SOLARMOUNT™

Flush Mounting SMR Rail Sets with CB Bottom Mounting Clips

These instructions cover flush mounting on a pitched roof. *If your installation also includes tilt legs (for roof or ground), see instructions shipped with the leg kit.*

Installer responsibility

Please read and understand these instructions completely before installing your SolarMount. The installer is solely responsible for:

- complying with all applicable building codes, which supercede these instructions;
- ensuring that the roof and its rafters or other support can support the PV array;
- ensuring that the lag bolts (if used) have adequate pullout strength;
- maintaining the water-proof integrity of the roof; and
- installing all electrical aspects of the PV array.

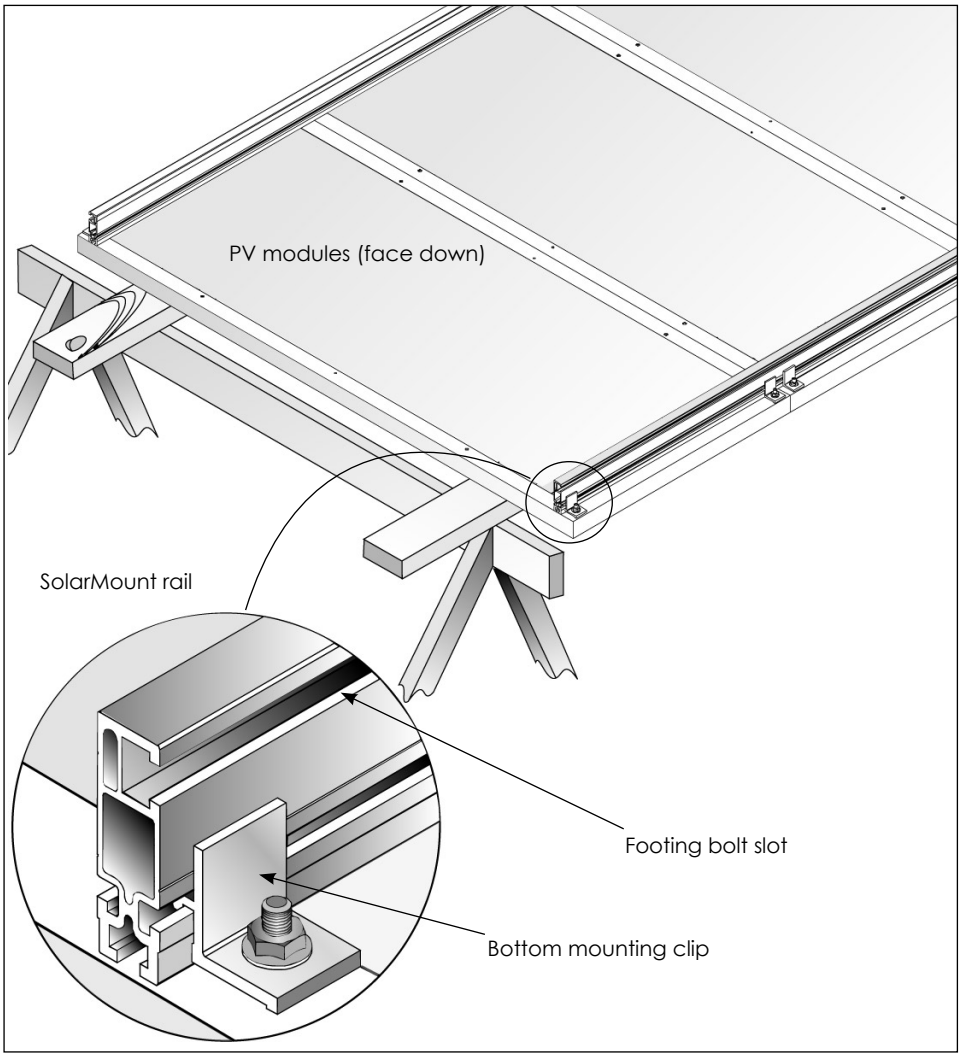

Figure 1. SMR and CB components

Caution: Stainless steel nuts and bolts can seize up, a process called galling. To significantly reduce the likelihood of galling, a packet of SAF-T-EZE anti-seize lubricant has been included with your rack for use on stainless steel hardware.

