TYCON Solar®

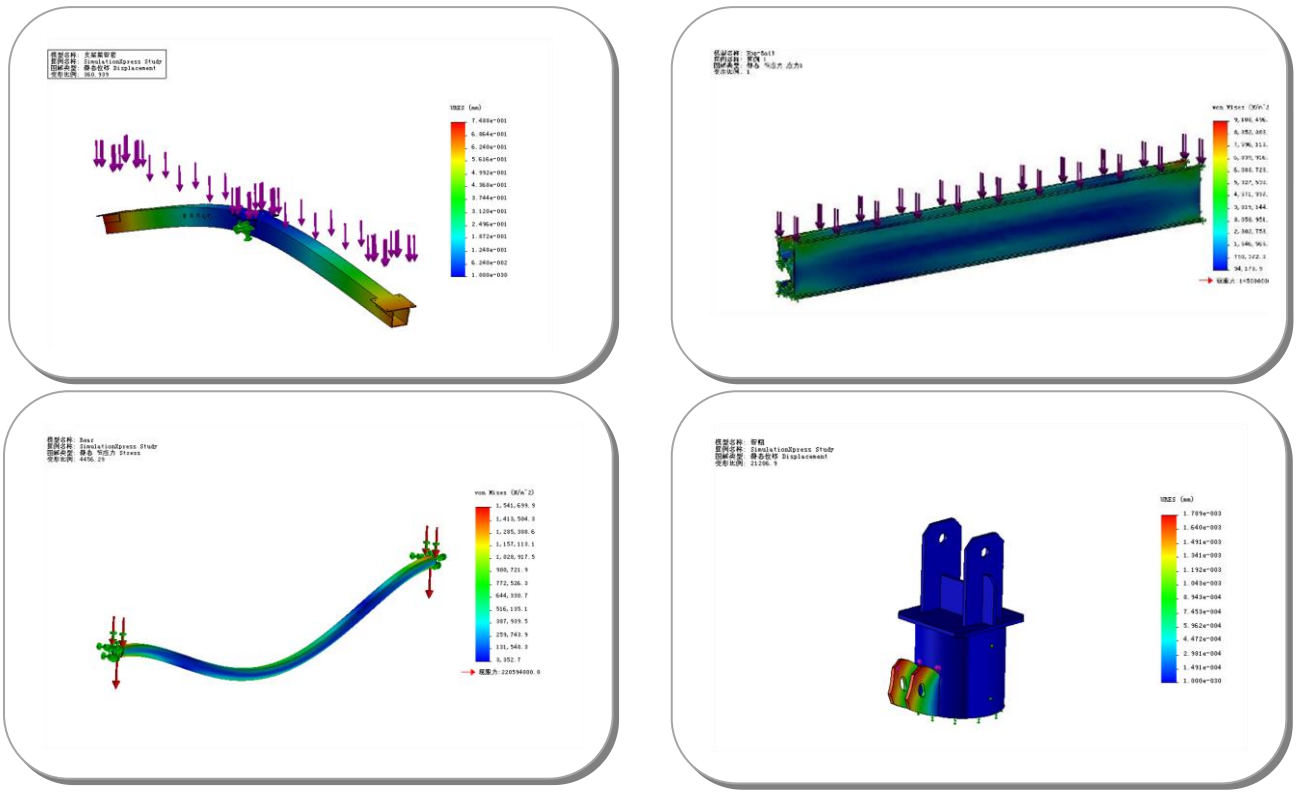
Pole Mount Installation Manual

TPSM-350x6-AdapterKit

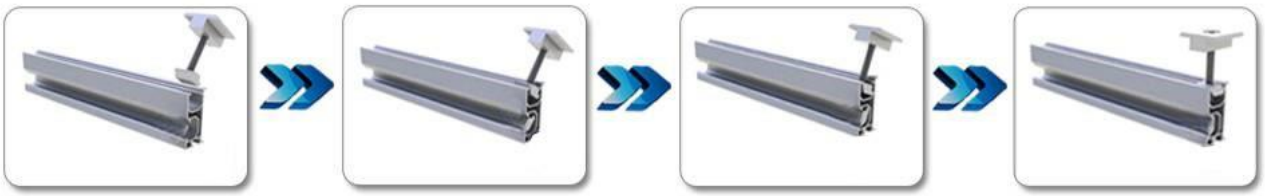
Thank You for Choosing Tycon®!

Why Tycon®?

1. **Tycon Systems® manufactures systems with experienced engineers and strong production and processing capacity. By ensuring our products are manufactured to stringent standards, we guarantee that you receive the highest quality products at the most cost effective rates.**



2. Innovative assembly method is fast, convenient and secure. Attach clamps, and brackets to rails in one motion with ease.



