



***EZ Metal Roof Mount Attachments
With L-Foot, Standoffs and Variants***

Please read carefully before installing

Patent # US8122648B

SunModo's EZ Metal Roof Mount Attachments can be used to mount PV panels on metal roofs. All installations shall be in accordance with NEC requirements in the USA.

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Installer Responsibility:

Before ordering and installing materials, all system layout dimensions should be confirmed by field measurements. SunModo reserves the right to alter, without notice, any details, proposals or plans. Any inquiries that you may have concerning installation of the PV system should be directed to your SunModo Sales representative. Consult SunModo Sales for any information not contained in this manual. This manual is intended to be used as a guide when installing SunModo's EZ Metal Roof Mount System on metal roofs. It is the responsibility of the installer to ensure the safe installation of this product as outline herein.

- Installer shall employ only SunModo products detail herein. The use of non SunModo components can void the warranty and cancel the letters of UL compliance.
- Installer shall guarantee that screws and anchors have adequate pullout strength and shear capacities.
- Installer shall adhere to the torque values specified in this Instruction Manual.
- Installer shall use anti-seize compound, such as Permatex anti-seize, lubricant is recommended for all threaded parts.
- Installer is responsible to install solar panels over a Fire Resistant roof covering rated for the application.
- Installer is responsible to determine that the roof, its rafters, connections, and other architectural support components can sustain the array under all code level loading conditions.
- Installer shall adhere to all relevant local or national building codes. This takes account of those that supplant this document's requirements.
- Installer shall guarantee the safe placement of all electrical details of the PV array.
- Installer shall comply with all applicable local, state and national building codes, including periodic re-inspection of the installation for loose components, loose fasteners and any corrosion, such that if found, the affected components are to be immediately replaced.
- Installer to ensure the structural support members or footings for mounting the array can withstand all code loading conditions. Consult with licensed professional engineer for the appropriate loading conditions.
- Installer to follow all regional safety requirements during installation.
- This racking system may be used to ground and/or mount a PV module complying with UL 1703 only when the specific module has been evaluated for grounding and/or mounting in compliance with the included instructions.
- Installer shall ensure bare copper grounding wire does not contact aluminum and zinc-plated steel components to prevent risk of galvanic corrosion.
- If loose components or loose fasteners are found during periodic inspection, re-tighten immediately. If corrosion is found, replace affected components immediately.

Safety:

Review relevant OSHA and other safety standards before following these instructions. The installation of solar PV systems is a dangerous procedure and should be supervised by trained and experienced personnel.

It is not possible for SunModo to be aware of all the possible job site situations that could cause an unsafe condition to exist. The installer of the Metal Roof system is responsible for reading these instructions and determining the safest way to install the Metal Roof system. These instructions are provided only as a guide to show a knowledgeable, trained erector the correct part placement one to another. If following any of the installation steps would endanger a worker, the erector should stop work and decide upon a corrective action. Provide required safety railing, netting, or safety lines for crew members working on the Metal Roof.

Specifications:

Our tested specification for the K10082 EZ Metal Roof Mount:

- The pullout performance of the EZ Metal Roof Mount is entirely dependent upon the strength and correct mounting of the Lag Bolt in the roof joist. The pilot hole must not be oversized, the wood must be in serviceable condition, and the Lag Bolt must have at least 2 inches of thread in the joist timber.
- Pullout (uplift): 2160 lbs. and Lateral Deflection: 840 lbs. both are results are lowest of 3 tests.
- Support (Dead load): 2500 lbs. as limited by the underlying Metal Roof structure.

