



Extended Mounting Kit

Adjustable mounting bracket for solar panels



SP10
SP20
SP50
SP90
31107

Part Number 31250 Rev. 10/2017



IMPORTANT NOTE: This Assembly Guide is meant to be a general reference to give the installer an overview of the steps required to make this system operational. The Owner's Manual is the definitive source for detailed installation instructions and information.

1 Caution!

- For safety reasons, completely cover the solar panel to limit output current and voltage. If nothing is available to cover the panel, be careful not to short solar panel (+) and (-) leads together.
- Read all applicable instructions carefully and understand procedures thoroughly before beginning work.
- Use only manufacturer recommended parts, materials, and tools.

Solar Panel Orientation



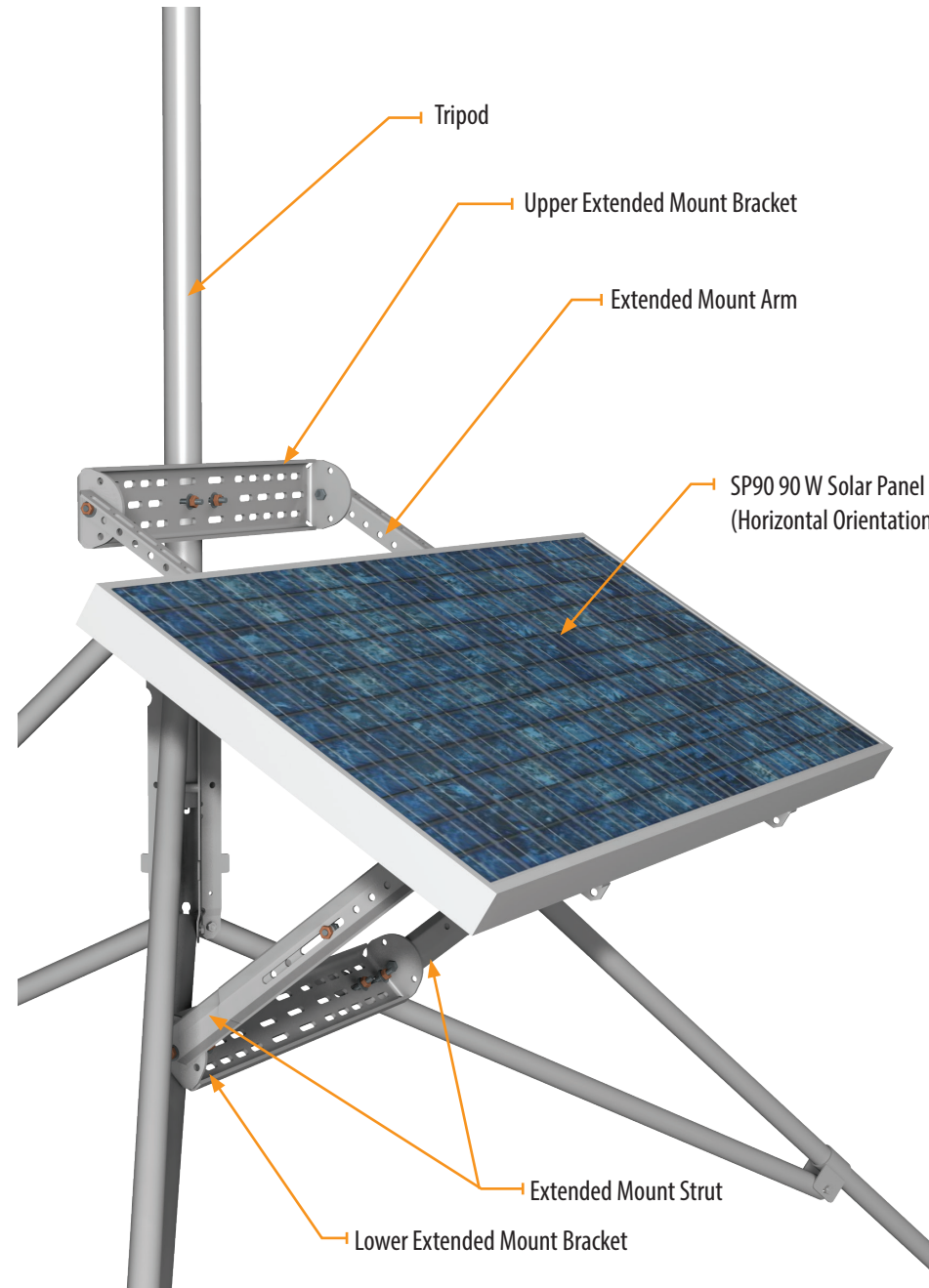
SP50 50W Solar Panel (Horizontal Orientation)