Aluminum Fixture Block Assembly Illustration

3. Using the special splice kits to connect aluminum rail makes installation easier, more flexible and convenient. Rails can be extended indefinitely improving efficiency, minimizing waste and reducing the overall cost of installation. Splice kits may be fixed to the top or side of the rails.

Splice Kit Assembly Illustration

Aluminium Rails

4. Excellent Material Selection, We choose to use Aluminum 6005-T5 on all our aluminum products and stainless steel SUS304 on all our hardware.

5. Designs are compliant with the following standards:
GB50009-2001
GB50011-2001
GB/T 13912-92
GBT 14846-2008
GB-T 6892-2006
GB50429-2007
GB50017-2003
AS NZS 1170
ASCE/SEI 7-05
ASCE/SEI 7-010
2007 California Administrative Code
IBC 2006
Euro Code 8
DIN1055
EN 1991-1-3 - Snow Load
EN 1991-1-4 - Wind Actions

Cautions

Do not attempt to install system during inclement weather or near power lines. The structure is 100% metal and lightning strikes or accidental contact with high voltage lines can cause serious injury or death.
It is recommended to have a minimum of 2 persons on hand during array installation for safety and installation ease.

Tools

Most hardware is metric, you may want to have both metric and standard tools available.

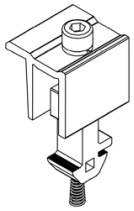
Hardware	Metric	Torque values	Standard "equivalent"
Socket Head 8mm Bolts (Pole Cap and Module Clamps)	**6mm hex key**	**10Nm (7.4 ft-lbf)**	**None**
U-Brackets 8mm Bolts	**13mm wrench**	**13.5Nm (10 ft-lbf)**	**1/2"**
Tube Flange 12mm Bolts	**19mm wrench**	**35Nm (25.8 ft-lbf)**	**3/4"**
Pivot 18mm Bolts (Angle Adjustment tube and Pole Cap)	**27mm wrench**	**122Nm (90 ft-lbf)**	**1 - 1/16"**

Suggested array layout

Suggested Array Layout

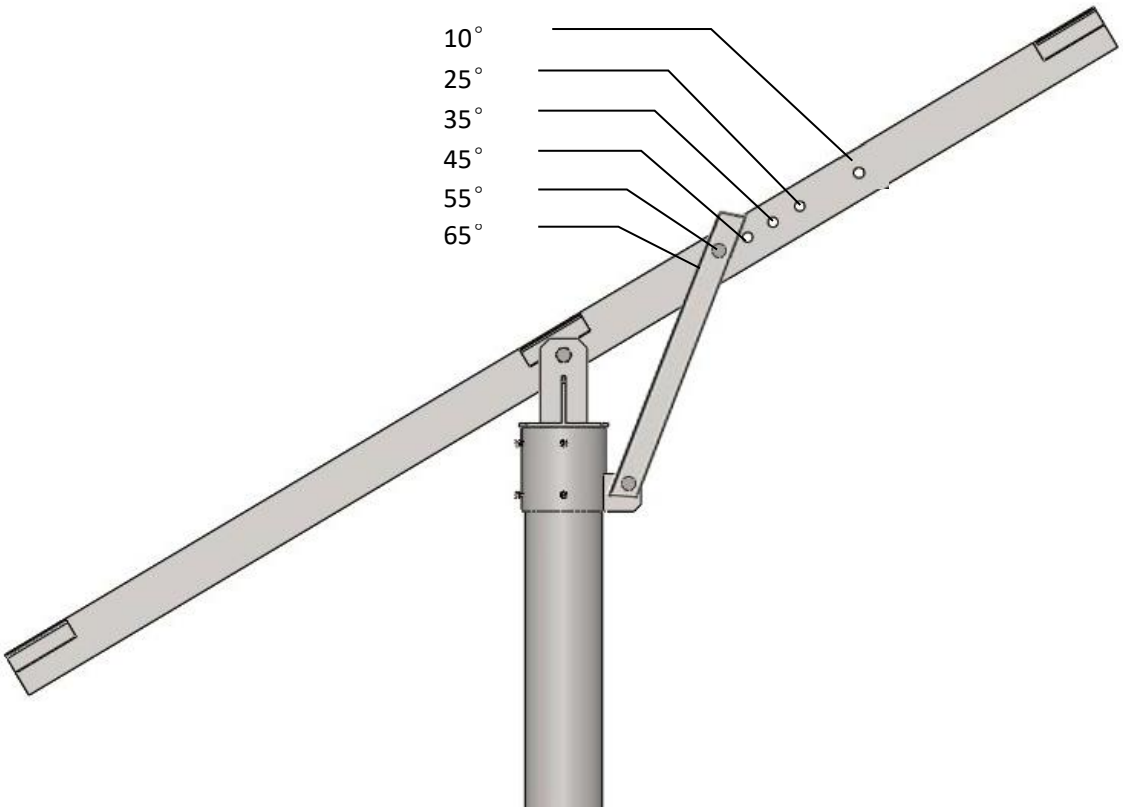
1. **Array width:**
    a. **6 modules = 3918 mm (154.25”)**
2. **Array height = 3010 mm (118.5”)**
3. **Rail spacing = 610mm +/- 15 mm (24” +/- .625)**
4. **Pole height = 1830mm (72”)**
5. **Concrete footing under pole:**
    a. **Min 1200mmD*600mm SQ (48” D x 24” SQ)**

