

Installation Manual

Alu-terrain system

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1. Introduction

1.1 Intended use

- Are intended to be used by individuals with sufficient technical skills for the task. Knowledge and use of hand tools, measuring devices and values is also required.
- Include various precautions in the forms of Notes, Cautions, and Warnings. These are to assist in the assembly process and/or to draw attention to the fact that certain assembly steps may be dangerous could cause serious personal injury and/or damage to components. Following the step-by-step procedures and these precautions should minimize the risk of any personal injury or damage to components making the installation not only safe but an efficient process.

1.2 Service life warranty

Fasten Solar Solar provides a warranty of 10 years for the service life of all materials used.

1.3 Safety

The following basic safety instructions and warning symbols form an essential part of this manual and are of fundamental importance when handling this product.

- Do not remove or disable any safety devices
- Comply with the relevant safety regulations.
- The presence of a second party who can provide help in the event of an accident is obligatory during the

entire installation process.

- Keep a copy of this installation manual in the immediate vicinity of the system.

1.4 Responsibilities of the owner/operator

The system operator has the following safety-related responsibilities:

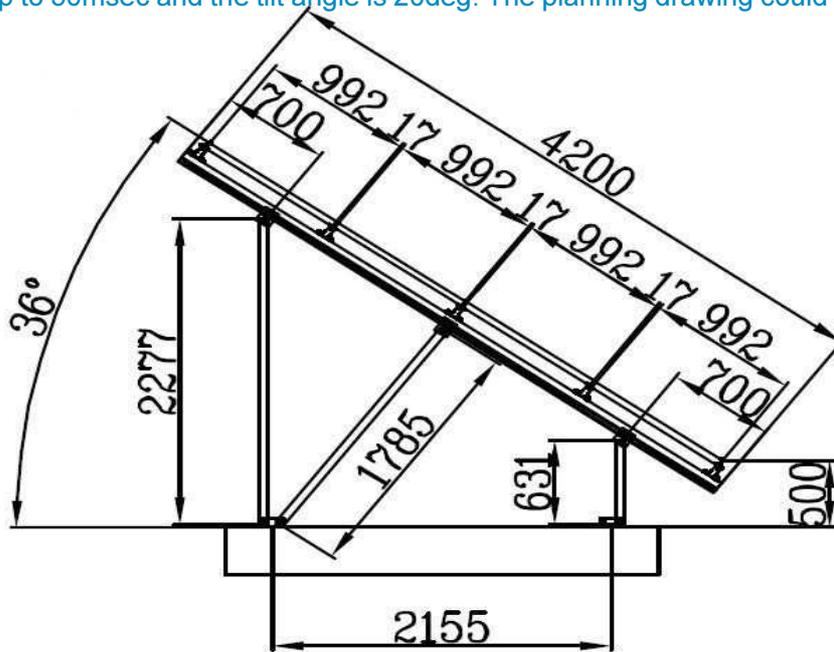
- To ensure that installation of the system is only carried out by individuals with specialist technical knowledge and basic knowledge of mechanical engineering.
- To ensure that those commissioned to perform the work can evaluate their assigned tasks and recognize possible risks.
- To ensure that those commissioned to perform the work are familiar with the system components.
- To ensure that the installation manual is available during installation. The installation manual is an integral part of the product.
- Ensure that the installation manual, and in particular the safety instructions, are read and understood by the relevant personnel before installation.
- Ensure that the permissible operation conditions are observed. Mounting systems is not liable for damage occurring when these conditions are not adhered to.
- Ensure the durability of all connections and the attachment of the system.
- Ensure that suitable lifting gear is used for installation.
- Ensure that only Mounting System components are used when parts need to be replaced. Otherwise any warranty claim is null and void.



