Portrait Mini Rail**



**ANTAI**  
Aluminum & AI Tech for Solar





## Contents

I. Safety Notice .....	3
II. Introduction .....	4
III. Tools .....	4
IV. System Components .....	5
V. Installation manual .....	6
5.1 Install the rail-less roof clamps.....	6
5.2 Install the solar modules .....	7
5.3 Install the grounding lug.....	9
5.4 Views after installation .....	10
VI. Notice .....	11



## **I. Safety Notice**

Thanks for using Antai solar mounting structure, please follow the installation manual during installation and maintenance.

- General notice
- Installation should be proceeded by professional workers, who will follow the installation manual.
- Please follow the local building standards and environmental protection regulations.
- Please follow the labor safety regulations.
- Please wear the safety gears. (especially helmet, boot, glove)
- Please make sure at least 2 installation workers on site in case of emergency.
- Please bring at least 1 set installation manual to the site.

- When installing at high place, please set up scaffolds to eliminate the risk of falling before proceeding. Please also use the gloves and safety belts.
- Do not modify Antai's products without permission to prevent accidents and malfunctions.
- Please pay attention to the sharp points of aluminum structures and be careful not to be injured.
- Please tighten all required bolts and screws.
- The wire might be damaged when it touches the profile section during electrical wiring work.
- Please do not use the broken, faulty or deformed products in case of danger.

## **Requirement**

- Please use Antai designated mounting accessories for installation, and do not modify Antai's products in any cases.
- Please do not make strong impact on the profile, while aluminum profile is easy to be deformed and scratched.
- Please note this manual is only for the mounting structures.



## II. Introduction

Antai landscape mini rail solar roof mounting system is a universal roof mounting system on trapezoidal metal roof, for the landscape panel installation. It not only satisfy the stability of whole system, but also convenient for installation. High quality products with few components, and highly pre-assembled products save the installation cost and time, and become an efficient solar mounting solution for metal roofs.

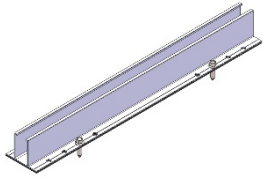
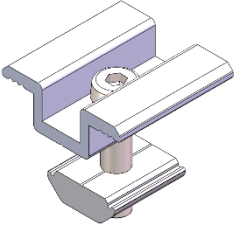
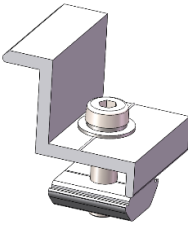
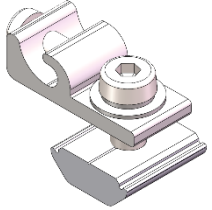
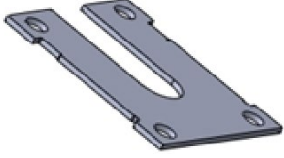
Please read the installation manual carefully before installation.

## III. Tools

			
8mm socket spanner	Electric Drill	Measure tape	Marker
			
Torque spanner	String	Adjustable spanner	Box spanner (M8)



## IV. System Components

Clamp List			
			
Portrait Mini Rail with 4 screws	Mid clamp	End clamp	Grounding lug
			
Earthing clip			

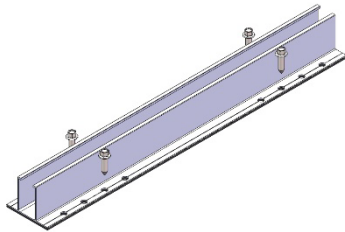
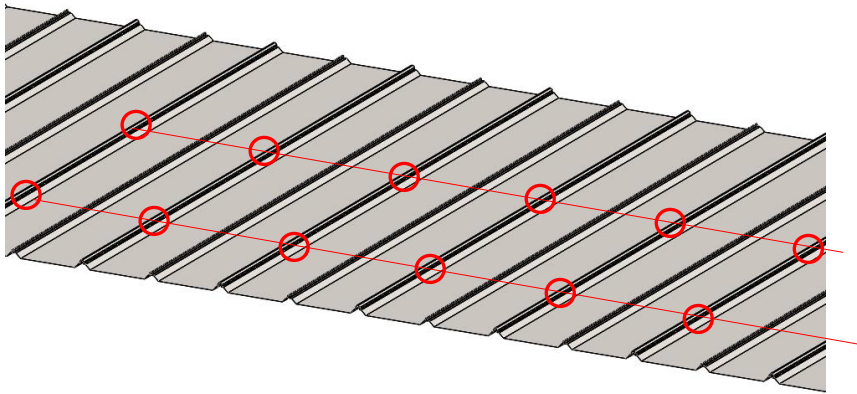


## V. Installation manual

### 5.1 Install the rail-less roof clamps.

Mark the mini rail's positions on the metal roof according to the shop drawing, and use the string to make sure all mini rails are aligned. Fix the mini rail on the corresponding positions and tighten with 4pcs tapping screws.

