

WHEN CONSIDERING A PV MOUNTING SOLUTION,
CONSIDER THIS: WE DELIVER

FREEDOM & FLEXIBILITY



FLEXIBLE TILT SOLUTIONS



SCALABLE FROM KW TO MW



ARCHITECTURAL AESTHETICS



FLAT ROOF BALLAST SOLUTION

Offering installers Freedom and Flexibility to install on a variety of structures with a wide selection of PV modules.

Highly engineered mounting technology designed with experienced customer input, Unirac mounting solutions provides installers with a cost-effective custom designed solution that is quick and easy to install, and is backed by our renowned technical support.

Go to www.unirac.com for more information on Unirac's PV mounting solutions.



Bright Thinking in Solar

AEE Solar

NEW! SnapRack Mounting System

Faster Installation, Lower Cost

AEE Solar SnapRack was developed by a team of veteran solar engineers working with installers in the field, dedicated to overcoming the limitations of conventional racking and ensuring a quick, efficient installation. SnapRack is a major advance in simplifying and reducing the cost of the solar installation process.

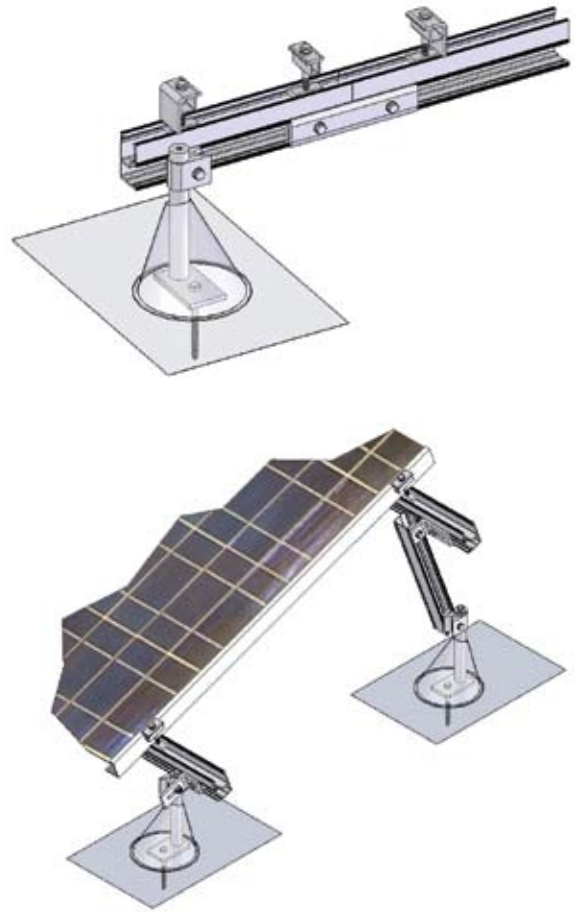
SnapRack is compatible with modules from virtually any manufacturer. Snap-in sliding module clips ensure quick and easy installation and precise alignment. Mid-clips are a half-inch wide to keep the math simple. Every bolt in the system uses the same size wrench, ensuring efficient installation and reducing the wear and tear on your man-hours on the roof during installation. And there's no need to drill any holes in the rails to connect standoffs and L-feet! The channels in the rail profiles can house running module leads, providing better aesthetics and improved conductor protection.

SnapRack is engineered for durability and structural integrity in all environments, with excellent seismic, wind and snow loading protection on all components. Its compact and efficient rail design reduces material requirements and ensures a low profile installation on your roof.

The AEE Solar SnapRack has been engineered from the ground up to ensure maximum standoff adjustability for a clean, level installation on even the most irregular roof surface. Simple vertical and horizontal adjustability enables superior fit and array alignment. Tilt-up can be achieved with pieces of cut rail and L-feet.

AEE Solar SnapRack Kits

SnapRack kits come with standard rail, splice kits, mid-clamps, end-clamps and mounting feet needed for the number of modules used. Mounts for modules with black frames come with black anodized mid- and end-clamps. To order, choose the prefix that matches the brand and model of modules to be mounted, then add a suffix to match the number of modules to be mounted. Cutting of aluminum rail is required.



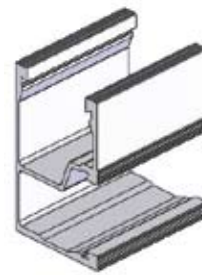
AEE Mounting Structure Kit Price List

Module	Item code prefix	Clamp color	Item code suffix = Number of modules								
			-02	-03	-04	-05	-06	-07	-08	-09	-10
AEE Solar AE-80/90HE	015-09501	Clear	\$119	\$193	\$235	\$291	\$305	\$274	\$361	\$366	\$395
Evergreen ES-190	015-09513	Clear	\$189	\$291	\$334	\$410	\$460	\$529	\$605	\$705	\$733
Evergreen ES-A-200	015-09515	Clear	\$189	\$291	\$334	\$410	\$460	\$529	\$605	\$705	\$733
Kyocera167-200	015-09521	Clear	\$158	\$234	\$263	\$351	\$381	\$458	\$488	\$576	\$606
Kaneka-60	015-09525	Clear	\$163	\$239	\$268	\$356	\$386	\$463	\$493	\$581	\$610
Solarfun SF-190	015-09529	Clear	\$158	\$233	\$261	\$350	\$379	\$454	\$483	\$595	\$600
SolarWorld SW85	015-09532	Clear	\$131	\$136	\$235	\$240	\$245	\$274	\$361	\$366	\$395
SolarWorld SW165-175	015-09533	Clear	\$133	\$233	\$238	\$266	\$354	\$384	\$459	\$488	\$493
Mitsubishi UD185MF5	015-09537	Black	\$138	\$239	\$244	\$286	\$363	\$391	\$468	\$498	\$503
Mitsubishi UE125MF5N	015-09539	Black	\$138	\$168	\$244	\$249	\$279	\$368	\$398	\$403	\$479
REC SCM-210	015-09545	Clear	\$189	\$291	\$334	\$410	\$460	\$561	\$606	\$705	\$766
SANYO HIP-200	015-09549	Clear	\$188	\$290	\$333	\$383	\$424	\$501	\$569	\$611	\$710
Sharp ND-L3EJEA 123 Watt	015-09551	Clear	\$133	\$163	\$238	\$243	\$271	\$359	\$364	\$393	\$468
Sharp165-185	015-09557	Clear	\$133	\$233	\$238	\$266	\$354	\$384	\$459	\$488	\$493
Sharp 208	015-09563	Clear	\$189	\$291	\$334	\$410	\$460	\$561	\$606	\$705	\$766
SunPower	015-09572	Clear	\$133	\$233	\$238	\$266	\$354	\$384	\$459	\$488	\$493
SunTech Power STP170S-24Ab	015-09583	Clear	\$133	\$233	\$238	\$266	\$354	\$384	\$459	\$488	\$493
Yingli Solar YL175	015-09592	Clear	\$189	\$291	\$334	\$410	\$460	\$561	\$606	\$705	\$766

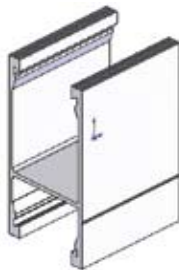
SnapRack Bulk Parts

The parts in the table on this page are available as needed in bulk.

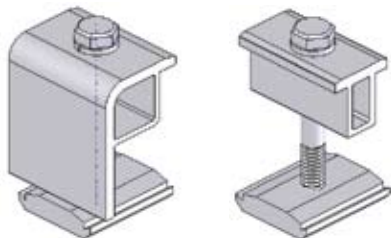
The SnapRack solar panel mounting system is a top-down roof mounting solution designed and manufactured with the installer in mind. The rail design is a lightweight anodized aluminum extrusion that maximizes transportation and installation efficiency. The SnapRack mounting system has been load tested and engineered to 125mph wind load (50 lbs. per square foot of pressure) for most module types.



The SnapRack ground rail PV mounting system provides an aesthetically pleasing, easy to install solution for ground-mounted PV arrays. Its design allows for fast installation and greatly reduces labor costs. All attachment points are concealed within the rail to give an attractive and clean finished appearance. Clamps are designed to integrate with 1-1/4 and 1-1/2" schedule #40 galvanized pipe.

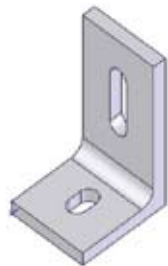


Mid-clamps and end-clamps are available with a clear or black anodized finish. Order the end-clamp that matches the depth of the module frame. All mid-clamps are the same.



Splice kits allow the use of shorter rail sections to be structurally connected for longer spans.

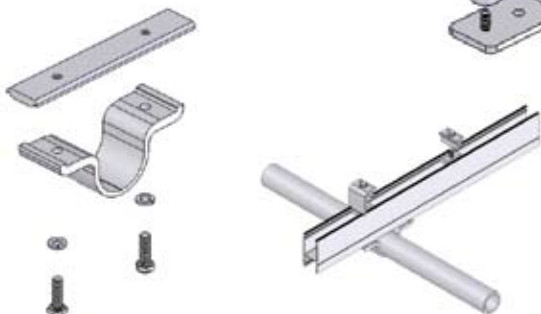
L-feet can be used with Quick Mount PV (see next page) flashings for various roof types to achieve a low profile mounting system.



Our exclusive adjustable standoff allows you to easily level rails on uneven roofs.



SnapRack pipe clamps are designed to attach SnapRack ground rail to 1-1/2" schedule 40 pipe.

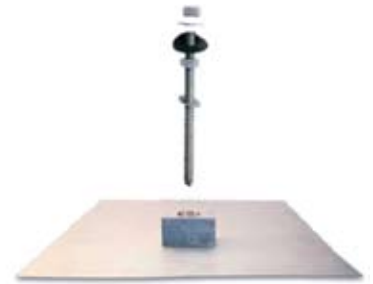


SnapRack Parts		
Item code	Description	Price
Standard Rail		
015-09811	SnapRack rail standard 70"	\$30.00
015-09814	SnapRack rail standard 106"	\$42.00
015-09817	SnapRack rail standard 168"	\$62.00
Ground Rail		
015-09831	SnapRack rail ground 168"	\$62.00
015-09835	SnapRack rail ground 192"	\$72.00
Module Clamps with Bolts and Slide Nuts		
015-09903	SnapRack module mid-clamp	\$2.75
015-09906	SnapRack module mid-clamp black	\$3.25
015-09909	SnapRack module end-clamp 1.34"	\$2.75
015-09912	SnapRack module end-clamp 1.34" black	\$3.25
015-09915	SnapRack module end-clamp 1.40"	\$2.75
015-09918	SnapRack module end-clamp 1.40" black	\$3.25
015-09921	SnapRack module end-clamp 1.60"	\$2.75
015-09924	SnapRack module end-clamp 1.60" black	\$3.25
015-09927	SnapRack module end-clamp 1.80"	\$2.75
015-09930	SnapRack module end-clamp 1.80" black	\$3.25
015-09933	SnapRack module end-clamp 1.97"	\$2.75
015-09936	SnapRack module end-clamp 1.97" black	\$3.25
015-09939	SnapRack module end-clamp 2.26"	\$2.75
015-09942	SnapRack module end-clamp 2.26" black	\$3.25
Rail Splice Kits		
015-09961	Splice kit - Clear	\$6.00
015-09963	Splice kit - Black	\$8.00
Roof Parts		
015-09978	SnapRack L-foot	\$4.00
015-09982	SnapRack standoff clamp	\$2.00
015-09984	SnapRack standoff clamp black	\$3.00
015-09986	Standoff with base and rain collar - 5.5"	\$15.00
015-09988	Standoff with base and rain collar - 7"	\$16.00
015-09990	Oatey flashing	\$10.00
015-09992	Hanger bolt clamp	\$1.24
Ground Rail Parts		
015-09998	SnapRack pipe clamp 1.5"	\$3.50

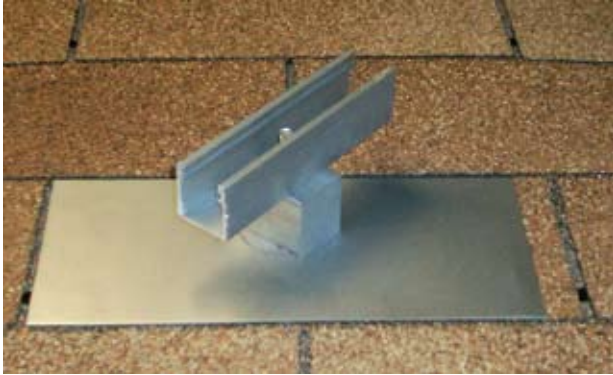
Quick Mount PV

All-In-One Waterproof Flashing

Quick Mount PV is an all-in-one waterproof flashing and mount designed to anchor photovoltaic racking systems to a new or existing roof. The flashing includes an attached standoff block and stainless steel hardware to attach to ProSolar rails (by drilling a hole in the bottom of the rail) and to AEE Solar SnapRack, Unirac and Direct Power L-feet. No roof cutting is required. Sold in boxes of 12 flashings.



Composition Shingle Flashing



The composition shingle flashing mount is made of aluminum and includes stainless steel hardware. It works with all standard racks, installs seamlessly and provides low-profile mount. The flashing includes an attached standoff block and stainless steel hardware.

Curved Tile Flashing

This flashing is made from pure lead. Order tile mount hardware separately.



Tile Mount

The plastic tile flashing replaces a standard 12" x 17" cement tile. Order tile mount hardware separately.



NEW!

Shake Mount Flashing

This 18" x 18" aluminum flashing is large enough to do a good job flashing on wood shake roofs. Available in mill finish, clear anodized or bronze anodized finish.



