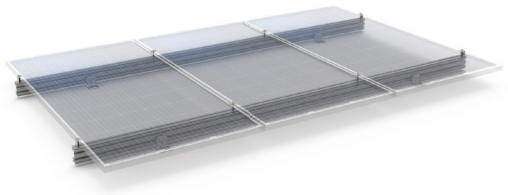


POWER RAIL™ P14 ROOF MOUNT

INSTALLATION INSTRUCTIONS

⚠ IMPORTANT SAFETY INFORMATION

READ AND COMPLETELY UNDERSTAND ALL INSTRUCTIONS BEFORE INSTALLING PRODUCT. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN PERSONAL INJURY OR DEATH.

This product is intended for use by trained technicians only. This product should not be used by anyone who is not familiar with and not trained to use it. When working in the area of energized lines, extra care should be taken to prevent accidental electrical contact. Be sure to wear proper safety equipment per your company protocol. These instructions are not intended to supersede any company construction or safety standards. These instructions are offered only to illustrate safe installation for the individual. PLP products are intended for the specified application only. Do not modify this product under any circumstances. Do not reuse or reinstall any PLP product unless that capability is expressly indicated in the product's Installation Instructions. For proper performance and personal safety, be sure to select the proper PLP product before installation. PLP products are precision devices. To ensure proper performance, they should be stored in cartons under cover and handled carefully.

⚠ WARNING

Stainless steel hardware can gall when tightened too quickly. Installer should use a silver grade anti-seize compound prior to assembling any stainless steel hardware. Do not use an impact driver. All other driver types should be set to low speed settings.

⚠ IMPORTANT INFORMATION

Before you start installing your ground screws, it is important to know the type of soil you are working with. Insufficient soils could require the use of longer screws.

To avoid frost heave, ground screws must penetrate the soil beyond the frost line at least 26 inches. Refer to your local jurisdiction to determine frost line information.

For assistance, contact PLP solar technical support at (440) 461 5200, or solar@plp.com.

SPECIFICATIONS AND RATINGS

Ratings

The POWER RAIL P14 conforms to ANSI/UL UL2703 (2015) Standard for Safety First Edition: Mounting Systems, Mounting Devices, Clamping/Retention Devices, and Ground Lugs for Use with Flat-Plate Photovoltaic Modules and Panels.

Electrical

NOTE: Electrical installations must be in accordance with the National Electric Code ANSI / NFPA 70. Contact your local Authorities Having Jurisdiction (AHJ) for additional details.

Max Overcurrent Protective Device (OCPD)

Rating: 25A

Equipment Grounding Conductor Sizing

Module Fuse

Rating Copper Wire Size

<15 AMPS	#14 AWG 90°C
<20 AMPS	#12 AWG 90°C
20-60 AMPS	#10 AWG 90°C

Splice Plates

Splice Plates have been tested per UL2703 Bonding & Grounding requirements without the use of Bonding Jumpers. See assembly procedures for proper assembly.

Module Clamps

Module clamps have integrated grounding and have been tested to UL 2703. See Module Compatibility List for list of approved modules. Module Orientation: Portrait or Landscape

Fire Class Resistance Rating

The system fire class rating is only valid when the installation is conducted strictly in accordance with this manual.

The assembly is to be mounted over a fire resistant roof covering rated for the application. Meets the requirements of Class A Steep Slope Flush-Mounting Applications when using Type 1, Listed Photovoltaic Modules.

Testing conducted with a 5" Gap (distance between roof covering and PV module frame) per UL1703 allows the system to be installed with any gap per manufacturer's instructions. Steep Slope refers to roofs with slopes greater than or equal to 2:12.

Structural Certification

Mechanical Load Rating: Exceeds the minimum design load rating of UL2703 section 21.4 (30 psf downward, 30 psf upward, and 13.67 psf downslope) load. Actual system capacity defined by span/cantilever carts and/or configuration tools with PE review.

Marking

Product markings identified per UL2703 are to be located in a location that is readily accessible for inspection.

Periodic Inspection

Periodic re-inspection is a recommended system maintenance procedure to check for loose components or corrosion. If any loose components and/or corrosion is found, the affected components are required to be replaced immediately, with the original mounting system manufacturer's component parts.

