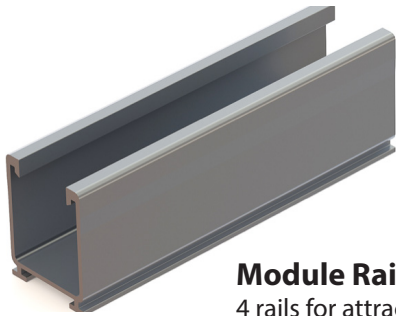


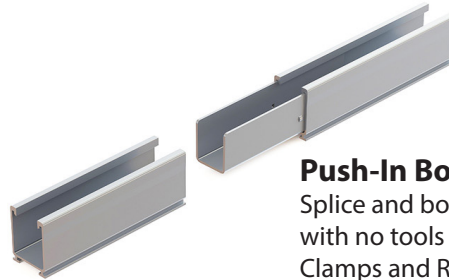
Tamarack Flush Mount 84-inch Rail Kit

Installs Four Typical PV Modules



Module Rails

4 rails for attractive low-profile mounting of up to four modules. Certified for up to 180 MPH wind speed and 20 PSF snow load.

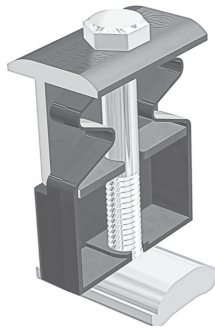


Push-In Bonding Rail Splice

Splice and bond rail sections quickly with no tools or fasteners. 50-50 Clamps and Rail Mounts can be co-located with splices. Four splices are included.

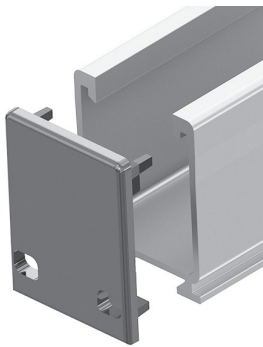
50-50 Clamp

The 50-50 Clamp can be used as a mid-clamp or an end-clamp on modules with a 30 to 40 mm frame depth with the standard bolt included. A longer bolt can be used for modules with deeper frames. 10 clamps are included.



Rail Mount and L-Foot

Mount the rail from either side quickly and securely. The slot in the L-Foot enables simple leveling of the rails. Eight mounts are included.



Push-On End Cap

Four caps, for two rows, give the rail system a finished look while allowing drainage.



Ground Lug

Use one per module row to ground rail with bare 6 to 10 AWG copper wire. Two Ground Lugs are included.

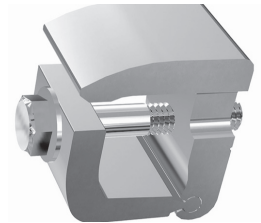
Wire Management Clip

Kit includes 12 snap-in wire clips that quickly secure module leads and cables into the rail channels.



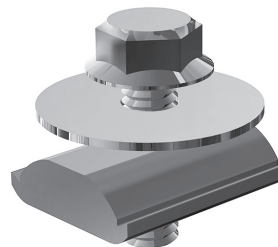
Channel End Clamp

Channel End Clamps secure modules from the underside allowing rails to be trimmed flush with the module frames. Channel End Clamps are for use in place of 50/50 clamps at the end of the row for a better look. Four clamps are included.

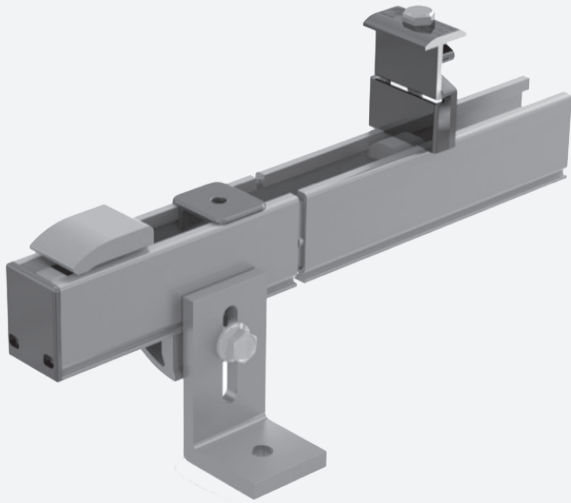


MLPE Adapter

If you are installing microinverters or power optimizers, attach them to the rails before attaching the modules, between steps 4 and 5 of the instructions. Use one adapter for each device. The wiring between the devices can be run in the rail channel. Tighten the bolt with a 1/2" socket to 12 ft-lbs. Four adapters are included.