Components List

S.NO.	Product Name	Picture	Material	Remark	Quantity
1	Rail		AL 6005-T5	1829mm (72”) L 1372mm(54”) L	4 6
1.1	Rail Splice		AL 6005-T5		8
2	End Clamp		AL 6005-T5	Includes： a. one piece of A2-70 M8 Hexagon screw b. one piece of aluminum fixing nut	8
3	Center Clamp		AL 6005-T5	Includes： a. one piece of A2-70 M8 Hexagon screw b. one piece of aluminum fixing nut	10
6	U - Bracket		Q235	Includes： a. Two pieces of M8*30 stainless steel hex bolts, flat washers, spring washers, and nuts	2 with bonding plate 6 without bonding plate
8	Large Tube		Q235	Structural tube with flange. Includes 8x M12 stainless steel bolts with washer, lock washer and nut	2x 1301mm (51.25”)

Installation Steps

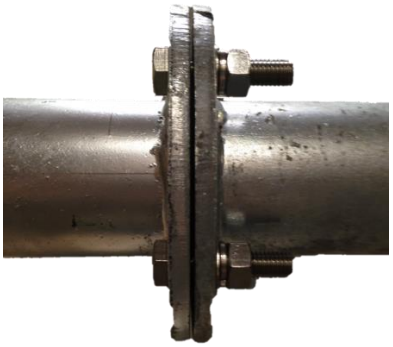
1. **Adjust the angle of elevation on your 2 panel array to the 10 degree setting to make it easier for installation.**



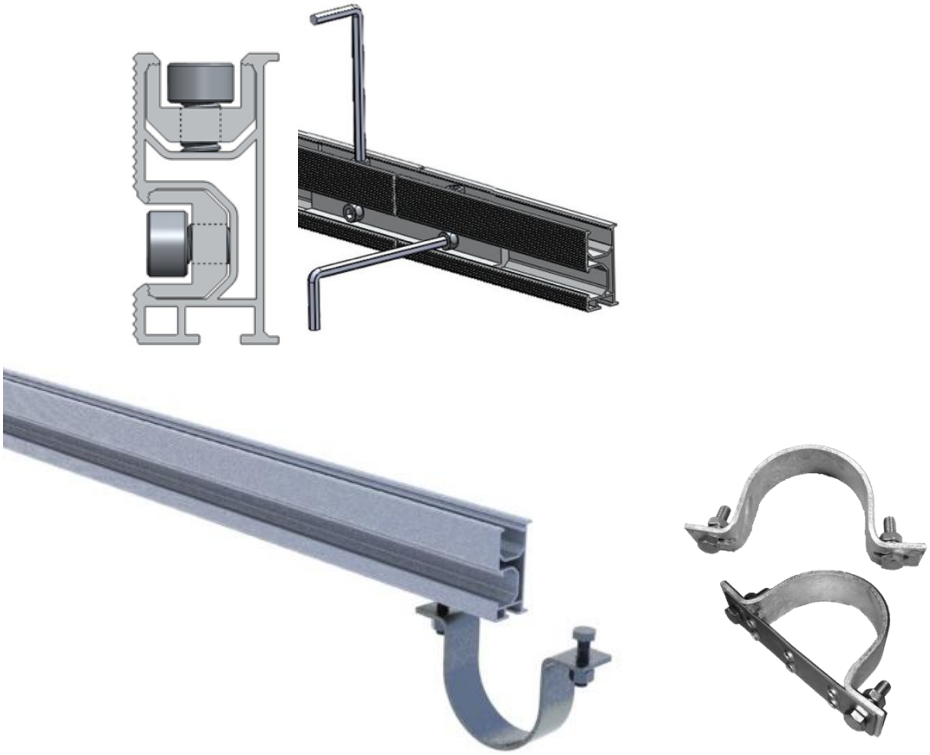
2. **For a 2 module mount, only two 1702mm (67”) large tubes are required. For a 6 module mount, two 1702mm (67”) large tubes and two 1301mm (51.25”) small tubes are connected at the flange using the supplied bolts as below.**
3. **Remove the existing Solar Panels by loosening the end clamps and center clamps**
4. **Loosen the U-clamp bolts holding the large tube to the square girder.**