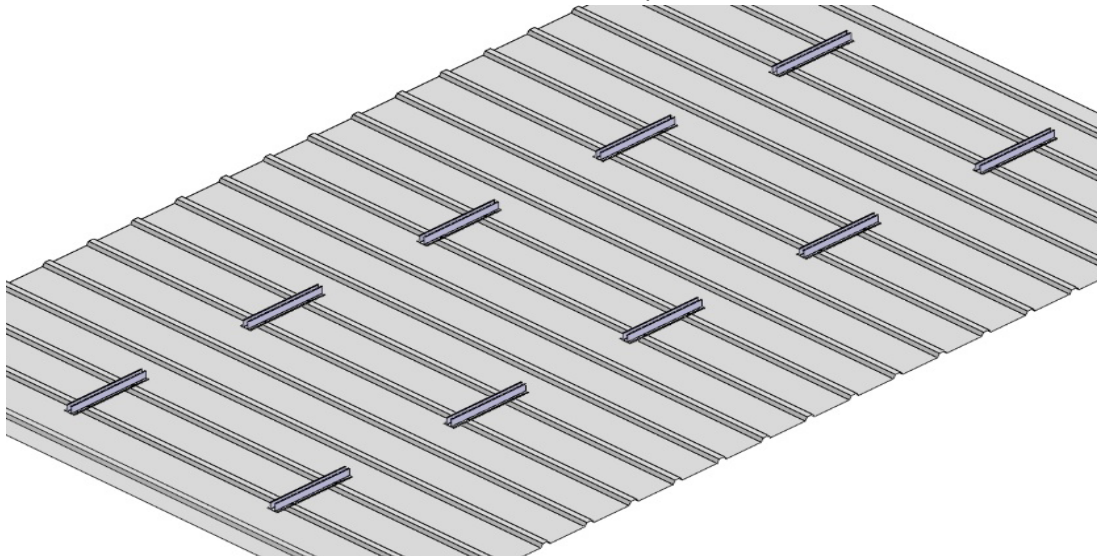
5.1.1 Mark the mini rails; positions on the metal roof according to the shop drawing. and use the string to make sure they are aligned.



Mini Rail

ST6.3×25  
screw x 4pcs  
rubber pad x1

5.1.2 Fix the mini rail on the metal roof, and cross 2 ribs:





## 5.2 Install the solar modules

Place the solar modules on mini rails according to the shop drawing, and fix panels by end& mid clamps.