EZ Metal Roof Mount Series:



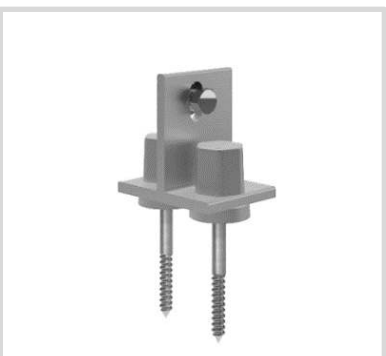
- EZ Metal Roof Mount Kit includes:
- L-Foot
 - Metal Roof Shoe and Gasket
 - 4" Lag Bolt
 - AL Hex Cap
 - 3/8" Flange Nut and Bolt
- K10082-001
EZ Metal Roof Mount with L-Foot (as shown)
- K20082-002
EZ Metal Roof Mount with L-Tall Foot
- Both are available in black (-BK1 or BK2)



- EZ Metal Roof Mount Standoff Kit:
- L-Foot
 - Roof Shoe and Gasket
 - 4" Lag Bolt
 - AL Hex Cap
 - 3/8" Flange Nut and Bolt
 - Standoff: 2" shown
- K10064-XXX
EZ Metal Roof Mount with Standoff (Standoff heights: 2", 3", 5" and 7")

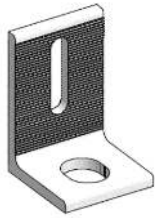


- EZ Metal Roof Mount Kit with Two Screws includes:
- L-Foot
 - Metal Roof Shoe and Gasket
 - AL Hex Cap
 - 3/8" Flange Nut and Bolt
 - Self-Drilling Screw, 6.3mmX60mm, Hex Flange Head
- K10142-001
EZ Metal Roof Mount with L-Foot and Two Screws (as shown)
- K10142-BK1
Both are available in black



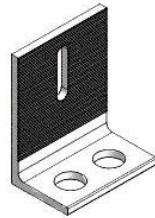
- EZ Metal Roof Mount Kit with Two Screws includes:
- T-Foot
 - Metal Roof Shoe and Gasket
 - AL Hex Cap
 - 3/8" Flange Nut and Bolt
 - Self-Drilling Screw, 6.3mmX60mm, Hex Flange Head
- K10154-001
EZ Metal Roof Mount with L-Foot and Two Screws (as shown)
- K10154-BK1
Both are available in black

Primary Materials:



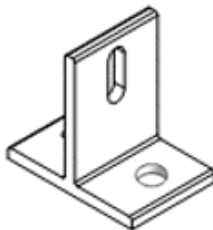
Aluminum L-Foot are offered in clear, black and brown.

A20027-001
AL L-Foot



Two Screw Aluminum L-Foot are offered in clear and black.

A20113-001
AL L-Foot



Two Screw Aluminum T-Foot are offered in clear and black.

A20027-004
AL T-Foot



AL Hex Cap
Available in clear and black

A20066-001 and – BK1
AL Hex Cap



Aluminum Shoe is provided with EPDM Sealing Washer installed.

A20051-XXX
AL Shoe
C10007-001
Sealing Gasket






5/16 Stainless Steel Lag Bolts are available lengths: 3.5", 4", 4.25", 4.5" and 5"

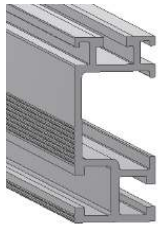
B15015-XXX
5/16 Stainless Steel Lag Bolt



