Welcome to the SunWize® Solar Electric Catalog

The solar industry has experienced significant growth over the past year due to the utility grid-tie market. More and more homeowners are realizing the benefits of generating their own electricity, and solar equipment manufacturers are responding with a larger variety of modules, inverters and other components.

The 10th edition of the SunWize catalog provides you with more information and more selections. Our new format begins with grid-tie systems – how they work, benefits and features, and the components used in these systems. Headlining this section is one of our newest offerings developed by SunWize engineers, Grid-Tie System (GTS) packages. GTS packages offer top quality UL listed components and include all the parts and documentation necessary for a successful installation.

Our comprehensive off-grid section presents all the systems and products you'll need for your off-grid applications. Be sure to review the SunWize® Power Station and Power Ready System pages for cost-effective system solutions for remote site power. SunWize pre-engineered systems ensure an easier installation, provide reliable power and require little maintenance.

You will also find power solutions for water pumping, lighting and portable power as well as switchgear, wire and cable and hardware sections. Use our design guide to determine what size solar system you need for your load. We recommend you contact an experienced solar energy dealer to help you choose the appropriate equipment for your project and to ensure a quality installation that meets all local safety guidelines. All prices are US Dollars and subject to change without notice.

Welcome to the clean, sustainable world of solar electricity.

All products in this catalog are available from Your Authorized SunWize Dealer

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David Kulik, President; Jeffrey Fahey, Art Director; Laurie DuBois, Marketing Manager; Russ Campbell, Senior Product Manager. Visit us online at: www.sunwize.com
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Table of Contents

Grid-Tie Systems

Off-Grid Systems

System Components

Windpower/Water Pumping

Lighting

Module Mounts

Electrical/Hardware

Design Guide

Five Steps to Sizing a PV System is available online on the SunWize Catalog page.

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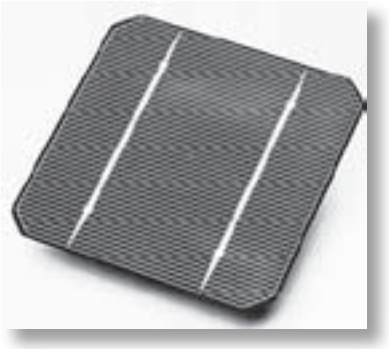
Reliable People ::: Reliable Products ::: Reliable Power!

How Solar Electricity Works



The photovoltaic effect is the basic physical process through which a solar cell converts sunlight into electricity. When sunlight strikes a semiconductor material, such as silicon, the electrons in the molecules become excited which creates energy. These “energized” electrons flow in one direction when given a path to follow generating an electrical current. Solar cells also produce voltage which pushes the current through electrical loads such as lights. Solar cells create energy without chemical reactions and without moving parts.

The solar cell (typically made of crystalline silicon) is the basic building block of a solar module. Each module consists of a group of cells wired together. Modules wired together create an array.

Modules interconnected together are called a sub-array and these connected together comprise a total solar array

Solar Module Specifications

Solar radiation is the energy the earth receives every day as photons of light travel through space. The PV industry calculates the radiation on a 1 square meter piece of earth, at noon on a clear day with the sun directly overhead, as 1000 watts or one “peak sun”. Solar modules are rated by their power output when exposed to one “peak sun”. The output of a solar module depends upon light intensity and temperature. The full sunshine required for rated output often heats the module to temperatures much higher than 25ºC and power generation drops as the cell temperature increases. In low light or cloudy conditions the output of the PV module also declines.

Other specifications include:

Watt: Standard unit rating of module power output (W). Watts = amps X volts.

Volt: Standard unit of electrical potential (V) or measure of the strength of an electrical source.

Amp: A measure of current (A) or quantity of electricity.

Vmp: Maximum available voltage.

Voc: Open circuit voltage. An open circuit occurs when contacts, switches or similar devices are open and prevent the flow of current. Used to determine if the module is within the maximum voltage of an inverter.

Imp: Maximum available current. Determines maximum current an array can deliver at optimum conditions.

Isc: Short circuit current. A short circuit occurs when there is an improper connection that interrupts an electrical circuit. Used to determine appropriate fuse sizes.

For more information, visit the Sandia National Laboratory web site, www.sandia.gov/pv or the National Renewable Energy Laboratory web site, http://www.eere.energy.gov/solar/pv_basics.html.

SunWize Pre-Engineered Systems

SunWize pre-engineered systems offer the best value for system specifiers, installers and consumers alike. All components have been carefully evaluated for their suitability and approved by the appropriate listing agencies. In addition to being mechanically complete, all of our systems include an extensive documentation package expediting the entire process of installing and commissioning a PV system. Inspectors appreciate being presented with detailed installation drawings and documentation. A factory engineered system has a positive cost effect from increased productivity and results in a more professional-looking installation.

Introduction

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Reliable People ::: Reliable Products ::: Reliable Power!

Grid-Tie Systems

Grid-tie systems use solar energy to generate AC utility grade electricity to run appliances in your house or business. In states with net metering laws, any excess electricity your system produces is fed into the utility grid causing your meter to run backwards and lowering your electric bill. A grid-tie system is quiet and operates automatically. The system 'wakes' up and begins to deliver power as the sun rises and 'goes to sleep' as the sun sets. Many homeowners and business owners are realizing the benefits of generating their own electricity:

- ***Reduce electric bills • Increase the value of your building***
- ***Solar modules have up to a 25-year warranty***
- ***Low maintenance systems produce electricity from free sunlight - watch your meter spin backwards!***
- ***Protect against future rate increases • Systems typically have a lifetime of 40+ years***
- ***Reduce the burning of fossil fuels contributing to a healthier environment***
- ***Use utility, federal and state incentives where available to reduce the total cost of the system***

SunWize Grid Tie Systems (GTS)

SunWize GTS packages generate clean energy from the sun with top quality, UL listed components. Multiple systems can be installed for higher power output and systems may also be expanded in the future as budget or electrical requirements grow. Every component needed for a successful installation is included in the package. In addition to modules and inverters, each package includes UniRac® Solar Mount mounting hardware, cables, and all necessary hardware and electrical components. Your installer supplies the wiring from the solar array to the main panel. Packages also include complete documentation, an installation guide and operation manual. All modules carry a minimum 20-year warranty on power output and inverters carry a 5-year warranty. GTS packages can be installed on any type of composition or tile roof. The array is securely attached to the roof of the building with the mounts in compliance with US building codes.

Contact a SunWize dealer to discuss which system best suits your power requirements. Only experienced solar energy dealers or electrical contractors should install GTS systems. Call SunWize, 800-817-6527 for a dealer nearest you or visit our web site, www.sunwize.com for more information.

SunWize GTS Packages

The Sharp JH-3500U SunVista (above), and the Xantrex GT (below) are two of the grid-tie inverters offered in GTS packages

GTS Packages allow you to choose either Sanyo or Sharp solar modules and select from a variety of inverters. Your GTS Package will include:

1. Either Sanyo® 190W solar modules (HIP-190BA3) or a variety of Sharp® solar modules. All modules are supplied with "MC" interconnects.

2. UniRac® SolarMount™ code-compliant flush PV mounting structure including rail set with L–feet, top–clamps and splice kits.

3. Pre-wired SunWize Power Center (except for the Xantrex GT and Sharp SunVista) for the grid-tie inverter consisting of an aluminum back panel, NEMA 3R, AC and DC disconnect switches and an optional cumulative kWh utility-grade meter. The Power Center is designed to facilitate easy on-site installation of the inverter.

4. One of the following grid-tie inverters: • Xantrex GT • Sharp SunVista • PVP 2900, 2800-XV • SMA SB1800U, SB2500U, SB3800U or SB6000U • Fronius IG2000, IG2500-LV, IG3000, IG4000, IG4500-LV or IG 5100.

5. Wiring – Includes #10 AWG MC interconnect extension cords and wire clips, PV grounding system, PV fused combiner if needed and array wiring pull boxes. The home-run wiring from the solar array to the main panel is supplied by the installer.

6. Documentation - Includes electrical drawings, data sheets, warranties, installation instructions and owner's manual.

The following charts show our most popular GTS Packages. Other systems are available.