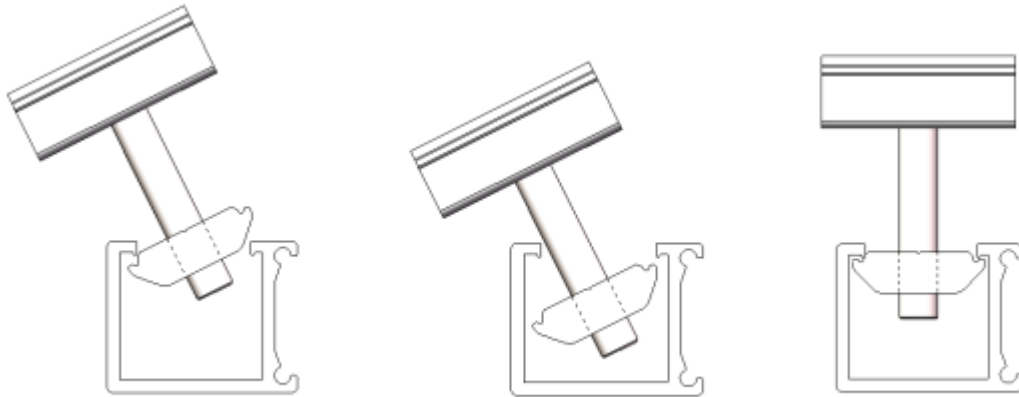
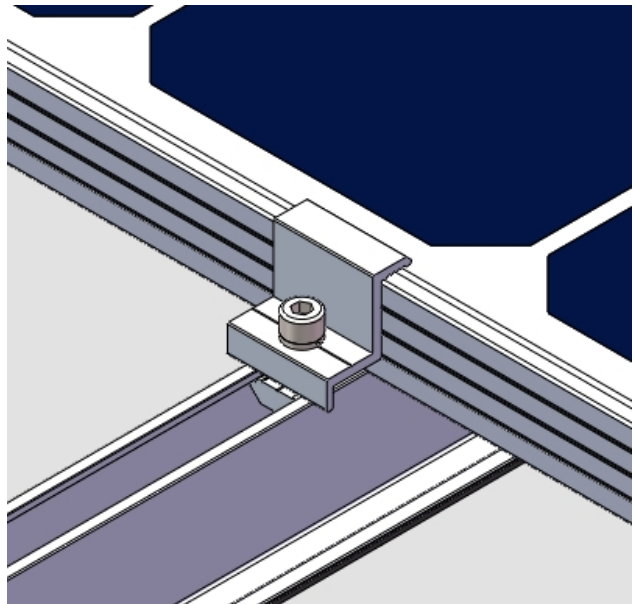
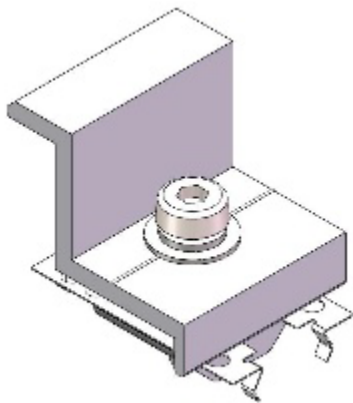


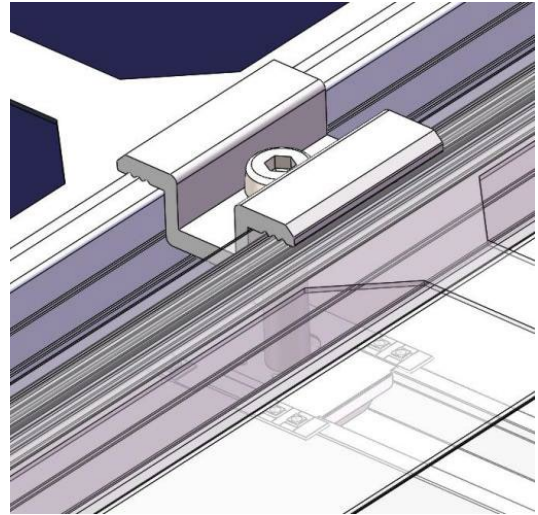
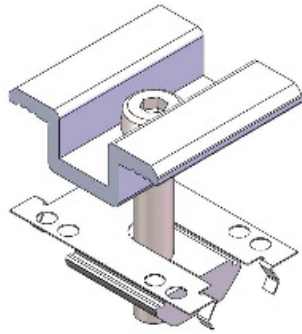
Figure – 1

5.2.1 Assemble the earthing clip under the end clamp, then tilt the rail nut of end lamp into mini rail channel. Place the first panel on the mini rail and fix it with end clamp and earthing clip. The pins of earthing clip should penetrate both panel frame and mini rail.