Roofing Bar



Quick Mount model	Description	Wt (lbs)	Item code	Price
QMSC-A 12	Composition mounts - mill finish 12" x 12" - 12 pack	16	014-06315	\$413
QMSC-C 12	Composition mounts - clear anodized finish 12" x 12" - 12 pack	16	014-06317	\$562
QMSC-B 12	Composition mounts - bronze anodized finish 12" x 12" - 12 pack	16	014-06316	\$635
QMLC-A 12	Shake mounts - mill finish 18" x 18" mount - 12 pack	30	014-06319	\$498
QMLC-C 12	Shake mounts - clear anodized finish 18" x 18" - 12 pack	30	014-06320	\$793
QMLC-B 12	Shake mounts - bronze anodized finish 18" x 18" - 12 pack	30	014-06321	\$940
QMFT T 12	Flat tile flashing - brown plastic 12" x 17" - 12 pack	25	014-06323	\$304
QMCT L 12	Curved tile flashing - natural lead 18" x 18" - 12 pack	65	014-06327	\$580
QMTMH A 12	Tile mount hardware - mill finish - 12 pack	13	014-06335	\$383
QMTMH C 12	Tile mount hardware - clear anodized finish - 12 pack	13	014-06337	\$458
QMRB 1	24" Roofing bar - nail removal tool	4	094-00143	\$53

SOLUTIONS FOR EVERY SOLAR MOUNTING APPLICATION



Power Box™ Enclosures



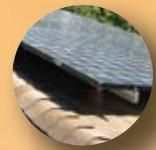
Power Tube CRS™



Top-of-Pole



Large Ground Mounts



Power Rail™

ph: 800.260.3792 • web: www.power-fab.com • e-mail: info@power-fab.com

NEW! CreoTecc

Cast Aluminum Roof Hooks

These high quality German-made cast aluminum roof attachments make it easy to put solar on tile roofs without cutting the tiles. They can support up to 600 pounds and their wide mounting flange allows for perfect placement on tile while still screwing into a rafter.

There is a front-fit model that allow rails to run across the roof, a side-fit model that allows rails to run up and down the roof, and a bottom-fit model for ProSolar rails that attack on the bottom of the rail.



CreoTecc Aluminum Roof Hooks

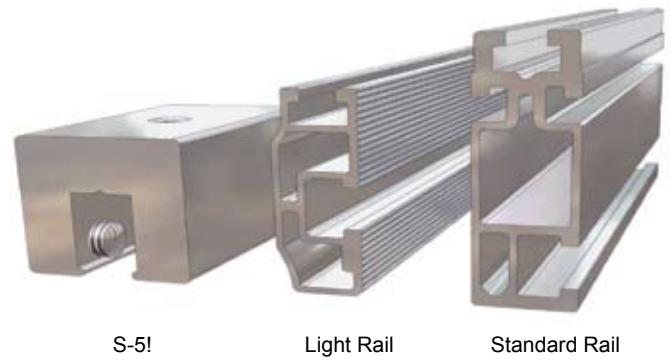
Description	Item code	Price	Description	Item code	Price	Description	Item code	Price
Side mount roof hook	014-09811	\$30	Front mount roof hook	014-09813	\$30	Bottom mount roof hook	014-09815	\$30

Unirac

SolarMount

Unirac's SolarMount is a fast, easy, safe way to install a PV array in virtually any roof or ground installation. Bottom mounting clips and tilt legs supplement traditional top mounting clamps. As a result, the system accommodates the widest variety of installations and assembly preferences – on the roof and on the ground. Any framed module sold in North America can be mounted using SolarMount.

Lower-cost SolarMount Light Rail employs 38 percent less aluminum than SolarMount Standard Rail, yet it's more than strong enough for flush applications. Use the same top mounting clamps and footing components that make SolarMount Standard Rail so easy to install.



S-5!

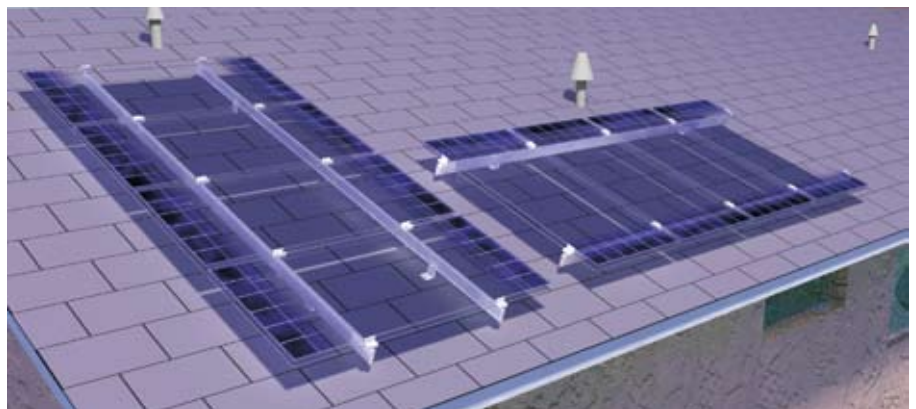
Light Rail

Standard Rail

Once you've selected the PV modules and planned your installation layout, you're ready to choose SolarMount components. The table on the following page shows what components to use if you are bottom-mounting the modules. The table on page 38 shows what parts to use if you are top-mounting the modules. If you need tilt legs for the mounts, see the explanation on pages 44-45. Rail and parts to complete your mounting system can be found on pages 39 to 42.

When sizing is complete, rails, splices, and L-feet may be ordered in two ways: In kits or in bulk. 2- and 4-rail kits on page 39 contain just the right quantities of each component for a given installation.

The 8-piece bulk rail bundles on page 40 require the addition of L-feet, and splices when necessary, along with top-mount clamps (either bulk or in pre-packaged sets) or back mount clips.



Unirac SolarMount rails can be mounted vertically or horizontally.

Choose a Top-Mounting or Bottom-Mounting System

On pitched roofs, mount rails either parallel or perpendicular to the rafters. Assembly sequence is a common determining factor. Select top-mounting clamps if you prefer to install modules last – after you've attached rails to installed footings. This sequence is especially convenient with modules that have Multi-Connect cables. Select bottom mounting clips if you plan to attach modules to rails prior to final installation. This sequence is well suited for modules that must be pre-wired. Bottom-mounting clips use space more efficiently because they do not require the 1" space between modules needed by top clamps.

The use of top-mounting clamps is generally easier when flush-mounting to a roof. Always use top-mounting clamps when flush mounting to standoffs. If using bottom-mounting clamps

with L-feet, follow the installation manual carefully to make sure footing slots are accessible during final installation.

In roof mounts, when using top-mounting clamps, no extra roof bracing is needed since rails or mounting feet can be adjusted to match rafter spacing. With bottom-mounting clamps, spacing between the rails depends on spacing between the mounting holes of your particular PV module, and it is unlikely that they will match rafter spacing. In that case, place a stringer over the roof or mounting blocks beneath it. Never attach footings to the sheathing alone – such an arrangement will not meet code and will leave the installation and roof vulnerable to severe damage from wind.

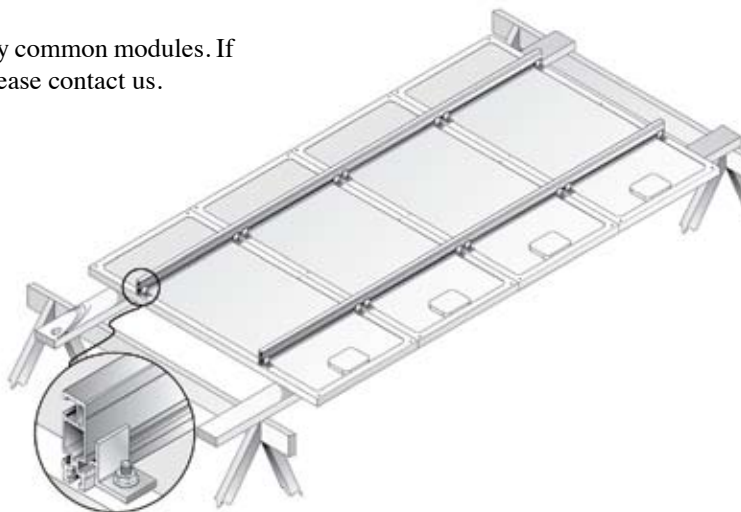
SolarMount Bottom-Mounting Sizing

Rail set lengths

This table lists the length of the rails required for many common modules. If you need rail sizing for a module not listed below, please contact us.



Bottom mounting clip



Rail Length Sizing - Bottom Mount Clips

Module brand and model		Rail length (inches) by number of modules per row										
		2	3	4	5	6	7	8	9	10	11	12
AEE	AE-80HE	48	72	96	120	132	156	180	192	216	240	264
	BP380, BP485	48	72	96	106	132	156	180	192	216	240	264
BP Solar	BP3125	60	84	106	144	168	192	216	240	276	300	324
	BP3160, BP4160, BP4170	72	96	132	156	192	226	252	288	312	348	384
Evergreen	ES-A-200	84	120	156	192	226	264	312	348	384	420	
	ES170, ES180, ES190, ES195	84	120	156	192	226	264	312	348	384	420	
Kyocera	KD135GX-LP	60	84	106	132	156	180	216	240	264	288	312
	KD180GX-LP	84	120	156	204	240	276	312	360	396	432	
Mitsubishi	UE125MF5N, MF120UE3	60	84	120	144	168	204	240	252	276	300	324
	MF165EB4, 175EB4	72	96	132	168	192	226	252	288	324	348	384
	UD185MF5	72	106	132	168	204	240	264	300	336	372	408
REC Solar	SCM220	84	120	168	204	240	276	324	360	396	432	
Sanyo	HIT-190, 200, 205, 210	84	120	156	192	226	264	300	336	372	408	
Sharp Solar	NE-80U1	48	72	84	106	132	156	168	192	216	240	252
	ND-L3EJE (123 watt)	60	84	106	132	168	192	216	240	264	288	324
	ND-167U1, ND-167U3	84	120	168	204	240	288	324	360	396		
	NE-165U1, NE-170U1	72	106	132	168	204	240	264	300	336	360	396
SolarWorld	SW80, 85 (Shell SQ80, 85)	48	72	84	106	132	156	168	192	216	240	252
	SW 165/175 mono	72	106	132	168	204	226	264	300	324	360	396
SunPower	SPR90, 95	48	72	96	120	144	156	180	204	226	252	264
	SPR200, 210, 215, 220	72	106	132	168	204	240	264	300	336	360	396
SunTech	STP110-24Ab, STP175-24Ab1	72	96	132	168	192	226	264	288	324	360	384

Unirac

SolarMount Top-Mounting Sizing

Clamp sizes & rail set lengths

Use this table to determine the size of top mounting clamps for your modules and the length of the rails required for your array. When sizing is complete, rails, clamps, splices, and L-feet may be ordered in kits that contain just the right quantities for a given installation or in bulk packaging (Pro-Paks). See pages 39 to 42 for pricing. All Unirac components have a 10-year product warranty and a 5-year finish warranty.



Rail Length Sizing - Top Mounts

Module brand and model		Clamp size	Rail length in inches, by number of modules per row										
			2	3	4	5	6	7	8	9	10	11	12
AEE Solar	AE-80HE	D	48	72	96	120	144	156	180	204	226	252	264
	BP380, BP485	E	48	72	96	120	144	156	180	192	216	240	252
BP Solar	BP3125	E	60	96	120	144	168	204	226	252	288	312	336
	BP3150, 3160, 4160, 4170, 4175,	E	72	106	132	168	204	240	264	300	324	360	396
Evergreen	ES-A-200, ES-A-205, ES-A-210	F	84	120	156	204	240	276	312	360	396		
	ES170, ES180, ES190, ES195	K	84	120	156	204	240	276	312	360	396		
Kyocera	KD135GX-LP	C	60	84	120	144	168	192	216	252	276	300	324
	KD180GX-LP	C	84	132	168	204	252	288	324	372	408		
Mitsubishi	UE125MF5N	F	60	84	120	144	168	192	216	240	276	300	324
	MF165EB4, 170EB4	F	72	106	132	168	204	240	264	300	336	360	396
	UD185MF5	F	72	106	144	180	216	240	276	312	348	384	420
REC Solar	SCM-220	J	84	132	168	204	252	288	324	372	408		
Sanyo	HIT-190, 200, 205, 210	H	84	120	156	192	226	264	300	336	372	408	
Sharp Solar	NE-80U1	C	48	72	96	120	144	156	180	204	226	252	276
	ND-L3EJE (123 watt)	F	60	84	120	144	168	192	226	252	276	300	336
	ND-167U1	G	84	132	168	216	252	288	336	372	408		
	NE-175U1, NE-170U1	F	72	106	144	180	204	240	276	312	348	372	408
	ND-200U1, ND-208U1, ND208U1F	F	84	132	168	216	252	288	336	372	408		
SolarWorld	SQ80, SQ85	C	48	72	96	120	144	156	180	204	226	252	264
	SW165/175 mono	C	72	106	144	168	204	240	276	300	336	372	408
SunPower	SPR90, 95	F	48	72	96	120	144	156	180	204	226	252	264
	SPR200, 210, 215, 220	F	72	106	132	168	204	240	264	300	336	360	396
Suntech	STP110-24Ab, STP175-24Ab1	E	72	106	144	168	204	240	276	300	336	372	396

SolarMount Standard Rail and Light Rail Kits

(tables on next page)

Each kit mounts a single row of modules and consists of rails plus L-feet and hardware to attach feet to rails. Splice bars are also included in four-rail kits. To determine row lengths required for your installation, see the sizing table on this page for arrays with top mounting clamps, or the table on page 37 for arrays with bottom mounting clips. Rails, L-feet, and splices are clear-anodized.

Easy handling Light Rail saves aluminum and expense without compromising structural integrity. Install an array flush to a roof or other mounting surface with footings up to 48 inches apart.

Mount rails parallel or perpendicular to rafters.

Where foot spacing must exceed 48 inches, Standard Rail provides the extra strength needed. Install an array flush to a roof or other mounting surface in high profile (rails parallel to rafters) or low profile.

With both Light and Standard Rail, there are accessories to handle special circumstances, such as Spanish tile or an uneven roof.

Two-Rail Unirac SolarMount Kits – L-feet Included

Rail length	Standard rail					Light rail				
	Unirac part #	# of L-ft	Ship wt. (lbs)	Item code	Price	Unirac part #	# of L-ft	Ship wt. (lbs)	Item code	Price
48	300201	4	13	014-01020	\$112	303201	4	9	014-03101	\$93
60	300202	4	14	014-01024	\$129	303202	4	10	014-03103	\$105.50
72	300203	4	16	014-01028	\$147	303203	4	11	014-03105	\$118
84	300204	4	17	014-01032	\$164.50	303204	4	12	014-03107	\$130
96	300205	4	19	014-01036	\$181.50	303205	6	13	014-03109	\$142.50
106	300206	4	20	014-01040	\$198.50	303206	6	14	014-03111	\$155
120	300207	6	22	014-01044	\$221.00	303207	6	15	014-03113	\$167.50
132	300208	6	24	014-01048	\$238	303208	8	16	014-03115	\$179.50
144	300209	6	25	014-01052	\$255	303209	8	17	014-03117	\$192
156	300210	6	27	014-01056	\$272	303210	8	18	014-03119	\$204.50
168	300211	6	28	014-01060	\$289	303211	8	19	014-03121	\$216.50
180	300212	6	30	014-01064	\$312.50	303212	10	20	014-03123	\$229
192	300213	8	31	014-01068	\$329.50	303213	10	21	014-03225	\$241.50
204	300214	8	33	014-01072	\$346.50	303214	10	22	014-03127	\$254
216	300215	8	34	014-01076	\$363.50	303215	10	23	014-03129	\$266

2-rail kits in lengths up to 216 inches

Each kit contains two rail segments equal to the row length, L-feet, and hardware to join L-feet to rails.