Contents

Part quantities

SMR Series Rail Sets (model no. = rail length in inches)

	Rails	L-feet	3/8" footing bolts	3/8" flange nuts
SMR48 thru 106	2	4	4	4
SMR120 thru 180	2	6	6	6
SMR192 thru 216	2	8	8	8

CB Series Clip Sets
(model no. = modules accommodated)

	Clips	1/4" module bolts	1/4" flange nuts
CB2	8	8	8
CB3	12	12	12
CB4	16	16	16
CB5	20	20	20
CB6	24	24	24
CB7	28	28	28
CB8	32	32	32

Tools and torque

	Wrench size	Recommended torque (ft-lbs)
1/4" hardware	7/16"	15
3/8" hardware	9/16"	30

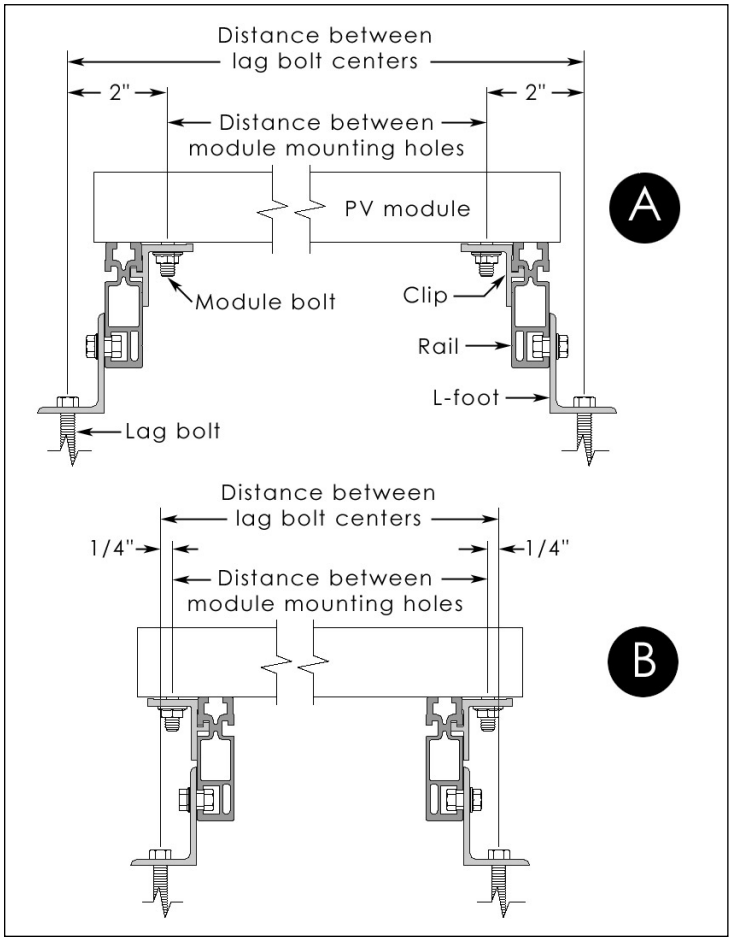

Figure 2. Clip Arrangements A and B

Planning the installation area

Decide on an arrangement for clips, rails, and L-feet (Fig. 2). Use Arrangement A if the full width of the rails contact the module. Otherwise use Arrangement B. Caution: If you choose Arrangement B, either (1) use the upper mounting holes of the L-feet or (2) be certain that the L-feet and clip positions don't conflict.

If rails must be parallel to the rafters, it is unlikely that they can be spaced to match rafters. In that case, add structural supports—either sleepers over the roof or mounting blocks beneath it.

Never secure the footings to the roof decking alone. Such an arrangement will not meet code and leaves the installation and the roof itself vulnerable to severe wind damage.

Leave enough room to safely move around the array during installation. The width of a rail-module assembly equals the length of one module. Note that L-feet may extend beyond the width of the assembly by as much as 2 inches on each side. The length of the assembly equals the total width of the modules.

Laying out and installing L-feet

L-feet are used for installation through existing low profile roofing material, such as asphalt shingles or sheet metal. They are also used for most ground mount installations. To ensure that the L-feet will be easily accessible during flush installation:

- Use the PV module mounting holes nearest the ends of the modules.
- Situate the rails so that footing bolt slots face outward.

Use Figure 2 to determine spacing between feet on opposite rails.

