

Mobile Base Kit Installation guide



The mobile base system allows for temporary installation and portability. The system has been designed to support up to a 400-watt solar panel and the Voltar enclosure on a single base.

The 123Ah battery weighs 85lbs! Caution should be used when handling this battery. The mobile base system must be secured with anchors at each corner (Not included) and sand bags (Not included) to keep the system from tipping over. Care should be taken to avoid overhead obstacles. Mount the unit facing south away from any shade sources such as trees, buildings, or other obstacles. The mobile base system is designed for temporary installations. For permanent installations, set two base posts into cement.

INSTALLATION PROCEDURE

The Installation of the unit must be performed by skilled technicians and electricians familiar with electrical equipment. Do not allow unqualified personnel to handle, install, or operate the equipment. Install this unit in a sheltered location away from gas, fire, and potential sparks.

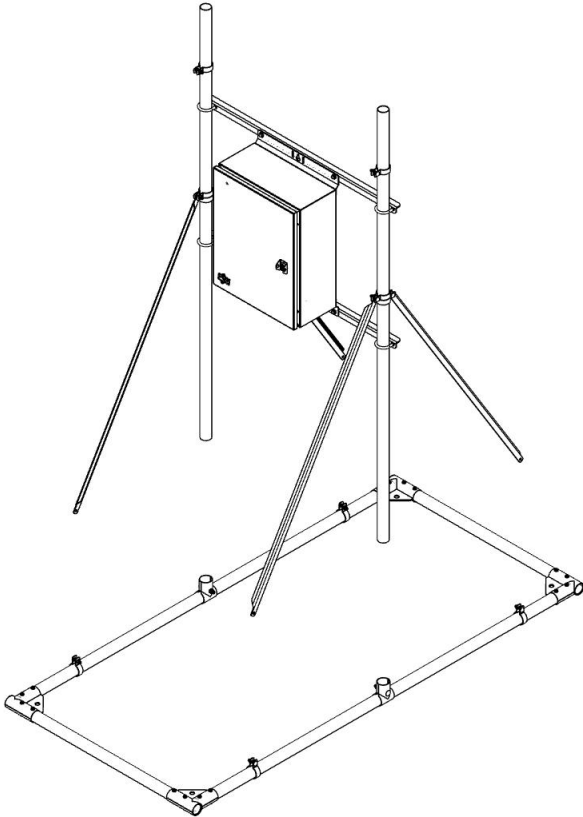
Items needed for installation of free-standing base kit

- 1- Sand bags sufficient to secure the base to the ground
- 2- 4 Anchors, one for each corner
- 3- A location facing south (in North America) with no shading from trees or brush.
- 4- Tool List
 - a. 2 – 7/16” wrenches
 - b. 2 - 1/2” wrenches
 - c. 1 – 9/16” wrench

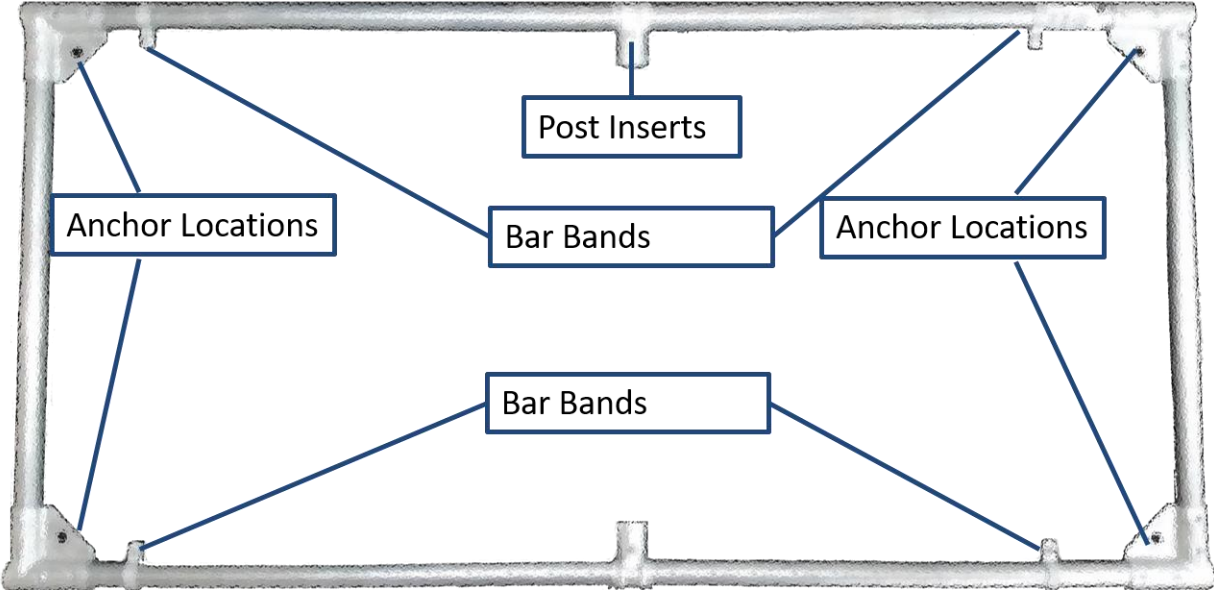
Kit includes:

- 2- Horizontal mounting brackets
- 2- Solar panel supports
- 2- Angle adjustment rods
- 4- U-Bolts to attach the horizontal mounting brackets to upright post
- 2- U-Bolts with plate to attach angle adjustment rods
- 2- Post caps
- 6- 1/4” x 3/4” bolts
- 6- 1/4” lock nuts
- 8- 1/4” flat washer
- 6- 5/16” x 3/4” bolts
- 6- 5/16” lock nuts
- 8- Brace bands
- 8- 5/16” x 1 1/4” galvanized bolt
- 8- 5/16” galvanized nut
- 2- 3/8” x 2 1/2” galvanized bolt
- 2- 3/8” galvanized nut
- 4- T-clamps for upright post base
- 4- post brace bars

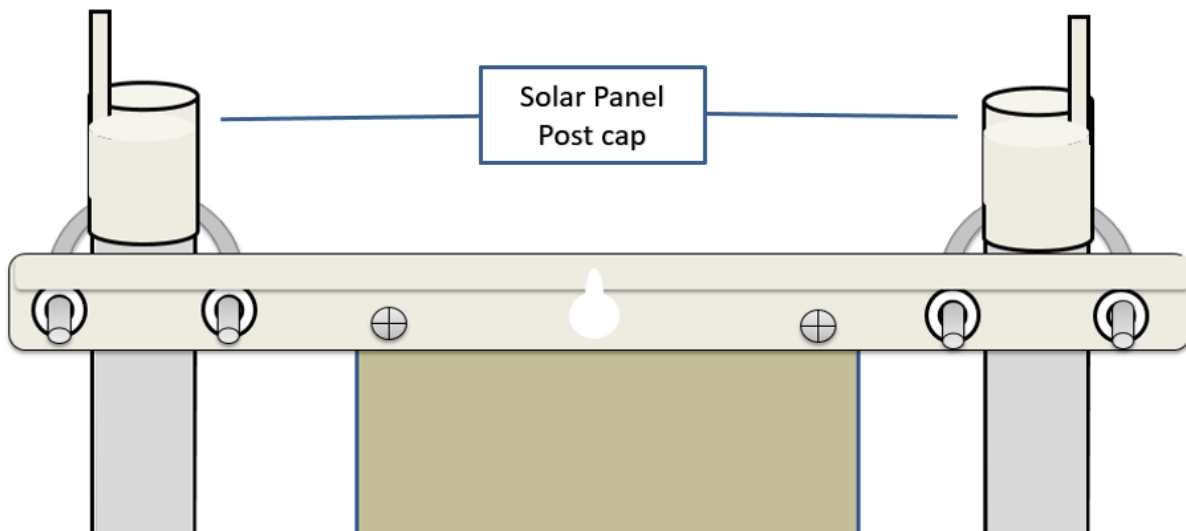
Some assembly of the Voltar mobile base kit and enclosure may have already been done for you. If this is the case all you need to do is insert the vertical legs into the rectangular base and attach the angle support braces. Tighten all bolts once assembly is finished.



Step 1: Set base on a flat surface. Attach the post brace bars to the base using the brace band clamps.