Rail kits 106 inches and shorter ship by UPS. Longer rail sets ship by truck freight. To make up long rail kits that are UPS shippable, use two rail kits of 106 inches or less plus two splices on page 42.

See tables on pages 37 and 38 to determine the rail length required for modules being mounted.

Four-Rail Unirac SolarMount Kits – L-feet Included

Rail length	Segment length	Standard rail					Light rail				
		Unirac part #	# of L-ft	Ship wt (lbs)	Item code	Price	Unirac part #	# of L-ft	Ship wt (lbs)	Item code	Price
226	106/120	300224	10	40	014-01000	\$398	303216	12	28	014-03131	\$306.50
240	120/120	300225	10	42	014-01001	\$415	303217	12	29	014-03133	\$319
252	132/120	300226	10	44	014-01002	\$432	303218	12	31	014-03135	\$331
264	132/132	300227	10	46	014-01003	\$443.50	303219	14	32	014-03137	\$343.50
276	144/132	300228	10	47	014-01004	\$461	303220	14	33	014-03139	\$356
288	144/144	300229	10	48	014-01005	\$478	303221	14	34	014-03141	\$368.50
300	156/144	300230	12	50	014-01006	\$500.50	303222	16	35	014-03143	\$380.50
312	156/156	300231	12	52	014-01007	\$517.50	303223	16	36	014-03145	\$393
324	168/156	300232	12	53	014-01008	\$534.80	303224	16	37	014-03147	\$405.50
336	168/168	300233	12	54	014-01009	\$551.50	303225	16	38	014-03149	\$417.50
348	180/168	300234	14	56	014-01010	\$568.50	303226	18	39	014-03151	\$430
360	180/180	300235	14	58	014-01011	\$580.50	303227	18	41	014-03153	\$442.50
372	192/180	300236	14	59	014-01012	\$597.50	303228	18	41	014-03155	\$454.50
384	192/192	300237	14	60	014-01013	\$614.50	303229	20	42	014-03157	\$467
396	204/192	300238	14	62	014-01014	\$631.50	303230	20	43	014-03159	\$479.50
408	204/ 204	300239	14	64	014-01015	\$648.50	303231	20	45	014-03161	\$492
420	216/ 204	300240	16	65	014-01016	\$672	303232	20	46	014-03163	\$504
432	216/ 216	300241	16	66	014-01017	\$682.50	303233	20	46	014-03165	\$516.50

4-rail kits for long rows

Each kit contains four rail segments, two splices, L-feet, and hardware to join L-feet to rails. Rail segments and splices assemble into two spliced rails equal to the row length. These kits ship via truck freight only.

Unirac

Bulk Rail Bundles

Use Unirac Pro-Pak components for large installations or when regularly using SolarMount Standard Rail or SolarMount Light Rail on multiple installations.

Bulk bundles of Standard Rail consist of 8 rails and do not include L-feet or hardware. Bulk bundles of Light Rail consist of 10 rails. They do not include L-feet or hardware. See the sizing tables (pages 37-38) to determine rail length appropriate for your installation. If desired rail length exceeds 240 inches (216 inches for Light Rail), order a splice (page 42) and two segments. Spliced segments should be equal or as close to equal as possible.



L-Feet

Pro-Pak: Each L-foot includes a stainless steel bolt and flange nut to attach the foot to a SolarMount rail. Lag bolts are not included. The rail set pricing table (page 39) shows the appropriate number of L-feet needed per pair of rails.

Unirac part #	Description	Weight (lbs)	Item code	Price
310067	20 ea. L-foot	5	014-00891	\$86.50
310068	1 ea. L-foot	0.5	014-00884	\$5.63

Splice Bars and Plates

Splice bars are used to join together lengths of SolarMount Standard Rail, SolarMount Light Rail, or SunFrame. Splice plates are also structural and may be used only with SolarMount Standard Rail.

Neither type creates a joint that is as strong as the rail itself. A rail should always be supported by more than one footing on both sides of the splice.

Expansion joints allow for thermal expansion and may be necessary when rails exceed 30 feet. Only splice bars may be used for thermal expansion joint. To create an expansion joint, slide the splice bar into the footing slots of both rail lengths. Leave a half inch between the segments. Secure the splice bar with two screws on one side only. Footings (such as L-feet or standoffs) should be secured normally on both sides of the splice. No PV module should straddle the expansion joint.

Pro-Pak Rail Bundles								
Rail Length	Standard rail – 8 rails				Light rail – 10 rails			
	Unirac part #	Ship wt lbs	Item code	Price	Unirac part #	Ship wt lbs	Item code	Price
48	300101	32	014-00810	\$262.50	303101	25	014-03167	\$223.50
60	300102	40	014-00811	\$307	303102	30	014-03169	\$268.50
72	300103	48	014-00812	\$353	303103	36	014-03171	\$313.50
84	300104	54	014-00813	\$399	303104	41	014-03173	\$358
96	300105	62	014-00814	\$445	303105	45	014-03175	\$403
106	300106	68	014-00815	\$490.50	303106	50	014-03177	\$448
120	300107	80	014-00820	\$542.00	303107	55	014-03179	\$493
132	300108	88	014-00821	\$593	303108	59	014-03181	\$538
144	300109	95	014-00822	\$644.50	303109	64	014-03183	\$582.50
156	300110	102	014-00823	\$695.50	303110	75	014-03185	\$627.50
168	300111	109	014-00824	\$746.50	303111	82	014-03187	\$672.50
180	300112	116	014-00825	\$799	303112	88	014-03189	\$717.50
192	300113	123	014-00826	\$850	303113	93	014-03191	\$762.50
204	300114	130	014-00827	\$901.50	303114	98	014-03193	\$807.50
216	300115	137	014-00828	\$952.50	303115	104	014-03195	\$852
228	300116	144	014-00831	\$1044.50				
240	300117	152	014-00829	\$992				

Splices for Standard Rail with Hardware					Splices for Light Rail with Hardware				
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Unirac part #	Description	Wt. (lbs)	Item code	Price	Unirac part #	Description	Wt. (lbs)	Item code	Price	Unirac part #	Description	Wt. (lbs)	Item code	Price
310216	20 ea splice plates	14	014-00888	\$276	310229	20 ea splice bars	10	014-01267	\$114	310232	20 ea splice bars	1	014-03203	\$82
310214	1 ea splice plates	1	014-01261	\$16	310230	1 ea splice bars	1	014-01266	\$13	310231	1 ea splice bars	5	014-03201	\$7

Top-Mounting Clamp Sets

See sizing table on page 38 to determine clamp size letter. Call for modules not found on table. Includes all clamps and hardware to attach the indicated number of PV modules to one pair of rails. Replace the “x” in the item code with a letter (A-K) to order the correct clamp set.

Top-Mounting Clamp Sets, sizes A - F, J & K					
# of modules	ship wt. (lbs)	Clear anodized		Dark bronze	
		Item code	Price	Item code	Price
2	1	014-01080-x	\$27	014-01081-x	\$36.50
3	2	014-01084-x	\$32.50	014-01082-x	\$43.50
4	2	014-01088-x	\$38.50	014-01083-x	\$50.50
5	2	014-01092-x	\$43	014-01085-x	\$57.50
6	2	014-01096-x	\$47	014-01086-x	\$64.50
7	2	014-01100-x	\$53.50	014-01087-x	\$71
8	3	014-01104-x	\$58.50	014-01089-x	\$78.50
9	3	014-01105-x	\$63.50	014-01090-x	\$85
10	3	014-01106-x	\$68.50	014-01091-x	\$92
11	3	014-01101-x	\$74	014-01093-x	\$99
12	3	014-01102-x	\$78	014-01094-x	\$106

Top-Mounting Clamp Sets for Lipped Frame Modules					
# of modules	Ship wt. (lbs)	Dark bronze - G (Sharp)		Dark bronze - H (Sanyo)	
		Item code	Price	Item code	Price
2	1	014-01135	\$36.75	014-01146	\$27
3	2	014-01136	\$42.50	014-01147	\$30.50
4	2	014-01137	\$48	014-01148	\$34
5	2	014-01138	\$54	014-01149	\$38
6	2	014-01139	\$60	014-01150	\$41.50
7	2	014-01140	\$65.60	014-01151	\$45
8	3	014-01141	\$71.50	014-01152	\$49
9	3	014-01142	\$77.50	014-01153	\$52.50
10	3	014-01143	\$83.50	014-01154	\$56
11	3	014-01144	\$89.50	014-01155	\$60
12	3	014-01145	\$95	014-01156	\$63.50

Bottom-Mount Clips

Order 4 clips for each module in your array. Clips are packed with stainless steel bolts and flange nuts. For use with all modules with mounting holes on the backs of their frames.

Bottom-Mount Clips with Stainless Steel T-Bolts & Flange Nuts				
Unirac part #	Description	Wt. (lbs)	Item code	Price
321002	20 ea. clips	5	014-00875	\$25.50
321218	4 ea. clips	1	014-00879	\$7.00
321001	1 ea. clip	1	014-00877	\$1.50

Pro-Pak Top Clamps

See sizing table page 38 to determine clamp size letter. End clamps: Order 4 for each row of modules you plan to mount. Mid clamps: For each row, take one less than the number of modules in the row and multiply that figure by 2 to determine the number of clamps needed.

Unirac part #	Description	Wt. (lbs)	Item code	Price
End Clamps with Stainless Steel T-Bolts and Flange Nuts				
320012	20 ea. A clamps	6	014-00840	\$44.50
320001	1 ea. A clamp	1	014-00850	\$5.33
320013	20 ea. B clamps	6	014-00841	\$44.50
320002	1 ea. B clamp	1	014-00851	\$5.33
320014	20 ea. C clamps	6	014-00842	\$44.50
320003	1 ea. C clamp	1	014-00852	\$5.33
320081	20 ea. C clamps; dark bronze	6	014-00861	\$63.50
320117	1 ea. C clamp, dark bronze	1	014-00862	\$3.77
320015	20 ea. D clamps	6	014-00843	\$44.50
320004	1 ea. D clamp	1	014-00853	\$5.33
320185	20 ea. D clamps dark bronze	6	014-00863	\$63.50
320173	1 ea. D clamp dark bronze	1	014-00864	\$3.77
320016	20 ea. E clamps	6	014-00844	\$44.50
320005	1 ea. E clamp	1	014-00854	\$5.33
320082	20 ea. E clamps; dark bronze	6	014-00848	\$63.50
320118	1 ea. E clamp, dark bronze	1	014-00858	\$3.77
320017	20 ea. F clamps	6	014-00845	\$44.50
320006	1 ea. F clamp	1	014-00855	\$5.33
320123	20 ea. F clamps dark bronze	6	014-00846	\$63.50
320124	1 ea. F clamp dark bronze	1	014-00856	\$3.77
320083	20 ea. G clamps dark bronze	6	014-00847	\$63.50
320007	1 ea. G clamps dark bronze	1	014-00857	\$3.77
320079	20 ea. J clamps	6	014-00849	\$44.50
320080	1 ea. J clamp	1	014-00859	\$5.33
320221	20 ea. K clamps	3	014-00860	\$44.50
320220	1 ea. K clamp	1	014-00839	\$5.33
Mid Clamps with Stainless Steel T-Bolts and Flange Nuts				
320020	20 ea. A-B-C mid clamps	6	014-00867	\$49.50
320008	1 ea. A-B-C mid clamp	1	014-00866	\$4.44
320084	20 ea. A-B-C mid clamps, bronze	6	014-00865	\$102.50
320119	1 ea. A-B-C mid clamp, dk bronze	1	014-00876	\$6.93
320021	20 ea. D-E-F-J-K mid clamps	6	014-00869	\$49.50
320009	1 ea. D-E-F-J-K mid clamp	1	014-00868	\$5.33
320085	20 ea. D-E-F-J-K mid clamps brnz	6	014-00878	\$102.50
320120	1 ea. D-E-F-J-K mid clamp dk brnz	1	014-00870	\$6.93
320087	20 ea. G mid clamps, dark bronze	6	014-00871	\$86.60
320122	1 ea. G clamp, dark bronze	1	014-00872	\$5.83
H Clamps Used as Mid & End Clamps – Includes Hex Bolts				
320086	20 ea. H clamps, dark bronze	6	014-00873	\$68.50
320121	1 ea. H clamp, dark bronze	1	014-00874	\$4.80

Unirac

Splices, Standoffs, L-feet, Flashings and Accessories

Bulk components are ideal for large installations and for contractors installing many roof mount systems. Standoffs, L-feet and splices in bulk save money. Flashings, shims, hanger bolts and

cable ties help create a clean, professional-looking installation. Bulk packs will be drop-shipped from the manufacturer. Please allow 3 to 4 weeks for delivery.