INSTALLATION GUIDELINES

About the product

The POWER RAIL top-clamping PV module mounting system is engineered to reduce installation costs and provide maximum strength for parallel-to roof or tilt up mounting applications.

Designed with the professional PV solar installer in mind, the top-clamping rails utilize a single tool with a revolutionary RAD™ Fastener for faster bolt placement. The unique shape of the RAD provides an anti-rotation feature, locking the bolt in the proper orientation when installed. The high strength rigid rails also include an integral wiring channel for securing cables and providing a professional finish. The POWER RAIL Mounting System features the industry's broadest selection of mounting supports, designed for secure and water tight attachments to any roof style.

For recommendations on a specific installation, please:

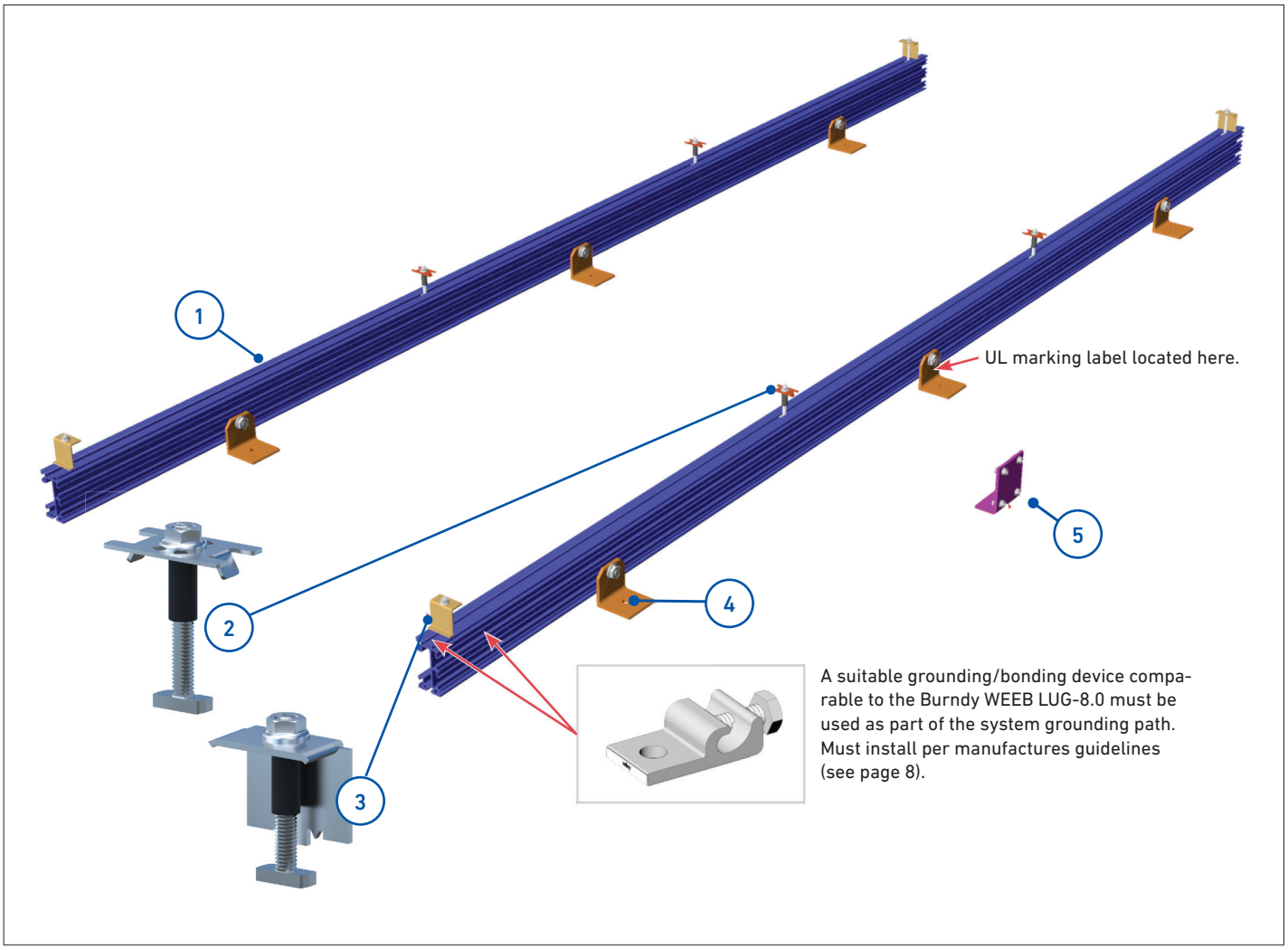
Visit PLP.COM and select the POWER RAIL Configuration Design Tool.