SP20 20W Solar Panel (Vertical Orientation)



SP10 10W Solar Panel (Horizontal Orientation)



SP90 90 W Solar Panel (Horizontal Orientation)

The solar panel should be oriented facing the equator to receive maximum insolation (incident solar radiation) over the course of a year. Suggested tilt angles of the solar panel are given below.

| Solar Panel Tilt Angle* | |
|-------------------------|----------------|
| Site Latitude (N or S) | Tilt Angle |
| 0 – 10° | 10° |
| 11 – 20° | Latitude + 5° |
| 21 – 45° | Latitude + 10° |
| 46 – 65° | Latitude + 15° |
| >65° | 80° |

*From "Design Aids for Small PV Power Systems," Solorex Corp.

2 Required Gear

- Open end wrench set (1/2" and 7/16")
- Socket wrench set (1/2" and 7/16"), or adjustable crescent wrench
- Flat-blade screwdriver for wiring the solar panel to the terminal blocks

3 Physical Deployment

1. Spread a soft towel on a flat surface. Place the solar panel face down on the towel.
2. Place one of the extended mount brackets along the edge (Figure 1) to determine which set of holes in the solar panel frame will be used to mount the arms. The correct holes will be just outside of the bracket. Set the bracket aside.

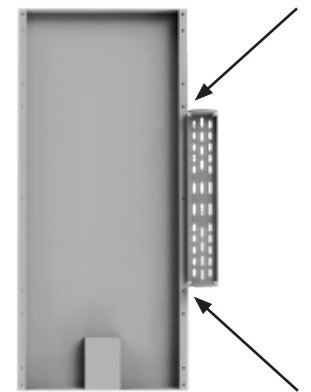


Figure 1

3. Determine which edge of the solar panel will be the bottom edge. Place one of the arms so the end with the attached struts is at the bottom (Figure 2). Attach the arm with a bolt, washer, lock washer, and nut. Do not fully tighten the nuts. Repeat for the second arm.

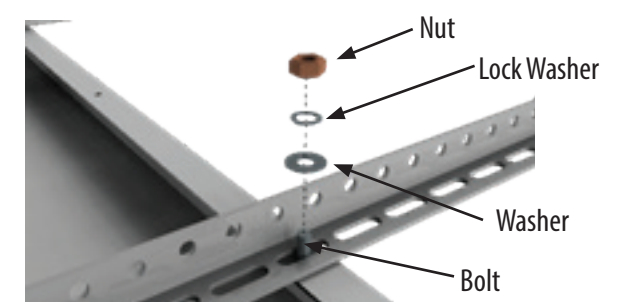
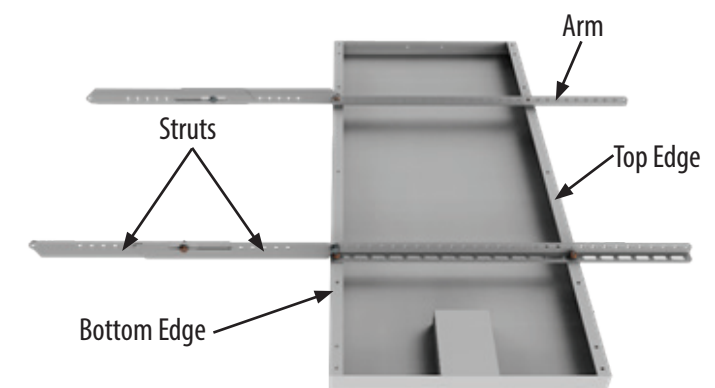


Figure 2

4. Locate the upper bracket with the angle decal on one end. Remove the nut, lock washer, and washer from each end of the bracket and orient the bracket as shown in Figure 3. Pass the bolts through the bracket and the last hole on each extended mount arm, and then replace the washer, lock washer, and nut on each bolt (see Figure 2).