SunWize GTS Packages with Sharp 175W PV Modules

GTS Part Number	PV Module Model	PV# Series x Parallel	Inverter Model	Inverter Max (kW)	PV Array Watts (STC)	PV Array Watts (PTC)	PV String Voc (Vdc)	Output Vac	MSRP
999GTS300	NT-175U1	6 X 1	SB1800U	1.8	1050	926.4	266	120	$11,200.00
999GTS301	NT-175U1	7 X 1	SB1800U	1.8	1225	1080.8	311	120	$12,500.00
999GTS303	NT-175U1	6 X 2	SB1800U	1.8	2100	1852.8	266	120	$19,300.00
999GTS304	NT-175U1	8 x 3*	SB3800U	3.8	4200	3705.6	355	240	$36,700.00
999GTS305	NT-175U1	7 x 3*	SB3800U	3.8	3675	3242.4	311	240	$32,700.00
999GTS306	NT-175U1	9 x 2	SB3800U	3.8	3150	2779.2	400	240	$28,300.00
999GTS320	NT-175U1	7 X 1	IG2000	2	1225	1080.8	311	240	$12,600.00
999GTS321	NT-175U1	8 X 1	IG2000	2	1400	1235.2	355	240	$13,900.00
999GTS322	NT-175U1	9 X 1	IG2000	2	1575	1389.6	400	240	$15,300.00
999GTS323	NT-175U1	6 X 2	IG2000	2	2100	1852.8	266	240	$19,400.00
999GTS340 (999GTS330)	NT-175U1	7 X 2	IG3000	2.7 (2.9)	2450	2161.6	311	240 (208)	$22,300.00
999GTS341 (999GTS331)	NT-175U1	8 X 2	IG3000	2.7 (2.9)	2800	2470.4	355	240 (208)	$25,000.00
999GTS342	NT-175U1	9 X 2	IG3000	2.7	3150	2779.2	400	240	$27,700.00
999GTS370 (999GTS360)	NT-175U1	7 X 2	PVP2800-XV	2.8 (2.9)	2450	2161.6	311	240 (208)	$22,300.00
999GTS371 (999GTS361)	NT-175U1	8 X 2	PVP2800-XV	2.8 (2.9)	2800	2470.4	355	240 (208)	$25,000.00
999GTS372 (999GTS362)	NT-175U1	9 X 2	PVP2800-XV	2.8 (2.9)	3150	2779.2	400	240 (208)	$27,700.00
999GTS375	NT-175U1	9 x 3	SB6000U	6	4725	4168.8	400	240	$42,700.00
999GTS376	NT-175U1	10 X 3 *	SB6000U	6	5250	4632	444	240	$46,600.00
999GTS377	NT-175U1	9 X 4*~/	SB6000U	6	6300	5558.4	400	240	$55,100.00
999GTS378	NT-175U1	11 X 3*	SB6000U	6	5775	5095.2	488	240	$50,700.00
999GTS379	NT-175U1	10 X 4*~/	SB6000U	6	7000	6176	444	240	$60,500.00
999GTS380	NT-175U1	7 X 2	GT2.5	3	2450	2161.6	311	240	$21,600.00
999GTS381	NT-175U1	8 X 2	GT2.5	3	2800	2470.4	355	240	$24,300.00
999GTS382	NT-175U1	9 X 2	GT3.0	3	3150	2779.2	400	240	$27,200.00
999GTS383	NT-175U1	10 X 2	GT3.0	3	3500	3088	444	240	$29,900.00
999GTS384	NT-175U1	7 X 3~	GT3.3	3	3675	3242.4	311	240	$31,900.00
999GTS390	NT-175U1	7 x 3	JH3500U	3.5	3675	3242.4	311	240	$31,700.00
999GTS395	NT-175U1	7 X 3*	IG4000	4	3675	3242.4	311	240	$33,400.00
999GTS397	NT-175U1	8 X 4*~/	IG5100	5.1	5600	4940.8	355	240	$48,800.00
999GTS398	NT-175U1	7 x 5 *~/	IG5100	5.1	6125	5404.0	311	240	$53,000.00

Note: Part Numbers within parenthesis indicate that 208 Vac versions are available for three phase installations. * –denotes fused DC switch; ~ –denotes PSPV combiner; / – denotes split output PSPV. GTS Options: M – Utility grade kWh meter (adds to power center); T – For tile roof (add tile-trac sets); Z – without mounting structure.
GTS systems must be installed by a qualified electrical or solar contractor.

SunWize GTS Packages

SunWize GTS Packages with Sanyo HIP-190BA3 190 Watt PV Modules

GTS Part Number	PV Module Model	PV# Series x Parallel	Inverter Model	Inverter Max (kW)	PV Array Watts (STC)	PV Array Watts (PTC)	PV String Voc (Vdc)	Output Vac	MSRP
999GTS500	HIP-190BA3	4 X 2	SB1800U	1.8	1520	1429.6	270	120	$15,200.00
999GTS502	HIP-190BA3	5 X 2	SB1800U	1.8	1900	1787	338	120	$18,200.00
999GTS511	HIP-190BA3	7 X 2	SB2500U	2.5	2660	2501.8	473	240	$24,500.00
999GTS512	HIP-190BA3	6 X 2	SB2500U	2.5	2280	2144.4	405	240	$21,500.00
999GTS513	HIP-190BA3	5 x 4~/	SB3800U	3.8	3800	3574.0	338	240	$34,500.00
999GTS514	HIP-190BA3	6 x 3	SB3800U	3.8	3420	3216.6	405	240	$31,300.00
999GTS520	HIP-190BA3	6 X 1	IG2000	2	1140	1072.2	405	240	$12,200.00
999GTS521	HIP-190BA3	4 X 2	IG2000	2	1520	1429.6	270	240	$15,200.00
999GTS522	HIP-190BA3	5 X 2	IG2000	2	1900	1787	338	240	$18,200.00
999GTS540 (999GTS530)	HIP-190BA3	6 X 2	IG3000	2.7 (2.35)	2280	2144.4	405	240 (208)	$21,600.00
999GTS541 (999GTS531)	HIP-190BA3	5 X 3	IG3000	2.7 (2.35)	2850	2680.5	338	240 (208)	$26,100.00
999GTS542 (999GTS532)	HIP-190BA3	4 X 4~/	IG3000	2.7 (2.35)	3040	2859.2	270	240 (208)	$27,900.00
999GTS544	HIP-190BA3	6 X 3	IG4000	4	3420	3216.6	405	240	$32,000.00
999GTS546 (999GTS547)	HIP-190BA3	5 X 4~/	IG4000	4 (4.5)	3800	3574	338	240 (208)	$35,300.00
999GTS620 (999GTS548)	HIP-190BA3	6 X 4~ /	IG5100	5.1 (4.5)	4560	4288.8	405	240 (208)	$41,700.00
999GTS622 (999GTS549)	HIP-190BA3	5 X 5 ~/	IG5100	5.1 (4.5)	4750	4467.5	338	240 (208)	$43,200.00
999GTS623	HIP-190BA3	6 X 5 ~/	IG5100	5.1	5700	5361	405	240	$50,800.00
999GTS580	HIP-190BA3	3 X 6 ~ /	JH3500U	3.5	3420	3216.6	202.5	240	$30,900.00
999GTS581	HIP-190BA3	3X4 (+ 4X2)	JH3500U	3.5	3800	3574	202.5 (270)	240	$33,900.00
999GTS583	HIP-190BA3	4 X 6	JH3500U	3.5	4560	4288.8	270	240	$39,700.00
999GTS590	HIP-190BA3	7 X 2	GT2.5	3	2660	2501.8	473	240	$23,800.00
999GTS591	HIP-190BA3	6 X 2	GT2.5	3	2280	2144.4	405	240	$20,800.00
999GTS592	HIP-190BA3	5 X 2	GT2.5	3	1900	1787	338	240	$17,800.00
999GTS594	HIP-190BA3	5 X 3~	GT3.0	3	2850	2680.5	338	240	$25,800.00
999GTS596	HIP-190BA3	6 X 3~	GT3.0	3	3420	3216.6	405	240	$30,400.00
999GTS600	HIP-190BA3	6 X 4~/	SB6000U	6	4560	4288.8	405	240	$42,600.00
999GTS601	HIP-190BA3	6 X 5~/	SB6000U	6	5700	5361	405	240	$51,700.00
999GTS602	HIP-190BA3	6 X 6~/	SB6000U	6	6840	6433.2	405	240	$60,800.00
999GTS603	HIP-190BA3	7 X 4~/	SB6000U	6	5320	5003.6	473	240	$48,500.00
999GTS604	HIP-190BA3	7 X 5 ~/	SB6000U	6	6650	6254.5	473	240	$59,100.00

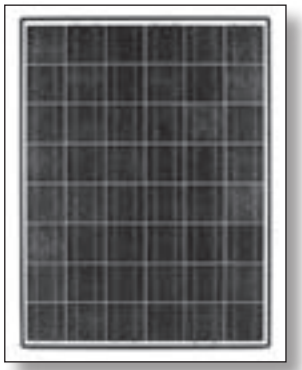
Note: Part Numbers within parenthesis indicate that 208 Vac versions are available for three phase installations. * –denotes fused DC switch; ~ –denotes PSPV combiner; / – denotes split output PSPV. GTS Options: M – Utility grade kWh meter (adds to power center); Z – without mounting structure.

SunWize GTS Packages offer a variety of grid-tie inverters mounted on a pre-wired SunWize Power Center. Shown below (l to r) are the PVP 2800, Fronius IG 2000 and SMA 1800.

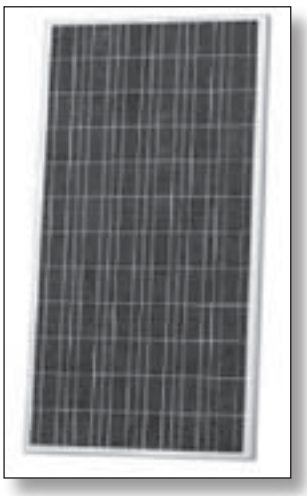
Grid-Tie Modules

Modules for grid-tie applications

The modules shown in this section of the catalog are primarily used in grid-tie applications. Many of them have higher output voltages and are designed specifically for use with string inverters having input voltages ranging from 300-550 Vdc. These solar modules will also perform well in off grid application, particularly when MPPT charge controllers are employed. Additional modules for off-grid application are on pages 23-29.



Sharp 167W module



Sharp 170W module

Sharp

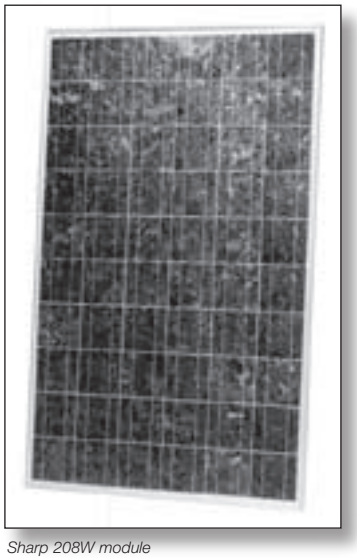
Solar Modules

Sharp modules are designed for a variety of electrical power requirements. The modules have superb durability to withstand rigorous operating conditions. All are built in ISO 9001 certified facilities.