Contact PLP solar technical support at (440) 461 5200, or solar@plp.com, with any questions or issues.

About these instructions:

- The instructions do not include any information on the selection or installation of attaching hardware to be mounted to the roof substrate. For information on compatible attaching hardware, see our publication titled “POWER RAIL Design Guidelines”.
- Begin after all roof mounted attaching hardware has been installed and secured to the roof substrate.
- These instructions are intended to be used by individuals with sufficient technical skills for the task. Knowledge and use of hand tools measuring devices and torque values is also required.
- Included, are various Notes, Cautions, and Warnings that are intended to assist in the assembly process and/or to draw attention to the fact that certain assembly steps may be dangerous and could cause serious physical injury and/or damage to components. Follow the procedures and precautions in these instructions carefully.

PACKAGE COMPONENTS

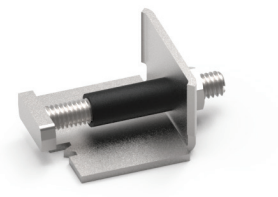


1. P14 POWER RAIL
2. AMP™ Clamp Assembly
3. RAD™ End Clamp Assembly
4. P14 “L” Foot
5. Splice Plate

Tools Required:

- 1/2" wrench or socket for 5/16" module clamp hardware
- Torque wrench
- Ratchet wrench
- Ratchet extension bar
- Tape measure
- Framing square

Factory Assembled
AMP™ Clamp Assembly
Bonding Clamp



Factory Assembled
RAD™ End Clamp Assembly
(patented)

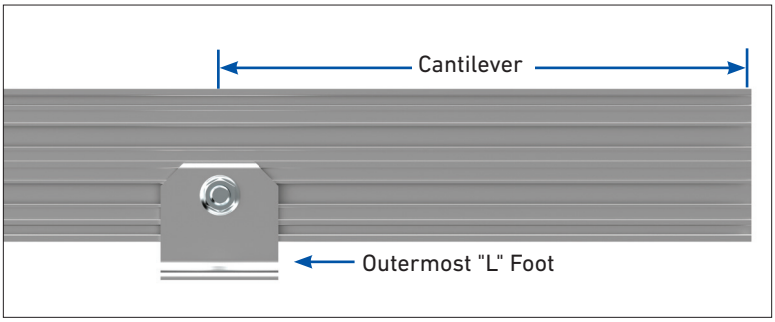
1 Attach POWER RAIL to "L" Feet

The POWER RAIL overhangs beyond the outermost "L" Foot. This overhang is referred to as "cantilever", or abbreviated as "C'ver". The distance between adjacent "L" Feet is referred to as "span". The length of both the cantilever and the span are dependent on. several factors, unique to each installation and are determined by the system design. Measure and mark the cantilever dimension supplied by the design manual onto the POWER RAIL.

NOTE: "L" feet can be attached directly to the roof substrate with the proper hardware. See POWER RAIL Design Guidelines for more information. Information on appropriate anchoring hardware is available on an individual product basis.

CAUTION

Cantilever and span dimensions are a design specification. Consult the design manual to match these dimensions to site conditions. It's important to use the unique cantilever and span dimension specific to the install. Failure to do so could lead to excessive deflection and/or premature system failure.