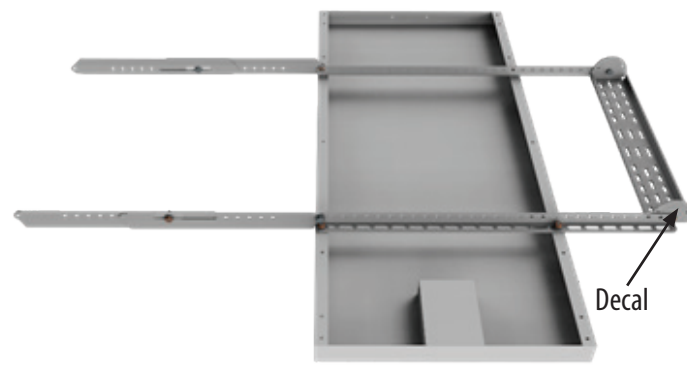


Figure 3
5. Attach the bottom extended mount bracket to the extended mount struts as shown in Figure 4.

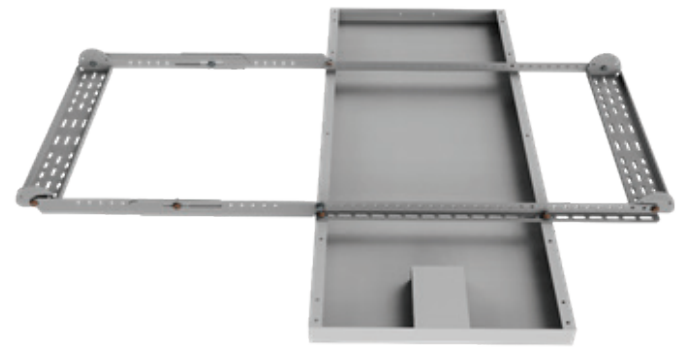


Figure 4
6. (If mounting the solar panel on a tower, go to step 8) With the help of a second person, hold the upper bracket against the tripod mast (Figure 5). Use U-bolts, washers, lock washers, and nuts from the hardware bag labeled 'Tripod' to mount the bracket to the mast. Fully tighten the nuts on both U-bolts.

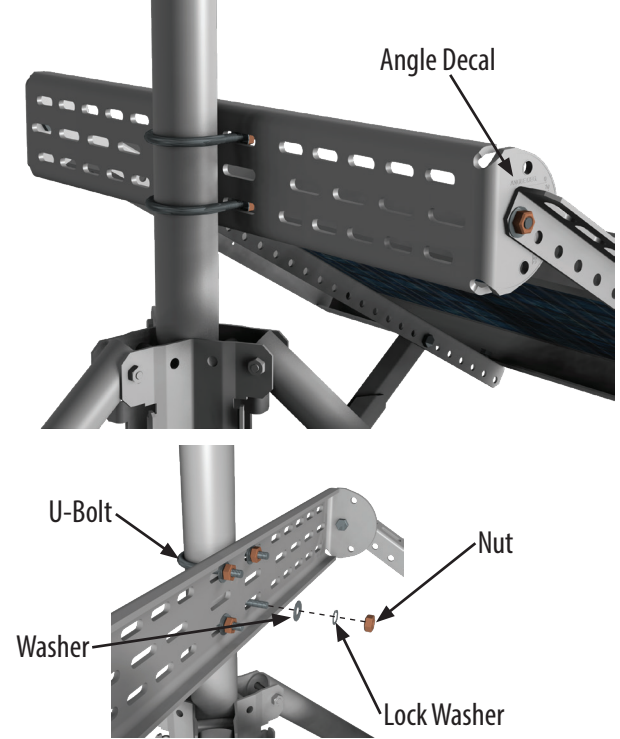


Figure 5

7. Place the lower bracket against the tripod leg braces as shown (Figure 6). Use U-bolts, washers, lock washers, and nuts from the hardware bag labeled 'Tripod' to mount the bracket on the tripod legs. Finger-tighten the nuts. Skip to Angle Adjustment on Tripod Mounts.

