Mounting Pyranometers to a Soltec SF7 Single-Axis Tracker

INTRODUCTION

These instructions explain how to mount pyranometers to a Soltec SF7 Single-Axis Tracker in the global plane-of-array (GPOA) and the reflected plane-of-array (RPOA) orientations.

While the procedure is very similar for both orientations, the specific bracket used depends on the location and orientation of the pyranometer, so care must be exercised when selecting the proper bracket.

PARTS

The parts table below lists quantities for EACH pyranometer installation. When installing multiple pyranometers on the same PV array, parts quantities must be multiplied by the number of pyranometers being mounted.

NRG Part Number	Part Description	Part Specification	Quantity
14466 LEFT **14466 RIGHT** **14467 CENTER**	PV array mounting bracket	Pre-drilled angled aluminum *See left for specific location denotations.*	1
11047	PV array-to-mounting bracket bolts	1/4-20 thread 1.25” length Stainless steel bolt	4
14390	PV array-to-mounting bracket nuts	1/4-20 thread Stainless steel Nyloc nut	4
6679	NRG Universal pyranometer mounting plate	Pre-drilled plate	1
7004	Pyranometer plate-to-Mounting bracket bolt	5/16-18 thread 0.75” length Stainless steel bolt	2
4758	Pyranometer plate-to-Mounting bracket nut	5/16-18 thread Stainless steel Nyloc nut	2

Note: Pyranometer & mounting bolts are also required but not listed.

TOOLING

Item	Use
Ratchet & SAE socket set	Bracket & pyranometer plate attachment Specific socket sizes required: – 7/16” – 1/2"
7/16” Wrench	Bracket attachment
1/2" Wrench	Pyranometer plate attachment
Clamp(s)	Temporarily holding mounting bracket to SF7 PV array structure
Drill with tool-less chuck	Drilling holes for mounting bracket to attach to SF7 PV array structure
Drill bit – 9/32” or 7.2mm or size K	Drilling holes for mounting bracket to attach to SF7 PV array structure
Permanent marker	Marking bracket hole locations to drill
4mm Hex key	Pyranometer mounting bolts

Apply a small amount of anti-seize to the bolt threads.

PROCEDURE

Diagrams to guide each installation are located in the next section.

1 Gather the items needed.
Match the appropriate bracket with the installation location.

2 Line the mounting bracket up with the SF7 tracker’s sheet metal PV support beam so that the corner of the angled aluminum bracket is against the PV support beam and the top face of the mounting bracket is flush with the top of the beam.

Clamp in place, if desired. Use a **permanent marker** to mark the locations of the holes to be drilled in the structural beam.

Remove the mounting bracket and clamp.

3 Use the **drill and drill bit** (9/32”|7.2mm|Size K) to make the holes in the structural beam.

There will be four holes per bracket.

4 Attach the mounting bracket to the structural beam. Use the 1/4-20 stainless bolts (#11047) and nyloc nuts (#14390).

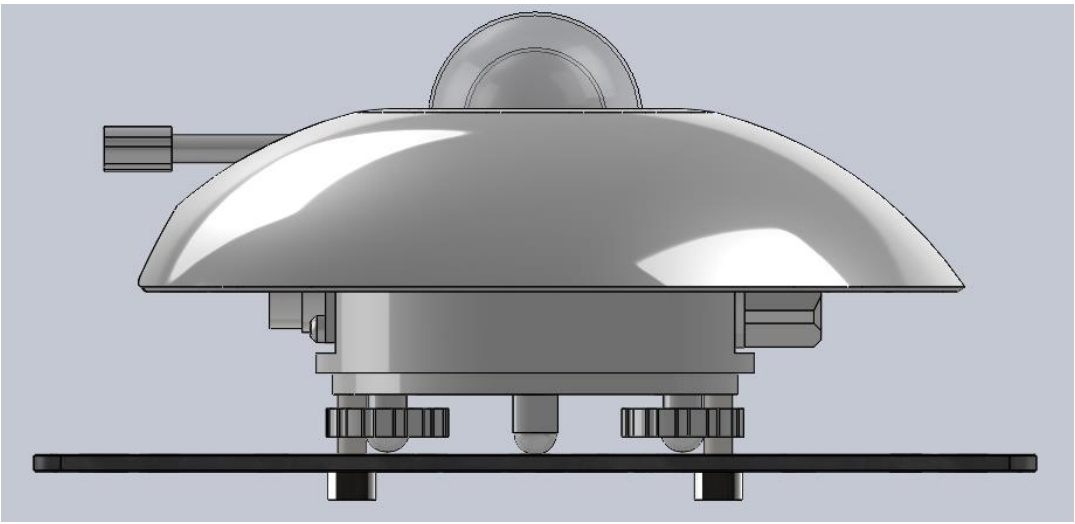
Check that the bracket is straight, then tighten with a **7/16” socket/ratchet and wrench**.