Tamarack Flush Mount 4-Rail Kit



Congratulations on your purchase of the best rooftop solar panel mounting system on the planet! The Tamarack Flush Mount system is attractive, easy to install and provides built-in wire management. It can be installed with most available roof attachments for composition shingle, tile and metal roofs. Use a standard 1/2-inch socket to install all module clamps, rail attachments, ground lugs and MLPE Adapters.

PRO TIP: Do it right the first time!

Visit www.tamaracksolar.com for a short video on proper installation techniques.

Prepare for Installation

Plan the PV module layout that fits the roof and confirm that plans comply with local building codes.

The rails are typically installed perpendicular to the roof rafters or purlins. Center the rails over the structural members as much as possible.

Leave enough room to work safely around the array during the installation process. Some building and fire codes require minimum clearances around PV module installations.

The length of the rails for each row in the installation will be equal to the total width of the modules plus a half inch for each 50-50 Clamp used between modules plus 2 inches total for end clamping. When using the Channel End Clamp, rails can be cut flush to the edge of the array.

Install proper roof mount flashings per the manufacturer's instructions. We recommend using 4-foot or 6-foot spans between roof supports when using 84-inch rails.

Tools Required

The primary tool required is a wrench or driver with a 1/2-inch socket. You will need a torque wrench to accurately tighten all bolts. It will be handy to have a level, a chalk line, and a crayon to mark your layout on the roof. Use a cordless drill with a pilot bit to find roof rafters and complete the installation of roof attachments. Follow the instructions that came with the attachments you are using.

Torque Specifications

Bolts on Rail Mounts, MLPE Adapters, Ground Lugs and all Module Clamps should be torqued to 12 ft-lbs.

This QR Code will direct you to the Tamarack Solar Products web site for more information.



Tamarack Solar Products

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support@tamaracksolar.com | (707) 234-8107

Step 1: Attach Rail Mounts

Each Rail Mount consists of three parts: a rail clamp, a 5/16-inch bolt, and an L-Foot. The L-Foot can be used on composition shingle roofs with our comp flashing.

The L-foot can also be used with roof attachments that have a flat mounting surface, such as seam clamps, metal roofs and exposed beams. The rail clamp and bolt will also interface with off-the-shelf mounting products that have 5/16-inch or 3/8-inch bolt slots. If you are using this type of roof mount, you will not need the L-Foot.



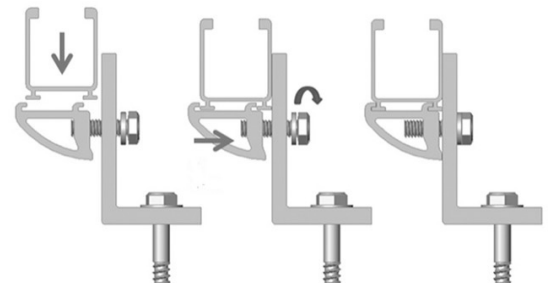
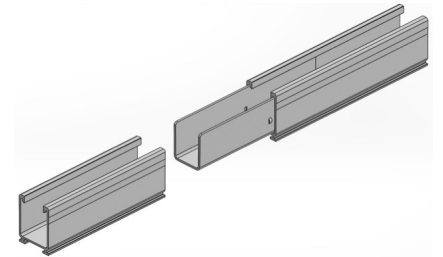
Step 2: Install Rails

Rails are a convenient 84-inch length. This length accommodates two 60-cell or 72-cell modules with a width of up to 41 inches each. Use a Tamarack Bonding Splice to connect each section of rail in a row. Squeeze the top edges of the splice and insert into the rail.

A combination of full 84-inch rails and cut sections of rail may be used, but there can be no splices in the cantilevered part or in the outer 2/3 of an end span. If a spliced rail section has only 3 roof attachments, the splice must be within 1/3 the distance between mounts from the middle mount.

Rail mounting is simple and easy. Simply position the Rail Mount clamp into the two grooves on the bottom of the rail as you hand-tighten the bolt. No drilling is required and parts can be brought on the roof fully assembled and ready to be installed. Rail Mounts may be installed anywhere on the rails, including at splices, and they will not interfere with module mounting clamps.

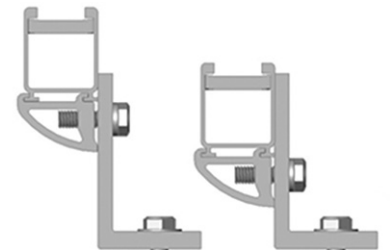
Leave the bolt slightly loose to allow leveling of the rails in the next step.