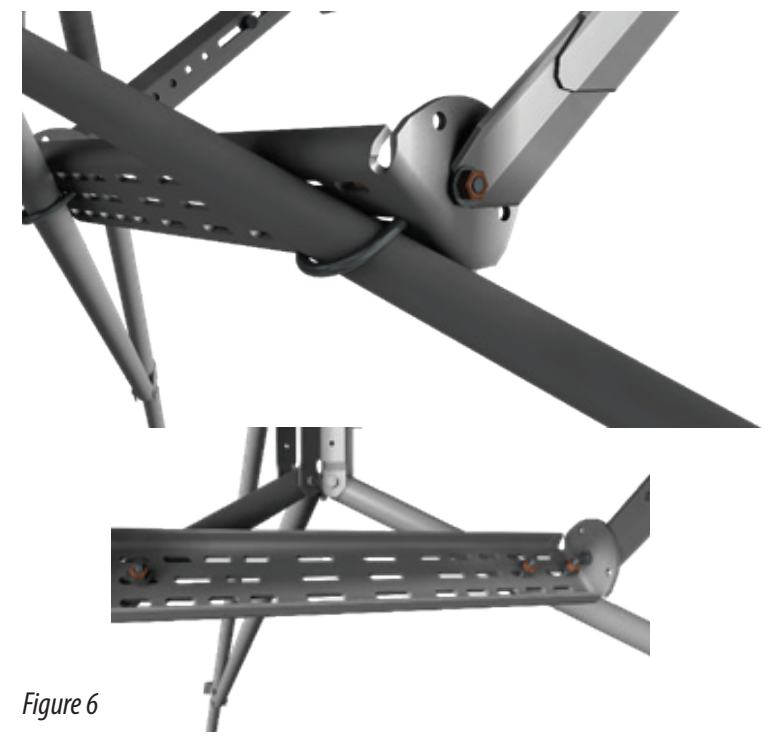


Figure 6

8. (Mounting on towers only) With the help of a second person, secure the top bracket at the desired height on the tower using U-bolts, washers, lock washers, and nuts (Figure 7). Raise the lower bracket until the angle decal on the upper bracket indicates the correct angle for the current latitude. Secure the lower bracket to the tower with U-bolts, washers, lock washers, and nuts. Fully tighten all nuts and bolts.

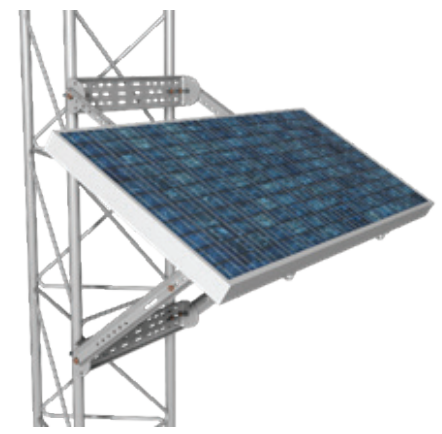


Figure 7

4 Angle Adjustment on Tripod Mounts

The extended mount bracket is designed to allow the solar panel to be mounted from 0° to 90° to match the requirements of the installation site. Locate the desired angle in the following illustrations. They serve as a guideline for adjusting the position of the extended mount struts, both in length, and in where it is mounted to the extended mount arm. Note that as the mounting angle increases, it will become necessary to remove one (or both) extended mount strut from each side. For a 90° mount, the upper extended mount bracket is moved to the tripod leg.



Figure 8: 0 degree to 35 degree mounting angles.



Figure 9: 20 degree to 50 degree mounting angles.



Figure 10: 50 degree to 70 degree mounting angles.

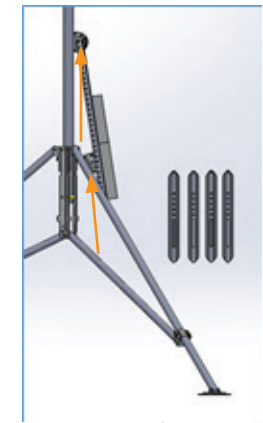


Figure 11: 80 degree mounting angle.



Figure 12: 90 degree mounting angle.

Once the correct angle has been set, fully tighten all nuts and bolts used during the assembly of the solar panel mount.