

## **SolarPod™ Grid Tied Installation sequence**

**DANGER!** Electric shock possible. Do not insert electrically conductive parts into connectors! Do not attach solar modules and wiring with wet connectors! Make sure to work with dry tools and under dry working conditions! When working on wiring, use and wear protective equipment (insulated tools, insulated gloves, etc.)!

**ATTENTION!** Do not use damaged modules. Do not dismantle modules. Do not remove any parts or nameplates fitted by the manufacturer. Do not apply paint or adhesives to the module, nor work on it with sharp objects. Do not modify the junction box attached to the modules or hardware that has been pre-assembled. Do not place modules on top of each other. Do not step or stand on modules. Do not place any objects on modules.

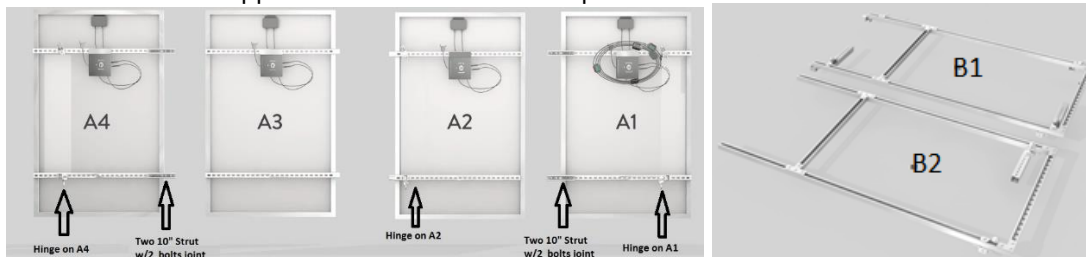
**WARNING!** Modules generate direct current (DC) when exposed to light. The SolarPod™ Grid Tied comes pre-wired on the DC side to an inverter. Do not break any wire connections. When breaking a closed circuit, a dangerous arc may be generated. Do not cut any live wires.

Do not perform installation in strong winds. Secure yourself and other persons against falling. Secure work materials against dropping. Ensure a safe working environment so as to prevent accidents.

SolarPod™ Grid Tied must not be installed in the vicinity of highly flammable gases, vapors or dusts (e.g. filling stations, gas tanks, paint spraying equipment). The safety instructions for other system components must also be followed. Make sure to comply with local standards, building regulations and accident prevention regulations during installation.

### **SolarPod™ Grid Tied - Parts List:**

There will be one package (or palette) of materials. This palette contains six sections (A1, A2, A3, A4, B1 & B2). A1, A2, A3, A4 are top panel portion and B1 and B2 are bottom portions. All necessary hardware will be supplied in the cardboard box provided.



Hardware in box



Legs, Tie wraps, splice bars, grade 8 bolts, female 240V weather proof plug and screw anchor.

### **Torque Specifications:**

The torque specifications for the fastening of the bolts are:

#### **Mechanical Torque:**

Size	Torque
<b>1/4" bolts and smaller</b>	10 to 15 ft. lbs
<b>3/8" bolts</b>	20 to 25 ft. lbs
<b>1/2" bolts</b>	30 to 35 ft. lbs

#### **Electrical Torque (for EM 6622 Gound lugs):**

Wire Range, AWG	Wire Type	Torque in-lbs
# 6	Solid	50

The bolt sizes for mounting will be 1/4", 3/8" or 1/2".

### **Underwriters Laboratories Information:**

The ANSI UL2703 certification is valid only when mounted in the manner specified in this instructions. The system is certified for a 30lb/ft2 load rating. This system is Not Fire Rated. Tighten all hardware to the torque specifications in the table above. The Maximum (DC) Series Fuse Rating for each solar module is 15A. The assembled dimensions of the SolarPod™ is given in Figure 1. The UL2703 listing has been evaluated for these dimensions. The middle support panel tilt adjust bar must be 68" and 62" from A4 and A1 as shown in the Figure. The base feet must be between 78" and 60" from the center. The legs cannot be greater than 12" high. The SolarPod™ Grid Tied can be bonded together using a minimum AWG #6 size wire. SolarPod™ Grid Tied has been evaluated to a maximum overcurrent protection device (OCPD) of 15 Amps.

