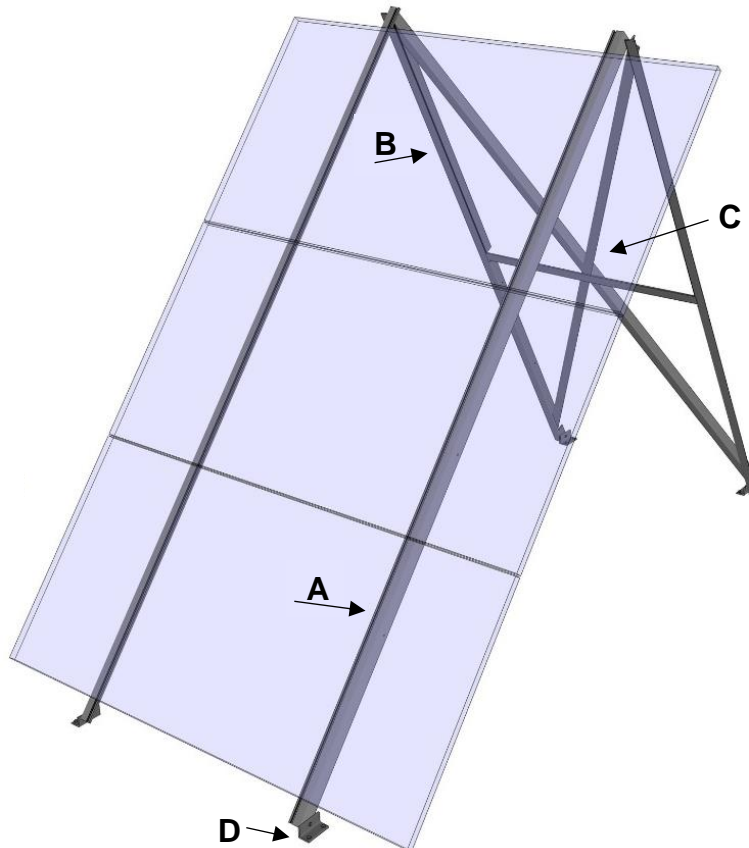




Roof / Wall / Ground Mount Assembly Instructions



Universal S-Rail XL

- A. **ALUMINUM RAILS:** UNIVERSAL T-SLOT ANGLE EXTRUSION 3" X 1 1/2" X 3/16" X 11' LONG – 2 PLACES
- B. **BACK BRACES:** UNIVERSAL T-SLOT ANGLE EXTRUSION 3" X 1 1/2" X 3/16" X 113" – 2 PLACES
- C. **CROSS BRACES:** 6061 – T6 ALUMINUM ANGLE – 2 PLACES
6061 – T6 ALUMINUM FLAT BAR 2" x 1/4" – 1 PLACE
- D. **MOUNTING FEET:** 6061 – T6 ALUMINUM ANGLE BRACKET – 4 PLACES

Note: By changing the position of the back braces and rails you can move your array more vertical or horizontal.

Rev. 12/17



COMPONENTS FOR THIS MOUNT

- (2) Aluminum Rails**
- (2) Aluminum Back Braces**
- (2) Aluminum Cross Braces**
- (1) Aluminum Flat Bar**
- (4) Mounting Feet**

Hardware

- 2** – 3/8" X 1 1/4" bolt, washer and flange nut to attach Foot to Rail
- 2** – 3/8" X 1 1/4" bolt, washer and flange nut to attach Foot to Back Brace
- 2** – 5/16" X 1 1/4" bolt, washer and flange nut to attach Rails to Back Brace
- 2** – 1/4" X 5/8" bolt and flange nut to attach Flat Bar Cross Brace to Back Brace
- 4** – 1/4" X 5/8" bolt and flange nut to attach two Cross Braces to Back Brace
- 1** – 1/4" X 1" bolt, washer and flange nut for three Cross Brace connection
- 4** – 1/4" X 5/8" bolt and flange nut per panel to attach to rail

NOTE: You will need to purchase whatever fasteners are appropriate for attaching the mount to your particular roof or other mounting surface.

INSTALLATION NOTES

In the northern hemisphere, this mount should be oriented so the panels face as close to due south as possible. In the southern hemisphere, facing north.

This mount is made to attach to a roof, side wall, or flat horizontal surface. If the mount is to be attached to a roof, lag bolts may be used if at least 4" of the 3/8" lag bolts on each mounting foot are screwed full penetration into a solid wood member. For side wall installations, the upper mounting feet must be attached with bolts that go completely through the wall or if 3/8" lags are used, they should be screwed into at least 3" of solid wood, e.g. into a 2" X 6" wall stud. If mounted to the ground, it must be similarly fastened to a concrete foundation, or wood deck.

When mounting on a roof top it is desirable to install the bottom of the panels near the ridgeline. For optimum southern exposure this ridge should run east – west. If you mount the panels on the southern roof they may not lie down flat enough in the summer for a perpendicular orientation to the sun. This is particularly true on steep roofs.