Description	Single piece				Bulk pack			
	Wt. lbs	Unirac part #	Item code	Price	Wt. lbs	Unirac part #	Item code	Price
Flat-top 2-piece, Clear-anodized, Aluminum Standoffs (1-1/8" OD shaft, s/s hardware, 2 lag bolts)					Bulk 12-piece pack			
1 ea. 3 in. aluminum 2-piece standoffs, clear-anodized	1	310503	014-00788	\$14.90	9	310553	014-00789	\$155.50
1 ea. 4 in. aluminum 2-piece standoffs, clear-anodized	1	310504	014-00790	\$16.00	10	310554	014-00791	\$230.40
1 ea. 6 in. aluminum 2-piece standoffs, clear-anodized	1	310506	014-00792	\$18.10	12	310556	014-00793	\$192
1 ea. 7 in. aluminum 2-piece standoffs, clear-anodized	1	310507	014-00794	\$19.20	13	310557	014-00795	\$205.00
Flat-top 2-piece, Bronze-anodized, Aluminum Standoffs (1-1/8" OD shaft, s/s hardware, 2 lag bolts)					Bulk 12-piece pack			
1 ea. 3 in. aluminum 2-piece standoffs, bronze-anodized	1	310603	014-00796	\$16	9	310653	014-00797	\$163.00
1 ea. 4 in. aluminum 2-piece standoffs, bronze-anodized	1	310604	014-00798	\$17.10	10	310654	014-00799	\$176.00
1 ea. 6 in. aluminum 2-piece standoffs, bronze-anodized	1	310606	014-00800	\$19.20	12	310656	014-00801	\$200.50
1 ea. 7 in. aluminum 2-piece standoffs, bronze-anodized	1	310607	014-00802	\$20.50	13	310657	014-00803	\$212.50
Flat-top One Piece Steel Standoffs (1-5/8" O.D. shaft, zinc plated, with s/s hardware, 2 lag bolts)					Bulk 12-piece pack			
1 ea. 3 in. flat-top steel standoffs	1.5	310009	014-01220	\$20	16	310051	014-00661	\$209
1 ea. 4 in. flat-top steel standoffs	1.5	310010	014-01224	\$21	18	310052	014-00662	\$216.50
1 ea. 6 in. flat-top steel standoffs	2	310011	014-01228	\$21.50	22	310053	014-00664	\$223
1 ea. 7 in. flat-top steel standoffs	2	310012	014-01232	\$22	24	310054	014-01233	\$229.50
Raised-Flange Steel Standoffs (1-5/8" O.D. shaft, zinc plated, with 2 lag bolts)					Bulk 12-piece pack			
1 ea. 3 in. raised-flange steel standoffs	1.5	310017	014-01236	\$24	16	310047	014-01237	\$221
1 ea. 4 in. raised-flange steel standoffs	1.5	310018	014-01240	\$25	18	310048	014-01241	\$227.50
1 ea. 6 in. raised-flange steel standoffs	2	310019	014-01244	\$21	22	310049	014-01245	\$235
1 ea. 7 in. raised-flange steel standoffs	2	310020	014-01248	\$26	25	310050	014-01249	\$241.50
Hanger Bolts – use w/L-feet to support rails on tile or metal roofing					Bulk 20-piece pack			
1 ea. 8" long x 3/8" diameter hanger bolt w. s/s nut and washers	0.5	310025	014-01256	\$12.80	5	310046	014-01257	\$205.00
1 ea. 3/8" hanger bolt driver – for easy installation of hanger bolts	0.5	310026	014-01258	\$22.50				
No-Calk Collar Flashings for Steel Standoff					Bulk 12-piece pack			
12 ea. galvanized, 12 1/2" x 8 3/4" base (Oatey # O-11840)					11	990101	014-00621	\$92.50
12 ea. aluminum, 12 1/2" x 8 3/4" base (Oatey # O-12920)					11	990102	014-00623	\$134.50
12 ea. soft aluminum, 18" x 18" base (Oatey # O-12836)					14	990103	014-00625	\$192.00
Flashings for Aluminum Standoffs					Bulk 12-piece pack			
12 ea. galv., 12 1/2" x 8 3/4" base, no-calk (Oatey # O-11830)	11					990109	014-00629	\$105.50
12 ea. aluminum, 12" x 9" base – all metal	12					310044	014-00633	\$187.50
12 ea. soft aluminum, 18" x 18" base – 12" x 9" all metal	14					310045	014-00635	\$296.00



SolarMount S-5!

PV Clamp Sets for Standing Seam Roofing

The Unirac SolarMount S-5! PV clamps provide non-penetrating attachment points to standing seam metal roofs. Select SolarMount end clamps and mid clamps and attach modules directly to the S-5! clamp without mounting rails. Use end clamps on the edge of the array and mid clamps between rows within the array. End clamps and mid clamps are anodized. S-5! clamps are mill finish.



Use the application table below to find the size – C, D, E or F – that fits the modules being used. Order end clamps for outside rows of modules and mid clamp for internal rows.

Roof design, tilt angle, snow loading, seam spacing, building dimension and wind loading all affect S-5! system design. Please fill out the Unirac questionnaire at: <http://www.unirac.com/questionnaire.php> and you will receive a complete bill of materials with price and lead time.

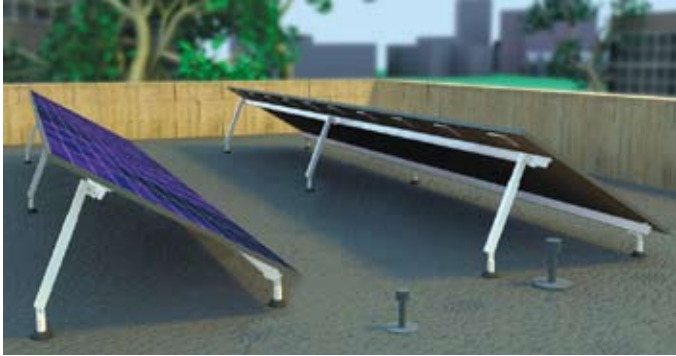
S-5! Application Chart		
Size	Frame thickness	Fits these modules
C	34 - 36 mm	GE Energy, Kyocera, Sharp NE-80U1, SolarWorld SW80/SW85, SolarWorld SW165/175 mono
D	38 - 40 mm	Isofoton, Kaneka, Photowatt PW1250, PW1650
E	50 - 52 mm	BP Solar, Schott ASE300. Suntech STP175-24, SunPower 175
F	45 - 47 mm	Evergreen ES-A, Mitsubishi, Schott SAPC165, Sharp ND-L3EJE, ND-167U3, NE-165U1, NT-185U1, SunPower
G		Sharp lipped modules ND-N2ECU (140W)
H		Sanyo lipped modules
J	41 - 43 mm	REC Solar SCM-210
K	39 - 41 mm	Evergreen ES-Series, SunWize SW165

Description	Quantity per pack	Ship wt. (lbs)	Clear anodized			Dark bronze anodized					
			Unirac part #	Item code	Price	Unirac part #	Item code	Price			
S-5! + Mid clamp set C, D & K	1	0.5	321224	014-01281	\$29.00	321226	014-01301	\$30.00			
	20	10	321236	014-01282	\$527.00	321238	014-01302	\$527.00			
S-5! + End clamp set C	1	0.5	321228	014-01283	\$29.00	321232	014-01303	\$30.00			
	20	10	321240	014-01284	\$513.00	321244	014-01304	\$527.00			
S-5! + End clamp set D	1	0.5	321229	014-01285	\$29.00	321233	014-01305	\$30.00			
	20	10	321241	014-01286	\$513.00	321245	014-01306	\$527.00			
S-5! + Mid clamp set E & F	1	0.5	321225	014-01287	\$29.00	321227	014-01307	\$30.00			
	20	10	321237	014-01288	\$527.00	321239	014-01308	\$527.00			
S-5! + End clamp set E	1	0.5	321230	014-01289	\$29.00	321234	014-01309	\$30.00			
	20	10	321242	014-01290	\$513.00	321246	014-01310	\$527.00			
S-5! + End clamp set F	1	0.5	321231	014-01291	\$29.00	321235	014-01311	\$30.00			
	20	10	321243	014-01292	\$513.00	321247	014-01312	\$527.00			
S-5! + End clamp set K	1	0.5	321268	014-01293	\$29.00	321270	014-01295	\$30.00			
	20	10	321269	014-01294	\$513.00	321271	014-01296	\$527.00			
S-5! + Mid clamp set G	1	1	Available in dark bronze only			321251	014-01297	\$30.00			
	20	10				321250	014-01298	\$527.00			
S-5! + End clamp set G	1	1				321253	014-01299	\$30.00			
	20	10				321252	014-01300	\$527.00			
S-5! + Mid & end clamp set H (mid and end are identical for H)	1	1				321248	014-01313	\$30.00			
	20	10				321249	014-01314	\$527.00			
S-5! + L- foot & 3/8" hardware (For mounting modules with rails)	1	1				321255	014-01315	\$35.00	321257	014-01279	\$36.50
	20	10				321256	014-01278	\$646.00	321258	014-01280	\$654.00

Unirac

Low-Profile Tilt Legs

Low-profile orientation minimizes the vertical height of your array to hide an array behind a parapet or minimize wind loading. You can also optimize tilt angle on a pitched roof to maximize system performance. In low profile arrays, tilt angle depends on leg length and the location of the module mounting holes. Each low-profile tilt leg kit contains one square tube and one strut.



Tilt angles for low-profile legs

Choose (a) the correct maximum leg extension for your tilt angle and (b) the number of kits required from the table on the next page.

Then choose the correct kit model from the Sizing table for low-profile tilt legs to the right.

Quantity of tilt legs required

The number of tilt legs in a low-profile array depends on the length of the mounting rails.

Quantity of Legs Required	
Rail length (inches)	No. of legs required
48 to 106	2
120 to 180	3
192 to 216	4
226 to 288	5
300 to 336	6
348 to 408	7
420 to 432	8

Sizing Table for Unirac Low-Profile Tilt Legs

(Tilt angle range given in degrees from horizontal.)

Low profile leg length:		12-inch	30-inch	44-inch
Unirac part #		310121	310122	310123
Item code		014-01185	014-01189	014-01193
Price		\$32	\$40	\$46
Module make and model		Tilt angle range (degrees)		
AEE Solar	AE80HE, AE90HE	17-21	35-55	50-60
BP Solar	BP 365	16-20	34-53	49-60
	BP380, 485	15-20	32-51	47-60
	BP3125	11-14	24-37	34-56
	BP3150, 3160, 4175	11-14	22-35	32-53
Evergreen	BPSX160B, 170B	11-13	22-35	32-53
	ES 180/190, ES-A-200	16-20	34-53	48-60
Kyocera	KC65, 85, KD135	11-15	24-38	35-57
	KD180	16-21	35-55	50-60
Sanyo	KD200	14-18	30-47	43-60
	HIP190, 200, 220	14-18	30-47	42-60
Sharp	80	14-18	31-48	44-60
	123	13-17	28-44	40-60
	165, 175, 185	15-19	31-50	45-60
	ND200, 208	13-16	27-42	39-60
SolarWorld	Ultra 80, 85	9-20	21-54	31-60
	SW165 mono, 175mono	7-15	16-39	23-60
SunPower	SPR200, 210, 215, 220	17-22	37-58	53-60
SunTech	STP110-24b, STP175	9-12	19-30	28-45
Mitsubishi	MF170EB3	12-15	26-40	37-60
	UD180/185	12-15	25-39	36-60
REC Solar	SCM-210	14-18	30-47	43-60

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High-Profile Adjustable Tilt Legs

In high-profile arrays, tilt angle depends on the length of the legs and the rails. To determine the length of your rails, consult the sizing tables on page 38 (for top mounting arrays) or page 37 (for bottom mounting arrays). Quantity of tilt legs required: Order one high profile tilt leg kit for each rail kit.

Rails 120 inches and longer require leg kits with 4 legs per kit – one long leg and one short leg per rail.

If ordering bulk rail packs, order one high-profile tilt leg kit for each pair of rails required in your installation. Do not use high-profile legs with rails longer than 180 inches. Never use spliced rails with this configuration.



Sizing Table for High-Profile Tilt Legs

(Tilt angle range is in degrees from horizontal.)

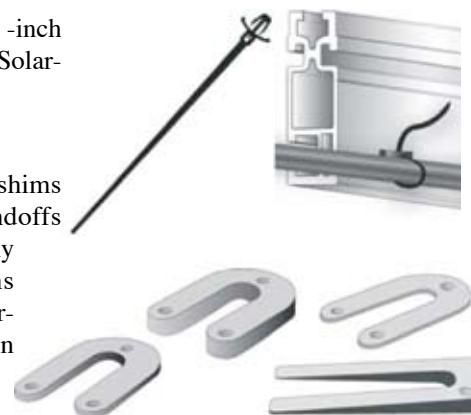
One Leg Per Rail (2 legs per kit) – for Rails 48" to 106"			
Maximum leg length	12 "	44 "	72 "
Unirac part #	310107	310108	310109
Item code	014-01160	014-01164	014-01168
Price	\$46	\$70	\$92
Rail Length	Tilt angle range (degrees)		
48	10 - 23	33 - 60	N/A
60	8 - 18	26 - 60	48 - 60
72	7 - 16	22 - 60	36 - 60
84	5 - 12	17 - 47	28 - 60
96	5 - 11	16 - 43	26 - 60
106	4 - 10	15 - 39	24 - 60
Two Legs per Rail (4 legs per kit) – for Rails 120" to 180"			
Maximum leg length	18 inch	64 inch	104 inch
Unirac part #	310111	310112	310110
Item code	014-01172	014-01176	014-01180
Price	\$84	\$141	\$188
Rail length	Tilt angle range (degrees)		
120	5 - 10	17 - 38	27 - 60
132	6 - 10	17 - 37	26 - 60
144	6 - 9	16 - 33	19 - 43
156	5 - 10	14 - 30	22 - 49
168	5 - 7	13 - 28	20 - 46
180	3 - 7	12 - 26	19 - 43

Cable Ties

Cable ties fit into ¼ -inch holes drilled along SolarMount rails.

Shims

Horseshoe shaped shims level or raise standoffs and L-feet to precisely align rails. Shims come in three color-coded thicknesses in packs of 20.



Unirac part #	Description	Quantity	Item code	Price
990104	100 ea. push mount cable ties	1	014-00895	\$12.00
990105	20 ea. 1/16" shims (blue)	0.5	014-00649	\$1.50
990106	20 ea. 1/8" shims (red plastic)	0.5	014-00651	\$3.00
990107	20 ea. 1/4" shims (black)	1	014-00653	\$4.50
990108	20 ea. tapered shims (black)	1	014-00655	\$11.00

Security Hardware

Security hardware dramatically increases the difficulty and time required for a thief to dismantle a PV array and steal its components. Breakaway nuts work well in conjunction with top mounting clamps and footing bolts. Note that star head bolt heads do not fit into SolarMount rail slots (where standard bolt heads are inaccessible). Use them with bottom mounting module clips and other locations where heads are exposed.