The PV module models that have been evaluated include:

<b>CSA Listed - Canadian Solar - Models:</b>	<b>Trina Solar -UL File E306515, Category Control Number (CCN) QIIA- Models:</b>	
CS6P-250P	TSM-215PD05	TSM-240PD05
CS6P-255P	TSM-220PD05	TSM-245PD05
	TSM-225PD05	TSM-250PD05
	TSM-230PD05	TSM-255PD05
	TSM-235PD05	TSM-260PD05

SolarPod™ Grid Tied may be used to ground and/or mount a PV module complying with UL 1703 only when the specific module has been evaluated for grounding and/or mounting in compliance with the included instructions.

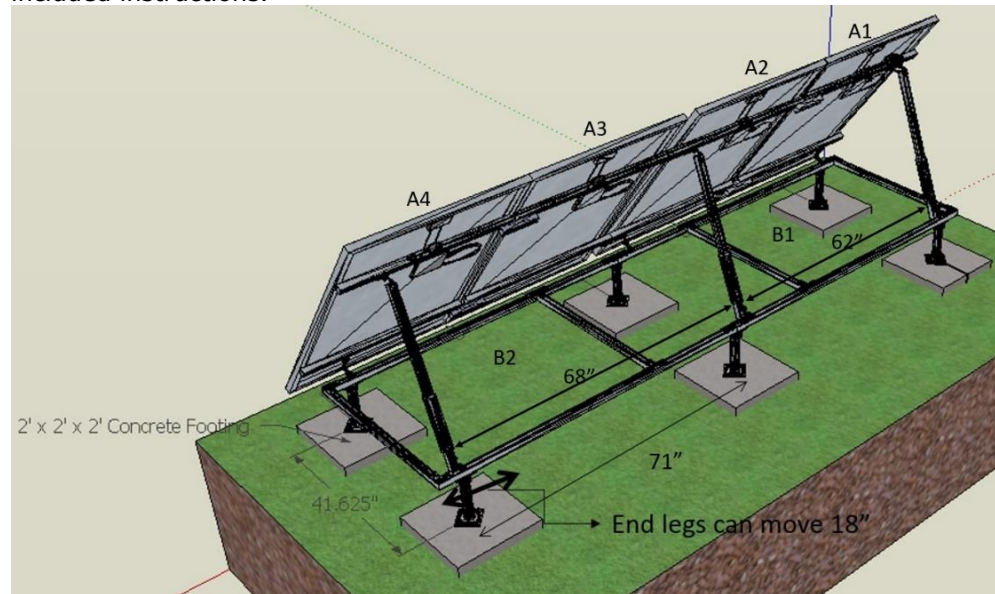


Figure 1: Dimensions of the three back supports and allowable leg offsets.

Periodic re-inspection of the installation for loose components, loose fasteners and any corrosion, such that if found, the affected components are to be immediately replaced.

## **SolarPod™ Grid Tied on-site assembly instructions:**

1. Connect B1 to B2 using the wing brackets on both sides. Use Splice bars supplied. Secure the wing bracket using one, 3/8" bolt, lock washer, flat washer and strut nut torqued to 20ft-lb, per side of the U-Channel Tube. Use Splice bars supplied to attach the rail also, over the top of the wing bracket with 2 bolts per side of the splice. Secure four of the 3/8" bolts, lock washer, flat washer and strut nuts to 20 to 25 ft. lbs torque to bond the splice to the rail. Repeat for opposite site of rail.



2. Attach six feet to B1 and B2 to the 90 degree slot in the wing brackets on the six locations. Use one 3/8" bolt, lock washer, flat washer and strut nut to attach the foot to the bracket. Repeat for the 6 mounting legs/feet.