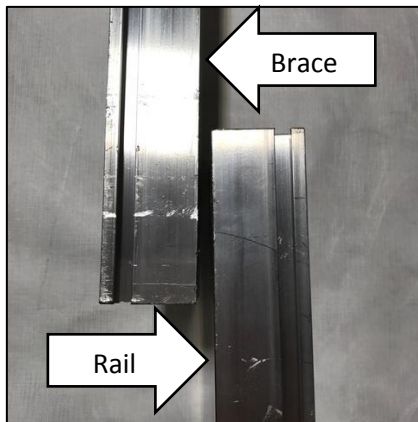
If you have someone to help you lift the assembled mount into place, go ahead and fasten the panels onto the rails before installation. Note: Three "D" panels and rails = approx. 194 lbs. Use the mounting holes on your panels which will allow you to have the best access to the wiring junction boxes on the back. Hold this first panel 2" down from the top end of your slotted rails. This will allow the back braces to stick past the rails when the array is laid down flatter as in summertime orientation. Attach this first panel with the stainless bolts provided, finger tighten only. Attach the rest of the panels one at a time below the first one. There should be approximately 1/4" between panels.

When all the panels are on the rails there may or may not be some excess rail left, depending on the brand of PV you are using. This excess may be trimmed off, or can be left at the bottom of the array to create more distance between it and the mounting surface to allow for snow build up without shading the bottom panel.

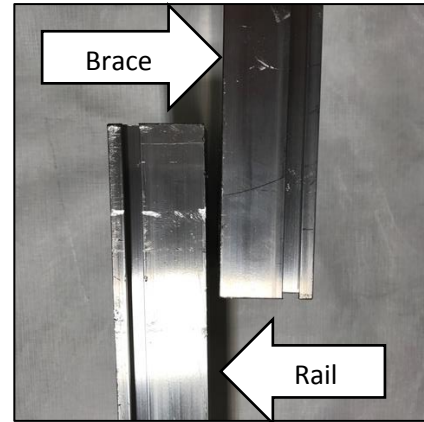
ASSEMBLY INSTRUCTIONS

1. **Bolt rails and braces together.** Rails and braces come with some pre-assembly using 5/16" X 3/4" bolt, washer and flange nut. You can tell the difference between them because the two rails are longer than the two braces. Note the pictures and which direction the T-slot is for the rail and the brace.

(View from Top Left)

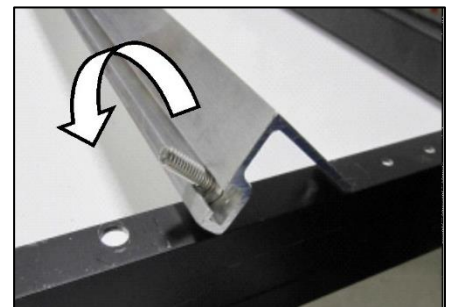


(View from Top Right)

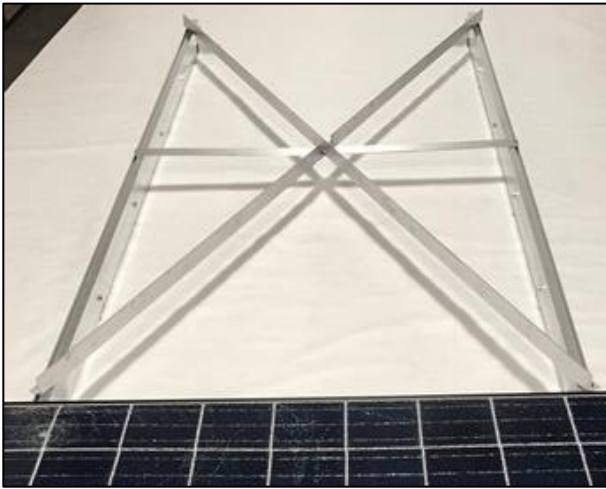


2. **Attach the feet.** As shown at left the foot for the rails goes on the outside of the rail with the T-slot pointed in. The feet for the braces go on the inside with the T-slot pointed out. Attach the feet by using the 3/8" X 1 1/4" bolt, washer and flange nut.

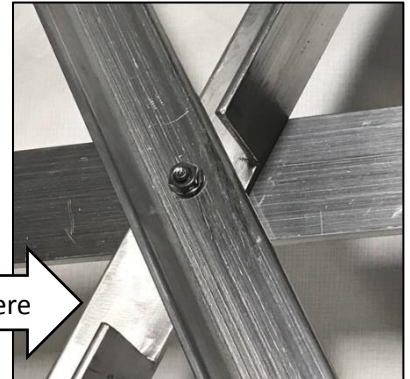
3. **Attach panels.** Attach a panel to figure out the width of the array. Panels are installed in landscape so the rails go across the short axis of the panel. Slide stainless bolts into T-slot of rail and position so they are opposite to the mounting holes on the frame of the panel. The bolts slip into the holes on the panel frame and then finger tighten the flange nuts with the flange against the inside of the panel frame and thread onto the bolt from underneath.



4. **Attach cross braces.** It is very important that you install the cross braces correctly so that you are able to adjust the tilt. The picture on the left shows the mount laying flat with a panel installed. The flat bar cross brace goes in the center as shown. Be sure to square top to bottom. Loosely set in brace with $\frac{1}{4}$ " bolt and flange nut. The slotted cross brace goes on top of that and then the un-slotted cross brace goes on top of the



slotted. Attach the $\frac{1}{4}$ " x 1" bolt, washer and flange nut. When the mount is upright the slotted brace needs to look like the picture on the right.



More slotted space here

Tighten all bolts and set to desired tilt.

SOME OF THE DIFFERENT ADJUSTMENT ANGLES