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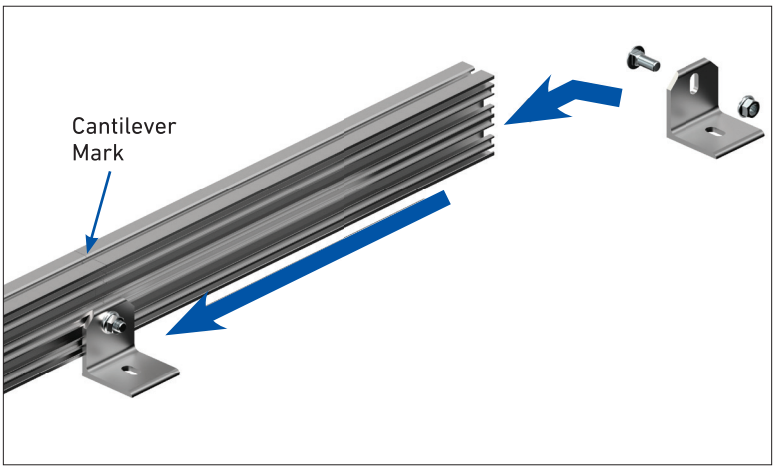
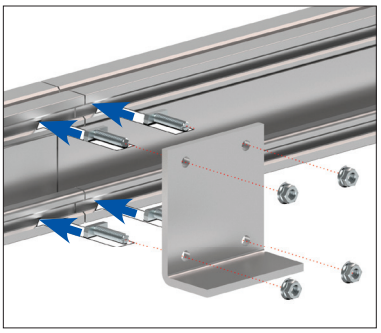
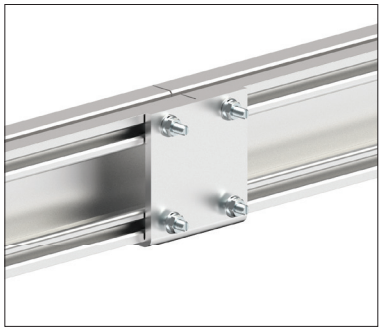


Insert 1/2-13 x 1-1/4" Carriage Bolt into POWER RAIL. On outermost "L" Feet align the Carriage Bolt and the center of "L" Foot with the cantilever mark on the POWER RAIL. Secure the POWER RAIL to the "L" Foot with 1/2" Flange Nut. **Torque to 43 ft.-lbs.**

2 Splicing POWER RAIL with Splice Plates

Insert 5/16" x 3/4" Turn Bolts into POWER RAIL and rotate 90-degrees to lock Turn Bolts in place. Align the Splice Plate with center of splice and secure to POWER RAIL. Rail with 5/16" Flange Nuts. **Torque to 15 ft.-lbs.**





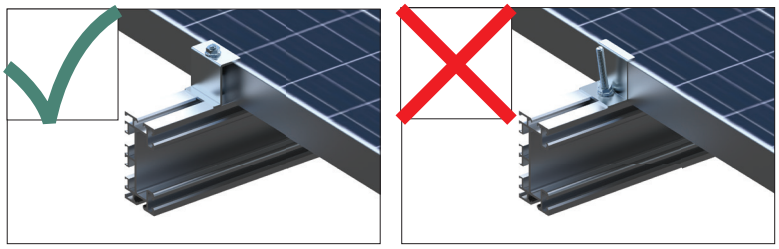
3 **Install the Modules.**

NOTE: The RAD™ bolts used in the AMP™ Clamps and End Clamps must be locked into the channel by rotating clockwise 90-degrees. Use the indicator slot on the threaded end to identify whether or not the bolt has been locked.

CAUTION

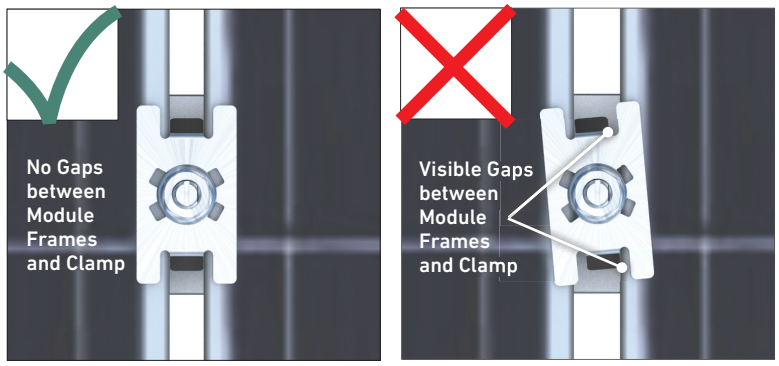
This is a two person activity. In addition to the difficulties associated with working on a sloped rooftop, PV Modules are heavy. One person should hold and align the modules while a second person secures modules with clamping hardware. Failure to do so could lead to serious personal injury and/or damaged components.

