

SOLAR MODULE MOUNTING STRUCTURES

There are many different ways to mount solar modules, each with its own pros and cons. Below is a list of the most common types of mount structures available. If you don't see a particular type of mount structure that you are looking for, talk to your KSI dealer and he can find it for you.

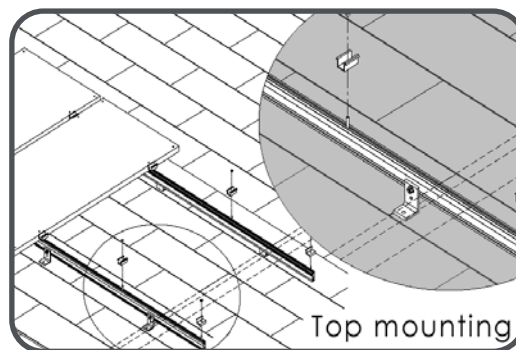
See Appendix C (Page 125) for sizing information

Roof / Ground Mounts

SOLARMOUNT™ UNIRAC™ THE NEW STANDARD IN PV MODULE RACKS™

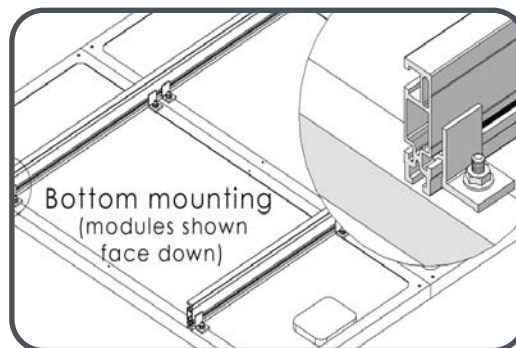
SolarMount Rail Sets can be used with either Top Mounting Clamps or Bottom Mounting Clips. You use Top Mounting Clamps if you plan to install the SolarMount first and then clamp the modules on top. You use Bottom Mounting Clips if you plan to pre-assemble the modules to the SolarMount prior to installation and then attach the completed assembly at the job site. Your choice will also depend on the make and model of module, installation location requirements and other factors. Each mill finish aluminum Rail Set contains 2 rails, L-feet, module mounting hardware type 304 and other fasteners. Lag bolts not included. Clamp Sets and Clip Sets (page 29) contain all hardware required for fastening the modules to the SolarMount rails.

Rail Sets				
Product Name and Description	Part Number	Number of L-Feet	Price	Shipping Weight (lbs.)
SMR48	24844	4	\$83.00	13.0
SMR60	24845	4	\$99.00	14.0
SMR72	24846	4	\$115.00	16.0
SMR84	24847	4	\$131.00	17.0
SMR96	24848	4	\$145.00	19.0
SMR106	24849	4	\$157.00	20.0



Rail sets below are not UPS shippable. For a special UPS shippable version (except SMR216), which includes split rails and splices, add \$20.00 (UPS-20, P/N 24882).

Rail Sets				
Product Name and Description	Part Number	Number of L-Feet	Price	Shipping Weight (lbs.)
SMR120	24850	6	\$178.00	22.0
SMR132	24851	6	\$190.00	24.0
SMR144	24852	6	\$202.00	25.0
SMR156	24853	6	\$214.00	27.0
SMR168	24854	6	\$226.00	28.0
SMR180	24855	6	\$238.00	30.0
SMR192	24856	8	\$259.00	31.0
SMR204	24857	8	\$271.00	33.0
SMR216	24858	8	\$283.00	34.0



Top Mounting Clamps			
Product Name and Description	Part Number	Price	Shipping Weight (lbs.)
CT2B	24802	\$16.00	1.0
CT3B	24803	\$20.00	2.0
CT4B	24804	\$24.00	2.0
CT5B	24805	\$28.00	2.0
CT6B	24806	\$32.00	2.0
CT7B	24807	\$36.00	2.0
CT8B	24808	\$40.00	3.0
CT2C	24859	\$16.00	1.0
CT3C	24860	\$20.00	2.0
CT4C	24861	\$24.00	2.0
CT5C	24862	\$28.00	2.0
CT6C	24863	\$32.00	2.0
CT7C	24864	\$36.00	2.0
CT8C	24865	\$40.00	3.0

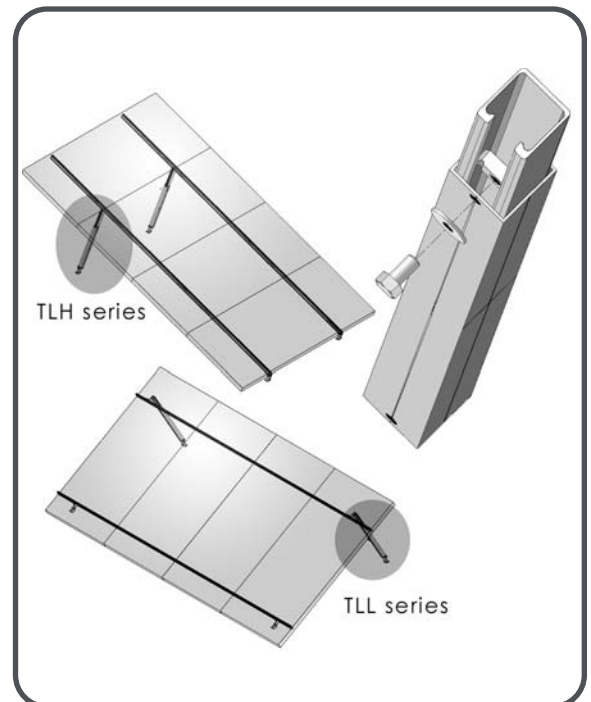
Bottom Mounting Clips			
Product Name and Description	Part Number	Price	Shipping Weight (lbs.)
CB2	24866	\$14.00	2.0
CB3	24867	\$18.00	2.0
CB4	24868	\$22.00	3.0
CB5	24870	\$26.00	3.0
CB6	24871	\$30.00	4.0
CB7	24872	\$34.00	4.0
CB8	24873	\$38.00	5.0

SOLARMOUNT™ Tilt Leg Kits



Tilt Leg Kits (optional) can be used to set the array to a more optimum angle in order to enhance overall system performance. SolarMount kits feature a quick locking adjustment that makes even seasonal adjustments fast and easy. There are two tilt up modes, 1) high profile (TLH), and 2) low profile (TLL), as illustrated in the adjacent drawings. Use the appropriate chart in [Appendix C](#) to select the required SolarMount Tilt Leg Kits.