6.3mm Self-Drilling Screw

B10031-001
6.3mmX60mm, Hex Flange Head

	Aluminum L-Foot available in clear and black.	K10066-XXX Standard L-Foot Kit K10096-XXX Tall L-Foot Kit
	Aluminum Standoff heights: 2", 3", 5" and 7" (part of EZ Metal Roof Kit K10064-XXX)	A20049-XXX Standoff (multiple lengths)
	Aluminum C-Bracket	A22001-001 C-Bracket
	Conduit Clamp for 3/4" and 1" diameter conduit	A20212-001 1" Conduit Clamp A20213-001 3/4" Conduit Clamp
	Conduit Mount L-Foot	A20064-004 Conduit Mount L-Foot
	Helio Rails: Features both 1/4" and 3/8" side slots, and 1/4" top slot for clamping PV panels. Available in 84", 124", 164" and 206" lengths. Last 3 digits denote rail length. 4 stock sizes in clear and black.	A20144-XXX (Clear) A20144-XXX-BK (Black) HR250 (Standard Rail) A20145-XXX (Clear) A20145-XXX-BK (Black) HR350 (Heavy Rail) A20146-XXX (Clear) A20146-XXX-BK (Black) HR500 (Super Rail)
	Plastic Rail End Caps available for Helio Standard and Heavy rails (optional)	C10017-001 (Black) C10017-001-GR (Gray) HR250 (Standard Rail) C10021-001 (Black) C10021-001-GR (Gray) HR350 (Heavy Rail)
	Metal Rail End Caps available for Helio Standard and Heavy rails (optional)	A20284-001 A20284-BK1 (Black) HR250 (Helio Standard) A20285-001 HR350 (Helio Heavy) A20263-001 HR500 (Helio Super)



Helio Open Rail: Features wire management channel and both 1/4" and 3/8" side slots, and 1/4" top slot for clamping PV panels. Available in 84", 124", 164" and 206" lengths. Last 3 digits denote rail length. 4 stock sizes in clear and black.

A20242-XXX (Clear)
A20242-XXX-BK (Black)
HR150 (Open Channel Rail)



1/4" Slot Open Rail Splice Kit with 4X 1/4-20 Bolts and Flange Nuts with integral grounding. **May be repositioned until torqued to final value.**

K10236-001
HR150 Splice Kit
For single-use only



Rail End Cover available for Echo rails (optional)

A20250-001 (Clear)
A20250-BK1 (Black)
HR150 Rail End Cover



Helio Echo Rail Wire Management Cover: snaps into the Echo rail to manage wire bundles where needed. Available in clear and black.

K10239-001 (Clear)
K10239-BK1 (Black)
HR150 Wire Cover



The HR150 family of products are shown assembled above. Two HR150 Rails are spliced together with an HR150 Rail Splice. PV electrical wires are shown routed in the channels of the HR150 Rails, retained with two Wire Covers snapped into place.

Tools Required for Installation:

Electric Drill or impact driver.

Note that the use of an impact driver is strongly discouraged for all stainless nut and bolt hardware.



Metal Roofing Bar



Drill Bit for lag bolts, pilot hole 7/32" diameter for 5/16" lag bolt



3/8" Socket Wrench



Sockets for 3/8" drive sockets, 7/16", 1/2", 9/16" and 1-1/16"



Torque Wrench 3/8" drive, 0 to 35 ft. lbs.



Anti-seize compound (Permatex 80071 or equivalent).



Caulk gun and silicon sealant

- ChemLink M1 (or equivalent) for wood and composite roofs.
- ChemLink DuraLink (or equivalent) for metal roofs.



Tape measure



Saws for cutting aluminum posts and rails as necessary



Other items that can be useful:

- Chalk or Roofer's marker to layout Metal Roof.
- Adaptor for 3/8" socket to drill chuck.

Torque Values:

These values must be adhered to for mechanical strength. It is required that a torque wrench be used to measure the bolt torque during final assembly, and it is recommended that anti-seize compound, such as Permatex, be applied to the screw threads.

Hardware	Torque
1/4" Bolts and Hex Flange Nuts	7.5 ft. lbs.
6.3mm Self-tapping Screw	As Required
5/16 Lag Bolt	25 ft. lbs.
1-1/16" HEX Cap	15 ft. lbs.

Installation Instructions:

EZ Metal Roof Mount Kit K20051-XXX

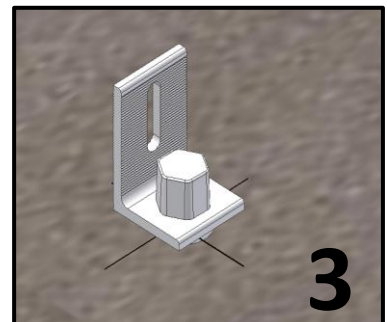
1. From the marked location drill the pilot hole for the Lag Bolt with a 7/32" drill bit. For maximum strength, the hole should not be more than 3" in depth, and a drill stop may be used to insure this.