Correct Installation **Incorrect Installation**

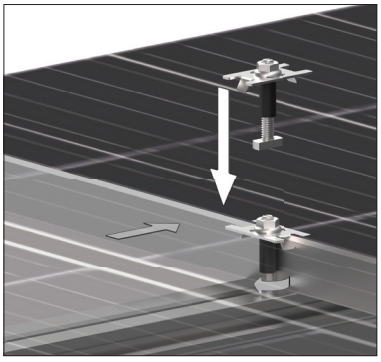


End Clamps must be installed as shown above left, not upside down as shown to the right.

Correct Installation **Incorrect Installation**

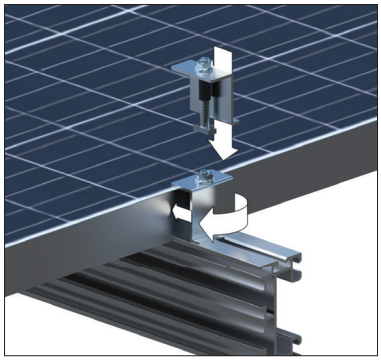


AMP Clamp bonding Mid Clamps must be installed as shown at above left and not as shown to the right. There cannot be any visible gaps between the bonding Mid Clamps and module frames.



AMP Clamp bonding Mid Clamps are inserted into the POWER RAIL and positioned between adjacent Modules. Insert the 5/16" RAD Bolt into POWER RAIL and rotate 90-degrees clockwise to lock the RAD Bolt within the POWER RAIL. Push Modules against AMP Clamp. Tighten 5/16" Flange Nut.

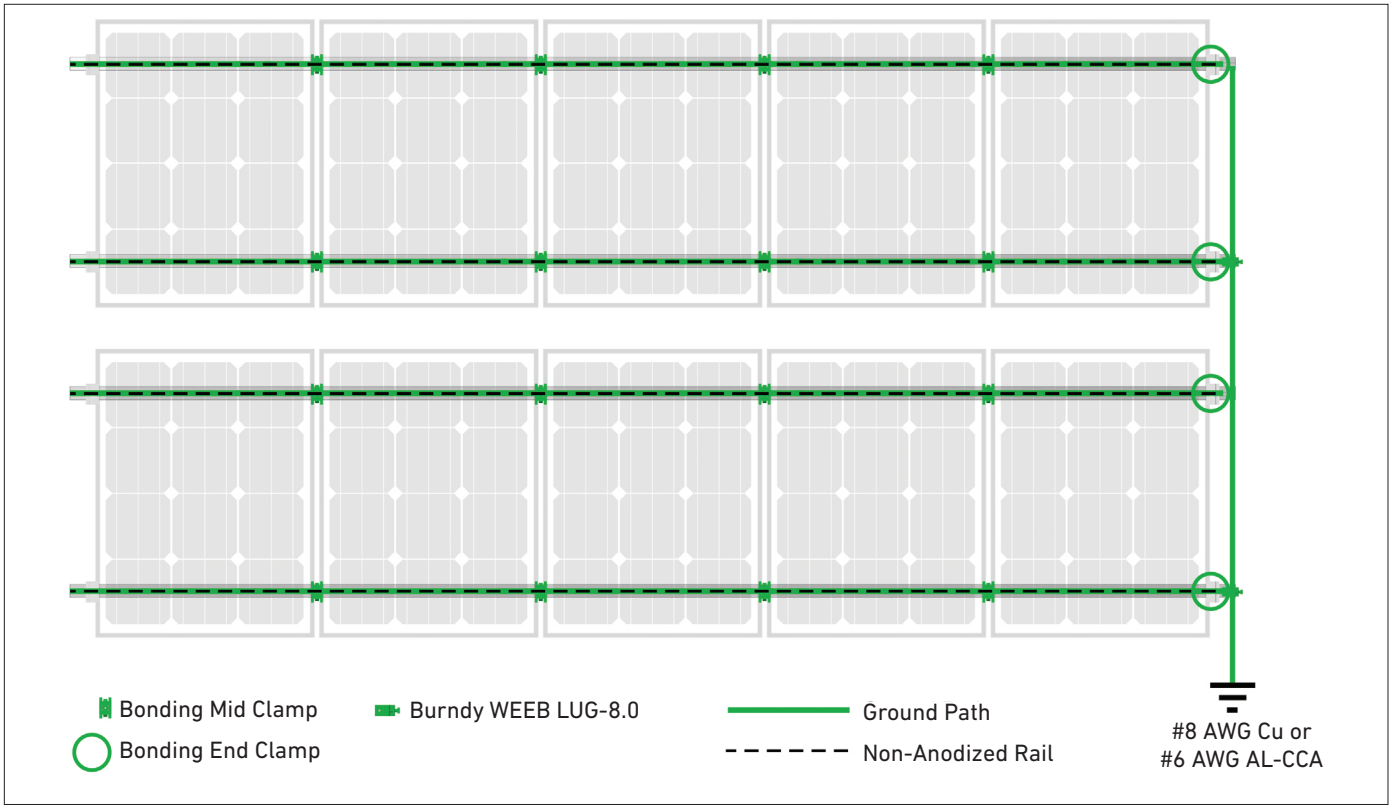
Torque to 15 ft.-lbs.