Product Name and Description	Part Number	Price	Shipping Weight (lbs.)
High Profile			
TLH2-12	24816	\$37.00	3.0
TLH2-44	24817	\$54.00	7.0
TLH2-72	24818	\$68.00	10.0
TLH4-18	24819	\$65.00	7.0
TLH4-64	24820	\$99.00	16.0
TLH4-104	24821	\$129.00	20.0
Low Profile			
TLL2-12	24822	\$49.00	3.0
TLL3-12	24823	\$68.00	4.0
TLL2-30	24824	\$59.00	5.0
TLL3-30	24825	\$83.00	7.0
TLL2-44	24826	\$67.00	7.0
TLL3-44	24827	\$94.00	10.0



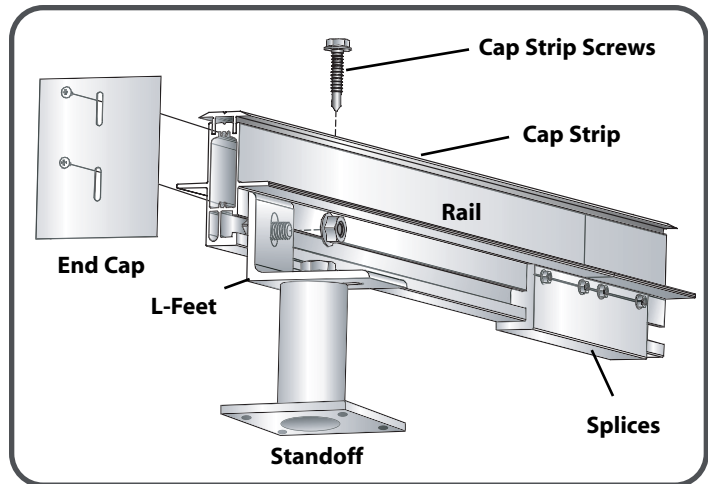
SOLARMOUNT™ Pro-Pak Bulk Package

Product Name	Description	Part Number	Price	Shipping Weight (lbs.)
Rails: Consult SolarMount price list and sizing chart for rail sizing for your modules				
RB120-8	8 each 120" rails	24770	\$475.00	80.0
RB132-8	8 each 132" rails	24770	\$520.00	88.0
RB156-8	8 each 156" rails	24772	\$620.00	102.0
RB168-8	8 each 168" rails	24773	\$675.00	109.0
RB192-8	8 each 192" rails	24774	\$785.00	123.0
RB204-8	8 each 204" rails	24775	\$840.00	130.0
RB216-8	8 each 216" rails	24776	\$895.00	137.0
End Clamps: with s/s bolts and flange nuts				
EC20C	20 each "C" clamps	24956	\$49.00	6.0
Mid Clamps: with s/s bolts and flange nuts				
MC20C	20 each "C" clamps	24777	\$49.00	6.0
Bottom Mounting Clips: with s/s bolts and flange nuts				
BC20	20 each bottom mounting clips	24778	\$29.00	5.0
L-feet: with s/s bolts and flange nuts, no lag bolts				
FTC20	20 each L-feet	24791	\$102.00	10.0
Raised Flange Standoffs: 1 1/4" zinc plated steel with lag bolts				
STR3-20	20 each 3" standoffs	24779	\$310.00	28.0
STR4-20	20 each 4" standoffs	24781	\$320.00	30.0
STR6-20	20 each 6" standoffs	24782	\$330.00	40.0
STR7-20	20 each 7" standoffs	24783	\$340.00	42.0
Splices				
SP20	20 each splice plates with s/s bolts and flange nuts	24784	\$140.00	15.0
SBC20	20 each splice bars with s/s self tapping screws	24785	\$102.00	10.0



Add aesthetics to the benefits of PV power. With your array in full view, the sunshine rule applies: it has to look good. SunFrame delivers the visual appeal you and your neighbors expect. To be sure, the mounting system provides structural integrity for your array. Properly installed, SunFrame complies with the Uniform and California Building Codes. It also meets UniRac's own high standard of installation friendliness, both initially and whenever modules need replacement.

But it is aesthetics that truly sets SunFrame apart. It's the only PV module mounting system designed from the outset to enhance the appearance of the home. A completed installation blends handsomely into the roof, becoming as much a part of the house as a skylight.



SunFrame is designed to comply with the Uniform Building Code, 1997, Chapter 16, and the California building Code, 2001, when installed according to the SunFrame installation manual.

The SunFrame is designed to fit KC 125G, 158G and 167G. No sizing is necessary.

Product Name and Description	Anodize Color	Part Number	Price	Shipping Weight (lbs.)
Rails: Includes 8ea. 192 in. rails				
SFRB192-8	Dark Bronze	24970	\$1215.00	135.0
SFRC192-8	Clear	24971	\$1065.00	135.0
Cap Strips: Includes 8 ea. 192 in. pre-punched cap strips				
SFCSB192-8C	Dark Bronze	24972	\$435.00	50.0
SFCSC192-8C	Clear	24973	\$385.00	50.0
Cap Strip Screws: Box of 100 screws				
SF10B100	Black	24974	\$26.10	2.0
SF10C100	Clear	24975	\$21.15	2.0
End Caps: Includes 40 end caps and 2 screws per end cap				
SF11B40	Black	24976	\$42.30	2.0
SF11C40	Clear	24977	\$42.30	2.0
L-feet: Includes L-feet and rail mounting hardware				
FTB20	Dark Bronze	24978	\$48.60	5.0
FTC20	Clear	24979	\$45.90	5.0
Splices: Includes splices and self-tapping screws				
SBB20	Dark Bronze	24980	\$48.60	10.0
SBC20	Clear	24981	\$45.90	10.0

Components:

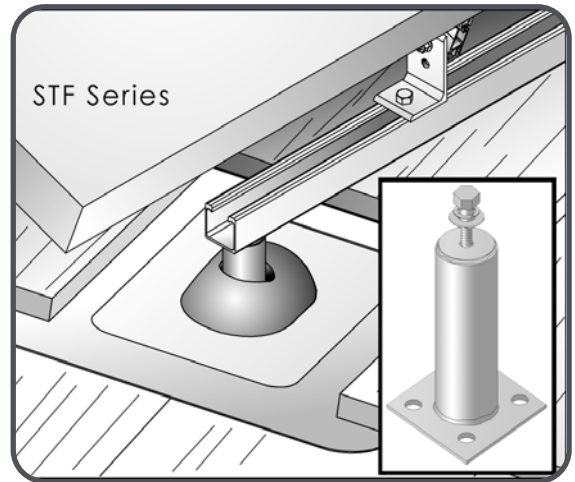
- **Inter-Module Rails** provide support shelves for the modules.
- **Full Length Cap Strips** secure modules and finish the array topside forming a gap-free frame. Self-drilling screws at 16-in intervals provide the holding power.
- **End Caps** finish the rail ends to complete the frame.
- **L-Feet** 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.
- **Splices** safely extend rails.
- **Standoffs** (optional), designed for standard flashing, support L-feet above tile or shake roofs. A range of heights ensure a low profile.

Standoffs



Standoffs are used for flashed, roof-mounted installations. STR type has vertical flanges with mounting holes for direct connection to the SolarMount rail and are used to substitute for standard L-feet on tile or shake roofs. See the SolarMount Price List (page 28) for quantity of L-feet packed with each SolarMount. STF type have a flat top with a 3/8" threaded insert nut, bolt and flat washer. They are used to support strut to which L-feet and/or tilt legs are attached. Two 3 1/2" x 5/16" stainless steel lag bolts included with all standoffs. Marine-grade zinc-plated welded steel construction.