Unirac part #	Description	Quantity	Item code	Price
321205	Star head bolt, s/s, 1/4" x 3/4"	1	014-02113	\$1.40
321220	Star head bolt, s/s, 1/4" x 3/4"	20	014-02114	\$23.50
321206	Star head bolt, s/s, 3/8" x 11/4"	1	014-02115	\$3.70
321221	Star head bolt, s/s, 3/8" x 11/4"	20	014-02116	\$64.00
321207	Breakaway nut, aluminum, 1/4"	1	014-02105	\$1.35
321222	Breakaway nut, aluminum, 1/4"	20	014-02106	\$22.50
321208	Breakaway nut, aluminum, 3/8"	1	014-02109	\$1.75
321223	Breakaway nut, aluminum, 3/8"	20	014-02110	\$29.75
321209	Star Key (Tool) 1/4"	1	014-02125	\$17.50
321210	Star Key (Tool) 3/8"	1	014-02126	\$21.25



Unirac

SunFrame

When an installation has to look great, SunFrame offers finish choices and low, clean lines that become as natural a part of a home as a skylight. The rails are available in clear and dark bronze finish to match the module frames. The SunFrame rails run horizontally across the roof between the modules making the array look like one large skylight. Installation is slightly more difficult than using SolarMount with top clamps because rail alignment must be perfect. Since the modules will sit closer to the roof, the array may operate at a higher temperature and there may be a small loss of performance.

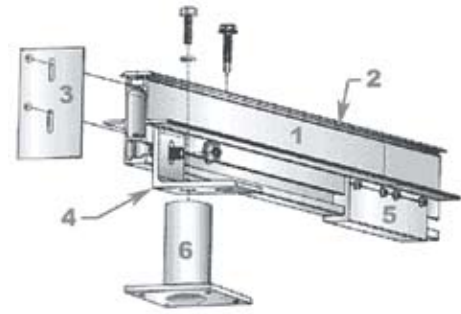
Contact us with your module type, quantity, number of rows and foot spacing for design help, or use the online SunFrame estimator at <http://www.unirac.com/estimator/part/estimator/detail/solar> to get a list of components needed. With this list, we can give you price and delivery time.

Components

1. Inter-module rails provide support shelves for the modules. Depending on module thickness, its upper surface can be as little as 2.125 inches above the roof. Rails come in bulk packs of eight 192" pieces in clear-anodized or dark-bronze finish.
2. 192" module-specific cap strips secure modules and finish the array topside, forming a gap-free frame. Self-drilling screws at 16" intervals provide holding power. Order cap strips for the module brand and model to be installed. Cap strips are available in clear or dark bronze anodized finishes.
3. End caps finish rail ends to complete the frame.
4. L-feet attach directly through asphalt shingle roofs and support the rails one-half to three-quarters of an inch above the roof surface to provide convective air flow for ventilation.



5. Splices safely extend rails.
6. Standoffs (optional), designed for standard flashing, support L-feet above tile or shake roofs. See page 42.



U-LA

U-LA is a mounting system using for large arrays of PV modules designed to generate 3 kilowatts or more. The size of the system is limited only by the available space for the array. Place U-LAs on the ground or on commercial flat roofs.

All U-LAs are custom systems designed by Unirac to accommodate site conditions and applicable codes. To specify a system, please use the on-line questionnaire at ...

<http://www.unirac.com/equestionnaire.php>

... to generate a bill of materials.

With all required U-LA components and specifications for installer-supplied materials such as pipe and concrete provided by Unirac's online questionnaire, we can give you a price quote and delivery lead time.



Unirac

NEW! RapidRac G10

Unirac’s new universal ballasted flat roof solution accommodates a wide range of modules and requires very few or no penetrations, depending on location and building codes. Minimal parts, faster installation, reduced labor expenses and versatility; all customer-driven demands that helped engineer this unique flat roof solution.

The RapidRac G10 was developed through significant computational fluid dynamics and wind tunnel engineering. The efficient design, built at a fixed 10 degree tilt angle, optimizes natural convective cooling of the modules and was designed to meet the requirements of current applicable building codes. Installations consist of 2-bay frames and 1-bay frames. Each frame holds one module. The bays needed will depend on the array layout designed for the roof installation.

Select a module from the sizing table to the right to determine which bays are applicable to your installation. Any module that is the north-most module in a column must be racked on a two-bay frame. All modules south of a two-bay frame may be mounted on one-bay frames. Keep in mind that since the two-bay frames are more expensive, you can minimize your system costs by making your columns as long as possible. Each roof is unique and the array layout will have to be designed for the particulars of each roof. The table demonstrates a 25-module layout and indicates where two-bay frames and one-bay frames are used.

Unirac offers an attachment option for the RapidRac G10, the RapidFoot, which can be used for seismic restraint and for ballast trade off, allowing for a reduction in roof dead load.

An on-line estimator and rail-spacing makes system design and pricing simple. Go to <http://www.unirac.com/estimator-rr/index.php> on the web and design your system.

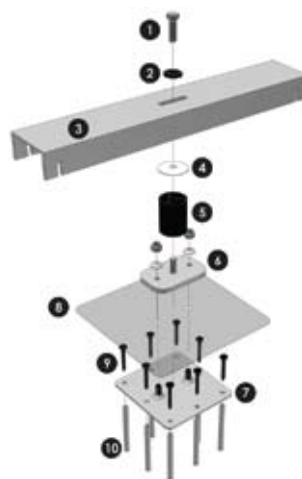
10-year limited product warranty, 5-year limited finish warranty

Price table below can help with price quoting. Please call for exact part numbers when ordering. Other hardware may be required depending on roof type and penetrations required.



ARRAY NORTH

2-B	2-B	2-B	2-B	2-B
1-B	1-B	1-B	1-B	1-B
1-B	1-B	1-B	1-B	1-B
1-B	1-B	1-B	1-B	1-B
1-B	1-B	1-B	1-B	1-B



RapidFoot:

1. 3/8" x 1-1/4" bolt
2. 3/8" x 1/8" x 1-1/2" washer
3. Clamp bar
4. EPDM washer
5. Standoff
6. Rapid top plate
7. Rapid base plate

Accessories:

8. Flashing
9. Concealor screw
10. Ferrules

(Note: For concrete roofs, Scru-lead anchors must be used.)

Description	Unirac part #	Item code	Price
RapidRac assembly, 2 bay	310350-xxxx	Call	\$317.00
RapidRac assembly, 1 bay	310360-xxxx	Call	\$212.50
RapidFoot assembly	310370	015-02261	\$68.50
Galvalume flashing #1	990120	015-02265	\$6.68
Patch for flashing	990160	015-02268	\$319.00
Patch for flashing, peel and stick	990161	015-02269	\$668.00

Module	Suffix
Evergreen ES -A-200	0504
Evergreen ES-180/190	0503
Kyocera KD180	0908
Kyocera KD205	0909
Mitsubishi UD-185MF	1111
REC Solar SCM-210	1296
Sanyo HIP-210NHES	1402
Sharp NT-175U1	1709
SolarWorld SW165/175 mono	2008
SunPower SPR-210	2103

Unirac

PV PoleTops

Unirac PV PoleTops pole mounts use SolarMount Light Rails and clips (page 39). The lightweight rails are hollow aluminum extrusions that provide great strength over long spans and help keep shipping costs low. The back-mount clips slip into rail slots and quickly align with module mounting holes for fast and easy assembly.

Unirac mounts use a 6-digit part number. The first 4 digits are determined by the series. See descriptions on this page for each series. See the next page for mounts for specific modules.

Series 5000



- Mounts to 2½-inch schedule 40 or 80 steel mounting pole
- Accommodates arrays up to 16 square feet
- Adjusts from 15 to 60 degrees from horizontal

Series 5001



- Mounts to 3-inch schedule 40 or 80 steel mounting pole
- Accommodates arrays up to 33 square feet
- Adjusts from 0 to 90 degrees from the horizontal

Series 5002



- Mounts to 4-inch schedule 40 or 80 steel mounting pole
- Accommodates array size up to 45 square feet
- Adjusts from 0 to 90 degrees from horizontal

Series 5003



- Mounts to 4-inch schedule 40 or 80 steel mounting pole
- Accommodates array size up to 65 square feet
- Adjusts from 0 to 90 degrees from horizontal

Series 5004



- Mounts to 6-inch schedule 40 or 80 steel mounting pole
- Accommodates array size up to 140 square feet
- Adjusts from 15 to 60 degrees from the horizontal

Module	Unirac part #	No. of modules	Pole size (schd 40)	Item code	Price
AE-80J AE-80HE AE90HE	500024	1	2.5	014-02405	\$137
	500016	2	2.5	014-02417	\$160
	500117	3	3	014-02533	\$291
	500123	4	3	014-02545	\$322
	500350	6	4	014-02681	\$551
Evergreen ES-180-190	500039	1	2.5	014-02431	\$159
	500120	2	3	014-02539	\$311
	500230	3	4	014-02621	\$494
	500341	4	4	014-02671	\$626
Evergreen ES-A-200	500039	1	2.5	014-02431	\$159
	500131	2	3	014-02561	\$319
	500241	3	4	014-02	\$515
	500341	4	4	014-02671	\$626
Kyocera KC85T	500025	1	2.5	014-02405	\$141
	500031	2	2.5	014-02417	\$169
	500107	3	3	014-02513	\$303
	500113	4	3	014-02525	\$345
	500325	6	4	014-02639	\$558
	500330	8	4	014-02649	\$636
	Kyocera KD135GXLP	500044	1	2.5	014-02441
500129		2	3	014-02557	\$286
500132		3	3	014-02563	\$322
500229		4	4	014-02619	\$506
501457		6	6	014-026	\$972
Mitsubishi UD185MF5		500014	1	2.5	014-02389
	500131	2	3	014-02561	\$319
	500227	3	4	014-02615	\$496
Mitsubishi UE125MF5N	500044	1	2.5	014-02441	\$149
	500129	2	3	014-02557	\$286
	500132	3	3	014-02563	\$322
	500229	4	4	014-02619	\$506
	500349	6	4	014-02680	\$646
Mitsubishi MF120UEC4	500043	1	2.5	014-02439	\$146
	500128	2	3	014-02555	\$283
	500131	3	3	014-02561	\$319
	500228	4	4	014-02617	\$499
	500342	6	4	014-02673	\$633
REC Solar SCM-210	500014	1	2.5	014-02389	\$161
	500132	2	3	014-02563	\$322
	500243	3	4	014-02	\$522
	500349	4	4	014-02680	\$646

Module	Unirac part #	No. of modules	Pole size (schd 40)	Item code	Price	
Sanyo * HIP 180BA3,- 190BA3,- 95BA3,200BA3	500002	1	2.5	014-02384	\$154	
	500143	2	3	014-02577	\$307	
	500240	3	4	014-02685	\$485	
	501498	4	6	014-02821	\$928	
	501495	6	6	014-02820	\$1,055	
	501487	8	6	014-02818	\$1,190	
	SolarWorld SW165 mono SW175 mono	500027	1	2.5	014-02409	\$140
		500105	2	3	014-02509	\$263
500237		3	4	014-02628	\$439	
500348		4	4	014-02675	\$557	
501489		6	6	014-02833	\$974	
Sharp NE-80EJEA	500034	1	2.5	014-02421	\$140	
	500041	2	2.5	014-02435	\$163	
	500117	3	3	014-02533	\$291	
	500123	4	3	014-02545	\$322	
	500350	6	4	014-02681	\$551	
	500337	8	4	014-02663	\$621	
Sharp ND-L3EJEA- 123W- L5EIU-125	500044	1	2.5	014-02441	\$149	
	500129	2	3	014-02557	\$156	
	500132	3	3	014-02563	\$322	
	500229	4	4	014-02619	\$506	
	500315	6	6	014-02632	\$639	
Sharp NE170	501463	8	6	014-03248	\$1,077	
	500027	1	2.5	014-02409	\$140	
	500105	2	3	014-02509	\$263	
	500237	3	4	014-02628	\$439	
	500348	4	4	014-02675	\$557	
SolarWorld SW165 mono SW175 mono	501489	6	6	014-02833	\$974	
	Pole top mounts for Solarworld SW165/167 mono are not available from Unirac because of mounting hole spacing on the modules.					
SunPower SPR-200BLK 210, -215BLK,-220	500038	1	2.5	014-02429	\$150	
	500117	2	3	014-02533	\$291	
	500214	3	4	014-02	\$487	
	500340	4	4	014-02669	\$558	
Suntech STP175	501460	6	6	014-02	\$1,032	
	500038	1	2.5	014-02429	\$151	
	500118	2	3	014-02535	\$295	
	500237	3	4	014-02628	\$469	
	501453	4	6	014-02	\$912	
	501460	6	6	014-02	\$1032	

* Top mounting clamp sets are substituted to accommodate Sanyo modules, which have no mounting holes.

Unirac makes many more PoleTops models to fit the modules above, as well as for other module brands and sizes. Call for information.

PV PoleSides

Unirac PV PoleSides side mounts uses a 6-digit part number. The first 4 digits are determined by the series. See description below for each series. See the table to the right for applications. Mounts for other modules are available. Call for information.



Series 4000

For 2" schedule 40 or 80 steel pole, outside diameter 2.375" (60.3mm)



Series 4001

Includes SolarMount Standard Rails for 2.5" (63.5mm) schedule 40 or 80 steel pole, outside diameter 2.875" (73.0mm)



Series 4002

Includes SolarMount Standard Rails in three sizes of schedule 40 or 80 steel poles:
 2.5" – OD 2.875" (73.0mm)
 3" – OD 3.5" (88.9mm)
 4" – OD 4.5" (114.3mm)

Module	Unirac part #	Pole size	No. of modules	Item code	Price
AEE80/90HE	400204	2.5	1	014-02243	\$194
	400215	3	2	014-02277	\$335
	400244	3	3	014-02262	\$341
	400254	4	4	014-02293	\$410
Evergreen ES190	400209	2.5	1	014-02249	\$212
	400242	4	2	014-02263	\$338
Mitsubishi MF120UE3	400236	2.5	1	014-02257	\$207
	400214	3	2	014-02275	\$335
	400224	4	3	014-02305	\$410
Mitsubishi UE125MF5	400236	2.5	1	014-02257	\$207
	400233	3	2	014-02287	\$342
	400224	4	3	014-02305	\$410
Mitsubishi UD185MF5	400248	2.5	1	014-02269	\$233
	400245	4	2	014-02264	\$374
	400246	4	3	014-02305	\$448
REC SCM-210	400248	2.5	1	014-02269	\$233
	400224	4	2	014-02305	\$410

IronRidge (formerly Two Seas)

Small-Module Side-of-Pole Mount

These low-cost, universal side-of-pole mounts are available in two sizes to hold a single small module 10.75" to 21.5" in width. Their unique module clamp-and-slot combination eliminates the need for bolt holes in the module by clamping to the inside of the module frame. Mounts have a fully adjustable tilt angle mechanism which can be set for maximum solar panel efficiency depending on your location and the season. Two sizes fit most small modules.