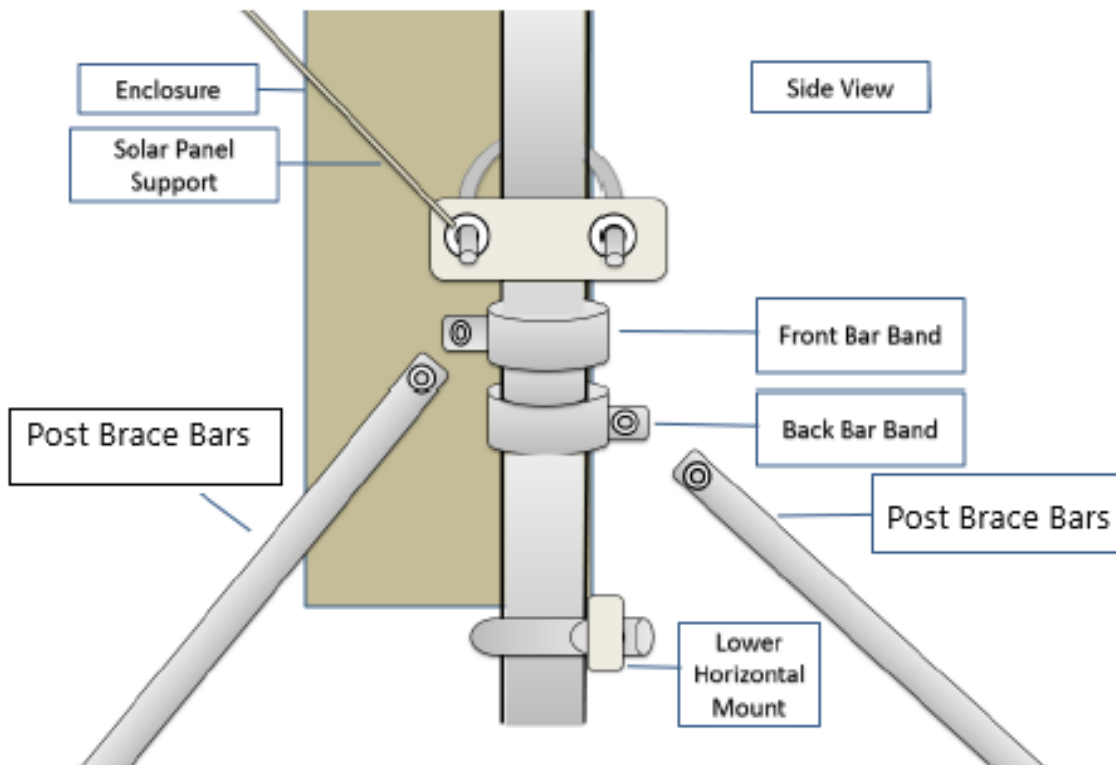


Step 2: Secure the post caps to the top of the vertical posts using 1/4" bolts.



Step 3: Attach the upper horizontal bar to the vertical posts. Note the keyhole in the center should face up.

Step 4: Attach two bar bands to each upright post. Ensure they are facing the same direction on each side as the diagram below depicts.



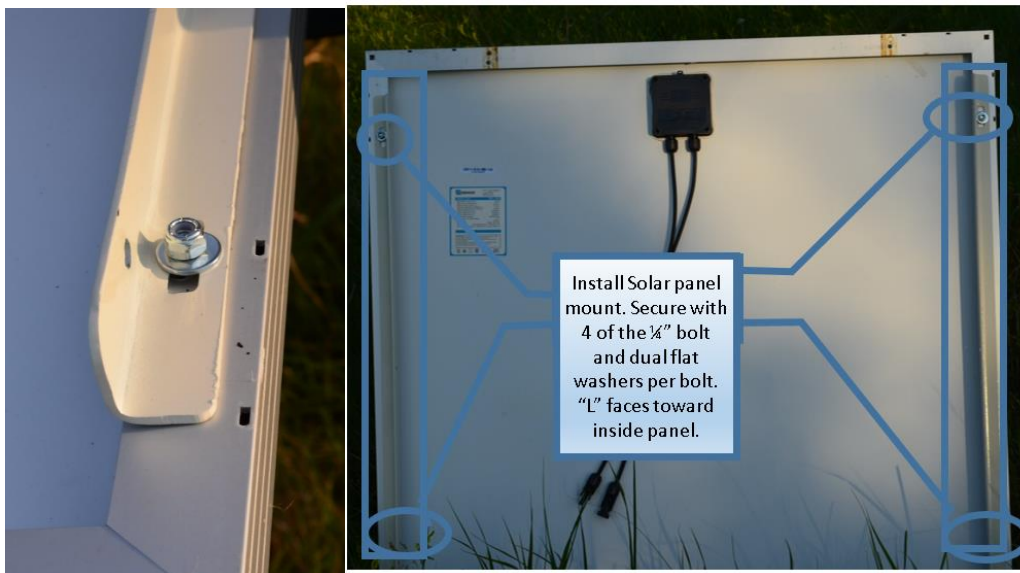
Step 5: Insert the vertical posts into the base. Secure with 3/8" x 2 1/2" galvanized bolts.