Product Name and Description	Part Number	Price	Shipping Weight (lbs.)
STF3-20 (3" flat top)	24874	\$17.00	2.0
STF4-20 (4" flat top)	24875	\$17.50	2.0
STF6-20 (6" flat top)	24876	\$18.00	2.0
STR3-20 (3" vertical flange)	24878	\$18.00	2.0
STR4-20 (4" vertical flange)	24879	\$18.50	2.0
STR6-20 (6" vertical flange)	24880	\$19.00	2.0

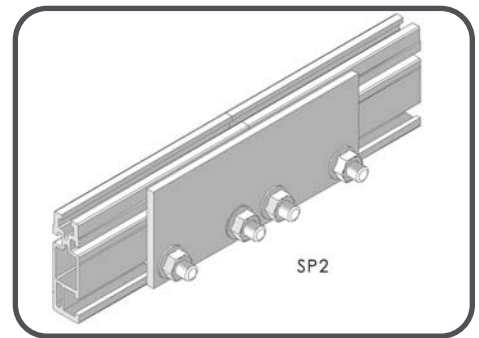


Splice Kits



Splice kits are required if SolarMounts are installed end to end to mount a large number of modules in a single row. Each splice kit contains two splices and fasteners.

Product Name and Description	Part Number	Price	Shipping Weight (lbs.)
SP2	24917	\$16.00	2



Universal Ground Mounts



These light-weight racks are most commonly installed on roofs. The telescoping back legs make them easy to adjust to face the sun on any slope, either roof or ground. See [Appendix C](#) for sizing information.

More Features:

- Telescoping rear legs
- All aluminum construction
- Stainless steel hardware
- Non-corrosive materials
- Sturdy, lightweight design
- Seasonally adjustable from 0° to 60°
- Vertical and low profile configurations
- Slotted, custom-formed aluminum channel accommodates any size module

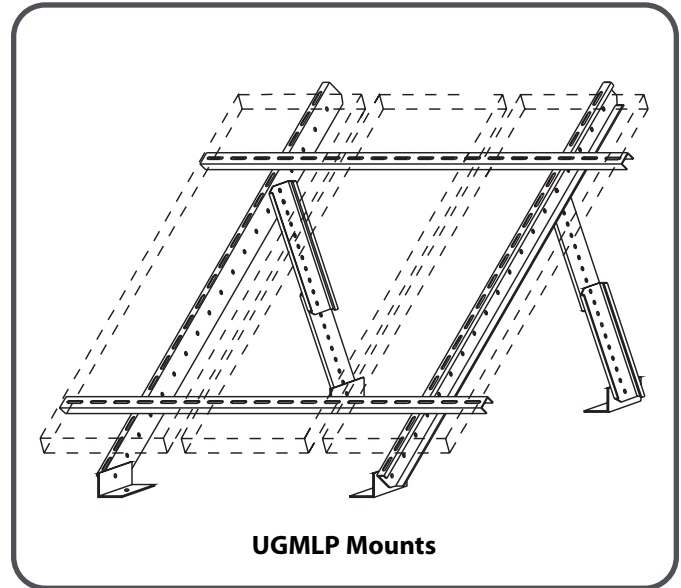
Product Name and Description	Part Number	Price	Shipping Weight (lbs.)
UGM 24	20010	\$100.00	8.0
UGM 30	20011	\$110.00	9.0
UGM 36	20012	\$120.00	10.0
UGM 48	20014	\$145.00	13.0
UGM 54	20015	\$153.00	15.0
UGM 60	20016	\$169.00	16.0
UGM 66	20017	\$184.00	17.0
UGM 72+	20018	\$200.00	18.0

Product Name and Description	Part Number	Price	Shipping Weight (lbs.)
UGM 84+	20020	\$233.00	22.0
UGM 90+	20021	\$263.00	29.0
UGM 96+	20022	\$273.00	31.0
UGM 102+	20023	\$299.00	33.0
UGM 108+	20024	\$328.00	35.0
UGM 114+	20025	\$340.00	38.0
UGM 120+	20026	\$354.00	40.0

+ Indicates oversize. UPS charges a minimum as for a package weighting 70 lbs.

Universal Roof/Ground Low Profile Mounts See Appendix C for sizing information.

Product Name and Description	Part Number	Price	Shipping Weight (lbs.)
UGMLP 72	21068	\$200.00	20.0
UGMLP 84+	21069	\$208.00	22.0
UGMLP 96+	21070	\$218.00	24.0
UGMLP 108	21071	\$226.00	26.0
UGMLP 120	21072	\$234.00	36.0
UGMLP 132	21073	\$314.00	38.0
UGMLP 144	21074	\$322.00	40.0
UGMLP 156+	21075	\$330.00	48.0
UGMLP 168+	21076	\$340.00	50.0
UGMLP 180+	21077	\$340.00	53.0
UGMLP 192+	21078	\$416.00	55.0
UGMLP 204+	21079	\$424.00	62.0
UGMLP 216+	21080	\$432.00	65.0



+ Indicates oversize. UPS charges a minimum as for a package weighing 70 lbs.

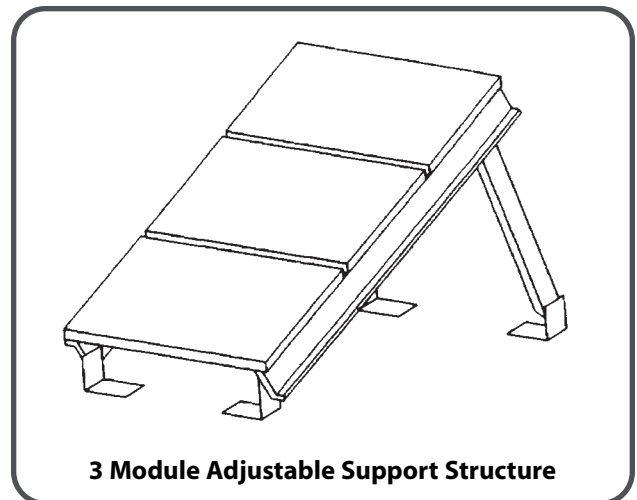


KYOCERA SOLAR, INC.