Note: If desired, use flat washers (not supplied) with the mounting hardware.

5 Mount the pyranometer to the Universal Mounting Plate (#6679). The mounting plate has numerous holes for different types of pyranometers, so line up with the appropriate holes.

Ensure that the pyranometer is level to the plate.

The example diagram below shows the Hukseflux SR20 attached to the mounting plate with stainless M5 screws.



6 Attach the mounting plate/pyranometer assembly to the mounting bracket on the PV array. Use the 5/16-18 stainless bolts (#7004) and nyloc nuts (#4758).
The orientation will depend on the desired type of measurement.

Tighten hardware with a **1/2" socket/ratchet and wrench**.

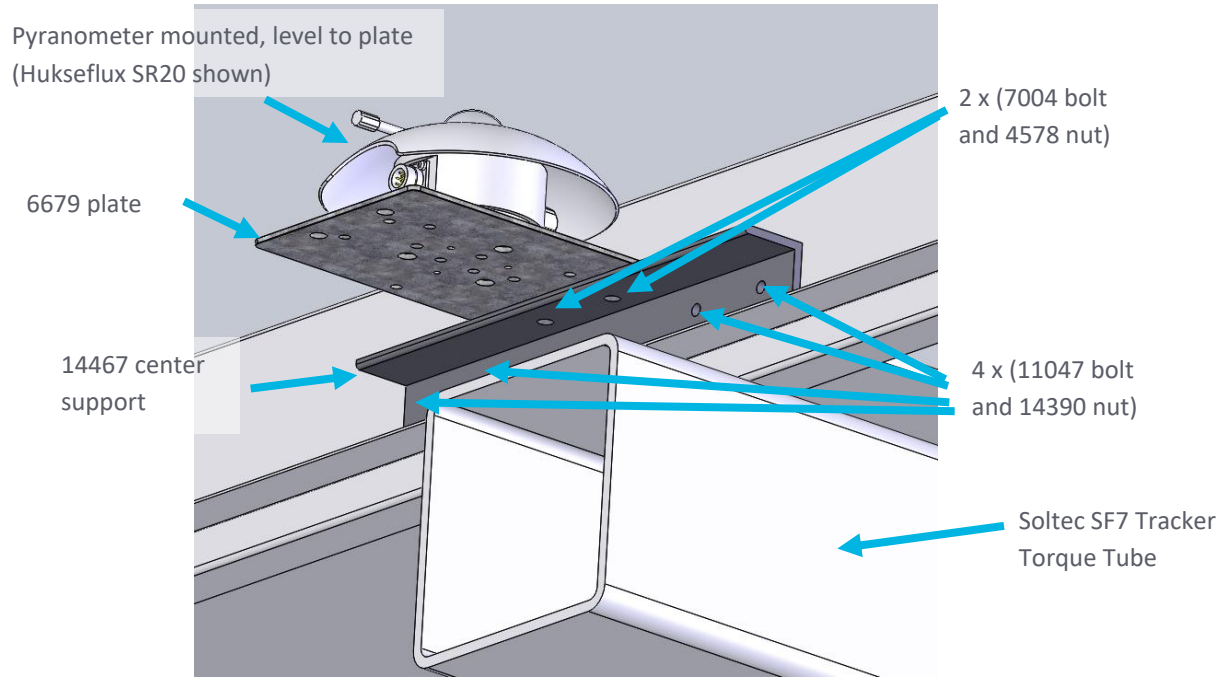
7 The pyranometer is now mounted to the SF7 PV array. Repeat these steps with the other pyranometers, if needed.

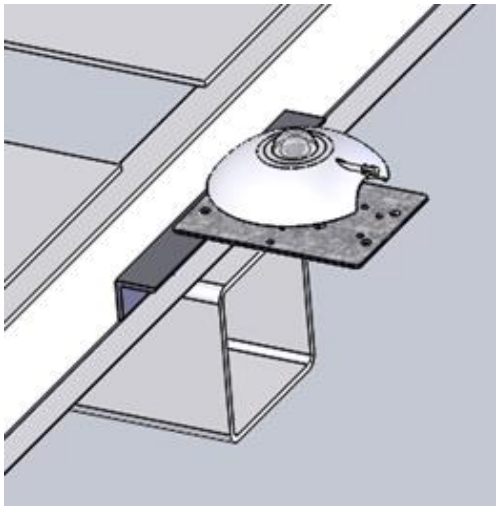
8 Use the appropriate cable(s) to connect your pyranometer(s) to your data logger.

DIAGRAMS

The diagrams below illustrate how the completed procedure should look for each location.

Center Bracket (GPOA Orientation)





End Brackets (Right & Left)

Left-side GPOA configuration shown.