Foot spacing (along the same rail) and rail overhang depend on design wind loads. To meet the Uniform Building Code, consult UniRac's Technical Bulletin 103.1, Code-Compliant SolarMount Installation (January 2003). It can be downloaded at www.unirac.com.

Install half the L-feet:

- If rails are perpendicular to rafters (Fig. 3), install the feet closest to the lower edge of the roof.
- If rails are parallel to rafters (Fig 4), install the feet for one of the rails, but not both.

For the L-feet being installed now, drill pilot holes through the roof into the center of the rafter at each lag bolt hole location. Consult Technical Bulletin 103.1 for guidelines to select lag bolts to meet design wind loads.

Squirt sealant into the hole and onto the shafts of the lag bolts. Seal the underside of the L-feet with a weatherproof sealant. Securely fasten the L-feet to the roof with the lag bolts. Ensure that the L-feet face as shown in Figure 3 or Figure 4, as appropriate.

Hold the rest of the L-feet and fasteners aside until panels are complete and ready for installation.

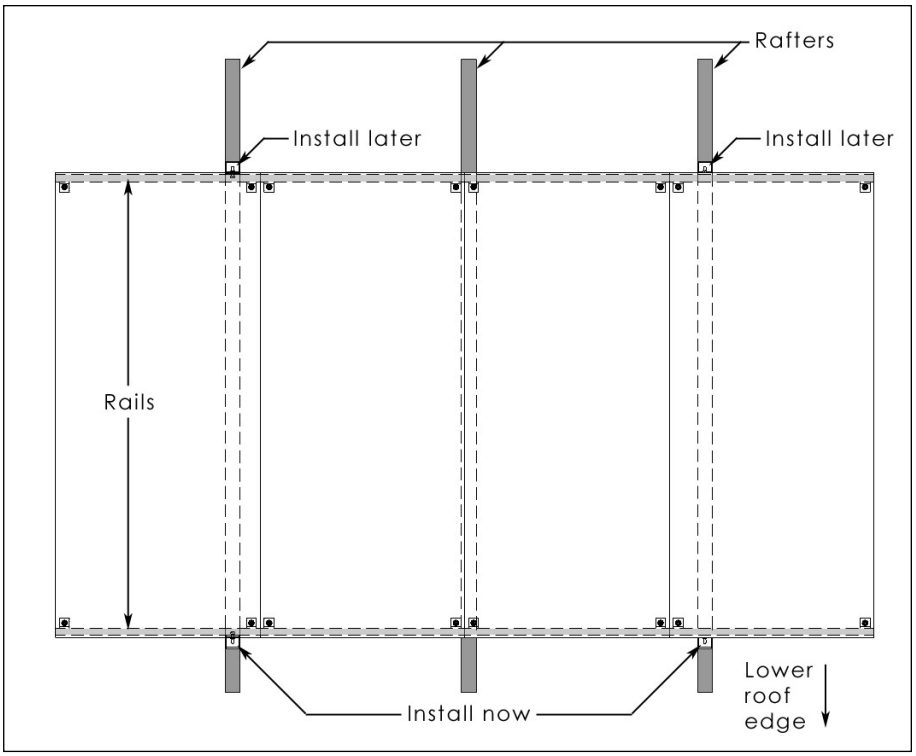

Figure 3. Rails laid out perpendicular to the rafters.