KSI Adjustable Ground Mounts

Industrial quality aluminum support structures are designed for maximum durability and corrosion resistance in all environments. Constructed of 6061-T6 structural aluminum. Features 3 inch deep support channels, 2 inch square adjustable rear telescoping legs, clear anodized finish and engineered to survive 100 mph winds. Module support channels are pre-drilled to mount 3 or 5 KC 40, 50, 60, 70, 80 or 120 modules. Includes (4) 1/4 inch thick aluminum angle mounting feet and all necessary stainless steel fasteners-type 316. Adjustable tilt angle structures are stocked in two tilt ranges: from 20 to 40 degrees, or 45 to 65 degrees from horizontal. Flat surface (roof) support structures are also offered without adjustable legs (0 degrees). Custom sizes available

Product Name and Description	Part Number	Price	Shipping Weight (lbs.)
KCS-3-0	17000	\$149.00	21.0
KCS-3-20/40	17072	\$214.00	29.0
KCS-3-45/65	17073	\$229.00	34.0
KCS-5-0	17010	\$199.00	31.0
KCS-5-20/40	17075	\$292.00	42.0
KCS-5-45/65	17076	\$317.00	51.0





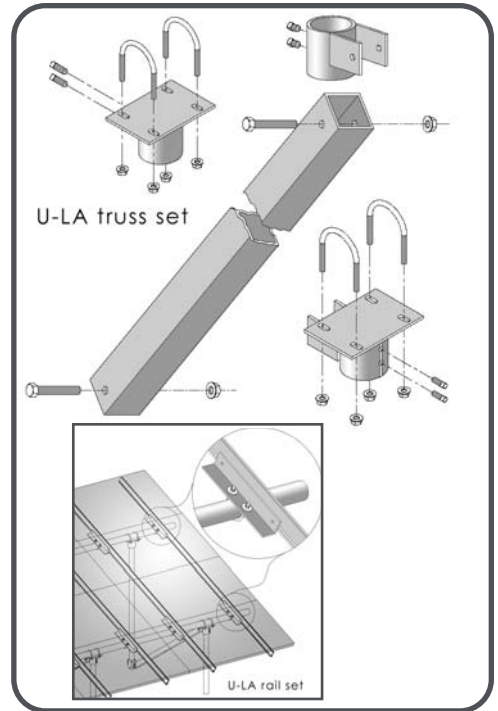
See Appendix C for sizing information

Large Array Ground Mounts

U-LA Series large array mounting system is ideal for large ground-based arrays. The system is composed of 1) rail sets, 2) truss sets and other components, and 3) 2 1/2" Schedule 40 pipe (not supplied). Consult your Kyocera representative for assistance in configuring your U-LA system for any ground based array of 12 or more modules. Mill finish aluminum.

Rail Sets			
Product Name and Description	Part Number	Price	Shipping Weight (lbs.)
U-LA/84	24216	\$160.00	14
U-LA/96	24883	\$175.00	16
U-LA/106	24884	\$190.00	18
U-LA/120	24885	\$210.00	20
U-LA/132	24886	\$230.00	22
U-LA/156	24887	\$260.00	26

Truss Sets			
Product Name and Description	Part Number	Price	Shipping Weight (lbs.)
U-LA/TRK7 - Incl 7 ft. cross brace	24888	\$160.00	14
U-LA/TRK10 - Incl 10 ft. cross brace	24889	\$175.00	16
U-LA/TRK14 - Incl 14ft. cross brace	24890	\$190.00	18

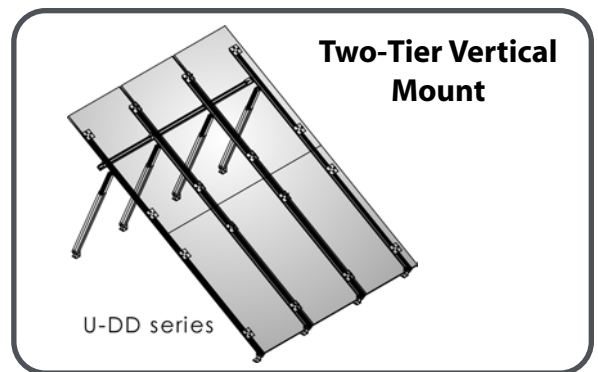


See Appendix C for sizing information

Two-Tier Tilt Up Mounts

Two-tier mounts are configured in two rows with the module length running vertically. The mounting rails are attached to the mounting holes on the back of the module. Telescoping back legs adjust tilt up to 60 degrees maximum. Lag bolts not included. Mill finish aluminum, stainless steel hardware.

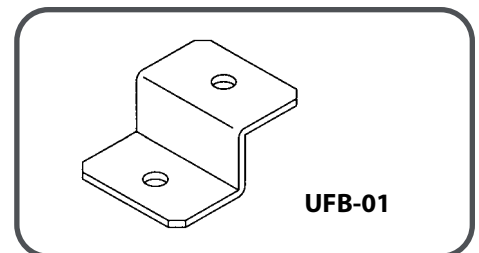
Product Name and Description	Part Number	Price	Shipping Weight (lbs.)
U-DD/60	24214	\$335.00	42
U-DD/72	24828	\$350.00	44
U-DD/84	24220	\$450.00	49
U-DD/96	23245	\$460.00	53
U-DD/104	23250	\$465.00	55



Universal Flush Mount Brackets

These brackets are especially useful for solar modules that have only intermediate frame mounting holes. They can be attached to any solar module frame and are perfect for applications that have curved or irregular surfaces.

Product Name and Description	Part Number	Price
UFB-01	23450	\$8.00



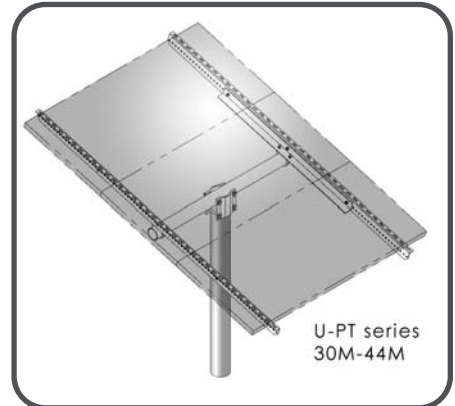
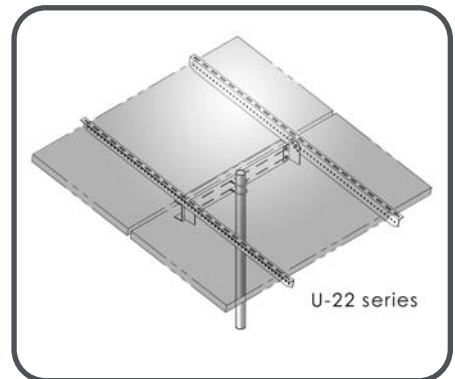
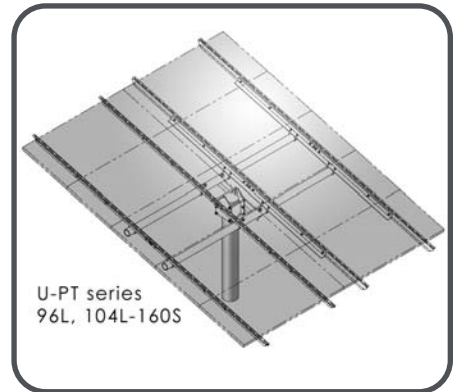
See Appendix C for sizing information

Pole Top Mounts

UNIRAC THE NEW STANDARD IN PV MODULE RACKS™

Pole top mounts are mill finish aluminum, except for grade 5 zinc plated steel pole plates for 6 in. models. Stainless steel hardware, including module mounting hardware, included. Requires Schedule 40 steel pole, not included. Tilt angle adjustment is from 15 to 60 degrees.