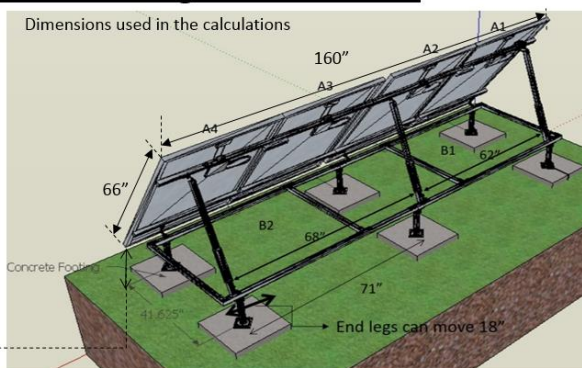


3. The ground is prepared to anchor the SolarPod™. Concrete footing or slab is recommended. UL did not evaluate the system for wind loads.

## **SolarPod™ Wind Loading Calculations**

- Assumptions
  - SolarPod™ only.
  - Category C (Open Terrain)
  - Wind direction factor 0.85.
  - Wind speed = 120 mph
  - Category I (Represents no substantial hazard to human life)
  - $\theta$  angle for SolarPod™ = 45 degree to horizontal
  - Ground mount .

8" clearance from ground to solar panel



<b><u>Wind Load Calculation Results</u></b>		
	Dead Load Required to resist Wind uplift	Max Horizontal Reaction
Short Side Reaction	-374 lb	-350 lb
Tall Side Reaction	-1038 lb.	494 lb.

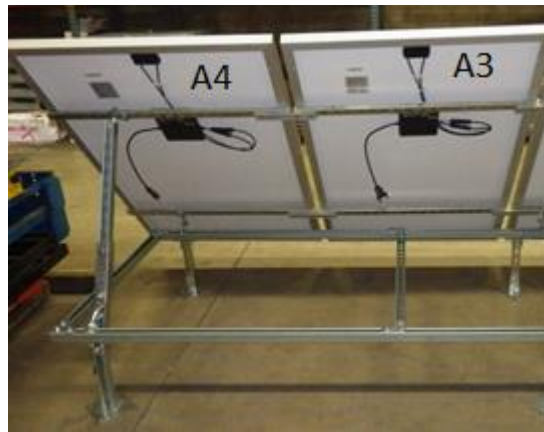
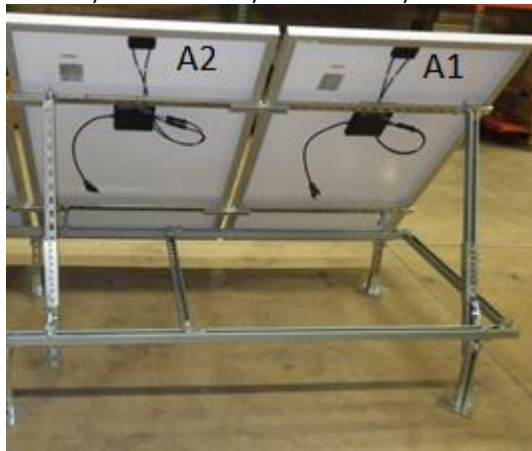
<b><u>Downward weight required to hold down</u></b>		
	Concrete FOOTING required to resist uplift & horizontal reactions	Concrete SLAB required to resist uplift and horizontal reactions
Short Side Reaction	4.75 cu.ft or 1'x1'x1'	45 cu. ft or
Tall Side Reaction	7 cu. ft or 1.5'x1.5'x1.5'	0.5'x15'x6'

**PE Stamped calculations are available upon purchase**

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4. The SolarPod™ bottom frame is placed securely on footings (see #3 for details on footings). The system was not evaluated to UL 2703 regarding securement of the SolarPod™ legs to the concrete footings.
5. Join A1 to A2 using the splice bars. Secure four of the 3/8" bolts, lock washer, flat washer and strut nuts to 20 to 25 ft- lbs torque, with two bolts per side of the module support strut. Repeat for lower support strut. A1 can be identified easily by a label on the back side of the solar module.
6. Join A3 and A4 as noted in #5.
7. The A1 & A2 will then be attached to the B1 side of the bottom portion through the hinge nut and square tube. B1 will have a 12GA U Channel tube inserted into the 2" Square Tube that is attached to the Hinge bracket. The U-Channel will be bolted to the 2" Square Tube through one, 3/8" bolt, lock washer, flat washer and strut nut. This will create the tilt of the panels in the system. The Hinge bracket bolt provided (1/2" bolt) will be torqued to 30ft-lbs to create the angle desired for the panel orientation to the sun.(A1&A2 is the panel top half with coil of wire). The upper Module Tube portion of A1 & A2 will be attached to a hinge bracket directly, through a 3/8" bolt, lock washer, flat washer, and strut nut.