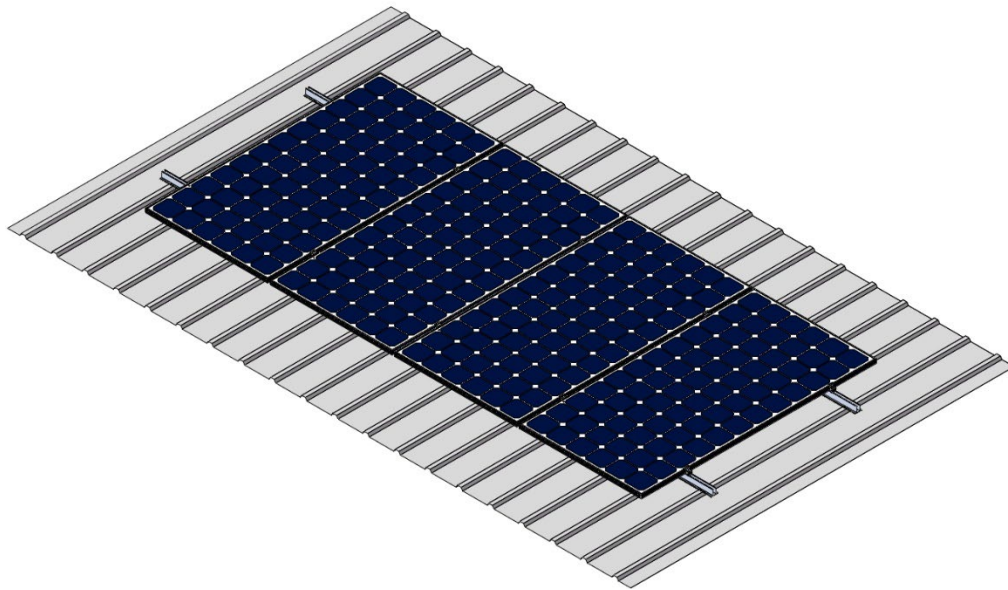




5.2.2 Assemble the earthing clip under the mid clamp, and tilt the rail nut of mid clamp into mini rail channel and close to the first panel, then place the second panel on the same mini rail and fix 2 panels with mid clamp and earthing clip. The pins of earthing clip should penetrate both panel frame and mini rail.



Install the rest panels refer to above steps.

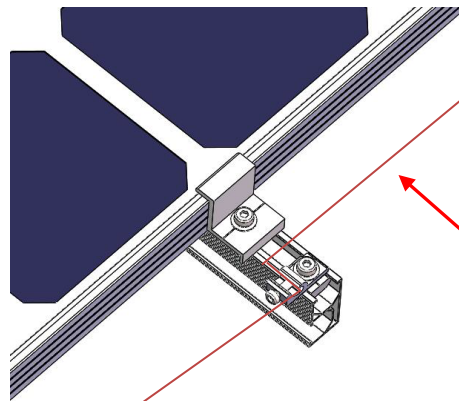




### 5.3 Install the grounding lug (Skip this step if not necessary)

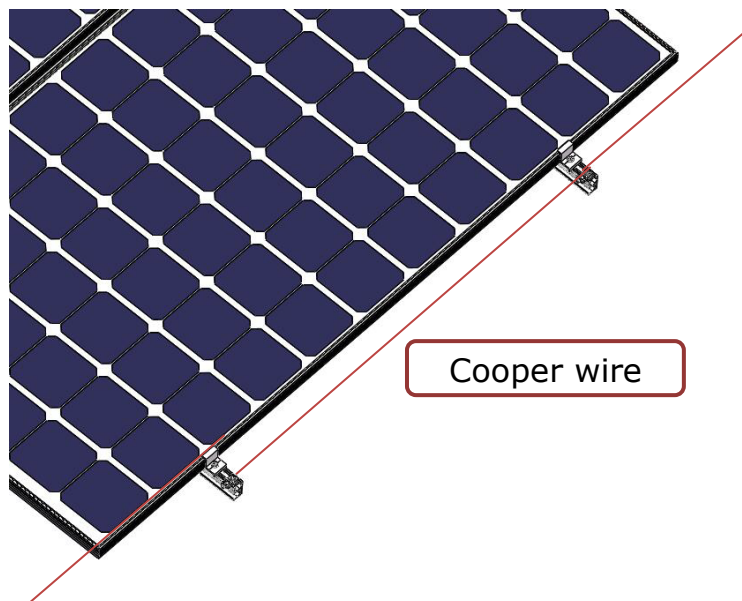
#### 5.3.1 Install the grounding lug on last mini rail.