Product Name and Description	Part Number	Nom. Size Pole I.D. (O.D.) (in.)	Price	Shipping Weight (lbs.)
U-22/28M	23299	2.5 (2.875)	\$109.00	10
U-22/28XL	24281	2.5 (2.875)	\$123.00	11
U-22/32L	23298	2.5 (2.875)	\$119.00	11
U-22/52M	23297	3.0 (3.50)	\$139.00	12
U-22/52XL	23301	3.0 (3.50)	\$153.00	12
U-PT/30M	24350	4.0 (4.50)	\$210.00	23
U-PT/40S	24346	4.0 (4.50)	\$225.00	30
U-PT/40M	24298	4.0 (4.50)	\$235.00	30
U-PT/40L	23340	4.0 (4.50)	\$245.00	30
U-PT/44M	23324	4.0 (4.50)	\$245.00	31
U-PT/52S	23352	4.0 (4.50)	\$285.00	31
U-PT/52L	24400	4.0 (4.50)	\$320.00	39
U-PT/60L	23343	4.0 (4.50)	\$345.00	40
U-PT/80S	23356	4.0 (4.50)	\$385.00	40
U-PT/80M	24299	4.0 (4.50)	\$395.00	44
U-PT/80L	23347	4.0 (4.50)	\$420.00	48
U-PT/96L	23349	6.0 (6.625)	\$575.00	74
U-PT/104S	23359	4.0 (4.50)	\$475.00	48
U-PT/104L	23333	6.0 (6.625)	\$620.00	78
U-PT/120L	23339	6.0 (6.625)	\$685.00	79
U-PT/136S	24297	6.0 (6.625)	\$705.00	81
U-PT/136L	24296	6.0 (6.625)	\$755.00	87
U-PT/152L	24830	6.0 (6.625)	\$815.00	95
U-PT/160S	24831	6.0 (6.625)	\$795.00	88





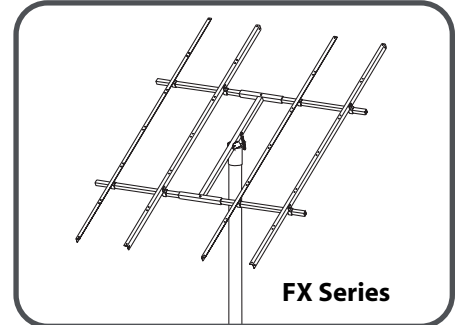
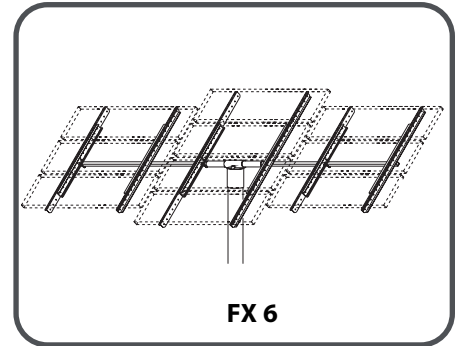
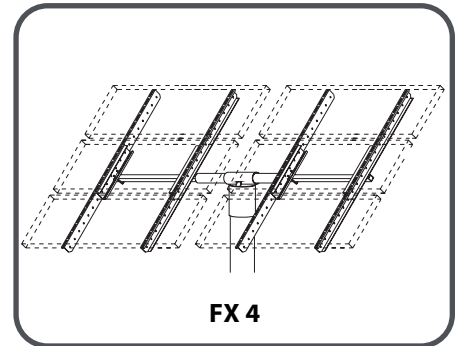
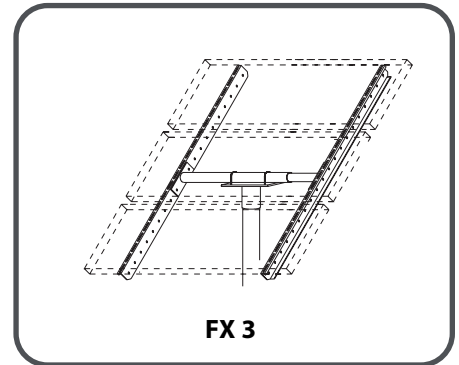
See [Appendix C](#) for sizing information.

These sturdy racks are set on poles above ground, out of the way of grazing animals or other activity on the ground. Excellent for remote sites. Stainless steel hardware.

Product Name and Description	Part Number	Nom. Size Pole I.D. (O.D.) (in.)	Price	Shipping Weight (lbs.)
FX3 - 24	20082	3.0 (3.50)	\$168.00	27.0
FX3 - 28	20090	3.0 (3.50)	\$168.00	28.0
FX3 - 52	20253	3.0 (3.50)	\$168.00	30.0
FX3 - 32	20091	3.0 (3.50)	\$168.00	28.0
FX3 - 40	20357	3.0 (3.50)	\$174.00	29.0
FX3 - 48	20094	3.0 (3.50)	\$186.00	30.0
FX3 - 52	20255	3.0 (3.50)	\$186.00	30.0
FX3 - 60	20096	3.0 (3.50)	\$194.00	31.0
FX3 - 64	20097	3.0 (3.50)	\$194.00	32.0
FX3 - 80	20356	3.0 (3.50)	\$216.00	33.0
FX3 - 92+	20104	3.0 (3.50)	\$246.00	35.0
FX3 - 96+	20105	3.0 (3.50)	\$246.00	35.0
FX4 - 452	20111	4.0 (4.50)	\$320.00	53.0
FX4 - 552	20112	4.0 (4.50)	\$320.00	55.0
FX4 - 852	20115	4.0 (4.50)	\$330.00	61.0
FX4 - 560	20256	4.0 (4.50)	\$340.00	57.0
FX4 - 860	20125	4.0 (4.50)	\$340.00	61.0
FX4 - 864	20128	4.0 (4.50)	\$345.00	64.0
FX4 - 480	20139	4.0 (4.50)	\$365.00	59.0
FX4 - 580	20140	4.0 (4.50)	\$365.00	61.0
FX4 - 780	20358	4.0 (4.50)	\$380.00	65.0
FX4 - 880	20395	4.0 (4.50)	\$380.00	67.0
FX4 - 592+	20147	4.0 (4.50)	\$400.00	64.0
FX4 - 892+	20149	4.0 (4.50)	\$400.00	70.0
FX 6-4 - 352+	20220	6.0 (6.625)	\$475.00	85.0
FX 6-4 - 416+	20221	6.0 (6.625)	\$495.00	85.0
FX 6-4 - 448	20222	6.0 (6.625)	\$515.00	85.0
FX 6-5 - 416+	20224	6.0 (6.625)	\$555.00	85.0
FX 6-5 - 480	20226	6.0 (6.625)	\$620.00	90.0
FX 6-6 - 528*	20232	6.0 (6.625)	\$650.00	105.0
FX 6-6 - 624*	20233	6.0 (6.625)	\$675.00	105.0
FX 6-8 - 320+	20241	6.0 (6.625)	\$455.00	95.0
FX 6-8 - 368+	20242	6.0 (6.625)	\$475.00	95.0
FX 6-8 - 384+	20243	6.0 (6.625)	\$495.00	95.0
FX 6-8 - 416+	20396	6.0 (6.625)	\$575.00	95.0
FX 6-8 - 608+	20245	6.0 (6.625)	\$650.00	105.0
FX 6-9 - 528*	20258	6.0 (6.625)	\$590.00	105.0
FX 6-9 - 624*	20249	6.0 (6.625)	\$650.00	125.0
FX 6-9 - 704**	20250	6.0 (6.625)	\$675.00	125.0
FX 6-9 - 800**	20251	6.0 (6.625)	\$725.00	125.0
FX 6-9 - 896**	20252	6.0 (6.625)	\$775.00	125.0
FX 90+	20270	6.0 (6.625)	\$790.00	275.0
FX120+	20271	6.0 (6.625)	\$850.00	300.0