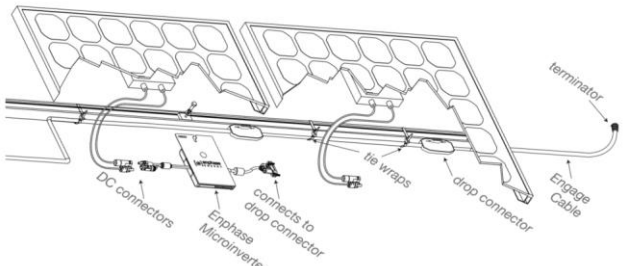
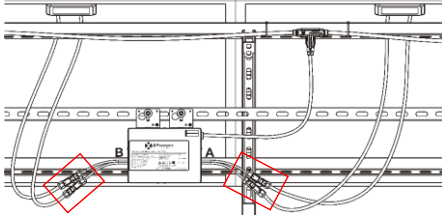
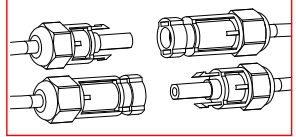


8. The A3 & A4 will then be attached to the B2 side of the bottom as noted in #7 above..
9. Then the "A1 & A2" AND "A3 & A4" will be connected using the splice bar (flat 4 hole plate in the box). There are two splice bars given in the box with hardware. Attach with two, 3/8" bolts, lock washer, flat washer and strut nut on either side of the splice and torque to 20 ft-lb.





10. Grade 8 "gold" bolts are used to fasten the telescopic legs to the tilt angle.
11. Now the electrical portion begins. UL 2703 certification is for bonding of the frames to the solar modules only.
12. The A1 section has wire coiled up. Release this coil by cutting out the tie wrap. Extend the wire all the way towards A4. Using the tie wraps provided, secure the wire to the frame. Ensure most of the cable is tucked underneath the metal frames.
13. Connect the micro-inverters<sup>1</sup> in A2, A3 and A4 as shown in A1. There is a microinverter to each solar panel on the Enphase "e" systems. There is one microinverter to two panels in the "APSystems" systems. Push all the way to ensure that the connection is secure and tight.

<p>Enphase "e":</p> 	<p>APSystems</p>  
<p><b>IMPORTANT : CAUTION</b></p> <p>M215: 4 SolarPod max to a 20A breaker. M250: 3 SolarPod max to a 20A breaker.</p>	
<p>APSystems YC500i: 3 SolarPod maximum to a 20A breaker.</p>	

14. Then we run the wire from the facility using the four wire 240V / 30A adapter.
15. Connect the adapter to a dedicated 20A two pole circuit breaker and you are making solar power.
16. Run #6 ground wire through ground lug provided (look for sticker with "GROUND" Symbol) and use a ground rod appropriately distanced to ground the SolarPod™ Grid Tied. SolarPod™ with exposed conductive parts is considered to be in compliance only when it is electrically grounded in accordance with the National Electrical Code.

The UL 2703 Listing was evaluated using EM 6620 (UL 467 certified ground lugs suitable for Anodized aluminum and galvanized steel). Torque for mounting ground lug is 10 to 15 ft. lbs for a 1/4" mounting hole. Torque 45 in-lbs for 6AWG solid copper wire for attaching ground wire in Lug.

<sup>1</sup> UL did not evaluate the attachment of the inverters, cabling of the system or their inter-connection in the SolarPod™ Grid Tied as part of the UL 2703 certification. The inverters are UL 1741 certified by another Nationally Recognized Testing Laboratory (NRTL). UL 2703 certification is for bonding of the frames to the solar modules only.