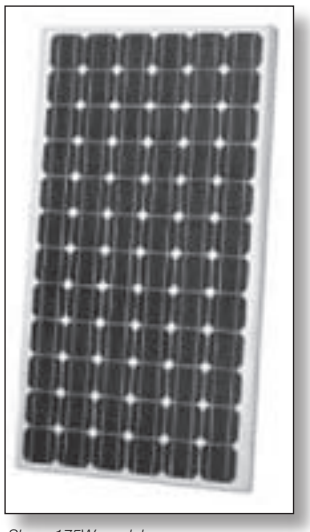
The 167, 140 and 70 watt models have black, anodized, aluminum frames. The 140 and 70 watt modules have an "L" hook design located along the perimeter of their frames. The triangular 70 watt modules are matched with 140's to offer design flexibility for roof line aesthetics. All three models are constructed with multi-crystal silicon cells. The 170 and 175 watt modules have clear anodized aluminum frames. Each module is constructed of 72 series cells. The 170 uses poly-crystalline and the 175 uses single crystal silicon cells.

All Sharp modules have bypass diodes to minimize power drop caused by shade. Each module comes with 51” #10 AWG lead wires with male and female Multi Contact® (MC) connectors. All modules are listed to UL1703 and cUL, and carry a 25-year warranty.

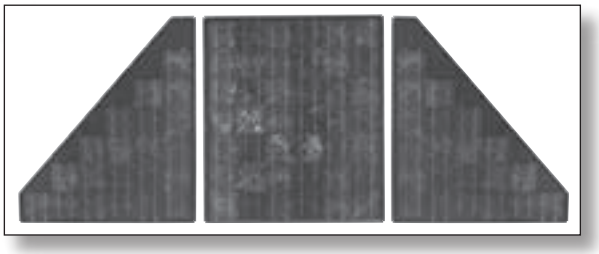
Model	Watts	Vmp	Imp	Voc	Isc	Dimensions in.	Weight lb.	MSRP
ND-070ERU (right)	70	9.98	7.02	12.43	7.81	45.86 x 38.98 x 1.81	26.90	$765.00
ND-070ELU (left)	70	9.98	7.02	12.43	7.81	45.86 x 38.98 x 1.81	26.90	$765.00
ND-N0ECU	140	19.95	7.02	24.85	7.81	45.86 x 38.98 x 1.81	31.96	$1029.00
ND-167U3A	167	23.5	7.10	29.00	7.91	51.90 x 39.10 x 1.81	35.27	$1209.00
NE-170U1	170	34.8	4.90	43.20	5.47	62.01 x 32.52 x 1.81	37.49	$1255.00
NT-175U1	175	35.4	4.95	44.40	5.55	62.01 x 32.52 x 1.81	37.49	$1455.00
ND-208U1	208	28.5	7.30	36.10	8.13	64.60 x 39.10 x 1.81	46.30	$1515.00



Sharp 208W module



Sharp 175W module



Sharp 70W and 140W modules

Grid-Tie Modules

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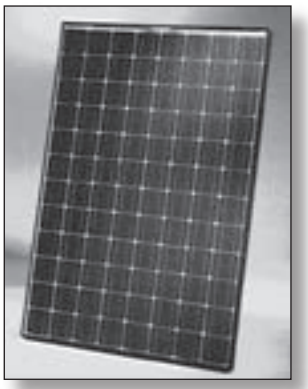
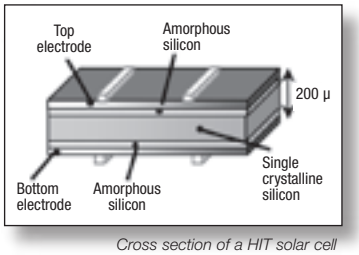


Sanyo 190 watt HIT module

Sanyo

Sanyo HIT Solar Modules

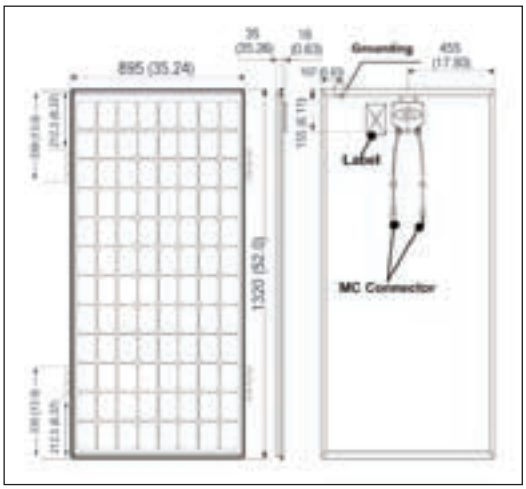
The HIP-190BA3 and HIP-200BA3 modules use Sanyo HIT solar cells which are made of a thin single crystal silicon wafer surrounded by ultra-thin amorphous silicon layers. These cells offer superior temperature characteristics compared to conventional crystalline silicon cells. This results in higher energy output at elevated cell temperatures — a very useful feature on a hot roof. HIT modules have the leading industry PTC ratings per watt (W ptc) resulting in higher rebates per name plate watt in some state programs including California's. Field data demonstrates up to a 10% increase in delivered energy at a cell temperature of 75ºC.

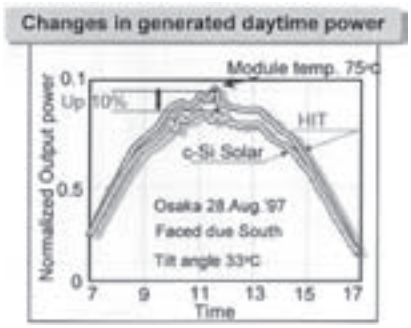


Cross section of a HIT solar cell

High Output - Sanyo's unique HIT solar cells are a hybrid of technologies. As outside temperatures rise, HIT cells produce more electricity than conventional solar cells at the same temperature

High Power & Efficiency - Powerful Sanyo modules convert more sunlight into electricity, increasing power produced and reducing the number of solar modules and space needed for installation.





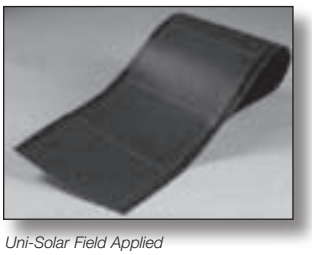
Each module has two USE-2 #12 AWG lead wires with male and female Multi Contact® connectors. Bypass diodes are factory installed. The dark bronze anodized aluminum frames are designed with "L" hooks for easy top-down mounting. UL listed to UL1703 and cUL. Twenty-year limited warranty.

Model	Watts	Vmp	Imp	Voc	Isc	Dimensions in.	Weight lb.	MSRP
HIP-190BA3	190	54.8	3.47	67.5	3.75	51.97 x 35.20 x 1.4	31	$1,635.00
HIP-200BA3	200	55.8	3.59	68.7	3.83	51.97 x 35.22 x 1.4	31	$1,720.00

Project Spotlight

Shown above is a GTS 597 package utilizing Sanyo 190 watt modules that was completely installed by a crew of three in less than a day.

Grid-Tie Modules



Uni-Solar Field Applied PV Roofing Laminate

UNI-SOLAR® Roofing Products

Field Applied PV Roofing Laminate

These thin-film solar laminates can be applied to standing seam metal roofing materials in the field for a total custom look. You don't have to compromise the aesthetics of your home to get the energy independence you want. The PVL Roofing Laminates are made exceptionally durable by encapsulation in UV stabilized polymers. Bypass diodes are connected across each cell, allowing the modules to produce power even when partially shaded. They come with the bonding adhesive factory applied on the back of the laminate. Rugged, weatherproof junction box.

• Lightweight, flexible product construction • Easy peel and stick installation • Roll shippable
• UL listed, 20-year warranty (only on products installed by a Uni-Solar certified installer).

Model	Watts	Vmp	Imp	Voc	Isc	Dimensions in.	Weight lb.	MSRP
PVL-68T	68	16.5	4.13	23.1	5.1	112.12 x 15.5	9.0	$539.00
PVL-136T	136	33.0	4.13	46.2	5.1	216.00 x 15.5	17.0	$1029.00

Uni-Solar PV Shingles

PV Shingles

The flexible thin-film solar cell shingles can be installed in new construction nailed in place using common roofing nails on conventional roof decking over 30-lb felt underlayment. They can also be placed over existing roofing. The surface is textured to blend and complement the granular surface of the surrounding conventional shingles. Two, 12" long, 18-gauge lead wires exit from the underside of each shingle. Lead wires on the backside of the head-lap pass through the roof deck to allow wiring connections to be made in the roof space. The sun warms the solar electric shingle providing a bond that forms a weather-resistant covering. UL listed.

Model	Watts	Vmp	Imp	Voc	Isc	Dimensions ft.	Weight lb.	MSRP
SHR-17	17	9	1.9	13	2.35	7.2 x 1	1.4	$165 .00

Project Spotlight

LOCATION:
System installed by Bristow Enterprises, Seattle, WA.

APPLICATION:
Grid-tie residential power

SUNWIZE SYSTEM:
GTS303 – 12 Sharp 175W modules with SMA SB1800U inverter

Single Purpose Grid-Tie Inverters

An inverter converts DC or direct current produced by solar modules into AC or alternating current to operate standard household appliances. Besides changing the current, some inverters manage the flow of electricity into and out of batteries.

Single purpose grid-tie inverters do not interact with batteries. They change DC to AC and also disconnect the entire solar system from the utility in the event of a power outage. This is a safety precaution enabling workers to fix the utility lines. Grid-tie inverters are designed to produce high quality, utility-grade AC electricity, offer high efficiency and high reliability.