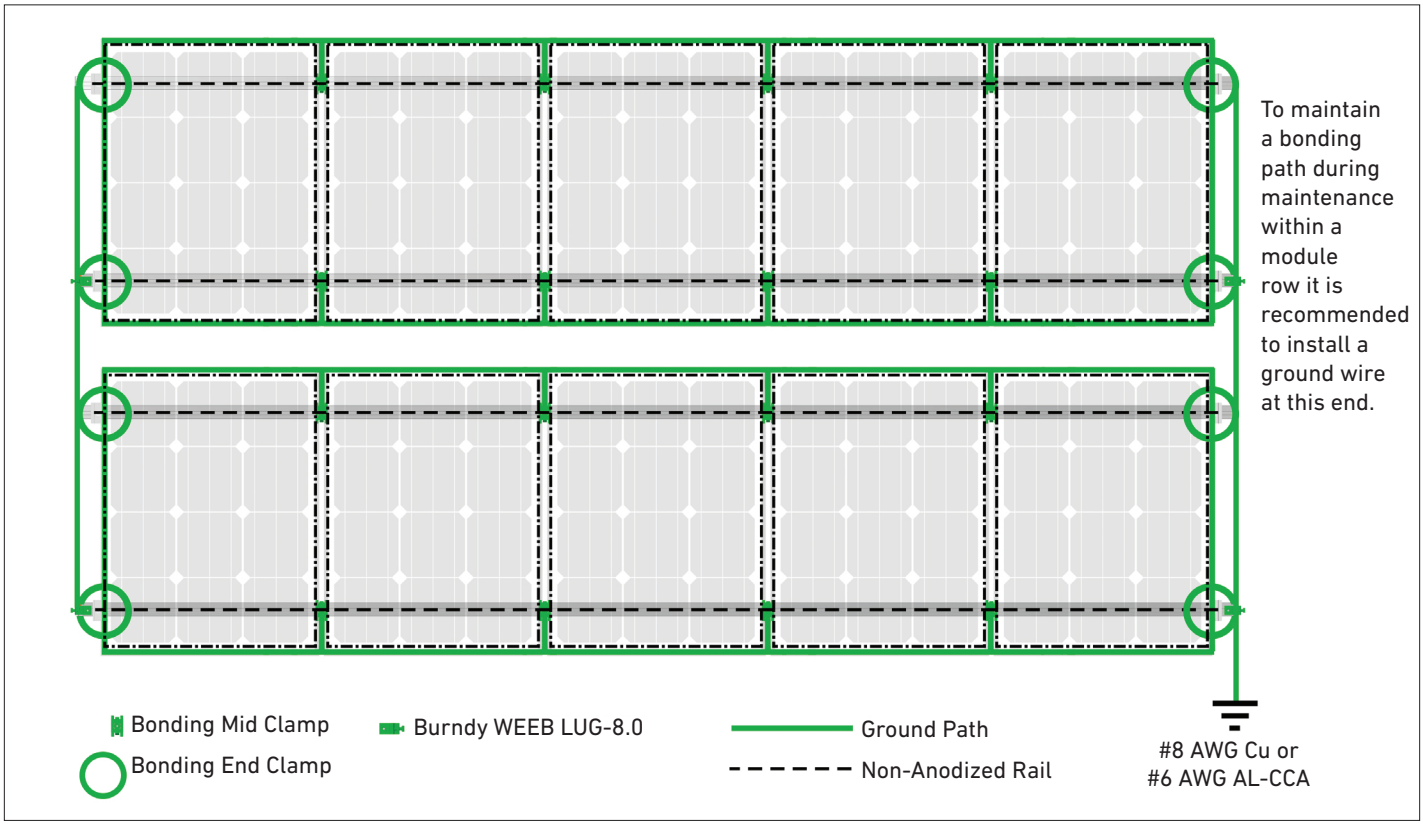
RAD End Clamps are used on the outer Modules. Insert the 5/16" RAD Bolt into POWER RAIL and rotate 90-degrees clockwise to lock the RAD Bolt within the POWER RAIL. Secure with 5/16" Flange Nut.

