



**ORCA IOT**

High Tech, Not High Cost

1827 Powers Ferry Rd  
STE 10-100, Atlanta, GA 30339  
1-833-ORCA IOT

## Instructions for Solar Panel Mount Installation



v2024.05.17

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<https://tinyurl.com/orcaiot2>

(Shortened link for manual typing)

### 1. List of Tools needed:

- Two 9/16" wrenches or sockets (one of each is best or a gearwrench)
- Two 7/16" wrenches or sockets (one of each is best or a gearwrench)
- Flat Head Screwdriver or 5/16" socket for Quick Release Band Clamps

### 2. Parts List:

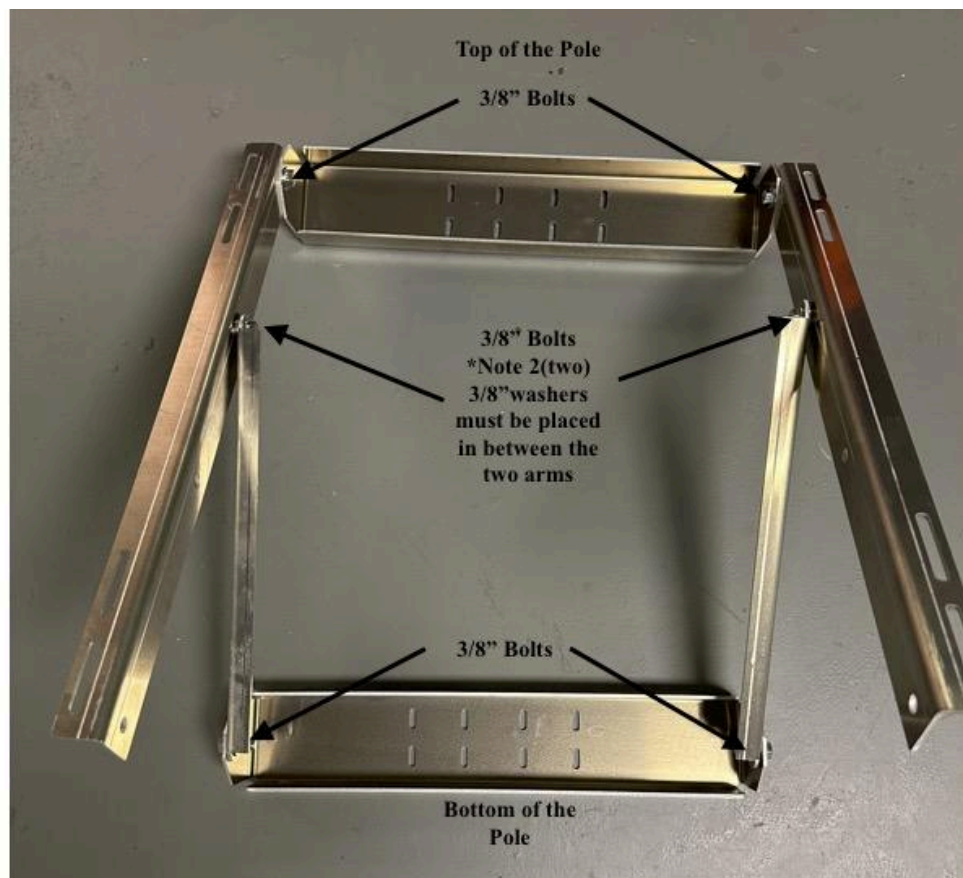
Qty	Description
2	Solar Panel universal pole mounts
2	Solar panel mounting arm
2	Lower support arm
6	$\frac{3}{8}$ inch X 1 inch hex head bolts
10	$\frac{3}{8}$ inch washers
6	$\frac{3}{8}$ inch Nylock Nuts
4	$\frac{1}{4}$ inch x 1 inch hex head bolts
8	$\frac{1}{4}$ inch washer
4	$\frac{1}{4}$ inch Nylock lock nuts
2	Solar Enclosure Pole Mounts
4	#10 x 1/2in machine screws