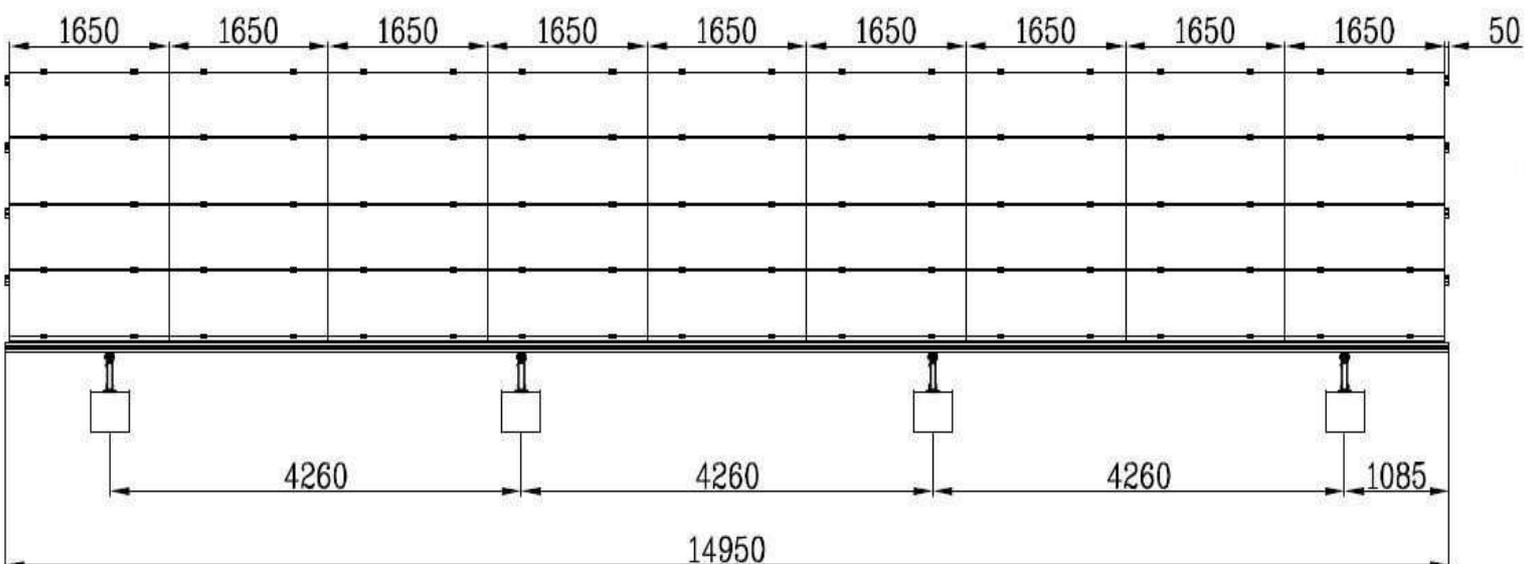
2. Planning

2.1 Layout Drawing

A general layout drawing is made of every system before delivery. This drawings show the accordant admeasurements and the position of every components and also the type of the connectors.
 Example : when the module size is 1864x992mm, the array configure is 2x5, which placed portrait.
 The wind speed is up to 50msec and the tilt angle is 20deg. The planning drawing could be as shown as below.



Side view



Back view

2.2 Foundation Planning

There are two solutions for the AI-Ground System, please see the detail information below and choice the best for your actual requirement.

2.2.1 Concrete Foundation with Pre-buried Bolt

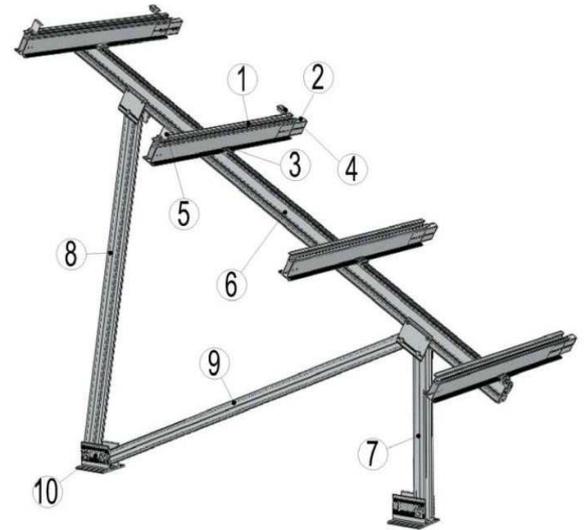
The concrete foundation is application for the most soil condition. Please consult with the local engineer to decide the size and the type of the foundation.