5. **Remove the two aluminum rails from large tubes, Slide the large tubes so that each flanged end is approximately 5” from the square girder.**
6. **Connect the small tube flanged end to the large tube flanged end using the supplied bolts as**

shown below.



7. **Center the combined tubes across the flanges on the Square Girder at the welded mounting plates and fasten with two U-brackets. Care should be taken to ensure that the combined tube is centered and level on the square girder. Combined tubes should be parallel.**
8. **The mounting Rails come in two pieces for easier shipping. Utilize the splices provided to combine all six 72" and six 54" rails. Remove the 13" rails from the two existing 72" rails. It is recommended to utilize a splice in both the side channel and the top channel of the rail for greater strength.**
9. **Slide the U-bracket bolts into the slot on the underside of the rail. Guide the ends of the large tubes through the U-brackets. Each rail requires two U-brackets, one of the two brackets should utilize the bonding plate to form the equipment bond between the anodized aluminum rail and the steel structure so all metal parts are electrically bonded to Earth Ground (EG, ⏚).**



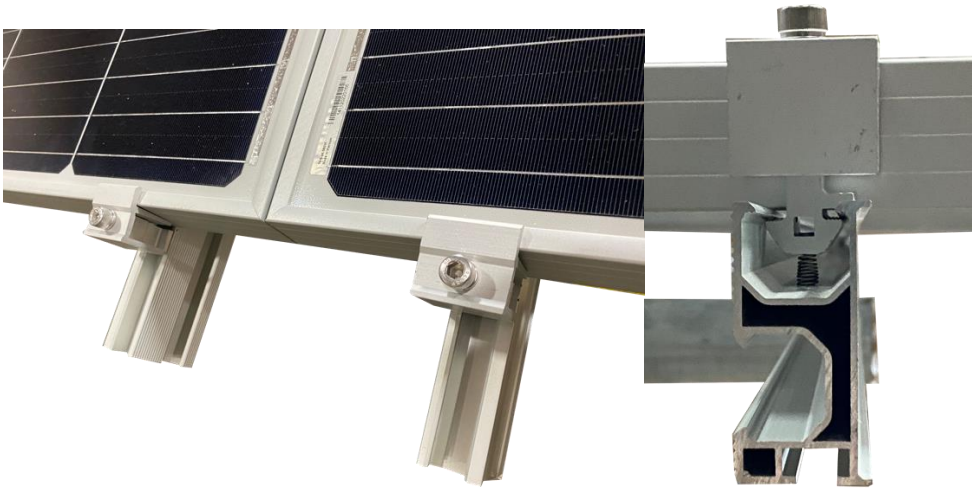
10. **Attach all 6 new rails to the large tubes once the whole assembly is square, tighten all the bolts. Be sure rails are centered on the large tubes.**

11. **Care should be taken to make sure that the ends of the rails line up by using a long straight edge or snap line. The farthest outside rails should line up right on the large tube edge. The inner rails should be no less than 610mm (24”) on center from the outer rails.**

Be sure that the grid is square prior to tightening the U-brackets.

Attach the solar panels to the new assembly using the end clamps and center clamps

12. **Use end clamps with M8x35mm Hexagon screw and fixing nuts (preassembled) to attach solar panels to the rails. Be sure first row of modules are aligned and square with the rail grid before tightening. A minimum of 6mm (0.25”) is required between modules. For aesthetics, you may want to use a center clamp as a temporary spacer between the modules in a row for a consistent module gap in the array. Be sure that the rows and columns are centered on the assembly.**



13. **Adjacent solar panels in columns are attached by using center clamps with M8 socket head bolts clamping both module frames. Be sure that the stainless steel bonding plate included with the center clamp is situated between the module (panel) frame and the mounting rail. The bonding plates are required to break the protective anodizing of the aluminum and ensure a continuous equipment bond of all metallic components to Earth Ground (EG, ⏚).**

14. **Repeat steps until installation is complete, top row will utilize end clamps as the first row did.**
15. **Adjust the tilt and direction as required for the site and tighten all bolts to final torque upon completion.**

Find the solar tilt calculator at calculators.tyconsystems.com

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