### 3. Assemble the Mount:

#### 3.1. Videos:

- 3.1.1. Video Link: [Solar Panel Mount 1 Minute Overview](#)
- 3.1.2. Video Link: [Solar Panel Mount Assembly Introduction](#)
- 3.1.3. Video Link: [Solar Panel Assembly Part 1](#)
- 3.1.4. Video Link: [Solar Panel Assembly Part 2](#)
- 3.1.5. Video Link: [Attaching the Solar Panel to the Mount](#)
- 3.1.6. Video Link: [Attaching Band Clamps to Solar Panel Mount](#)

- 3.2. Lay out pole mount brackets on a work surface and choose a mount to start with (All parts are symmetric). On the upper mount, attach the two solar panel mounting arms **on the OUTSIDE of the mounting dog ears facing out** using the  $\frac{3}{8}$ " 1" bolts with the washer on the side of the nylock nut. Hand tighten the  $\frac{3}{8}$ " lock nut finger tight on the outside of the mount. The top of the panel mounting arms have four slots to mount the solar panel; these should be facing up and away from the pole mount brackets.
- 3.3. On the bottom mount attach the two shorter (lower support) arms **on the INSIDE of the mounting dog ears** using the  $\frac{3}{8}$ " by 1" hex bolts with the washer on the nylock side. Hand tighten the  $\frac{3}{8}$ " lock nut finger tight on the outside of the mount. The lower arms upper lip should be towards you and facing towards the inside of the mount in the opposite direction of the solar panel mounting arms.
- 3.4. Attach the two arms together using  $\frac{3}{8}$ " by 1" hex bolts and washers. There need to be two washers in between the lower arm and the solar panel mount arm to account for the material thickness of the ears. Put the last washer on the nylock side before fastening.



- 3.5. Attach the solar panel to the mount using the 1/4in hex bolts, washers, and nut and the 7/16 wrench. It is easiest to find a flat surface and lay the panel upside down and attach the solar arms as they rest on the panel. MAKE sure to have a flat surface or use the solar packing box so as to not crack the panel. Damaging a panel will result in an unusable system and will incur a replacement fee.