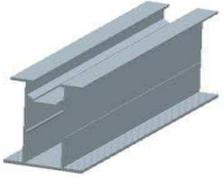
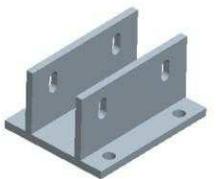
2.2.2 Ground Screw

Ground Screw with flange can be connected with our AL-terrain System. It can be quick installed by the specialized equipment. Please choice the specification of the Ground Screw with the actual condition of the ground. It is recommend to consult a soil engineer to check it. (please see our product: Ground Screw)



3. System overview



Item	Product	Picture	Item	Product	Picture
1	Heavy rail		6	Pre-assembly support beam kit	
2	Heavy rail splice kit		7	Front leg	
3	Heavy rail clamp		8	Back leg	
4	Innner clamp		9	Brace	
5	End clamp		10	Base	

4. Installation

Step 1: Connect the base on the Foundation

- a. Connect the Front and back base on the Foundation(Figure 1.1);
 - Recommendation size: 3000×500×500 mm
 - Using M12×250 pre-buried bolt, spring washer and flat washer
- b. Connect the Front and back base on the flange of ground screw(Figure 1.2);
 - Using M28*50 hex bolt, spring washer and flat washer

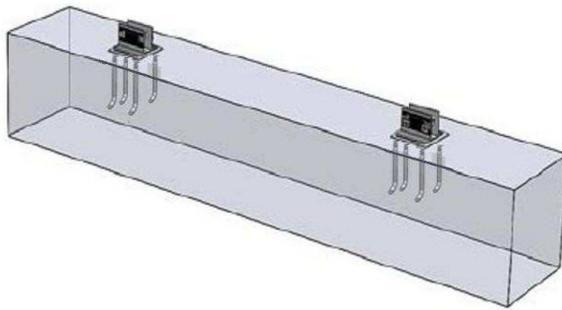


Figure 1.1



Figure 1.2

Step 2: Install the front leg and back leg

- a. Connect the front leg and back leg (Figure 1.3);
 - Using hex bolt M10*90

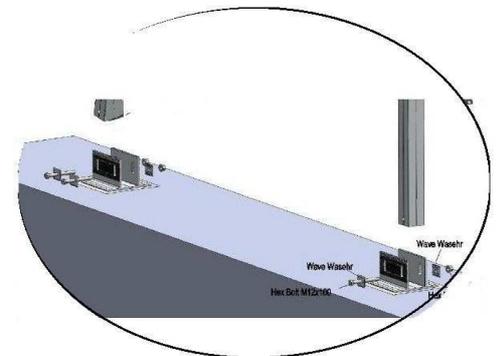


Figure 1.3

b. Install the pre-assembly support beam kit

The pre-assembly support beam kit include 1pc aluminum support beam, 2 pcs double U fittings and 1pc aluminum brace (Figure 1.4)



Figure 1.4

Put the assembly support beam kit upon the leg, and connect the brace with back base firstly, and then connect the double U fitting with leg(Figure 1.5);



Figure 1.5

c. Repeat the above operation in accordance with the planned array layout. It is important to ensure that the beams are kept in line with each other(Figure 1.6);

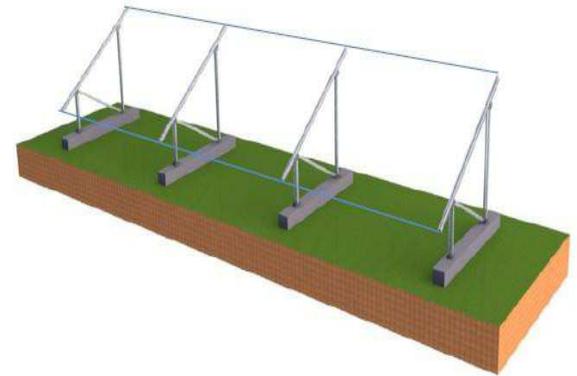


Figure 1.6

Step 4: Install the heavy rail on the support beam

a. Place the Heavy Rails on the Support beam, comply with the planning. Fix the rail with 2 PCS rail clamp (Figure 1.7).