More Features:

- Sturdy, wind-resistant construction
- Designed for 90 MPH wind loads
- Stout, welded steel gimbal and cross- bar assembly
- Heavy-duty welded steel with urethane enamel coating
- Mounts on Schedule 40 steel pipe
- Slotted, custom-formed aluminum channel accommodates any size PV module
- Easy, unlimited, seasonal adjustment



For FX3 and FX4 Series: + Indicates oversize, UPS charges a minimum as for a package weighing 70 lbs.
 For FX6 Series: + Indicates the series that can be shipped by UPS, * Indicates 3 rows of modules.
 ** Indicates 4 rows of modules.
 For FX Series: + Indicates that FX Series must ship by common carrier



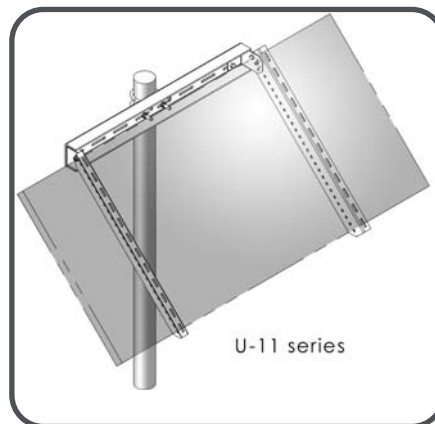
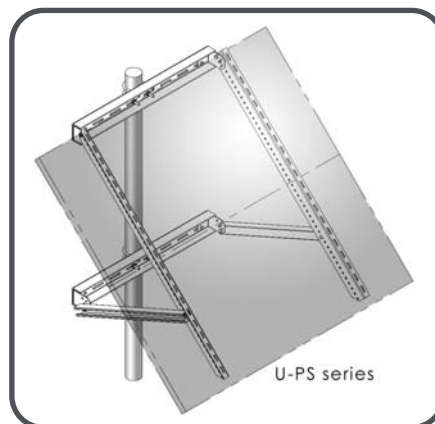
See Appendix C for sizing information

Side of Pole Mounts

Side of pole mounts feature mill finish aluminum components throughout. Stainless steel hardware, including module mounting hardware included. Requires schedule 40 pole, not included.

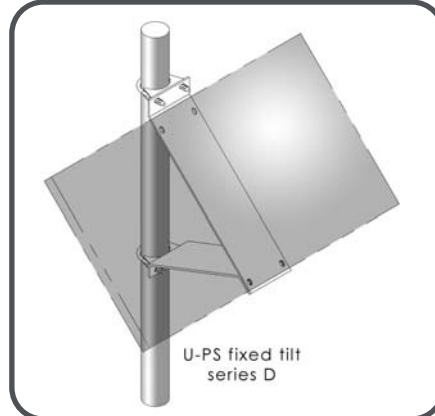
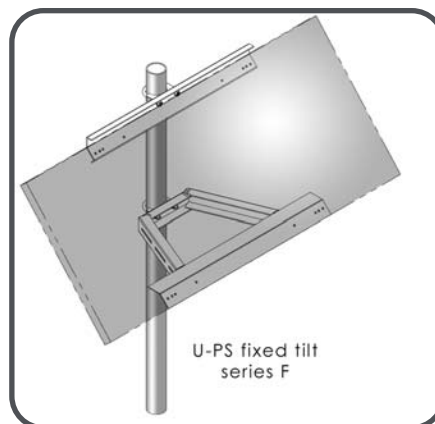
Adjustable Tilt

Product Name and Description	Part Number	Price	Nom. Size Pole I.D. (O.D.) (in.)	Shipping Weight (lbs.)
U-11/28M	23295	\$109.00	2.5 (2.875)	9.0
U-PS/26XXL	24104	\$146.00	2.5 (2.875)	12.0
U-PS/30XL	24107	\$153.00	2.5 (2.875)	14.0
U-PS/40XL	24282	\$184.00	2.5 (2.875)	20.0
U-PS/52M	23304	\$225.00	3.0 (3.50)	20.0
U-PS/52XL	24109	\$245.00	3.0 (3.50)	22.0
U-PS/60L	23302	\$245.00	3.0 (3.50)	24.0
U-PS/80M	23306	\$270.00	4.0 (4.50)	25.0
U-PS/80XL	24111	\$290.00	4.0 (4.50)	26.0
U-PS/88L	24117	\$300.00	4.0 (4.50)	26.0
U-PS/104M	24114	\$330.00	4.0 (4.50)	30.0



Fixed Tilt

Product Name and Description	Fixed Tilt Angle (deg.)	Part Number	Price	Nom. Size Pole I.D. (O.D.) (in.)	Shipping Weight (lbs.)
U-PS/14D	45	24125	\$29.00	1.5 (1.9)	3.0
U-PS/20D	45	24126	\$39.00	1.5 (1.9)	3.0
U-PS/12F	45	24832	\$69.00	2.0 (2.375)	5.0
	60	24833	\$69.00	2.0 (2.375)	5.0
U-PS/26F	45	24834	\$89.00	2.0 (2.375)	6.0
	60	24835	\$89.00	2.0 (2.375)	6.0
U-PS/26FL	45	24836	\$97.00	2.0 (2.375)	6.0
	60	24837	\$97.00	2.0 (2.375)	6.0
U-PS/29FL	45	24838	\$105.00	2.0 (2.375)	7.0
	60	24839	\$105.00	2.0 (2.375)	7.0

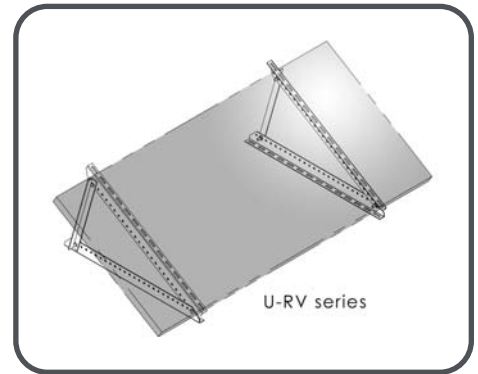


RV Mounts

Adjustable Tilt

RV mounts are designed to tilt up from either side. Wing bolts ease the raising and lowering of the module. Legs adjust tilt up to 60 degrees maximum. Stainless steel module mounting hardware provided. Bolts or screws to attach the rack to the RV not included.