Step 6: Attach one of the horizontal mounting brackets to the bottom of the enclosure. This will simplify keeping the enclosure balanced and make it easier to hang.

Step 7: Attach the enclosure to the top horizontal mounting bracket using 5/16" x 3/4" bolts and lock nuts. Secure the bottom horizontal mounting bracket to the vertical posts.



Step 8: Attach the Solar panel supports to the solar panel using 4 -1/4" bolts with flat washers on both sides. The slotted holes in the supports should be flat against the solar panel. The upright portion of the angle iron should be towards the middle of the solar panel.



Step 9: Attach the solar panel supports and solar panel to the post caps using 2 - 1/4" bolts. No flat washers are required for this installation.



Step 10: Using 5/16" bolts, attach one end of the 1/2" angle iron angle adjustment rods to the solar panel support using the hole near the end of the support. No flat washers are required for this installation. After both angle adjustment rods are attached move the solar panel to close to the desired angle and see where the rod contacts the post. Attach a U-bolt to each post at that location. The thread portion of the U-bolts will be facing out. Tighten the U-bolts to the post using the strap that is supplied with two of the U-bolts. After the U-bolts are secure place the free end of the angle adjustment rod over one side of the U-bolt and secure with a second nut.



Step 11: Firmly tighten all bolts to ensure that everything is secure.

Step 12: Open the door of the enclosure and place the battery inside. The battery posts should be towards the back of the enclosure.

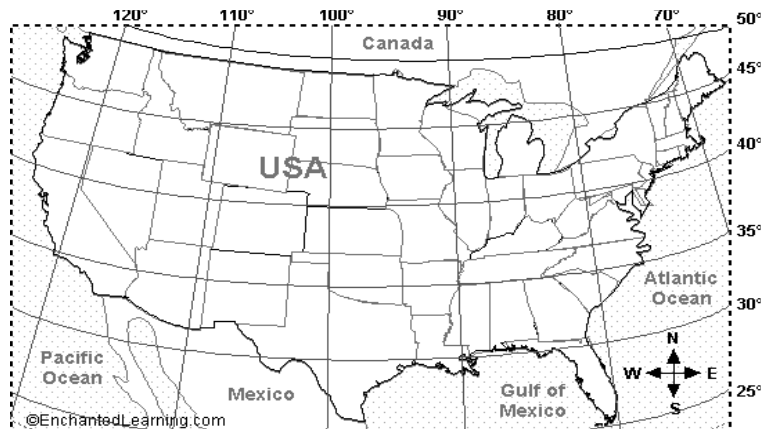
How to determine the proper solar panel angle

Several apps are available for your phone to help calculate the optimum tilt for your panel as well as Inclinometers to verify the correct panel angle has been set. Without an app, the below will allow you a method to calculate this for yourself. Calculate the optimum tilt angle, based on the latitude -- your angular distance north or south from the equator expressed as degrees along a meridian -- of your location. To find your latitude, consult a map for your region or Google your town's latitude. To find the best angle for optimizing solar collection during winter, when solar energy is most scarce, multiply your latitude by 0.89, and then add 24 degrees. For instance, if your latitude is 45 degrees: $45 \times 0.89 = 40.05 + 24 = 64.05$. In this example, you would tilt your solar panels at a 64-degree angle from a horizontal level.

Decide whether you wish to leave your panels at the optimum winter tilt all year long, or whether you prefer to adjust them for each season. Factors that might affect your decision include the accessibility of your PV array and whether you expect more sunlight than you can use during the summer months, in which case you need not adjust your tilt. If you do plan to optimize solar collection in every season, use the following calculations: For spring and fall, multiply your latitude by 0.98 and subtract 2.3 degrees. For summer, multiply latitude by 0.92 and subtract 24.3 degrees to get your solar panel tilt angle. The tilt is the degrees from horizontal.



An easier and more basic method is to angle the solar panel to the same degree as the latitude where the panel is to be mounted.





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