Xantrex GT 3.0 Inverter

Xantrex

GT Series Grid-Tie Solar Inverter

The Xantrex GT series grid-tie inverters offer outstanding energy harvest in a small, modular design. Available in 2.5kW, 3.0kW, 3.3kW and 3.3kW 208-volt models, the high performance string inverters offer high efficiency and high reliability. NEC compliant AC and DC lockable disconnects make utility interactive installations easier. NEMA 3R inverter enclosure allows for outdoor and indoor installations. The wiring box can be separated from the sealed inverter allowing DC/AC connections to remain intact.

Excellent thermal performance allows full rated power up to 40ºC. Includes lightweight mounting plate. UL listed. 5-year warranty (10-year extended warranty available).

- LCD vibration sensor allows the tap of a finger to turn backlight on and cycle display screen
- Integrated RS232 and Xanbus RJ45 communication ports, multiple inverters can be operated in parallel into a suitably sized utility panel.
- Modular design allows several inverters to be mounted side by side
- Free PC software for remote monitoring that can be downloaded from the Xantrex web site

Model	Efficiency CEC %	DC Input Voltage	Continuous Power Watts CEC	AC Output Volts	Dimensions in.	Weight lb.	MSRP
GT 2.5	94	195-600	2500	240	28.5 x 15.9 x 5.7	50	$2,275.00
GT 3.0	94.5	195-600	3000	240	28.5 x 15.9 x 5.7	50	$2,500.00
GT 3.3	94.5	195-600	3300	240	28.5 x 15.9 x 5.7	51	$2,775.00
GT 3.3-208	94	195-600	3000	208	28.5 x 15.9 x 5.7	51	$2,775.00
Fan Kit		For high temperature or outdoor south-facing installations.					$150.00
Warranty Extension		Adds five-years to the standard warranty for a total of ten-years					$129.00

Xantrex PV Series Inverter

PV Series Solar Inverter

PV Series Inverters are America's leading choice for large-scale solar installations. These utility interactive, three-phase inverters are available in models ranging from 10 kW to 225 kW. Multiple inverters may be paralleled for larger power installations. The PV Series employs switching technology which utilizes Insulated Gate Bi-Polar Transistors (IGBT), and greatly reduces power losses during the conversion process. Designed for cost-effectiveness, high performance, easy installation, and reliability.

Xantrex offers a variety of system accessories for ease of system installation, including combiner boxes, isolation transformers, disconnect switches, etc. Complete inverter kits, incorporating all required accessories for NEC code compliant installation, are available.

- Automatic operation includes start up, shut down, self-diagnosis and fault detection.
- Meets all applicable UL, IEEE, and NEC codes.

Contact SunWize for more details and product pricing.

Grid-Tie Inverters

Sunny Boy 2500

SMA America

Sunny Boy 6000

Sunny Boy

The Sunny Boy line of inverters are applicable for 700W to 1 MW of PV grid-tie power. All have NEMA 4 powder-coated, stainless steel enclosures except the SB 3800U and SB 6000U which are NEMA 3R. A two-line backlit LCD display that provides comprehensive PV data is included. SB6000U models are configurable for 277, 240 and 208 Vac output and include a wall mount bracket. All SB models include 1 Amp GFDI fuse. SMA offers two ways to track, store, transmit, display and manage solar energy system use. The Sunny Beam is a wireless system monitor providing daily, current and overall energy yields, storing a month's worth of production information for up to 4 inverters. Able to monitor up to 50 inverters, the Sunny WebBox allows the operating data to be logged and transmitted via modem or Ethernet to the web or directly to your PC. It can also send data to SMA's internet portal for long-term data storage and display. All models listed to UL 1741, CE certified and comply with FCC part 15 A&B. Five-year warranty with an option to extend for an additional five years.

Model	Efficiency CEC %	DC Input Voltage	Continuous Power Watts CEC	AC Output Volts	Dimensions in.	Weight lb.	MSRP
SWR 700U SBD*	91.5%	125/100/75	696	120	12.7 x 12.6 x 7.1	55	$1,621.00
SB 1100U SBD	91.0%	129-400	1100	240	12.7 x 12.6 x 7.1	55	$1,756.00
SB 1800U SBD	91.5%	156-400	1800	120	17.1 x 11.6 x 8.4	69	$2,059.00
SWR 2100U SBD	93%	235-480	2100	240	17.1 x 11.6 x 8.4	73	$1,349.00
SB 2500U SBD	93.0%	250-600	2500	240	17.1 x 11.6 x 8.4	73	$2,229.00
SWR 2500U 208 SBD	92.5%	250-600	2100	208	17.1 x 11.6 x 8.4	73	$2,299.00
SB 3800U	94/94.5%	180-500	3500/3800	208/240	17.8 x 13.8 x 9.3	98	$2,835.00
SB 6000U	94.5%	234-600	5200/6000/6000	208/240/277	19.7 x 17.7 x 9.8	137	$4,529.00
* This model has an adjustable DC input voltage window.							
Accessory Equipment							
LCD Display	For 1800U and 2500U inverters (retrofits into inverter)						$107.00
Sunny Breeze	Fan kit for 1800U & 2500U inverters (may be used indoors or outdoors when natural air flow is minimal)				4.5 x 4.2 x 2.7	2.0	$129.00
SBSL	Cover lid for 1800U & 2500U w/ LCD display window					5.0	$135.00
SB RS-232-N	RS-232 Module for use in Sunny Boy inverters					1.0	$171.00
SB RS-485-N	RS-485 Module for use in Sunny Boy inverters					1.0	$143.00
SB 232 SERV	Sunny Boy PC Service cable					1.0	$215.00
SB NLM-N	Power Line Carrier Module for use in Sunny Boy Inverters						$165.00
Monitoring and Data Collection Equipment							
SBC-485	Sunny Boy Control with RS-485 communication card					6.0	$1,195.00
SBC Plus-485	Sunny Boy Control Plus w/ RS-485 communication card					6.0	$2,139.00
SBC Plus-485 w/Ethernet	Sunny Boy Control Plus w/ Ethernet communication card					6.0	$2,399.00
RS232 Cable	RS232 Communication Cable, 15 meter					2.0	$107.00
RS485 Cable	RS485 Communication Cable, 15 meter					2.0	$107.00
Sunny Beam	Wireless System Monitor					3.5	$485.00
Sunny Beam Antenna	Includes mount, coax and comm. board					1.0	$186.00
Sunny WebBox	Web enabled data logger and control						$699.00

SMA Sunny Central

The Sunny Central

The Sunny Central is rated for 125 kW AT 45ºC. The AC system isolation transformer is incorporated into the inverter cabinet and is disconnected whenever the inverter is not producing power. This eliminates the unnecessary and costly power losses found in other central PV inverters. The powder coated, stainless steel and aluminum enclosure is NEMA 3R rated. AC and DC disconnects are integral and included as standard equipment. Sunny Boy Control Plus data acquisition system included as user interface. Listed to UL 1741 and FCC Part 15. Five-year warranty with option to extend for additional five years. Call SunWize for pricing on this product line.

Model	Efficiency CEC %	DC Input Voltage	Continuous Power Watts CEC	AC Output Volts	Dimensions in.	Weight lb.
SC125U	94	275-600	125,000	480	97 x 71 x 24	3307

IG2000 Inverter

IG5100 Inverter


Personal Display

Fronius

IG Inverters

Fronius inverters are exceptionally light-weight and include precision MPPT tracking. An active, on-demand cooling system, results in superior energy output from the PV system. High frequency technology is compact and capable of transforming considerable power. Each inverter comes with built-in DC and AC disconnects and in many cases eliminates the need for external breakers reducing installation time and total system costs. With its lightweight and compact design, the Fronius IG can be easily lifted on or off of the mounting bracket. Fronius IG inverters include an integrated LCD to view and record over 20 parameters pertaining to inverter and system operation. Indoor/outdoor NEMA 3R rated enclosure, GFDI fuse standard. UL listed to UL 1741. All IG models carry a standard seven-year warranty with an option for an additional three years of coverage.


Datalogger Box

Fronius IG DatCom – Remote data communications and data logging features can easily be added to transform your Fronius IG inverter into a sophisticated data acquisition system and weather monitoring station. All data viewable on the IG inverter display and data from optional sensors can also be viewed on your PC. Data can be downloaded real time, or cumulative for the day, the year, or since installation. One Datalogger Box is required per DatCom system. The Datalogger coordinates data traffic and stores the data collected from all Fronius IG inverters and any sensors in your weather station. Connection to a PC or an external modem allows you to monitor your PV system from anywhere in the world. A communications card is required for each Fronius IG inverter in your DatCom system. This simply plugs into one of the available slots. The COM Card supplies power to the DatCom components.

Fronius IG Sensor Box – The Fronius IG Sensor Box allows you to collect even more information about your system. With 6 inputs, you can measure the array temperature, ambient temperature, irradiance, wind speed, building load, and/or numerous other types of data.

Fronius Interface Box – Optional DatCom System feature enabling a user to output data into an open protocol for a system of up to 100 Fronius IG inverters. This data can then be used by a third party source for different monitoring options (e.g. Fat Spaniel). This box does not replace the need for a Datalogger Box and enables a user to operate the DatCom System in its entirety including the use of the Fronius IG.online (free service allowing the user to monitor and analyze system performance). This interface offers real-time open protocol data without data storage and stores closed protocol data for use with Fronius IG.access.