Module Fit Chart

Model	Fit one of the following modules
UNI-SA/13.0	AE-5C, AE-10C, AE-20C, AE-10J
	AE20HE, AE-20J, GSE 6
UNI-SA/21.5	AE-30HE, AE-50HE, AE-60HE, AE-30ET

Model	Maximum module width	Inside frame dimension	Item code	Price
UNI-SA/13.0	14.0"	5.26" to 11.60"	014-06011	\$57
UNI-SA/21.5	21.5"	12.66" to 20.10"	014-06013	\$65

Unirac makes many more PoleSides models to fit other module brands and sizes. Call for information.



Direct Power & Water

PowerFab Side Pole Mounts (SPM)

Direct Power's PowerFab mounts are available in painted steel and mill-finish aluminum versions. Aluminum mounts are listed below; call for pricing on painted steel mounts. Stainless steel module mounting hardware is provided with all mounts. For harsh environments, anodized aluminum mounts are available. Add 30% to the price of the aluminum mounts in the chart below.

Stainless steel band clamps are provided with each mount for attachment to poles. Most models can be attached to flat vertical surfaces using installer-supplied lag bolts or through-bolts.

Most SPM mounts can be shipped by UPS.

Mounts for other modules are available. Call for information.



Module type	DP&W pole-side mount part number	# of modules	Item code	Price
AEE Solar AE-80HE	DP-SPM1-AE80HE-ALUM	1	013-09701	\$150
	DP-SPM2-AE80HE-ALUM	2	013-09702	\$300
	DP-SPM3-AE80HE-ALUM	3	013-09703	\$385
	DP-SPM4-AE80HE-ALUM	4	013-09704	\$445
Evergreen ES-180/190 ES180, ES190	DP-SPM1-ES190-ALUM	1	013-03692	\$300
	DP-SPM2-ES190-ALUM	2	013-03693	\$495
	DP-SPM3-ES190-ALUM	3	013-03694	\$640
Evergreen ES-A-200	DP-SPM1-ESA200-ALUM	1	013-09708	\$330
	DP-SPM2-ESA200-ALUM	2	013-09709	\$545
	DP-SPM3-ESA200-ALUM	3	013-09710	\$705
Kyocera KC65	DP-SPM1-KC65-ALUM	1	013-03740	\$195
	DP-SPM2-KC65-ALUM	2	013-09712	\$265
	DP-SPM3-KC65-ALUM	3	013-09713	\$325
	DP-SPM4-KC65-ALUM	4	013-09714	\$390
Kyocera KC85	DP-SPM1-KC85-ALUM	1	013-03746	\$165
	DP-SPM2-KC85-ALUM	2	013-03748	\$325
	DP-SPM3-KC85-ALUM	3	013-03750	\$395
	DP-SPM4-KC85-ALUM	4	013-03751	\$440
Kyocera KD135	DP-SPM1-KD135-ALUM	1	013-09719	\$240
	DP-SPM2-KD135-ALUM	2	013-09720	\$370
	DP-SPM3-KD135-ALUM	3	013-09721	\$500
	DP-SPM4-KD135-ALUM	4	013-09722	\$600

Module type	DP&W side pole mount part number	# of modules	Item code	Price
Mitsubishi MF120	DP-SPM1-MT120-ALUM	1	013-09723	\$230
	DP-SPM2-MT120-ALUM	2	013-09724	\$350
	DP-SPM3-MT120-ALUM	3	013-09725	\$495
	DP-SPM4-MT120-ALUM	4	013-09726	\$600
Mitsubishi UE125	DP-SPM1-MT125-ALUM	1	013-09727	\$230
	DP-SPM2-MT125-ALUM	2	013-09728	\$350
	DP-SPM3-MT125-ALUM	3	013-09729	\$495
	DP-SPM4-MT125-ALUM	4	013-09730	\$600
Mitsubishi UD185	DP-SPM1-MT185-ALUM	1	013-09731	\$270
	DP-SPM2-MT185-ALUM	2	013-09732	\$445
	DP-SPM3-MT185-ALUM	3	013-09733	\$565
	DP-SPM4-MT185-ALUM	4	013-09734	\$750
REC Solar SCM-210	DP-SPM1-REC210-ALUM	1	013-09735	\$300
	DP-SPM2-REC210-ALUM	2	013-09736	\$495
	DP-SPM3-REC210-ALUM	3	013-09737	\$640
Sanyo HIT200	DP-SPM1-SY200-ALUM	1	013-09738	\$260
	DP-SPM2-SY200-ALUM	2	013-09739	\$430
	DP-SPM3-SY200-ALUM	3	013-09740	\$550
	DP-SPM4-SY200-ALUM	4	013-09741	\$730
Sharp 80	DP-SPM1-SHP80-ALUM	1	013-09742	\$150
	DP-SPM2-SHP80-ALUM	2	013-09743	\$300
	DP-SPM3-SHP80-ALUM	3	013-09744	\$385
	DP-SPM4-SHP80-ALUM	4	013-09745	\$445
Sharp 123	DP-SPM1-SHP123-ALUM	1	013-09746	\$230
	DP-SPM2-SHP123-ALUM	2	013-03955	\$350
	DP-SPM3-SHP123-ALUM	3	013-09748	\$495
	DP-SPM4-SHP123-ALUM	4	013-09749	\$600
Sharp 165,170, 175,185	DP-SPM1-SHP175-ALUM	1	013-09750	\$260
	DP-SPM2-SHP175-ALUM	2	013-09751	\$430
	DP-SPM3-SHP175-ALUM	3	013-09752	\$550
	DP-SPM4-SHP175-ALUM	4	013-09753	\$730
SolarWorld SW165 SW175	DP-SPM1-SHL150-ALUM	1	013-09754	\$260
	DP-SPM2-SHL150-ALUM	2	013-09755	\$430
	DP-SPM3-SHL150-ALUM	3	013-09756	\$550
	DP-SPM4-SHL150-ALUM	4	013-09757	\$730
SunPower SPR-200, 210, 220	DP-SPM1-SU150-ALUM	1	013-09758	\$260
	DP-SPM2-SU150-ALUM	2	013-09759	\$430
	DP-SPM3-SU150-ALUM	3	013-09760	\$550
	DP-SPM4-SU150-ALUM	4	013-09761	\$730

Direct Power & Water

PowerFab Top Pole Mounts (TPM)

PowerFab TPM standard mounts have heavy steel mounting sleeves, elevation pivots and strongbacks that are painted with durable outdoor paint. The module rails are 6061-T6 mill-finish structural aluminum angle. Stainless steel module mounting hardware is provided. Standard top-of-pole mounts are adjustable from 15 degrees to 65 degrees in 10-degree increments and fit on schedule-40 steel pipe. (A pole size in the table on the right that has “/80” after its size requires schedule-80 pipe; all others are schedule-40.)

For harsh environments, these mounts are available with hot-dip-galvanized steel and anodized aluminum. Multiply price by 1.8 for this addition. Call for additional pricing for powder-coated mounts and stainless steel hardware.

Mounts for other modules are available. Call for information.



Module type	DP&W top pole mount part #	No. of modules	Pole size schd 40	Item code	Price
AEE Solar AE80HE	DP-TPM1-AE80/90HE	1	2	013-04271	\$155
	DP-TPM2-AE80/90HE	2	2	013-04272	\$65
	DP-TPM4-AE80/90HE	4	3	013-04273	\$345
	DP-TPM6-AE80/90HE	6	4	013-04275	\$535
	DP-TPM8-AE80/90HE	8	4	013-04277	\$635
	DP-TPM10-AE80HE	10	6	013-04279	\$980
Evergreen ES180 ES190 ES195	DP-TPM1-ES180	1	2	013-04428	\$180
	DP-TPM2-ES180	2	3	013-04429	\$395
	DP-TPM3-ES180	3	4	013-04430	\$590
	DP-TPM4-ES180	4	4	013-04431	\$710
	DP-TPM6-ES180	6	6	013-04432	\$1,220
	DP-TPM8-ES180	8	6	013-04433	\$1,600
	DP-TPM9-ES180*	9	8	013-04434	\$1,775
	DP-TPM10-ES180*	10	8	013-04435	\$2,275
Evergreen ES-A-200	DP-TPM12-ES180*	12	8/80	013-04436	\$2,485
	DP-TPM14-ES180*	14	8/80	013-04437	\$3,265
	DP-TPM1-ESA200	1	2	013-06251	\$195
	DP-TPM2-ESA200	2	3	013-06252	\$425
	DP-TPM3-ESA200	3	4	013-06253	\$630
	DP-TPM4-ESA200	4	4	013-06254	\$760
	DP-TPM6-ESA200	6	6	013-06256	\$1305
	DP-TPM8-ESA200	8	6	013-06258	\$1715
	DP-TPM9-ES180*	9	8	013-06259	\$1900
	DP-TPM10-ES180*	10	8	013-06260	\$2435
Mitsubishi PV-F180UD5 PV-F185UD5	DP-TPM12-ES180*	12	8/80	013-06261	\$2660
	DP-TPM14-ES180*	14	8/80	013-06262	\$3495
	DP-TPM1-MT185	1	2	013-05080	\$175
	DP-TPM2-MT185	2	3	013-05081	\$380
	DP-TPM3-MT185	3	4	013-05082	\$585
	DP-TPM4-MT185	4	4	013-05083	\$670
	DP-TPM6-MT185	6	6	013-05085	\$1,085
	DP-TPM8-MT185	8	6	013-05086	\$1,390
	DP-TPM10-MT185	10	8	013-05087	\$1,860
	DP-TPM12-MT185	12	8/80	013-05088	\$2,290
Mitsubishi UE125MF	DP-TPM14-MT185*	14	8/80	013-05089	\$2,525
	DP-TPM16-MT185*	16	8/80	013-05090	\$3,030
	DP-TPM1-MIT125	1	2	013-05054	\$160
	DP-TPM2-MIT125	2	3	013-05055	\$345
	DP-TPM4-MIT125	4	4	013-05057	\$610
	DP-TPM6-MIT125	6	6	013-05058	\$985
REC Solar SCM 210	DP-TPM8-MIT125	8	6	013-05059	\$1,265
	DP-TPM10-MIT125	10	8	013-05061	\$1,690
	DP-TPM1-REC210	1	2	013-06301	\$180
	DP-TPM2-REC210	2	3	013-06302	\$395
	DP-TPM4-REC210	4	3	013-06304	\$710
	DP-TPM6-REC210	6	4	013-06306	\$1,220
	DP-TPM8-REC210	8	6	013-06308	\$1,600
	DP-TPM9-REC210	9	8	013-06309	\$1,775
REC Solar SCM 210	DP-TPM10-REC210	10	8	013-06310	\$2,275
	DP-TPM12-REC210	12	8/80	013-06312	\$2,485
	DP-TPM14-REC210	14	8/80	013-06314	\$3,265

* Must be shipped by truck freight. All other mounts ship by UPS.

Module type	DP&W top pole mount part #	No. of modules	Pole size schd 40	Item code	Price
Solar-World 165mono 175mono	DP-TPM1-SWD175	1	2	013-04678	\$160
	DP-TPM2-SWD175	2	3	013-04679	\$345
	DP-TPM4-SWD175	4	4	013-04680	\$610
	DP-TPM6-SWD175	6	6	013-04681	\$985
	DP-TPM8-SWD175	8	6	013-04682	\$1,320
	DP-TPM10-SWD175*	10	8	013-04683	\$1,820
	DP-TPM12-SWD175 *	12	8	013-04684	\$2,180
	DP-TPM14-SWD175 *	14	8/80	013-04685	\$2,400
	DP-TPM16-SWD175 *	16	8/80	013-04686	\$2,885
DP-TPM18-SWD175 *	18	8/80	013-04687	\$3,280	
Kyocera KC50T KC65T	DP-TPM1-KC50/60	1	2	013-04509	\$155
	DP-TPM2-KC50/60	2	2	013-04511	\$175
	DP-TPM4-KC50/60	4	3	013-04513	\$355
	DP-TPM6-KC50/60	6	3	013-04515	\$480
	DP-TPM8-KC50/60	8	4	013-04517	\$640
	DP-TPM10-KC50/60	10	4	013-04519	\$930
	DP-TPM12-KC50/60	12	6	013-04520	\$1,075
Kyocera KC-85T	DP-TPM1-KC85T	1	2	013-04521	\$160
	DP-TPM2-KC85T	2	2	013-04523	\$190
	DP-TPM3-KC85T	3	2.5	013-04524	\$335
	DP-TPM4-KC85T	4	3	013-04525	\$365
	DP-TPM6-KC85T	6	4	013-04527	\$550
	DP-TPM8-KC85T	8	4	013-04529	\$670
	DP-TPM10-KC85T	10	6	013-04531	\$1,035
	DP-TPM12-KC85T	12	6	013-04533	\$1,215
	DP-TPM14-KC85T*	14	6	013-04534	\$1,340
DP-TPM16-KC85T*	16	6	013-04535	\$1,555	
Kyocera KD 135	DP-TPM1-KC135	1	2	013-06171	\$165
	DP-TPM2-KC135	2	2.5	013-06172	\$310
	DP-TPM3-KC135	3	3	013-06173	\$385
	DP-TPM4-KC135	4	4	013-06174	\$550
	DP-TPM6-KC135	6	4	013-06176	\$715
	DP-TPM8-KC135	8	6	013-06178	\$1,000
	DP-TPM10-KC135	10	6	013-06180	\$1,275
	DP-TPM12-KC135	12	6	013-06182	\$1,400
	DP-TPM14-KC135 *	14	8	013-06184	\$1,855
	DP-TPM16-KC135 *	16	8	013-06186	\$2,180
DP-TPM18-KC135 *	18	8/80	013-06188	\$2,380	
Kyocera KD180	DP-TPM1-KC180	1	2	013-06191	\$175
	DP-TPM2-KC180	2	3	013-06192	\$380
	DP-TPM3-KC180	3	4	013-06193	\$540
	DP-TPM4-KC180	4	4	013-06194	\$660
	DP-TPM6-KC180	6	6	013-06196	\$1,055
	DP-TPM8-KC180	8	6	013-06198	\$1,420
	DP-TPM10-KC180	10	6	013-06200	\$1,940
	DP-TPM12-KC180	12	8	013-06202	\$2,350
	DP-TPM14-KC180*	14	8 /80	013-06204	\$2,575
	DP-TPM16-KC180 *	16	8/80	013-06206	\$3,085
DP-TPM18-KC180 *	18	8 /80	013-06208	\$3,515	

* Must be shipped by truck freight. All other mounts ship by UPS.