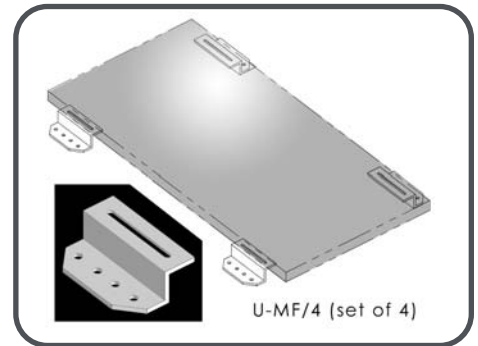
Product Name and Description	Part Number	Modules	Price	Shipping Weight (lbs.)
U-RV/26/KC	23368	1 - KC 120, 80, 60, 40	\$70.00	6
U-RV/32	23372	1 - US64, 42	\$75.00	7
U-RV/52	24841	2 - KC 120's	\$100.00	12.0



Mounting Feet

Mounting feet have great flexibility because of a long slot to attach to the mounting holes on the modules rail, and multiple mounting holes for attachment to the RV roof. Large foot area also allows for adequate adhesive, if used. Bolts or screws to attach to RV not included.

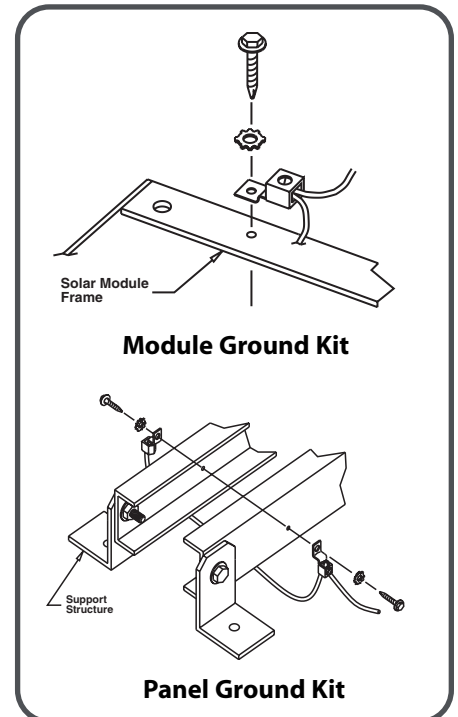
Product Name and Description	Part Number	Price	Shipping Weight (lbs.)
U-MF/4	24840	\$18.00	1



System Grounding Accessories

The following items and kits will help you properly ground your system to minimize the shock potential and the possibility of lightning damage.

Product Name and Description	Part Number	Price
Ground Rod Kit - Comes complete with 5/8" by 8' copper clad steel rod, 10' of #6 AWG wire, copper ground rod clamp and copper ground lug with stainless steel hardware.	42800	\$35.00
Module Ground Kit (Fits KC Series) - Copper lug, #6 AWG x 30" wire and hardware for grounding module frame(s).	42804	\$9.00
Panel Ground Kit - Copper lug, #6 AWG x 96" wire and hardware for grounding module frame(s).	42805	\$12.00
Ground Rod Clamp - 5/8"	42795	\$2.00
Ground Lug (Copper) - Set screw type, 70A, #2 to #8 AWG, 1/4" hole.	42797	\$2.00
Ground Wire - Bare #6 AWG	42796	\$0.30/ft.
Two-Piece Ground Rod Kit - Not UL listed. Easy to ship international. Contains all material as PN 42800 except different ground rod.	7102-0097	\$31.00



See Appendix C for sizing information

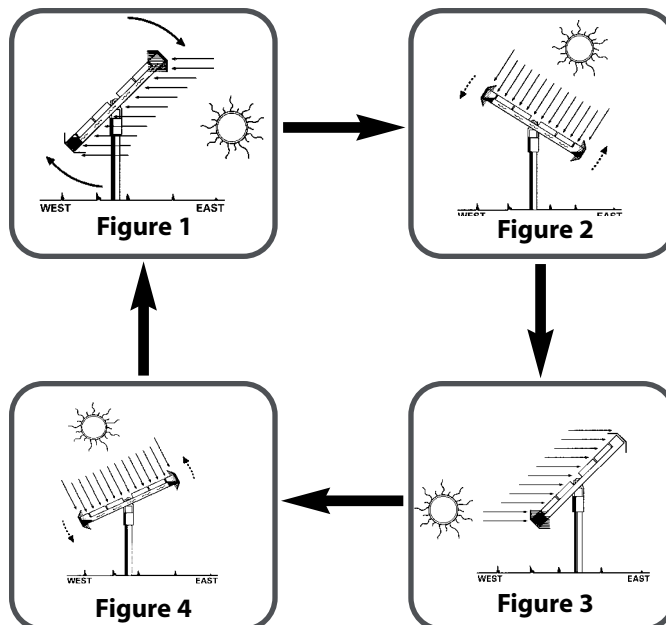
Passive Trackers

A tracker mount follows the path of the sun from east to west, keeping the solar modules facing directly toward the sun from dawn to dusk. This can result in a 25% increase in your daily energy production during the summer as compared to the same solar array on a fixed mount. The trackers operate passively (see how they work below) without any motors, gears or pistons to wear out making them almost as dependable as gravity and the heat of the sun. These units are ideal for water pumping systems since power is produced in a gradual dawn to dusk flow rather than around a noon peak. The north-south tilt axis can be adjusted seasonally for peak performance throughout the year. The use of a tracker increases the amount of water pumped per day and makes the most of your solar modules and pump.

How the Tracker Follows the Sun

The Tracker begins the day facing west (see figure 1). As the sun rises in the east it heats the unshaded west

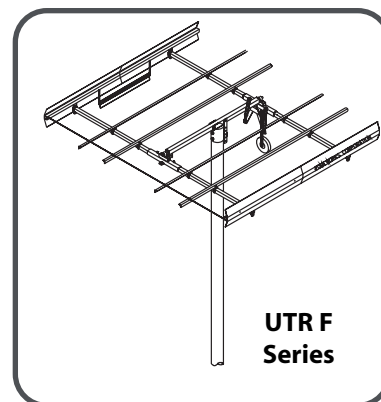
side canister from behind the solar array forcing liquid through an interconnecting copper tube and into the shaded east side canister. As this happens, the east side canister becomes heavier causing the tracker to rotate to the east. The movement of the liquid is controlled by the aluminum shadow plates mounted on the outside of each canister. When one canister is exposed to the sun more than the other, its vapor pressure increases which forces liquid freon to the cooler shaded side. As the sun moves across the sky from east to west (see figures 2 and 3) the Track Rack follows it at approximately 15° per hour continually seeking equilibrium as liquid freon moves from one side of the tracker to the other. The tracker ends the day facing west (see figure 4) where it sits waiting for the sun to rise in the east the next morning to start the cycle all over again.