Fronius IG Personal Display – The Fronius wireless Personal Display shows data from the inverter on a remote LCD that can be placed anywhere in the home or office. The range is approximately 150 ft. indoors or 450 ft. outdoors. It can be used with up to 15 Fronius IG inverters - each inverter requires a Wireless Card. The Personal Display operates independent of the DatCom data communication system and can be used in tandem with it.

Model	Efficiency CEC %	DC Input Voltage	Continuous Power Watts CEC	AC Output Volts	Dimensions in.	Weight lb.	MSRP
IG 2000	93.5	150-450	2000	240	18.5 x 16.4 x 8.8	26	$2,295.00
IG 2500 LV	93	150-450	2350	208	18.5 x 16.4 x 8.8	26	$2,395.00
IG 3000	94	150-450	2700	240	18.5 x 16.4 x 8.8	26	$2,550.00
IG 4000	94	270-500	4000	240	28.3 x 16.4 x 8.8	41	$3,790.00
IG 4500 LV	93.5	270-500	4500	208	28.3 x 16.4 x 8.8	41	$3,950.00
IG 5100	94.5	275-500	5100	240	28.3 x 16.4 x 8.8	41	$4,130.00
Accessories							
All IG Inverter Models		10-year Extended Warranty					$69.00
Datalogger Pro Box		Data storage & PC interface up to 100 IG inverters					$695.00
Sensor Box Card		Supplies comprehensive measured results from various sensors allowing you to make comparisons					$695.00
Datalogger Easy Box		Data storage & PC interface for 1 IG inverter					$440.00
COM Card		Interface & power supply option card					$135.00
Interface Box		Optional DatCom system					$345.00
Personal Display		Supplies and stores various data					$280.00
Wireless card		Required for each IG inverter when using a Personal Display					$130.00

Grid-Tie Inverters

Sharp JH-3500U

Sharp

The JH-3500U SunVista Inverter

The Sharp JH-3500U is a 3.5 kW inverter designed to blend energy from up to three input strings, each varying by number, model, and angle of modules. Having three distinct PV input strings makes it possible to install systems on buildings with multiple roof planes, even if they face in different directions. An active cooling system ensures that the inverter maintains stable power output even in extreme temperatures.

Perfectly matched to Sharp modules and mounting hardware, the JH-3500U is also compatible with many other manufacturers' systems, and is ideal for both residential and commercial applications. With over 60,000 units in the field, the Sharp SunVista has proven to be among the most dependable and flexible inverters in the world. The SunVista is designed for easy field serviceability and is backed by the strength of Sharps' global electronic parts distribution network.

The JH-3500U is housed in a NEMA 3R enclosure and includes an indoor rated surface-mount LCD display which displays instantaneous and cumulative electricity generation and CO reduction levels. The inverter is IEEE 929 compliant and is listed to UL1741. It carries a five-year warranty.

Model	Efficiency	DC Input Voltage	Continuous Power Watts	AC Output Volts	Dimensions in.	Weight lb.	MSRP
JH-3500U	91%	110-350	3500	240	23.7 x 17.8 x 7.85	61.7	$2579.00
LCD Display (included)					5.4 x 4.61 x 0.8	.44	

PV Powered PVP2000, PVP2800-XV, PVP2900 and PVP3200 Inverter

PV Powered

The PVP StarInverter

The PV Powered StarInverter contains the most advanced power electronics design available today. Through its simple, yet robust architecture, PV Powered inverters have proven that true continuous power output is the consumer's choice for energizing the grid. A vacuum fluorescent display comes standard with every inverter, allowing you to view performance in all temperature extremes. PVP Command Center software is available FREE with every inverter in the StarInverter product line.

Aluminum, NEMA 3R enclosure. All PV Powered inverters meet or exceed pertinent certifications - UL 1741, IEEE 519, IEEE 929, and NEC 690. With the fewest parts count of any inverter on the market, the StarInverter carries a 10-year warranty.

Model	Efficiency CEC %	DC Input Voltage	Continuous Power Watts	AC Output Volts	Dimensions in.	Weight lb.	MSRP
PVP2000	93.0	135-500	2000	120	15 x 7.5 x 21.75	76	$2,279.00
PVP2800-XV	94.5	170-500	2800	240	15 x 7.5 x 21.75	76	$2,440.00
PVP2900-208	94.0	205-500	2900	208	15 x 7.5 x 21.75	89	$2,545.00
PVP3200	94.5	230-500	3200	240	15 x 7.5 x 21.75	89	$2,800.00
PVP4600-208	95.5	205-500	4600	208	18 x 9 x 27	135	$4,350.00
PVP5200	96.0	240-500	5200	240	18 x 9 x 27	135	$4,540.00

Multi-Purpose Grid-Tie Inverters

In addition to converting solar power into utility grade electricity for local loads and export, a multi-purpose inverter provides back up power capabilities when utility failures occur. These inverters use batteries for energy storage. Backup capacity is limited by the size of the battery bank installed with the system. We recommend a minimum 200 Ah @ 48 Vdc battery bank for any multi-purpose grid-tie system. Each 100 Ah @ 48 Vdc stores approximately 3.5 kW/hr of usable energy.

In most cases, the back-up power capability of the inverter(s) will not be sufficient to power the entire home. Generally, the most important loads such as communications, refrigeration, lighting, etc., will be re-wired to a sub panel powered by either the utility or the inverter. Multi-purpose grid-tie systems are complex because batteries, MPPT controller(s), high current switch gear, and changes to a home's AC electrical distribution panel(s) are required. In addition to the inverters listed here, SunWize assembles complete Power Centers for grid-tie backup. Please see page 21 for more product information and pricing.

PS1 System with optional battery enclosure

OutBack Power

GTFX and GVFX Inverters

The FX inverter from OutBack Power has established itself as a real star in the off-grid world (see page 48 for more information on FX inverters and accessories). Now they bring their expertise to the multi-purpose grid-tie marketplace with the GTFX and the GVFX models that provide automatic backup power when utility outages occur.

The GTFX is sealed and includes a turbo fan kit. GVFX models are vented and no fan is necessary. Use of an MPPT controller such as the OutBack's MX 60 will greatly increase the energy harvested from the PV array (see page 37). Multiple GTFX or GVFX inverters can be connected in series for 240 Vdc, parallel for 120 Vdc. Two-year warranty. Extended warranty available direct from manufacturer. All models are ETL listed to UL 1741.

PS1-3000

The new PS1-3000 from OutBack includes a GVFX 3648 inverter, MX60 MPPT charge controller, and all AC and DC switch gear and pre-wiring necessary for a fully functional multi-purpose grid-interactive system. It is housed in a single, easy to install enclosure which is NEMA 3R rated for outdoor, rainproof installation. An optional battery enclosure large enough for four deep-cycle Group 31 batteries is also NEMA 3R outdoor rated. Battery cables from PS1-3000 and interconnects for four batteries are included. The PS1-3000 has a 5-year standard warranty. ETL listed to UL 1741.

PS1 System with covered enclosures

Model	Efficiency %	DC Input Voltage	Continuous Power Watts	Charger Current (Amps)	AC Volts Output	Dimensions in.	Weight lb.	MSRP
GTFX2524 (with fan)	91	24	2500	55	120	16.25 x 8.25 x 9.65	66	$1,995.00
GTFX3048 (with fan)	92	48	3000	35	120	16.25 x 8.25 x 9.65	66	$1,995.00
GVFX3524 (vented)	91	24	3500	85	120	16.25 x 8.25 x 9.65	66	$2,345.00
GVFX3648 (vented)*	93	48	3600	45	120	16.25 x 8.25 x 9.65	66	$2,345.00
PS1-3000	91	48	3000	35	120	31.30 x 17.25 x 12.90	120	$4,795.00
PS1 Battery Enclosure (c/w necessary battery cables for connection to PS1 and 4 batteries)						36.25 x 17.25 x 12.55	29	$599.00

Accessories

See page 48 for a complete listing of GFX Accessories.

* CEC rated at 91%, 3037 watts continuous power efficiency

Grid-Tie Inverters

SMA Sunny Island

SMA

Sunny Island

SMA's all new Sunny Island offers add-on backup power capability to new and existing, single-purpose, grid-tie, Sunny Boy (SB) systems. Unlike other battery based inverters the Sunny Island uses the AC buss for PV input. This makes connecting a Sunny Island and SB together in a fully interactive networked environment a simple matter. The Sunny Island automatically detects utility outages and supplies critical loads from the PV array and batteries.

The Sunny Island is available in 48 Vdc battery voltage only, it is rated for 4200 continuous watts and has an outstanding 12 kW surge for 100 ms. A unique feature of the Sunny Island is an automatic load shedding feature designed to protect the batteries from over discharge while still providing power for the most critical loads. The Sunny Island may also be used in stand-alone off grid application. Five-year warranty. UL listed.

Model	Efficiency CEC %	DC Input Voltage	Continuous Power Watts CEC	AC Output Volts	Dimensions in.	Weight lb.	MSRP
SI 4248U	n/a	48	n/a	120	23.2 x 15.35 x 9.64	86	$4,729.00

Beacon M-Series Inverter

Beacon Power

Smart Power M-Series – Grid-Tie Battery Backup Power Conversion System

The four models in the M-Series family use an innovative two-stage electrical architecture to achieve 93 percent peak efficiency. The first stage of this two-stage inverter is a high-efficiency Maximum Power Point Tracking DC-DC voltage converter that optimally processes photovoltaic power (48-110 VDC) and converts it to battery voltage. The second stage is a grid-tied DC-to-AC inverter. Together, these two stages provide a highly reliable source of AC power, capable of operating in stand-alone and grid-parallel modes, with automatic fast transfer between the two. It has full battery charge-control independent of PV voltage, and it minimizes grid-connect power loss and extends battery life. Each model is designed for use with a 48-volt battery bank of at least 100 amp/hours. A single microcontroller provides complete, highly flexible system control and is field-programmable with operating parameters stored in non-volatile memory. A simple front panel LED display shows system operating status. With simplified programming and data retrieval, flexible operating modes, and intelligent user and wiring interfaces, the Smart Power M-Series inverters are easy to install, set up, and operate. Each M-Series inverter comes as a fully integrated, single-box solution in an outdoor-rated enclosure containing all necessary ground fault protection, disconnects and circuit breakers. An RS-485 serial communications link with standard RJ-11 connectors allows for connection to a PC running optional Smart Power Monitor software. UL approved, CEC and NYPSC-listed. Five-year warranty.