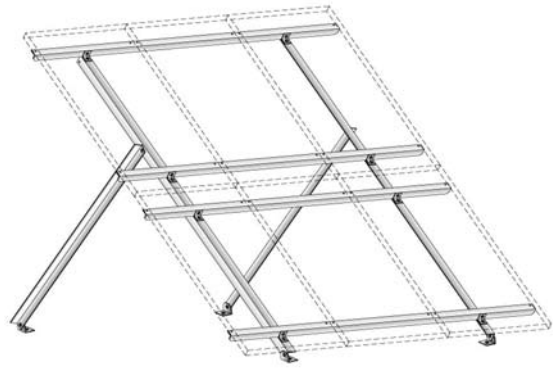
Module type	DP&W top pole mount part #	No. of modules	Pole size schd 40	Item code	Price
Sharp 165,175	DP-TPM1-SHP175	1	2	013-04867	\$160
	DP-TPM2-SHP175	2	3	013-04868	\$345
	DP-TPM4-SHP175	4	4	013-04869	\$610
	DP-TPM6-SHP175	6	6	013-04870	\$985
	DP-TPM8-SHP175	8	6	013-04871	\$1,320
	DP-TPM10-SHP175*	10	8	013-04872	\$1,820
	DP-TPM12-SHP175 *	12	8	013-04873	\$2,180
	DP-TPM14-SHP175 *	14	8/80	013-04874	\$2,400
	DP-TPM16-SHP175 *	16	8/80	013-04875	\$2,885
DP-TPM18-SHP175 *	18	8/80	013-04876	\$3,280	
Sharp 80	DP-TPM1-SHP80	1	2	013-04801	\$155
	DP-TPM2-SHP80	2	2	013-04802	\$165
	DP-TPM4-SHP80	4	3	013-04804	\$345
	DP-TPM6-SHP80	6	3	013-04805	\$540
	DP-TPM8-SHP80	8	4	013-04806	\$635
	DP-TPM10-SHP80	10	4	013-04807	\$980
	DP-TPM12-SHP80	12	6	013-04808	\$1,155
Sun-Power 220	DP-TPM1-SU220	1	2	013-06371	\$160
	DP-TPM2-SU220	2	3	013-06372	\$345
	DP-TPM3-SU220	3	4	013-06373	\$505
	DP-TPM4-SU220	4	4	013-06374	\$610
	DP-TPM6-SU220	6	6	013-06376	\$985
	DP-TPM8-SU220	8	6	013-06378	\$1,320
	DP-TPM10-SU220	10	8	013-06380	\$1,810
	DP-TPM12-SU220	12	8	013-06382	\$2,180
	DP-TPM14-SU220*	14	8/80	013-06384	\$2,400
DP-TPM16-SU220*	16	8/80	013-06386	\$2,885	
Sanyo 190,195	DP-TPM1-SY190	1	2	013-06401	\$160
	DP-TPM2-SY190	2	2.5	013-06402	\$345
	DP-TPM3-SY190	3	3	013-06403	\$505
	DP-TPM4-SY190	4	4	013-06404	\$550
	DP-TPM6-SY190	6	6	013-06406	\$985
	DP-TPM8-SY190	8	6	013-06408	\$1,320
	DP-TPM10-SY190	10	8	013-06410	\$1,810
	DP-TPM12-SY190	12	8	013-06412	\$2,180
	DP-TPM14-SY190 *	14	8/80	013-06414	\$2,400
DP-TPM16-SY190 *	16	8/80	013-06416	\$2,885	
DP-TPM18-SY190 *	18	8/80	013-06418	\$3,280	
Suntech 175	DP-TPM1-SUT175	1	2	013-06441	\$160
	DP-TPM2-SUT175	2	3	013-06442	\$345
	DP-TPM3-SUT175	3	4	013-06443	\$505
	DP-TPM4-SUT175	4	4	013-06444	\$610
	DP-TPM6-SUT175	6	6	013-06446	\$985
	DP-TPM8-SUT175	8	6	013-06448	\$1,320
	DP-TPM10-SUT175	10	6	013-06450	\$1,810
	DP-TPM12-SUT175	12	8	013-06452	\$2,180
	DP-TPM14-SUT175*	14	8/80	013-06454	\$2,400
	DP-TPM16-SUT175 *	16	8/80	013-06456	\$2,885
DP-TPM18-SUT175 *	18	8/80	013-06458	\$3,280	

* Must be shipped by truck freight. All other mounts ship by UPS.

Direct Power & Water

PowerFab Two-Tier Ground Mounts

Direct Power's Two-Tier Ground Mounts are made from 6061-T6 structural aluminum extrusions with a mill finish. Modules are racked in two rows with module length vertical. Models are available to hold from 4 to 10 modules (depending on module width). The two-tier mount is a cost-effective way to create large ground mounted arrays. Multiple two-tier mounts may be installed next to each other in an east-west direction. These mounts may also be used as roof mounts. The mounts listed have adjustable back legs. Mounts for other brands and sizes of modules and mounts with fixed back legs are available. Please contact us for information and pricing on mounts for other brands and sizes of module.



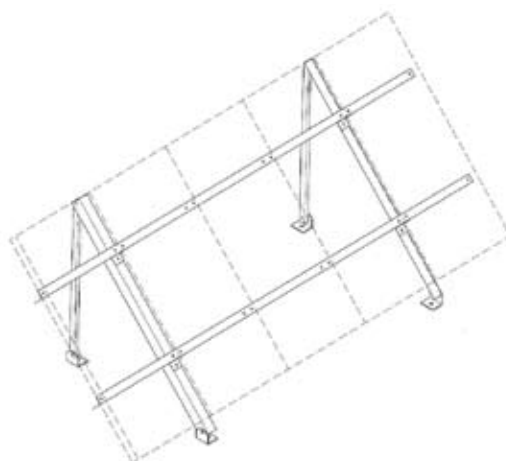
Module type	DP&W two-tier mount part number	# of modules	Item code	Price
AEE Solar AE-80HE	DP-TTRGM6-AE80HE	6	013-08750	\$500
	DP-TTRGM8-AE80HE	8	013-08751	\$530
	DP-TTRGM10-AE80HE	10	013-08752	\$575
Evergreen ES180, ES190	DP-TTRGM4-ES180	4	013-08384	\$800
	DP-TTRGM6-ES180	6	013-08732	\$910
	DP-TTRGM8-ES180*	8	013-08734	\$1,050
Evergreen ES-A-200	DP-TTRGM4-ESA200	4	013-08756	\$840
	DP-TTRGM6-ESA200	6	013-08757	\$956
	DP-TTRGM8-ESA200	8	013-08758	\$1,103
Kyocera KC-85	DP-TTRGM6-KC85	6	013-08425	\$465
	DP-TTRGM8-KC85	8	013-08427	\$485
	DP-TTRGM10-KC85	10	013-08428	\$505
Kyocera KD-135	DP-TTRGM6-KC135	6	013-08762	\$555
	DP-TTRGM8-KC135	8	013-08763	\$640
Kyocera KD180	DP-TTRGM4-KD180	4	013-08764	\$730
	DP-TTRGM6-KD180	6	013-08765	\$830
	DP-TTRGM8-KD180	8	013-08766	\$960
Kyocera KD205	DP-TTRGM4-KD205	4	013-08767	\$780
	DP-TTRGM6-KD205	6	013-08768	\$885
	DP-TTRGM8-KD205	8	013-08769	\$1,030
Mitsubishi MF120	DP-TTRGM6-MT120	6	013-08770	\$570
	DP-TTRGM8-MT120	8	013-08771	\$660
Mitsubishi UE125	DP-TTRGM6-MTUE125	6	013-08772	\$570
	DP-TTRGM8-MTUE125	8	013-08773	\$660
Mitsubishi UD185	DP-TTRGM4-MTUD185	4	013-08441	\$655
	DP-TTRGM6-MTUD185	6	013-08775	\$745
	DP-TTRGM8-MTUD185	8	013-08776	\$865
	DP-TTRGM10-MTUD185	10	013-8447	\$1,015

Module type	DP&W two-tier mount part number	# of modules	Item code	Price
REC Solar SCM-210	DP-TTRGM4-REC210	4	013-08778	\$800
	DP-TTRGM6-REC210	6	013-08779	\$910
	DP-TTRGM8-REC210	8	013-08780	\$1,050
Sanyo HIT200	DP-TTRGM4-SY200	4	013-08781	\$680
	DP-TTRGM6-SY200	6	013-08782	\$770
	DP-TTRGM8-SY200	8	013-08783	\$895
Sharp 165,170, 175,185	DP-TTRGM4-SHP175	4	013-08784	\$655
	DP-TTRGM6-SHP175	6	013-08785	\$745
	DP-TTRGM8-SHP175	8	013-08786	\$865
	DP-TTRGM10-SHP175	10	013-08787	\$1,015
Sharp w/ VE frame* 165,170, 175,185	DP-TTRGM4-SHV175	4	013-08812	\$655
	DP-TTRGM6-SHV175	6	013-08813	\$745
	DP-TTRGM8-SHV175	8	013-08814	\$865
	DP-TTRGM10-SHV175	10	013-08815	\$1,015
Sharp 167	DP-TTRGM4-SHP167	4	013-08537	\$695
	DP-TTRGM6-SHP167	6	013-08789	\$790
	DP-TTRGM8-SHP167	8	013-08790	\$915
Sharp 208	DP-TTRGM4-SHP208	4	013-08791	\$800
	DP-TTRGM6-SHP208	6	013-08792	\$910
	DP-TTRGM8-SHP208	8	013-08793	\$1,050
Solar-World SW165 SW175	DP-TTRGM4-SWD175*	4	013-08794	\$655
	DP-TTRGM6-SWD175*	6	013-08795	\$745
	DP-TTRGM8-SWD175*	8	013-08796	\$865
	DP-TTRGM10-SWD175*	10	013-08797	\$1,015
SunPower SPR-200, 210, 220	DP-TTRGM4-SU200	4	013-08798	\$655
	DP-TTRGM6-SU200	6	013-08799	\$745
	DP-TTRGM8-SU200	8	013-08800	\$865
	DP-TTRGM10-SU200	10	013-08801	\$1,015

* Sharp 165U1, 170U1, 175U1, 185U1 are made with two different hole configurations. The frame with the cross bar on the back is the VE frame.

PowerFab Low-Profile Ground Mounts

Direct Power's Low-Profile Ground Mounts are made from 6061-T6 structural aluminum extrusions with a mill finish. The module length is vertical (each module is in portrait-mode) and modules are mounted side-by-side. Models are available to hold from 3 to 8 modules, depending on module width. Multiple Low-Profile Ground Mounts may be installed next to each other in an east-west direction. These mounts may also be used as roof mounts. The mounts listed have adjustable back legs. Please contact us for information and pricing on mounts for other brands and sizes of module.



* Sharp 165U1, 170U1, 175U1, 185U1 are made with two different hole configurations. The frame with the cross bar on the back is the VE frame.

Module type	DP&W low-profile mount part number	# of modules	Item code	Price
AEE Solar AE-80HE	DP-LPRGM3-AE80HE	3	013-08851	\$370
	DP-LPRGM4-AE80HE	4	013-08852	\$415
	DP-LPRGM5-AE80HE	5	013-08853	\$465
	DP-LPRGM6-AE80HE	6	013-08854	\$510
	DP-LPRGM8-AE80HE	8	013-08855	\$575
Evergreen ES180, ES190	DP-LPRGM3-ES180	3	013-06740	\$605
	DP-LPRGM4-ES180	4	013-08857	\$670
	DP-LPRGM5-ES180	5	013-08858	\$730
Evergreen ES-A-200	DP-LPRGM3-ESA200	3	013-08859	\$605
	DP-LPRGM4-ESA200	4	013-08860	\$670
	DP-LPRGM5-ESA200	5	013-08861	\$730
Kyocera KC85	DP-LPRGM3-KC85	3	013-08862	\$360
	DP-LPRGM4-KC85	4	013-08863	\$400
	DP-LPRGM5-KC85	5	013-08864	\$455
	DP-LPRGM6-KC85	6	013-08865	\$485
Kyocera KD135	DP-LPRGM3-KD135	3	013-08866	\$405
	DP-LPRGM4-KD135	4	013-08867	\$450
	DP-LPRGM5-KD135	5	013-08868	\$520
	DP-LPRGM6-KD135	6	013-08869	\$555
Kyocera KD-180	DP-LPRGM3-KD180	3	013-08870	\$565
	DP-LPRGM4-KD180	4	013-08871	\$630
	DP-LPRGM5-KD180	5	013-08872	\$690
Kyocera KD205	DP-LPRGM3-KD205	3	013-08873	\$600
	DP-LPRGM4-KD205	4	013-08874	\$660
	DP-LPRGM5-KD205	5	013-08875	\$720
Mitsubishi MF120	DP-LPRGM3-MT120	3	013-08876	\$410
	DP-LPRGM4-MT120	4	013-08877	\$460
	DP-LPRGM5-MT120	5	013-08878	\$535
	DP-LPRGM6-MT120	6	013-08879	\$757
Mitsubishi UE125	DP-LPRGM8-MT120	8	013-08880	\$685
	DP-LPRGM3-MTUE125	3	013-08881	\$410
	DP-LPRGM4-MTUE125	4	013-08882	\$460
	DP-LPRGM5-MTUE125	5	013-08883	\$535
	DP-LPRGM6-MTUE125	6	013-08884	\$757
Mitsubishi UE125	DP-LPRGM8-MTUE125	8	013-08885	\$685