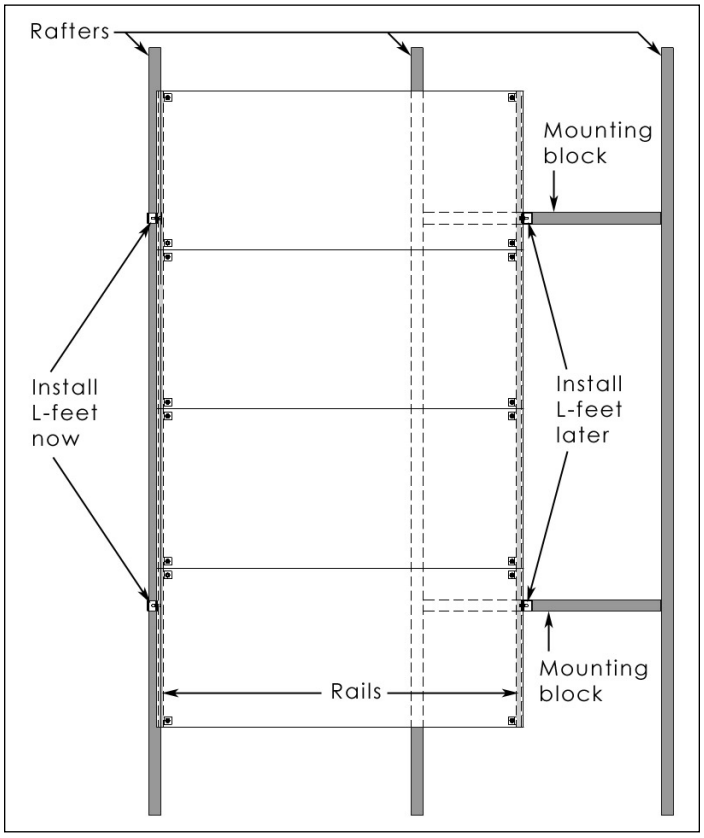

Figure 4. Rails laid out parallel to the rafters.

Attaching modules to the rails

Lay the modules for a given panel face down on a surface that will not damage the module glass. Align the edges of the modules and snug them together (Fig. 1, page 1).

Trim the rails to the total width of the modules to be mounted. Place a rail adjacent to the outer mounting holes. Orient the footing bolt slot outward. Place a clip slot adjacent to the mounting holes, following the arrangement you selected earlier (Fig. 2a or 2b).

Assemble the clips, mounting bolts, and flange nuts. Torque the flange nuts to 15 foot-pounds.

Wire the modules as needed. For safety reasons, module wiring should not be performed on a roof. For a neat installation, fasten cable clamps to rails with self-tapping screws.

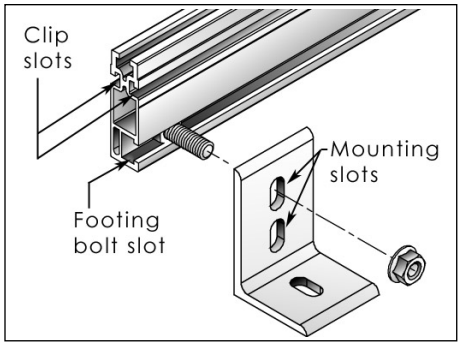

Figure 5. Leg-to-rail attachment

Installing the module-rail assembly

Bring the module-rail assembly to the installation site. Keep rail slots free debris that might cause bolts to bind in the slots.

Consider the weight of a fully assembled panel. UniRac recommends safety lines whenever lifting one to a roof.

Align the panel with the L-feet that have been previously installed L-feet. Slide 3/8-inch L-foot mounting bolts onto the rail and align them with the L-feet mounting holes. Attach the panel to the L-feet and finger tighten the flange nuts.

Rails may be attached to either of two mounting holes in the footings (Fig. 5).

- Mount in the lower hole for a low, more aesthetically pleasing installation.
- Or mount in the upper hole to maximize a cooling airflow under the modules. This may enhance performance in hotter climates.

Adjust the position of the panel as needed to fit the installation area. Slide the remaining L-feet bolts onto the other rail, attach L-feet, and finger tighten with flange nuts. Align L-feet with mounting holes previously drilled into roof. Install lags bolts into remaining L-feet as described in "Laying out and installing L-feet" above.

Torque all footing flange nuts to 30 foot-pounds. Verify that all lag bolts are securely fastened.

10 Year Limited Warranty

UniRac, Inc., warrants to the original owner at the original installation site that the SolarMount PV module mounting system (the "Product") shall be free from defects in material and workmanship for a period of ten (10) years from the earlier of 1) the date the installation is complete, or 2) 30 days after the purchase of the Product by the original owner. This warranty does not cover damage to the Product that occurs during shipment, or prior to installation.

If within such period the Product shall be reasonably proven to be defective, then UniRac shall repair or replace the defective Product, or part thereof, at UniRac's sole option. Such repair or replacement shall fulfill all UniRac's liability with respect to this warranty.

This warranty shall be void if installation of the Product is not performed in accordance with UniRac's Installation Instructions for the Product, or if the Product has been modified, repaired, or reworked in a manner not authorized by UniRac in writing, or if the Product is installed in an environment for which it was not designed. UniRac shall not be liable for consequential, contingent, or incidental damages arising out of the use of the Product.

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