Beacon String Combiner

Smart Power M5 Plus – The new Plus series contains the following feature enhancements: battery charge from AC grid, informational LCD display, internal memory records daily kWh values for inverter lifetime (non-volatile) as well as event data, flooded battery support (equalize charge capability), estimated battery state-of-charge display, flash/field upgradable firmware capability, smart power monitor Plus (installation battery wizard, kWh graphing, weekly, monthly, user defined).

Smart Power M4 – based on the feature set of the highly reliable Smart Power M5, the M4 offers 4000W AC output at an ambient temperature of up to 122°F (50°C) with no reduction in output power.

Smart Power M4 Plus – same feature set as M5 Plus, 4000W AC output.

Model	Efficiency CEC %	DC Input Voltage	Continuous Power (VA)	Dimensions in.	Weight lb.	Shipping Weight* lb.	MSRP
Smart Power M5	93	48	5000	42 x 16 x 10	120	150	$6,499.00
Smart Power M5 Plus	93	48	5000	42 x 16 x 10	120	150	$6,999.00
Smart Power M4	93	48	4000	42 x 16 x 10	120	150	$5,499.00
Smart Power M4 Plus	93	48	4000	42 x 16 x 10	120	150	$5,999.00
Accessories							
String Combiner	NEMA 4						$249.00

Off-Grid Systems

SunWize®
Reliable People ::: Reliable Products ::: Reliable Power!

Off-Grid Systems

Many homes in the United States operate without utility power. These homes are referred to as 'off-grid' and rely on renewable energy for their source of power. With a properly designed system and careful management of the loads, solar energy, wind or a combination of both can provide 100% of the home's electricity. Other off-grid applications include water pumping, mountaintop telecommunication towers, outdoor area lighting and traffic information boards. The products in this section of the catalog are designed for the specific requirements of off-grid systems.

How Does an Off-Grid Solar Electric System Operate?

Since an off-grid system must be self-sufficient, batteries are essential for storing electricity produced by the solar modules and/or wind turbine. In order to run household appliances, an inverter changes the direct current (DC) electricity drawn from the batteries into alternating current (AC). Because the renewable energy source charges the batteries, there is a continuous supply of electricity at night and during cloudy weather.

1980 watt system using 12-Sharp 165W modules powers a remote home in Canada. Installed by Quality Solar.

Major Balance of System Components

Batteries

Batteries are used in locations where grid power is not available or practical or for grid-tie systems doubling as home backup power systems. The batteries used in solar and wind systems are rated for deep-cycle applications and are not designed to start engines. The internal construction of deep-cycle batteries allow for repeated cycling. Although deep-cycle batteries cost somewhat more, they provide the best system reliability and long-term economy due to their long life.

Inverters

Inverters manage the flow of electricity into and out of the batteries to provide an automatic supply of utility grade AC electricity. Some inverters include a battery charger and transfer switch to charge a battery bank when utility or generator power is available. Once the batteries are charged, the inverter automatically disconnects from the power source and begins providing AC power to run the loads from the battery bank. The peak load determines the size of the inverter used in a system. For example, 50 amp service at 110 Vac requires a 5500 watt inverter. Several inverters may need to be stacked to provide the required service.

Charge Controllers or Regulators

The basic function of the charge controller is to keep the batteries from overcharging. Overcharging occurs if the solar modules are producing even a small percentage of their rated power while the batteries are at or near full charge. This can shorten a battery's life.

Additional accessories for off-grid systems include system performance monitors, automated load operation and battery enclosures. We recommend you consult a SunWize dealer to help choose the right components for your off-grid system.

SunWize Off-Grid Systems

SunWize® Power Stations and Power Ready Systems are complete integrated off-grid PV systems used in industrial, commercial and residential applications throughout the world. Power Ready Systems are optimized for small industrial DC loads for the telecommunications and instrumentation industries. Typical applications are rural telephony, SCADA, monitoring and surveillance equipment and traffic safety devices. SunWize Power Stations are designed for site loads requiring 12, 24 or 48 volts DC and/or utility-grade AC voltage. The systems are mounted on weather-proof structures to withstand harsh environments and high wind loads. One of the first SunWize Power Stations has been providing residential power to a home in the Adirondack Mountains in New York State for the past 11 years.

All SunWize products are factory tested, and NEC or ISPRA compliant using UL and/or FM approved components.

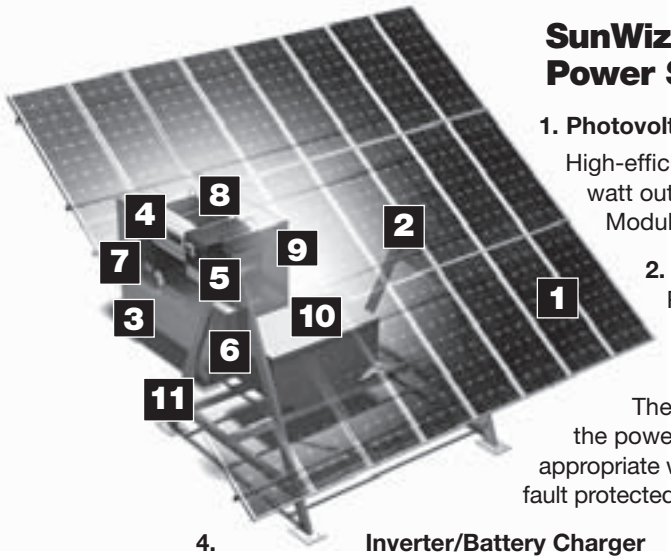
1980 watt system utilizing 12-Shell SQ165W modules and an SMA 1800 inverter. System installed at Lassen Volcanic National Park in Northern CA.

Photo credit: Gaia Productions

SunWize Power Station *For continuous loads of 100 to 350 watts*

SunWize® Power Stations are complete, integrated power supplies designed for site loads requiring DC or utility-grade AC voltage with optional 12, 24 or 48 volts DC output. Wired to U.S. National Electrical Code standards, each solar electric system provides safe and reliable power generation without the expense of installing utility power. The solar array tilt is easily adjustable to maximize solar energy output. The systems are mounted on weatherproof steel structures or trailers engineered to withstand harsh environments and high wind loads. With a wide variety of options available, you can customize the Power Station to meet your power requirements.

SunWize Power Stations carry a one-year system warranty for materials and workmanship. The solar modules have a 25-year warranty. Careful component selection results in a system with a lifetime exceeding 25 years with battery replacements every five to ten years.



SunWize PV Hybrid Power Station Components Diagram

1. Photovoltaic ("PV") Modules

High-efficiency, single crystal silicon PV modules provide higher amp-hour per watt output than other technologies and include dual bypass diode protection. Modular PV panels permit expansion to accommodate increased loads.

2. Adjustable Array Structure

PV array tilt is easily adjustable from 15-60 degrees for 2400 Wp (peak watts) or smaller arrays to maximize solar energy.

3. Control and AC Power Center

The control enclosure is a NEMA 3R powder-coated steel box housing the power distribution components, disconnects, system monitor and appropriate wire terminals. Enclosure is provided with rainproof vents and a ground fault protected electrical outlet. Optional remote monitoring equipment is available.

4. Inverter/Battery Charger

Microprocessor-controlled high-efficiency, sine wave inverter with three stage temperature compensated battery charger. Peak conversion efficiency of 96%, protection circuitry, LCD display with user and setup menus.

5. AC Distribution Panel

Customer AC breaker panel conforms to U.S. National Electric Code, provides surge protection and flexibility for multiple AC load requirements.

6. DC Combiner Box

Provides PV circuit disconnects and lightning/surge protection for electronic equipment.

7. DC Controller

Solid state, low frequency, pulse-width modulated solar charge control with battery temperature compensation and automatic nighttime disconnect. Optional maximum power point tracking (MPPT) controller is available.

8. System Battery Bank

Our standard systems include maintenance-free, sealed lead acid batteries. For larger capacities, 2V industrial cells are available. The control system maintains the batteries between 20% and 100% state of charge.

9. Battery Enclosure

Standard AC battery enclosure is white powder-coated steel with two front-opening doors. White powder-coated aluminum, chest-style unit with lockable lid is standard for DC-only systems.

10. Generator (Hybrid only)

Commercial-grade light duty generator or industrial–grade medium duty generator result in long life and reduced maintenance requirements. Includes battery, alternator, remote start/stop contacts, and automatic safety shutdowns. Package includes weatherproof housing, vibration isolators on steel skid, flexible couplings, and filter. Various sizes and fuel types are available.

11. Structure

Industrial grade, heavy-gauge steel coated with a durable hot-dip galvanized finish. Available in three configurations: AC ground mount, DC ground mount and heavy-duty road trailer.