Module type	DP&W low-profile mount part number	# of modules	Item code	Price
Mitsubishi UD185	DP-LPRGM3-MTUD185	3	013-08886	\$515
	DP-LPRGM4-MTUD185	4	013-08887	\$570
	DP-LPRGM5-MTUD185	5	013-08888	\$625
	DP-LPRGM6-MTUD185	6	013-08889	\$680
REC Solar SCM-210	DP-LPRGM3-REC210	3	013-08890	\$605
	DP-LPRGM4-REC210	4	013-08891	\$670
	DP-LPRGM5-REC210	5	013-08892	\$730
Sanyo HIT200	DP-LPRGM2-SY200	2	013-08893	\$450
	DP-LPRGM3-SY200	3	013-08894	\$535
	DP-LPRGM4-SY200	4	013-08895	\$590
	DP-LPRGM5-SY200	5	013-08896	\$650
Sharp 165,170,175,185	DP-LPRGM6-SY200	6	013-08897	\$705
	DP-LPRGM3-SHP175	3	013-08898	\$515
	DP-LPRGM4-SHP175	4	013-08899	\$570
Sharp w/ VE frame*	DP-LPRGM5-SHP175	5	013-08900	\$625
	DP-LPRGM6-SHP175	6	013-08901	\$680
	DP-LPRGM3-SHV175	3	013-08921	\$515
	DP-LPRGM4-SHV175	4	013-08922	\$570
Sharp 167	DP-LPRGM5-SHV175	5	013-08923	\$625
	DP-LPRGM6-SHV175	6	013-08924	\$680
	DP-LPRGM3-SHP167	3	013-08902	\$540
Sharp 208	DP-LPRGM4-SHP167	4	013-08903	\$600
	DP-LPRGM5-SHP167	5	013-08904	\$655
	DP-LPRGM3-SHP208	3	013-08905	\$605
Solar-World SW165 SW175	DP-LPRGM4-SHP208	4	013-08906	\$670
	DP-LPRGM5-SHP208	5	013-08907	\$730
	DP-LPRGM3-SWD175*	3	013-08908	\$515
SunPower SPR-200, 210, 220	DP-LPRGM4-SWD175*	4	013-08909	\$570
	DP-LPRGM5-SWD175*	5	013-08910	\$625
	DP-LPRGM6-SWD175*	6	013-08911	\$680
SunPower SPR-200, 210, 220	DP-LPRGM3-SU200	3	013-08912	\$515
	DP-LPRGM4-SU200	4	013-08913	\$570
	DP-LPRGM5-SU200	5	013-08914	\$625
	DP-LPRGM6-SU200	6	013-08915	\$680

Wattsun

Active Trackers



Wattsun Active Trackers track the sun from east to west using electronic sensors and motor or actuator drives. During partly cloudy conditions, the tracker fixes on the brightest area of the sky, capturing the maximum amount of sunlight available. At night it returns to the morning sunrise position, ready to start tracking when the sun rises again. Tracking can increase a PV array's power production from 10 to 50 percent depending on the season and location. They are particularly effective when greater power is required in the summer months, such as when a large amount of water pumping is needed. Wattsun trackers deliver a significant increase in the amount of water pumped and provide a more constant water flow during the day. The gallons-per-day increase is greatest in the summer when water is needed the most. They may also be cost-effective for net-metered utility grid-tie systems that can produce large amounts of electricity in the summer, to be used as credit toward a high winter power bill.

Azimuth trackers automatically track the sun's path by rotating the PV array around the pipe, providing greater stability for larger arrays. The corners do not protrude down towards the ground or stick up in the air to catch the wind. The bottom edge of the array always remains parallel to the ground and requires less ground clearance than tilt & roll tracker'. Wattsun's azimuth trackers provide nearly 270 degrees of rotational movement and can adjust from 5 to 75 degrees of elevation tilt.

AZ-125 Trackers

The AZ-125 gear-drive, azimuth tracker comes standard as a single-axis tracker with manual seasonal tilt adjustment. It is powered by a 24 VDC drive motor running a high quality worm and gear drive. With the addition of the dual-axis option (order separately), the AZ-125 can capture virtually all the available power the sun delivers.

AZ-225 Trackers

The AZ-225 gear-drive, azimuth tracker is for very large arrays. It can hold over 2 kW of solar modules. It is powered by a 24VDC motor running a heavy-duty ball bearing/ worm gear drive. It comes standard with the dual-axis option, enabling it to capture the maximum amount of solar energy. Mounts on a 8" or 10" schedule-40 steel pole. 10" poles will require an 8" section welded to top.



If your system voltage is not 24 VDC, you will need a Wattsun voltage converter. See option table below.

Wattsun model	Description	Item code	Price
12-24 15W for 12V battery	Required for 12 VDC AZ-125 Trackers	014-07118	\$125
48-24 LVC	Steps down 48V from battery or 36V from array to 24 VDC for controller on AZ-125 Tracker	014-07116	\$58
PPT-48-5R24	Steps down 48V from battery to 24V for controller. One required per two AZ-125 or one AZ-225	014-07117	\$219
PPT-48-10R24	Steps down 48V from battery to 24V. Will power four AZ-125 Trackers or three AZ-225 Trackers	014-07119	\$295
DR-4524 for pumping	Accepts 120-370 VDC input to power tracker controller from a high voltage water pumping array. Needs to be mounted in a raintight box if located outside. Also accepts 115 or 230 volt AC for one AZ-125 Tracker	014-07110	\$165
IDEC PS5R-SF24	Accepts 115 or 230 VAC input to power tracker controller from the AC Grid when no backup battery bank is present. One required per two AZ-125 trackers or one AZ-225 Tracker. Needs to be mounted in a raintight box if located outside	014-07115	\$84
Dual-axis option	Add automatic elevation tracking to the AZ-125 Tracker. The DA Option is included in the Price of the AZ-225 Trackers	014-07018	\$525
Manual controls	Exterior switches on the controller cover plate. Allows for the owner to turn off automatic tracking and then rotate the tracker east or west and/or up and down. Useful for dumping snow or to lay the tracker flat in extremely high winds	014-07030	\$125
Manual control kit	Field upgrade kit for Version 3 controllers. V3 controllers are "two piece" style and the sensor is independent of the main control box. Should be installed by an electrician or other certified personnel	014-07032	\$150

Call us for pricing on other Wattsun trackers for different modules and module quantities.

Wattsun Tracker Prices

Module	Module quantity	Wattsun drive	Dual axis	Steel pipe ID	Item code	Price
Kycocera KC85T	8	AZ-125	optional	6"	014-07431	\$3,385
	12	AZ-125	optional	6"	014-07433	\$3,385
	16	AZ-125	optional	6"	014-07435	\$3,385
	24	AZ-225	included	8"	014-07436	\$6,645
Kycocera KD135	8	AZ-125	optional	6"	014-07466	\$3,385
	10	AZ-125	optional	6"	014-07467	\$3,385
	15	AZ-225	included	8"	014-07469	\$6,250
	16	AZ-225	included	8"	014-07470	\$6,645
Sharp 165, 175, 185	6	AZ-125	optional	6"	014-07653	\$3,385
	8	AZ-125	optional	6"	014-07655	\$3,385
	9	AZ-125	optional	6"	014-07656	\$3,385
	12	AZ-225	included	8"	014-07657	\$6,250
SolarWorld SW175 mono	6	AZ-125	optional	6"	014-07754	\$3,385
	8	AZ-125	optional	6"	014-07756	\$3,385
	12	AZ-225	included	8"	014-07758	\$6,645
	16	AZ-225	included	call	014-07760	\$7,175
SunPower 210	6	AZ-125	optional	6"	014-07845	\$3,385
	8	AZ-125	optional	6"	014-07846	\$3,385
	12	AZ-225	included	8"	014-07847	\$6,250
	16	AZ-225	included	call	014-07848	\$7,175

Module	Module quantity	Wattsun drive	Dual axis	Steel pipe ID	Item code	Price
AE-80/90HE	12	AZ-125	optional	6"	014-08001	\$3,385
	16	AZ-125	optional	6"	014-08002	\$3,385
	24	AZ-225	included	8"	014-08004	\$6,250
	28	AZ-225	included	8"	014-08005	\$7,175
ES-A-200	8	AZ-125	optional	6"	014-07347	\$3,385
	9	AZ-225	included	6"	014-07349	\$6,250
	12	AZ-225	included	8"	014-07350	\$7,175
ES 190	8	AZ-125	optional	6"	014-07355	\$3,385
	9	AZ-225	included	6"	014-07357	\$6,250
	12	AZ-225	included	8"	014-07358	\$7,175
	14	AZ-225	included	8"	014-07359	\$7,175
Mitsubishi UE125	8	AZ-125	optional	6"	014-08171	\$3,385
	9	AZ-125	optional	6"	014-08172	\$3,385
	10	AZ-125	optional	6"	014-08173	\$3,385
	15	AZ-225	included	8"	014-08176	\$6,250
	16	AZ-225	included	8"	014-08177	\$6,645
	20	AZ-225	included	8"	014-08181	\$7,175
Mitsubishi UD185	6	AZ-125	optional	6"	014-08087	\$3,385
	8	AZ-125	optional	6"	014-08088	\$3,385
	12	AZ-225	included	8"	014-08090	\$6,645
Kycocera 180	6	AZ-125	optional	6"	014-07455	\$3,385
	8	AZ-125	optional	6"	014-07456	\$3,385
	12	AZ-225	included	8"	014-07457	\$6,645
	16	AZ-225	included	call	014-07458	\$7,175

SunTracer

Tracking Module Mount and Charge Controller

The SunTracer can track 1 or 2 modules and is ideal for small power systems, RVs and water pumping systems. It uses timer-activated gear motors to position the modules toward the sun on a pole mount. It features a 30-amp charge controller for 12- or 24-volt systems, built-in backup battery for the timer, adjustable charge voltage, and 100 degree motor rotation. The mounting clamp can be bolted to any pole up to 1-1/2" schedule 40 pipe.

Installation is simple with universal module mounting clamps that only require a screw driver and a u-bolt mounted to a pole that only requires one wrench. To set the tracking direction, you just point the array at the sun and push 2 buttons. SunTracer is available in four models for use with up to 2 square meters of modules. Maximum module size is determined by rail length. A 31.5" rail can hold a single module up to 130 watts, or two modules with a combined width of 31.5". The 43" rail can hold a single module up to 175 watts, or two modules with a combined width of 43". Tracker comes with module clamps for one module. When using two modules, order four additional module clamps.

Water pumping version has an internal rechargeable battery to return tracker to morning position at the end of each day. This is the perfect tracker for a SHURflo or SunPump running on a single 75- to 175-watt module. See rail width in chart below to see if it will fit the module width you are planing to use.



Model	Description	Mounting rail width	Warranty	Weight (lbs)	Item code	Price
SunTracer	Tracker with 30A charge controller for one module	31.5"	10 years	13.2	014-08500	\$340
SunTracer+	Tracker with 30A charge controller for up to 2 modules	43"	10 years	18	014-08501	\$380
SunTracer – camper	Same as SunTracer, but mount folds flat for travel	31.5"	2 years	14	014-08502	\$260
SunTracer – pumping	Same as SunTracer+, but for use in batteryless systems	43"	10 years	19	014-08505	\$390
Module clamps	Order 4 additional clamps to mount a second module (price is per clamp)				014-08521	\$12

Please call us with any questions! Our contact information is on the cover.

Zomeworks

Universal Track Rack

Passive Solar Tracker for PV Modules

The Zomeworks passive Track Rack uses no motors, no gears and no controls that can fail. The sun's heat moves liquid from side to side, allowing gravity to turn the Track Rack and follow the sun.

The Zomeworks Universal Track Rack System allows for almost limitless adjustment in both the east-west and north-south directions. Available in five standard sizes for holding 2 to 32 modules, Universal Track Racks are designed to fit all common photovoltaic modules. This flexibility translates to faster delivery, better quality and overall economy. The F-Series Track Racks ship partially assembled for easy installation. The new UTRF168HD comes with heavy duty rails. Both UTRF168 trackers come with a high wind kit. All of these mounts come with stainless steel and zinc-plated hardware and have a 10-year standard warranty.

Please specify how many of which brand of module are to be placed on the tracker. The tracker will be customized with the correct amount of hardware, and in some cases the rail length will be adjusted for better fit. Module quantities followed by an asterisk require one additional rail set at an extra charge, specified in the bottom row of table below. If the quantity is followed by double asterisks, order two additional rail sets.



Zomeworks model	UTR020	UTRK040	UTRF64	UTRF90	UTRF120	UTRF168-2	UTRF168-2-HD
Item code	014-09020	014-09043	014-09064	014-09090	014-09120	014-09130	014-09132
Price	\$712	\$1,450	\$1,920	\$2,170	\$2,452	\$3,636	\$4,213
Pole size schd 40 steel	2.5"	3"	6"	6"	6"	8"	8"
Min. pole height	76"	84"	96"	108"	120"	144"	144"
Min. pole depth	38"	42"	48"	54"	60"	72"	72"
Shipping weight	101 lbs	170 lbs	400 lbs	490 lbs	525 lbs	650 lbs	680 lbs
Module type	Number of modules that fit each Zomeworks model (top row)						
Evergreen							
ES-180, 190, 195	1	2	3, 4	5*	6	8, 9*	10HD
ES-A-200	1	2	3, 4	5*	6	8, 9*	N/A
Kyocera							
KC-80, 85T	1, 2	3, 4	5, 6, 7*, 8, 9*	10, 12	14*, 15*, 16*	18*, 20**, 21**, 22**, 24**	N/A
KD-135	1	2, 3	4, 5	6, 8	10	12, 14*	N/A
KD-180	1	2	4	5, 6	8	9*, 10*, 11*	N/A
SolarWorld							
SW80, SW85	1, 2	3, 4, 5	N/A	N/A	N/A	N/A	N/A
SW165 mono, SW175 mono	1	2	3, 4	5*, 6*	8*	9*, 10	12HD
Sharp							
NE165, NE170, NT175	1	2	3, 4	6	8	10	12
ND200, ND208	1	2	3	4	6	8, 9*	N/A
Mitsubishi							
UE125MF4	1	2, 3	4, 5*, 6*	8	10	12, 13*, 14, 15*, 16*	N/A
UD185MF5	N/A	2	3, 4	5*, 6*	8*	10	N/A
AEE Solar							
AE-85J, AE-80HE	1 - 2	3, 4, 5	6 - 8	10 - 12	14 - 16	18* - 20* - 22* - 24*	18* - 20* - 22* - 24*
AE-100J	1 - 2	3, 4	N/A	6 - 8	10	12, 14, 16*	12 - 14 - 16*
Description						Item code	Price
* Additional rail for mounts with a quantity followed by an asterisk in chart. Order two for quantities followed by two asterisks.						014-09155	\$291