M8 bolt  
M8 spring washer  
M8 flat washer  
Rail nut



M6 bolt for fixing  
copper wire

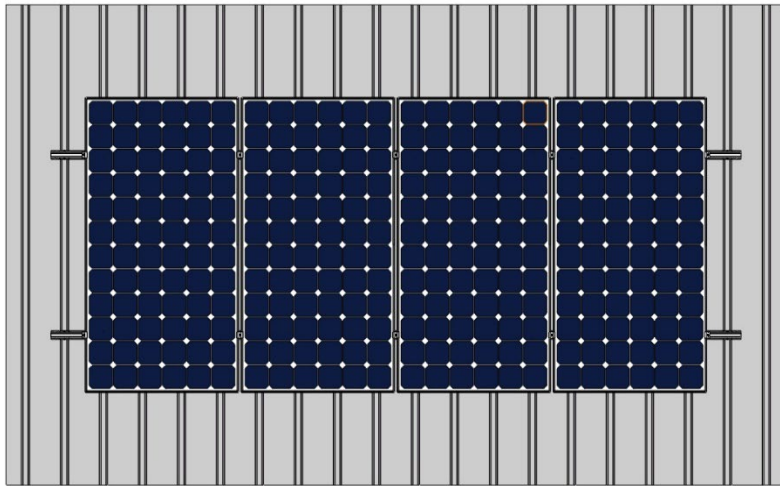
#### 5.3.2 Connect each panel arrays by the copper wire through grounding lugs and tighten the M6x16 bolt.



Cooper wire



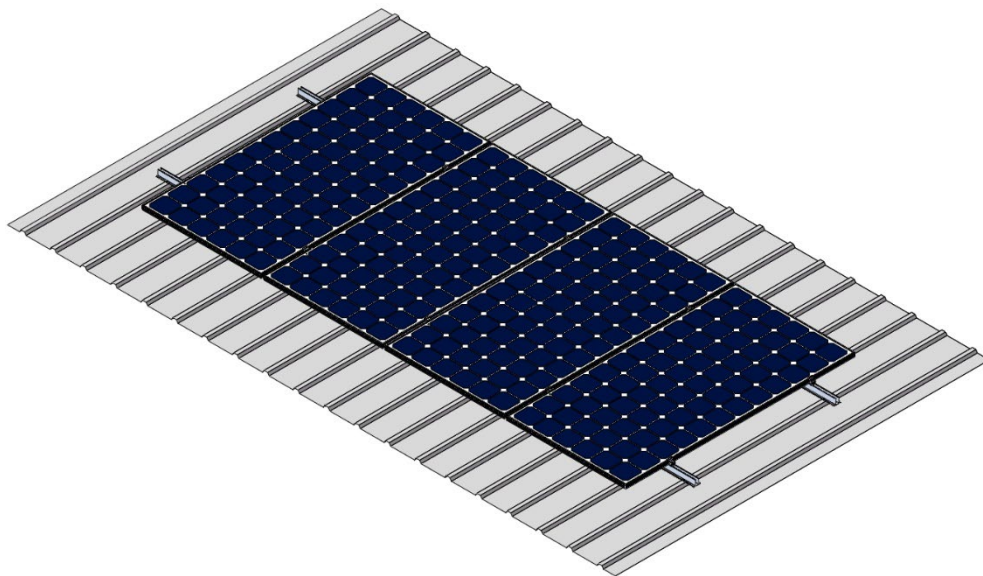
## 5.4 Views after installation



Top view



Side view



General view



## **VI. Notice**

### **6.1 Engineering Installation Dimensions Notes**

All dimension should be based on the specific shop drawing. This installation manual is for the purpose of describing the installation method of the product only.

### **6.2 Installation of Stainless-Steel Fasteners notes**

Because stainless steel has good ductility which is essentially different from carbon steel; improper use of stainless steel will lead to bolts and nuts cannot be screwed. That is to say, "deadlock" is commonly known as "seizure". The prevention of lock-up mainly includes the following aspects:

#### **2.1 Reduction of friction coefficient**

- (1) Make sure the thread surface is clean (e.g. free of sand and sundries);
- (2) It is recommended that the surface be coated with water wax or lubricant (such as butter and 40 # oil) during installation.

#### **2.2 The Correct Installation:**

- (1) The thread must be rotated perpendicular to the axis of the thread, do not tilt;
- (2) In the process of tightening, the force must be uniform and the tightening moment must not exceed the prescribed safe torque value.
- (3) Choose torque wrench or socket spanner as far as possible, avoid using movable wrench or electric wrench; use electric wrench also try to lower the speed.
- (4) Avoid using under high temperature, do not rotate quickly when using, avoid deadlock caused by the rapid rise of temperature; (e.g. using electric wrench, etc.)



#### **HQ Add**

30F, W Square, 1801 Huandao East Road  
Siming District, Xiamen, China

#### **Production Base Add**

Guanshan Industrial Park  
Changtai County, Zhangzhou, China

#### **Website**

[www.antisolar.com](http://www.antisolar.com)