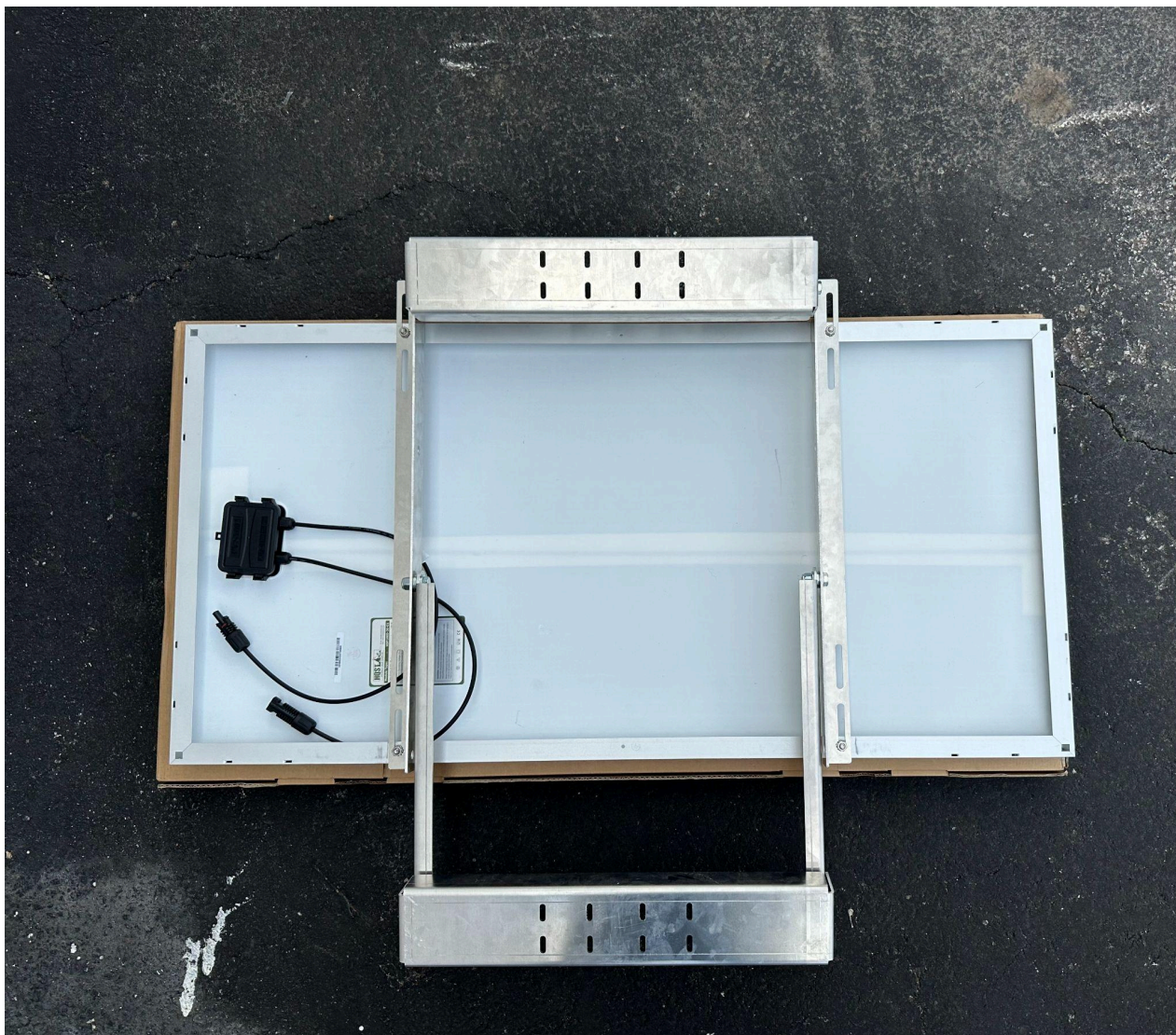




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#### 4. Attaching mount to pole:

**Pro Tip:** Panel must face due south, if not, the system will fail. It's just physics - *we can't move the sun!*

- 4.1. Thread quick release band clamps through appropriate slots on the mounting brackets. To use band clamps, point the bolt perpendicular to the pole. Thread the band beneath the screw and pull through. If it is hard to pull the band through, you probably have the band on top of the bolt. Once

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slack has been pulled out, fold screw down 90 degrees and tighten. The screw should turn and grab the slots and tighten. If the screw is spinning, but not grabbing slots, make sure it is pushed down all the way.

- 4.2. Attach the top pole mount first and then slide the bottom mount into place so that the panel is at a 30-45 degree angle. 45 degrees is better for more northern climates and 30 degrees is best in Kentucky and further south. Tighten bottom band clamp.
- 4.3. Tighten down all of the  $\frac{3}{8}$ " bolts and nuts and double check all fasteners. The panel mount is complete.

## 5. Mount the Battery Enclosure:

- 5.1. Set the solar enclosure with back facing up on the work surface.
- 5.2. Open the solar enclosure pole mount kit to separate the parts and take out screw bag taped inside of it. Place band clamps inside the pole mounts prior to screwing them into the enclosure. Tip: leave only about 8 inches of slack on the side of the clamp with the fastener. Lift
- 5.3. Place pole mounts with ears facing out onto the back of the enclosure. Use included #10 by  $\frac{1}{2}$  inch machine screws to fasten them.
- 5.4. Lift enclosure and hold on to place on the pole and fasten top band clamp.

**Pro Tip:** Mounting the enclosure with two people is much easier. If you do it by yourself, support the enclosure against the pole with your chest or knee and reach around with your weak hand to operate the fastener. Have your drill on a skyhook on your strong side hip. Then using your strong hand, pull the slack out of the band clamp. Use your weak hand to support and guide the drill that is in your strong hand. You should only need to turn it a few times before it is tight. Make it tight, but do not over tighten. A powerful impact driver can break the fastener if you run it full torque, with hammer mode, and/or at full speed.

- 5.5. Fastener bottom band clamp and feel free to cut off the slack for safety (Leave about 8-12in of slack). These clamps are designed to be used on 2.5" metal fence posts all the way up to 30 foot phone poles.