Figure 1.7

b. Connection of two heavy rails.

Connection of two heavy rails. (Figure 1.8)
At first, insert half of the heavy rail splice into one of the heavy rail. Drill two 5mm holes, and fixed by two self-drill screw st6.3x25.
Secondly, insert the other B-Rail into the other end of splice. Finally, drill two 5mm holes and fixed by the self drill screw too.



Figure 1.8

c. Adjust the rails to ensure that they are in line(Figure 1.9)

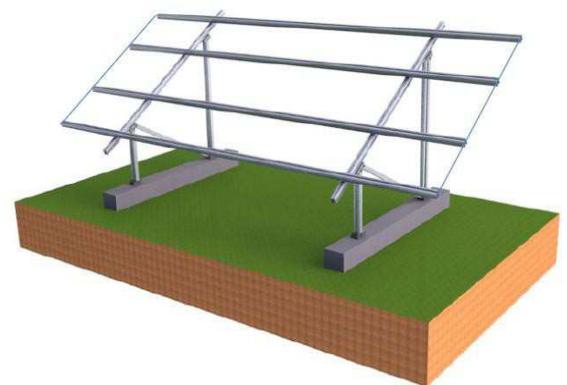


Figure 1.9

Step 5: Install the Solar Panels(Figure 2.0)

- Install the Solar Panels from one side to the other side;
- On the end, fix the solar panels by the End Clamp Kit
- Between two panels, fix by the Inter Clamp.

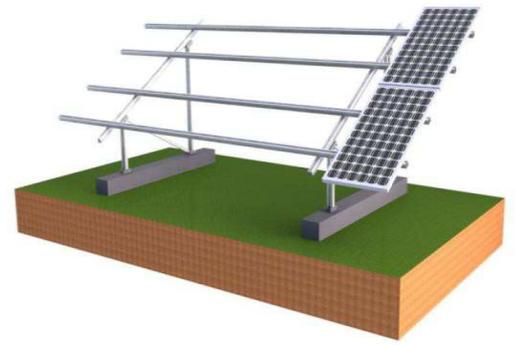
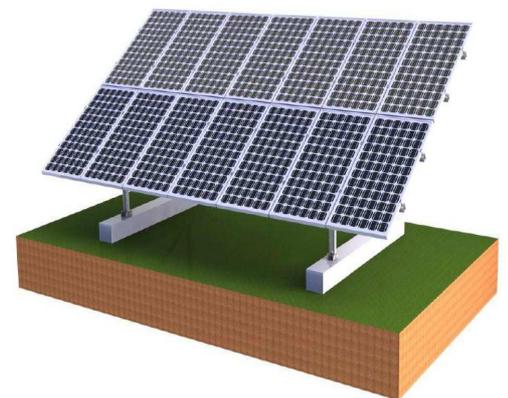


Figure 2.0

Caution

Install care while working around the structure during assembly; There could be components that create hazards or obstruct free moment causing serious bodily injury; At head/eye level. Move slowly and with care around the work area.



Finish

■ 5. Warranty

10 years limited Product Warranty, 25 years long lifespan.

Fasten Solar 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) from the earlier of the date when 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) is not followed by Purchaser. This Warranty does not cover any 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 Fasten Solar’s written installation instructions, or if the Product has been modified, repaired, or reworked in a manner not previously authorized by Fasten Solar in writing, or if the Product is installed in an environment for which it was not designed. Fasten Solar 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 Fasten Solar shall repair or replace the defective Product, or any part thereof, in Fasten Solar’s sole discretion. Such repair or replacement shall completely satisfy and discharge all of Fasten Solar’s liability with respect to this limited Warranty. Under no circumstances shall Fasten Solar 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. Fasten Solar’s limited Warranty covers only its Product, and not any related items.

**Thank you for using of Fasten Solar’s mounting system, for more information about us,
please contact us at:**