SunWize Power Station

How to configure your own system – Use the options lists below to specify Power Station equipment or contact SunWize for custom configurations. *(For Pricing see Price List)*

System Type (*Array Size*)				
Array Wp	**Stand-Alone Order#**	Weight (±200 lbs.)	**Hybrid (w/Gen) Order#**	Weight (±200 lbs.)
960	PS0960	2200	PSG0960	2900
1360	PS1360	2800	PSG1360	3000
1700	PS1700	2900	PSG1700	3100
1920	PS1920	3000	PSG1920	3200
2300	PS2300	3200	PSG2300	3400
2760	PS2760	3400	PSG2760	3600

Power Panel (*Option T*)	Order#
DC ONLY, NO INVERTER, 1.4kW/60A @ 24 Vdc	TDC24V
DC ONLY, NO INVERTER, 2.9kW/60A @ 48 Vdc	TDC48V
3.3 kVA / 14A @ 230Vac/50Hz/1Ø, 24Vdc	T3024E
4.0 kVA / 33A @ 120Vac/60Hz/1Ø, 24Vdc	T4024S
4.0 kVA / 33A @ 120Vac/60Hz/1Ø, 48Vdc	T4048S*
4.5 kVA / 19A @ 230Vac/50Hz/1Ø, 48Vdc	T4548E
5.5 kVA / 46A @ 120Vac/60Hz/1Ø, 24Vdc	T5548S
8.0 kVA / 33A @ 120/240Vac/60Hz/1Ø, 48Vdc	T8048D
11.0 kVA / 46A @ 120/240Vac/60Hz/1Ø, 48Vdc	T1148D

* Denotes standard configuration equipment.
** Monitoring includes: array current, battery voltage, genset voltage, genset current, genset run hours, load voltage, load current, load frequency, and diagnostic messages.

Battery – 100 hour rating (*Option B*)	Order#
Valve-regulated lead acid, sealed 12V cells, 500Ah @ 24 volt, 250Ah @ 48 volt	B12
Valve-regulated lead acid, sealed 12V cells, 1000Ah @ 24 volt, 500Ah @ 48 volt	B10*
Valve-regulated lead acid, sealed 12V cells, 1500Ah @ 24 volt, 750Ah @ 48 volt	B04
Valve-regulated lead acid, sealed 12V cells, 1800 Ah @ 24 volt or 900 Ah @ 48 volt	B14

Generator (*Option G*)	Order#
Propane, medium-duty, water cooled, 1800 rpm	G04
Diesel, medium-duty, water cooled, 1800 rpm	G09
Propane, light-duty, air cooled, 3600 rpm	G08*

Structure (*Option S*)	Order#
Ground Mount, A-Frame hot-dip galvanized, AC only	S01*
Ground-Mount, A-Frame, hot-dip galvanized, DC only	S02
Heavy-duty, road-rated trailer	S03

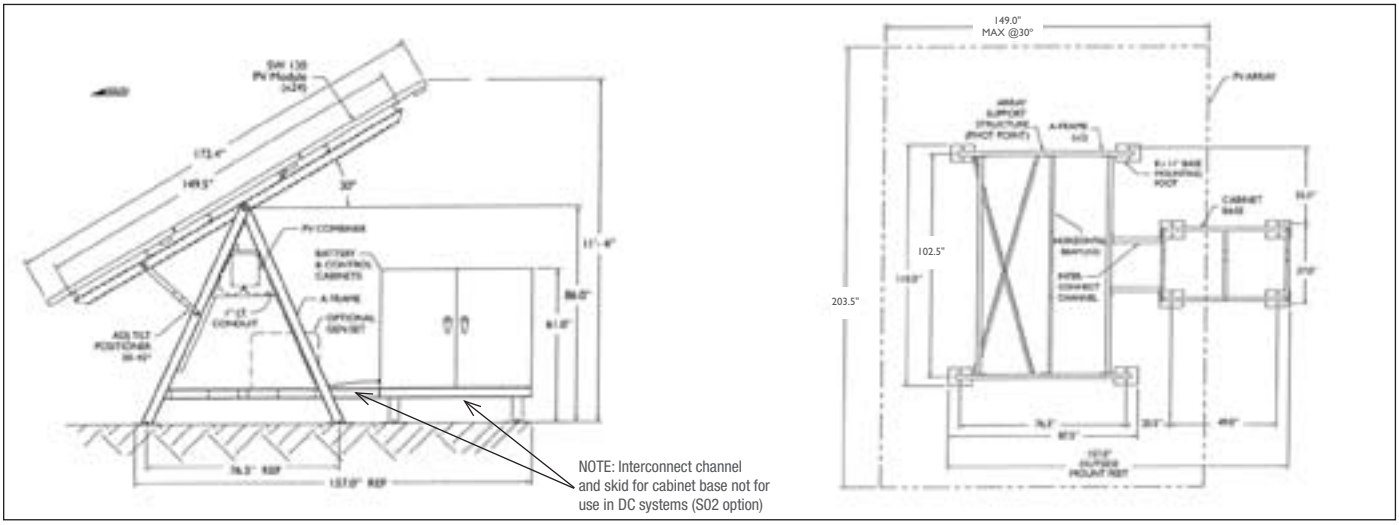
Monitoring (*Option M*) **	Order#
Local Monitoring with RS-232 communication	M01*
Remote Monitoring/Control Panel, 50 ft. (15m) cable	M02

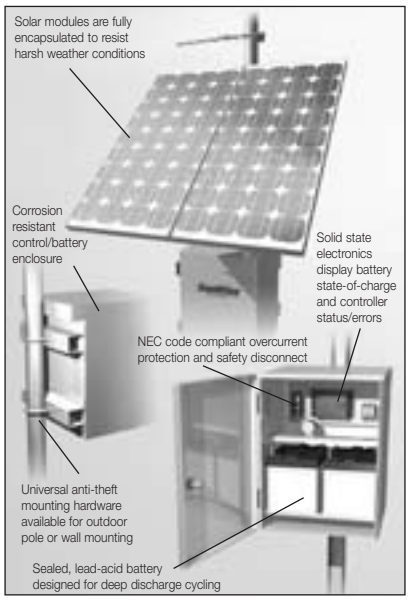
PS/PSG □□□□ – T□□□□□ – B□□ – G□□ – S□□ – M□□

Stand-Alone or Hybrid w/Gen.	Array Size	Power Panel	Battery	Generator (Hybrid only)	Structure	Monitoring

KEY TO SUNWIZE PART NUMBER

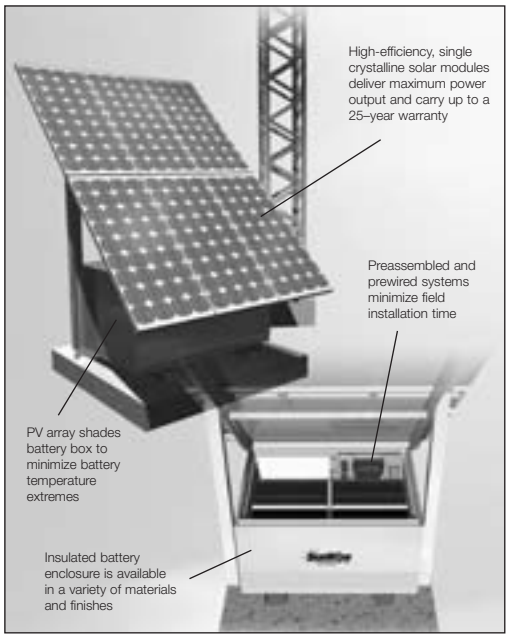
System shown is PSG2760





Power Ready System

SunWize® Power Ready Systems are complete, fully integrated power supplies designed for site loads requiring 12, 24 or 48 volts DC. Each system provides safe and reliable power generation without the need and expense of installing utility power. The sealed, maintenance free batteries are designed for deep cycle operation and extended life in solar applications. The aluminum array support structures and battery enclosures are strong yet lightweight and corrosion resistant for harsh marine or severe weather locations.



Because Power Ready Systems are designed to withstand rugged transportation to remote sites, single-lift integral lifting lugs and/or forklift slots are provided. The system is fully assembled for factory testing before shipment. The prewired systems are typically shipped fully assembled with a protective cover over the array and are bolted to a skid. The solar array for larger systems is shipped in a separate plywood crate and the battery enclosure is mounted on a skid. In some cases, batteries are shipped separately. Power Ready Systems carry a one-year system warranty for materials and workmanship. A three-year SunWize performance warranty is available on pre-packaged systems. The solar modules have up to a 25-year warranty. Careful component selection results in a system with a lifetime exceeding 25 years with battery replacements every five to ten years.

SYSTEM SELECTION TABLE

Figures below are daily load in Amp–hrs/day. Refer to the map on the back cover of this catalog.