Step 3: Level the Rails

Start by leveling the bottom rail of the array. Set the Rail Mounts near the middle of the leveling range and adjust as necessary to have visually level rails. Tighten the attachment bolts to 12 ft.-lbs. once they are aligned. Level the top rail of the array in the same manner.

If there are multiple rows of rails in the array, use a string level or straight edge to help adjust the remaining rows to be level with the top and bottom rails. It is also possible to visually align rails in the middle of the array. Tighten all hardware to 12 ft.-lbs.



Step 4: Grounding the System

Tamarack rails and PV modules are bonded by 50-50 Clamps and Bonding Rail Splices. The 50-50 Clamps achieve bonding to the module frames by stainless-steel pins in the clamping surface of the clamp tops which penetrate the coating of the module frame. The rails and channel nuts are bonded because of the conductive surface of the mill finish aluminum used in the rail construction. SolarEdge Optimizers and Enphase Microinverters are bonded to the rail with the Tamarack MPLE Adapters. Use a Ground Lug to bond a ground conductor to one rail per row. See the complete manual on our web site for alternative grounding options.



Step 5a: Module Installation

Start module installation at one end of the rails. If there are multiple rows, start on the bottom row.

Install a 50-50 Clamp at the end of each rail with the side of the clamp with 2 bonding pins against the module frame. Push the channel nut into the rail. (Fig. 1) The integrated spring assembly will hold the clamp in place.

Place the first module onto the rails so that it is centered over the rails. Make sure the module is touching the inside edge of the clamps and tighten the clamps with a 1/2-inch socket. (Fig. 2)

Install 50-50 Clamps in each rail on the other side of the first module. (Fig. 3) The springs will hold the clamps in place prior to tightening. Place the second module on the rails, align it with the first module, and push in against the clamps. Tighten the clamps to fully secure the module. (Fig. 4)

Install the remaining modules and clamps on the rails in the same manner, aligning the corners of the modules.

On the outside edge of the last module, install the clamps so that the side with the two stainless-steel pins is on the module frame. Tighten all bolts to 12 ft.-lbs. Do a final check to be sure that all installation hardware on the array is properly tightened.

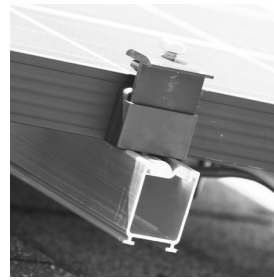


Fig. 1



Fig. 2



Fig. 3

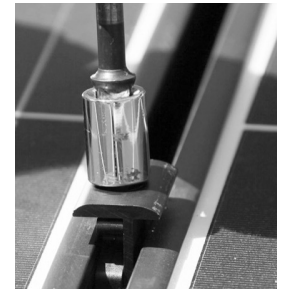


Fig. 4

Step 5b: Optional Channel End Clamps

Channel End Clamps may be used in place of the 50-50 Clamps at the ends of rails. (Fig. 5) Channel End Clamps secure the module frame from below, allowing the rails to be cut flush to the edge of the array for a clean look.

Be sure the Channel End Clamp bolt is loose, and then insert the clamp into the rail. (Fig. 6) The module must be lifted slightly to slide the clamp under the frame. Allow the module to rest on the rail again and slide the clamp back toward the end of the module until the clamp is fully seated into the module frame profile, and tighten lightly. (Fig. 7) Feel under the module to check that the clamp is gripping the module flange securely, then tighten to 12 ft.-lbs. (Fig. 8)



Fig. 5



Fig. 6

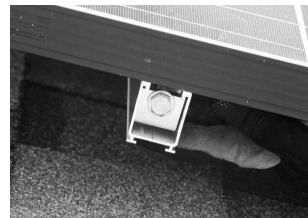


Fig. 7



Fig. 8

Step 6: Wire Management

Place electrical conductors and connectors at the bottom of the rail channels. Install the Wire Management Clips where necessary to keep wires in the channels. When using the 1.6-inch rail, be careful to avoid damaging connectors or large bundles of wire when 50-50 Clamps are tightened. Position connectors and bundles appropriately to prevent risk of ground faults.



Step 7: Install the End Caps

Place an End Cap at the end of each rail to improve the look of the system. Drain holes on the bottom of the End Caps ensure that water does not accumulate in the rails.