Torque to 15 ft.-lbs.

GROUNDING/BONDING PATH NON-ANODIZED RAILS



GROUNDING/BONDING PATH ANODIZED RAILS

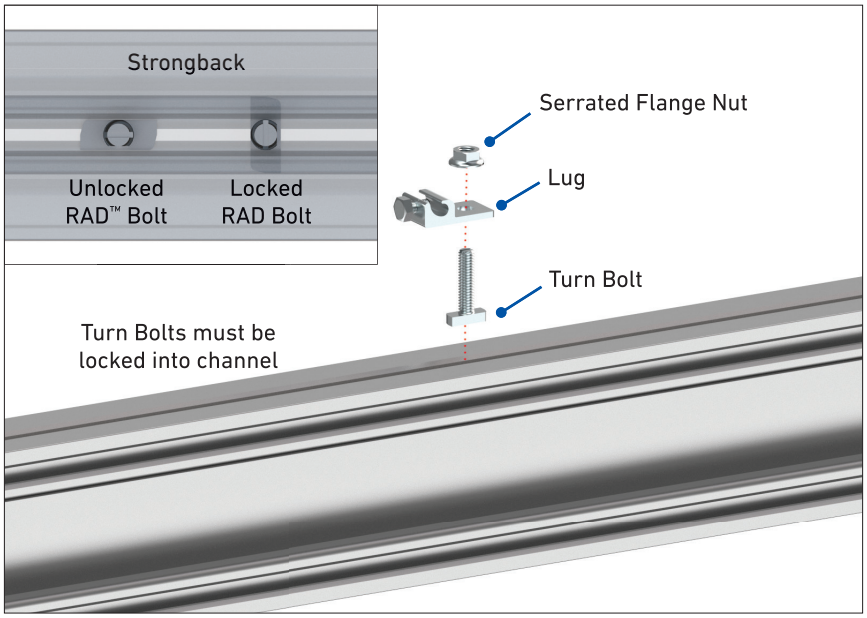


INSTALLING A WEEB-LUG 8.0

Before installing, verify with the lug manufacturer for any updates or revisions to these lug installation instructions.

Lug is suitable for use with 14-6 AWG solid or standard copper conductor when tightened to 5 ft-lb.

NOTE: The Turn Bolts used must be locked into the channel by rotating clockwise 90°. Use the indicator slot on the threaded end to identify whether or not the bolt has been locked.



Catalog Number	Maximum OCPD (A)	Mounting Surface					Mounting Screw		Mounting Hole Range	
		Minimum Profile	Minimum Thick	Maximum Thick	Mtl	Surface Prep	Size	Tightening Torque	Minimum	Maximum
		w x l	in	in				lb - in	mm	mm
WEEB-LUG-8.0	200	22 mm x 20 mm	0.06	0.25	AL	Anodized	5/16" M8	120	7.85	10
			0.06	0.25	Steel	Galvanized				

⚠ IMPORTANT INFORMATION

1. Before installing, verify with the lug manufacturer for any updates or revisions to these lug installation instructions. The instructions on this page only address the WEEB-LUG-8.0 as found within the manufacturers (Burndy) document number 50016572 Rev E.

2. The NEC section 690.43 states, "Exposed non-current carrying metal parts of module frames, equipment, and conductor enclosures shall be grounded in accordance with 250.134 or 250.136 (A) regardless of voltage."

3. For Proper Equipment Grounding Conductor (EGC) and Overcurrent Protection Device (OCPD) sizing, refer to NEC sections 250.66, 250.122, and 250.166.

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