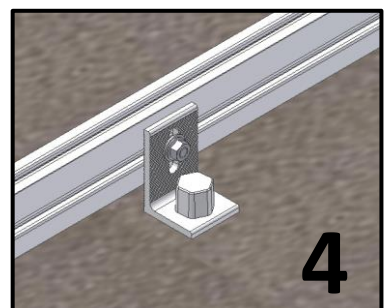
2. To ensure a strong and water tight seal, wipe away excess grease or debris from the mounting location. Fill pilot hole with sealant, such as ChemLink DuraLink for metal roofs. Install AL Shoe to Metal Roof by using 5/16" Lag Bolt. Tighten to 25 ft. lbs. torque.



3. Install L-Foot to AL Shoe and lightly hand tighten Hex Cap.



4. Install AL Rail to L-Foot to the specific orientation. Then, tighten 3/8" Flange Nut to 15 ft-lbs. and Hex Cap to 15 ft-lbs. torque.

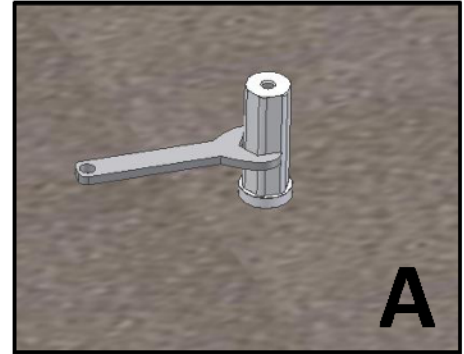


Installation Instructions

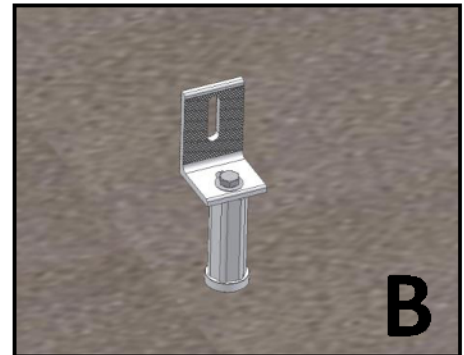
EZ Metal Roof Mounting Standoff Kit K10064-XXX

Mount the AL Shoe using steps 1 and 2 (shown above).

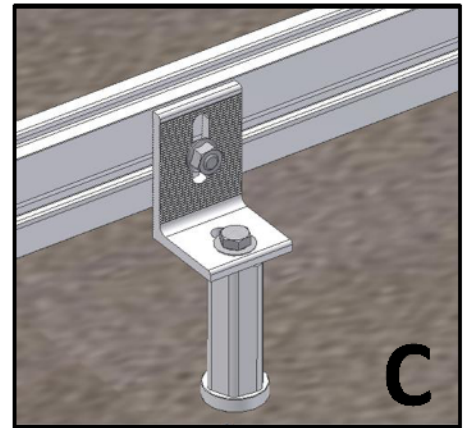
- A. Place AL Standoff on AL Shoe threads and tighten by hand, then by wrench. Use 15 ft.-lbs. nominal torque.



- B. Using the 3/8" Flange Bolt (supplied with AL L-Foot) attach to the top of the Standoff.



- C. Install AL Rail to L-Foot to the specific orientation. Then, tighten 3/8" Flange Nut to 15 ft.-lbs. and Hex Cap to 15 ft.-lbs. torque.



Installation Instructions

EZ Metal Roof Mount with C-Bracket A22001-001

Mount the C-Bracket using steps 1 and 2 (shown above).

- D. Mount the C-Bracket instead of an L-Foot, using the Hex Nut. The C-Bracket can be used to mount a variety of rails and other Metal Rooftop equipment.



See www.sunmodo.com for current warranty documents and information.

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