Universal Track Rack



The Zomeworks universal passive Track Rack can increase solar array daily power output by 25% or more. The adjustable single-axis passive solar tracker follows the sun by heated liquid flowing between east and west sealed canisters. Tracker rails adjust along the East-West canister to allow for varied module lengths. The UTR is designed to withstand 90 MPH winds. Five universal models "each size fits all modules" design, supports various quantities of Kyocera (KC), Uni-Solar (US), and other manufacturers' modules. Ten year limited warranty. The High Wind Upgrade Kit (HWU) is recommended for stabilizing the tracker in areas where there are frequent high winds. This kit can be ordered with your tracker or purchased later as an add-on. The High Wind Upgrade Kit consists of an additional set of shock absorbers, a shock mounting bracket, a bumper bolt to protect the shock absorbers from the tracker rails, and a heavy duty seasonal adjustment bar. The High Wind Upgrade Kit is not available for the UTR 020 tracker.



Product Name and Description	Part Number	Price	Shipping Weight (lbs.)	Pole Size (SCH 40 Steel Pipe) (in.)	Minimum Pole Height (in.)	Minimum Pole Depth (in.)
UTR 020	20370	\$490.00	108.0	2.5	75	38
UTR 040	20371	\$860.00	232.0	3.0	84	42
UTR F 64	20382	\$1320.00	400.0	6.0	96	48
UTR F 90	20391	\$1493.00	490.0	6.0	108	54
UTR F 120	20392	\$1686.00	525.0	6.0	120	60
UTR F 168	20405	\$2250.00	600.0	8.0	144	72
UTR-040-HWU*	20900	\$130.00	40.0	-	-	-

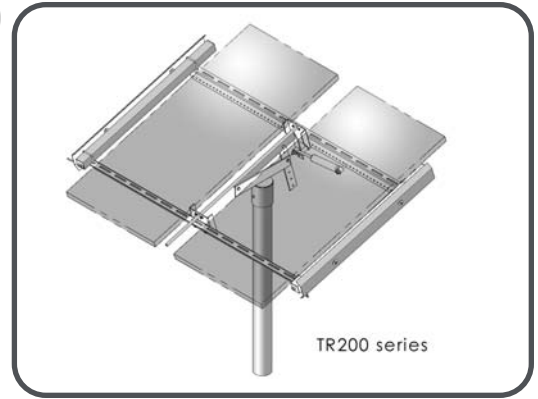
*Requires Track Rack modification if purchased as an add-on.

Tracker 200



THE NEW STANDARD IN PV MODULE RACKS™

Tracker 200 is a pole-mounted, passive tracking rack for 2 PV modules. Tracker 200 equipped modules produce more power for your equipment earlier, longer and later each day. In the case of a water pumping system, a Tracker 200 can increase your daily water production by up to 50%. when compared to fixed racks. Ten year warranty. Fits 2 1/2" SCH 40 pole.



Product Name and Description	Part Number	Price	Shipping Weight (lbs.)
T200/68 - All Kyocera Models	24500	\$520.00	75.0
T200/80 - US-64's	24501	\$535.00	75.0



See Appendix C for sizing information

Active Trackers

WATTSUN Trackers

Wattsun Solar Trackers are available in five models. Your selection of a specific Wattsun tracker depends on your application and PV array size.

Wattsun Single-Axis Tilt & Roll Trackers automatically track the sun from East to West. The TR-Series Trackers employ a Linear Actuator Drive for precise tracking accuracy. The frames are fabricated from sturdy structural aluminum finish and engineered for rigidity. The TR-15 Drive is perfect for small, two-panel water pumping applications. The larger TR-75 Drive marries well to larger pumping systems. Trackers offer a significant increase in the amount of water pumped and provide a smooth flow of water from dawn to dusk. The solid state tracker controller electronics and positive drive mechanisms of all the trackers are unaffected by wind or cold, an important concern for remote water pumping applications. PV racking capacity ranges from 120 to 720 Watts per tracker.



Wattsun Azimuth Gear Drive Trackers automatically track the sun by rotating the PV array about the pipe mast. The Dual-Axis Option automatically elevates the array and enables it to capture virtually all the power the sun delivers. Compared to passive, tilt and roll trackers, The AZ-125 and AZ-225 azimuth trackers provide greater stability for large arrays. The corners do not protrude down toward 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 designs. The standard Azimuth Trackers provide nearly 270 degrees of rotational movement tilt to 75 degrees. PV racking capacity ranges from 900 to over 2000 Watts per tracker. Larger fixed-tilt, AZ-225 azimuth trackers with a capacity of 3000 watts are available. Please specify your system requirements when ordering.

If your PV system voltage is not 24 volts, you will need a Wattsun voltage converter.

Wattsun Solar Trackers for KC60's		
Product Name and Description	Part Number	Price
2 modules	20410	\$495.00
4 modules	20411	\$1195.00
6 modules	20412	\$1245.00
8 modules	20413	\$1295.00
12 modules	20414	\$1795.00
16 modules	20415	\$1995.00
20 modules	20416	\$2195.00

Wattsun Solar Trackers for KC80's		
Product Name and Description	Part Number	Price
2 modules	20417	\$495.00
4 modules	20418	\$1195.00
6 modules	20419	\$1295.00
8 modules	20420	\$1345.00
10 modules	20421	\$1395.00
12 modules	20422	\$1795.00
16 modules	20423	\$2195.00
24 modules	20424	\$3750.00

The prices above are only for mounting KC 120-1 modules. Other models are available. Specify number and model of the modules you are using when ordering.

Wattsun Solar Trackers for KC120's

Product Name and Description	Part Number	Price
4 modules	20456	\$1195.00
6 modules	20457	\$1245.00
8 modules	20458	\$1895.00
10 modules	20549	\$1995.00
12 modules	20466	\$2295.00
18 modules	20467	\$3950.00

Wattsun Solar Trackers for KC158's

Product Name and Description	Part Number	Price
4 modules	20425	\$1295.00
6 modules	20426	\$1795.00
8 modules	20427	\$1995.00
12 modules	20428	\$3750.00
16 modules	20429	\$4495.00

Wattsun Solar Trackers for US64's

Product Name and Description	Part Number	Price
2 modules	20430	\$1195.00
4 modules	20431	\$1245.00
6 modules	20432	\$1295.00
8 modules	20433	\$1795.00
10 modules	20434	\$1995.00

**Wattsun Tracker Accessories**

Product Name and Description	Part Number	Price	Shipping Weight (lbs.)
W12-24 15W For 12V TR-75 Systems	20406	\$125.00	1.0
W48-24 LVC For 48V AZ-125 Azimuth Tracker Systems	20407	\$78.00	1.0
W48-24 HD For 48V AZ-225 Azimuth Tracker Systems	20408	\$130.00	1.0
WSP100-24 For "Battery-less" Grid-Tie Systems and High Voltage Water Pumping Systems	20409	\$165.00	2.0
W D/A Dual-Axis option for AZ-125 Trackers	20490	\$395.00	20.0
W-MANCON Manual Control Switch, Factory Installed	20502	\$125.00	1.0