12 Volt SYSTEMS	PEAK SUN HOURS 1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	24 Volt SYSTEMS
PR005-12-019	0.2	0.3	0.4	0.6	0.7	0.8	1.0	1.1	1.2	1.4	1.5	PR010-24-019
PR010-12-038	0.5	0.7	1.0	1.2	1.5	1.7	2.0	2.3	2.5	2.8	3.1	PR020-24-038
PR020-12-038	1.0	1.5	1.9	2.4	2.8	3.4	4.0	4.4	5.0	5.6	6.2	PR040-24-038
PR040-12-079	1.9	2.8	3.8	4.8	5.6	6.7	7.8	8.6	9.8	11.0	12.2	PR080-24-079
PR050-12-120	2.4	3.6	4.8	6.0	7.1	8.5	9.8	10.9	12.3	13.8	15.2	PR100-24-120
PR060-12-120	2.9	4.3	5.7	7.1	8.3	9.9	11.5	12.7	14.5	16.3	18.0	PR120-24-120
PR080-12-120	3.7	5.6	7.4	9.3	10.9	12.8	15.1	16.7	19.0	21.3	23.6	PR160-24-120
PR085-12-120	3.9	5.9	7.8	9.9	11.7	13.8	16.2	17.9	20.2	22.5	24.9	PR170-24-120
PR090-12-240	4.1	6.2	8.2	10.4	12.6	14.7	17.2	19.1	21.5	23.8	26.2	PR180-24-240
PR100-12-240	4.7	7.0	9.3	11.8	14.0	16.5	19.3	21.5	24.2	26.9	29.7	PR200-24-240
PR110-12-240	5.2	7.8	10.4	13.1	15.5	18.3	21.4	23.8	26.9	30.0	33.2	PR220-24-240
PR115-12-240	5.5	8.2	11.0	13.8	16.2	19.2	22.4	25.0	28.2	31.6	35.0	PR230-24-240
PR150-12-240	7.1	10.6	14.0	17.5	20.0	23.9	28.2	31.1	35.3	40.3	44.5	PR300-24-240
PR160-12-240	7.5	11.2	14.7	18.3	21.3	25.1	29.7	32.5	37.2	42.6	47.2	PR320-24-240
PR170-12-240	7.9	11.9	15.5	19.2	22.7	26.4	31.1	34.0	39.0	44.9	49.8	PR340-24-240
PR180-12-240	8.3	12.5	16.2	20.0	24.0	27.6	32.6	35.4	40.9	47.2	52.5	PR360-24-240
PR200-12-240	9.4	14.0	18.1	22.3	25.9	30.5	36.0	39.0	45.3	53.0	59.5	PR400-24-240
PR230-12-240	11.0	16.3	21.0	25.8	28.8	34.8	41.2	44.3	51.8	61.7	70.0	PR460-24-240
PR230-12-480	11.6	16.5	22.0	28.2	32.2	38.4	44.9	50.0	56.6	63.4	70.0	PR460-24-500
PR255-12-480	12.6	18.3	24.4	31.0	36.1	42.7	49.4	55.3	62.1	69.0	75.9	PR510-24-500
PR270-12-600	13.2	19.4	25.9	32.7	38.5	45.3	52.2	58.5	65.4	72.4	79.4	PR540-24-600
PR300-12-600	14.4	21.6	28.8	36.0	43.2	50.4	57.6	64.8	72.0	79.2	86.4	PR600-24-600
PR340-12-600	16.3	23.9	31.7	40.1	47.3	56.3	64.8	72.7	81.1	90.4	98.8	PR680-24-600
PR360-12-750	17.3	25.0	33.2	42.2	49.4	59.2	68.4	76.6	85.7	96.0	105.0	PR720-24-750
PR400-12-750	18.8	27.2	36.2	46.0	53.8	64.5	74.5	83.4	93.4	104.6	114.4	PR800-24-750
PR425-12-750	19.8	28.6	38.0	48.3	56.6	67.8	78.3	87.7	98.1	109.9	120.2	PR850-24-750
PR460-12-900	22.1	33.1	44.2	55.2	66.2	77.3	88.3	99.4	110.4	121.4	132.5	PR920-24-900
PR500-12-900	24.2	35.3	46.7	58.9	68.4	81.1	94.6	105.3	118.4	131.1	144.9	PR1000-24-900
PR575-12-1200	28.1	39.3	51.3	65.8	72.6	88.1	106.5	116.4	133.4	149.2	168.2	PR1150-24-1200
PR600-12-1200	29.4	40.7	52.9	68.1	74.0	90.5	110.4	120.1	138.4	155.3	175.9	PR1200-24-1200

Note: Each system was designed for a Loss of Load Probability (LOLP) of less than 0.1% for the worst month. • Contact SunWize for 48 Volt system selections.

Power Ready Systems

Module Wattage – from Selection Table

System Voltage

12 volts

24 volts

48 volts

Battery Amp-hr Rating – from Selection Table
(based on 100-hour discharge rate)

Enclosure Type

F – Front opening hinged door, pole mounted

T – Top opening hinged door, ground/pad mounted

C – Front opening door (screw-type), pole mounted

E – Economy, screw cover lid, pole mounted

Module Mount Type

I – Integral with enclosure (PR5 and PR10 only)

P – Pole mount, separate from enclosure

G – Ground mount, separate from enclosure

Enclosure Finish

A – Milled finish aluminum (standard)

W – Powder coated white aluminum

F – Fiberglass FRP (Note: Special order, 1 battery only)

Mount Finish

A – Milled aluminum

P – Painted steel

W – Powder coated white aluminum (Note: special order)

Wire Protection

0 – PV and battery wired directly to controller, fused battery line

1 – DC-rated circuit breakers for PV and battery (standard – NEC compliance)

Lightning Protection

0 – Standard MOV surge protection

1 – Silicon-oxide varistor (SOV)

Load Distribution and Control

0 – None, load wired directly to controller

1 – Four terminal load distribution block (standard)

2 – DC-rated circuit breaker

3 – Multi-cycle timer

Standard Features and Benefits

Solar modules are fully encapsulated to resist harsh weather conditions

Low voltage load disconnect for battery protection

Sealed, lead-acid battery designed for deep discharge cycling

NEC code compliant overcurrent protection and safety disconnect

Temperature compensated battery charging

Corrosion resistant control/battery enclosure

Installation, operation & maintenance documentation

Solid state electronics for improved efficiency and reliability

Preassembled, prewired systems minimize field installation time & eliminate wiring errors

Low maintenance and operating costs

Complete systems reduce specifying and buying time

Quality components assure long system life

Full system and performance warranty available on prepackaged systems

System Options (choose ANY & enter into SunWize Part Number)

a. DC to DC converter (specify output voltage/current)

b. DC to AC inverter (specify output voltage/current)

e. Customer equipment integration

f. Theft deterrent solar module hardware

g. Load output cable

h. Bird deterrent (stainless steel strips for solar module)

n. SP, polyphaser coax surge protector

Controller Options (choose ONE & enter into SunWize Part Number)

i. LCD - displays battery voltage, SOC, charging and load current, controller status/errors

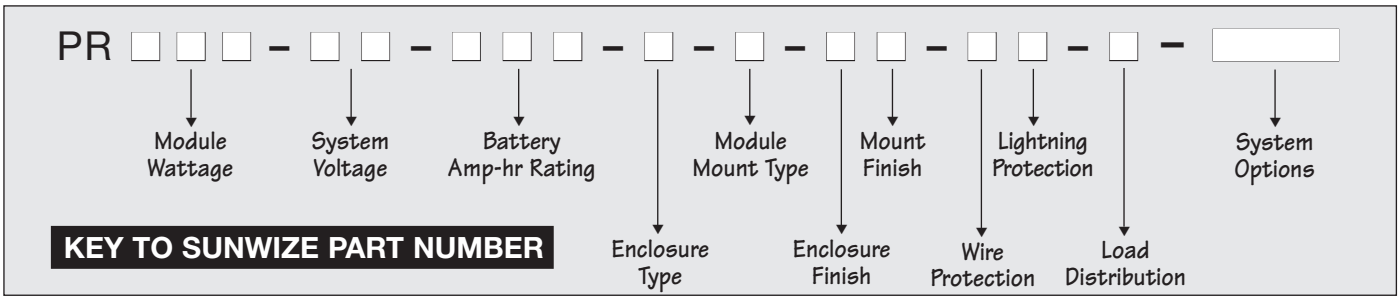
j. LVA - low battery SOC/load disconnect contact closure

k. RS-232 serial communication port

HOW TO SELECT YOUR SYSTEM AND PART NUMBER

The matrix below enables you to create a part number for a system designed to meet the daily load of your equipment.

1) Use the map located at the back of this catalog to select the zone that corresponds to the equipment site location.
2) Determine your daily equipment load requirement in Amp–hrs/day at the specified voltage.
3) In the Selection Table at left, under your "peak sun hours" column, find the value of Amp–hours/day that is greater than or equal to your load. Based on your system voltage, select your SunWize part number.



SunWize® Power Centers

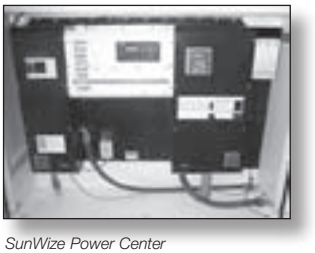
Pre-assembled Power Centers

SunWize Power Centers save time, money and space by combining DC disconnects, AC bypass breakers, overcurrent protection devices, grounding components and inverters on an easy to install panel. Simply connect the panel to the battery, PV and/or AC loads. Power Centers can be modified and expanded as your system grows or changes.

SunWize Technologies is an ETL recognized assembler of Power Centers incorporating major subassembly components produced or supplied by OutBack Power. When SunWize assembles a Power Center, the entire unit is an ETL approved assembly. Each Power Center label shows the unit is ETL listed to Industrial Control Panels, UL std. 508A.

Power Centers incorporate inverters, charge controllers and other options using Power System Mounting Plates (PSMP) and AC and DC Disconnect Enclosures (PSAC and PSDC) by OutBack Power. You can choose from Xantrex or OutBack inverters for your base Power Center. Installed options include your choice of controller, meter, circuit breakers and other accessories (see pg. 22).

Full size units (PSMP) measure 38”L x 50"W x 3”D. The mounting plates accept up to four OutBack FX or two Xantrex SW, SW Plus or DR inverters. The smaller unit (PS2MP) measures 49.5”L x 23”W x2”D and will accept up to two FX inverters. Inverters and charge controllers are covered by their standard warranties.



SunWize Power Center

SunWize Power Centers with Xantrex Inverters

SunWize builds Power Centers with Xantrex DR, SW Plus (SWP) and SW Series II inverter/chargers. They all are assembled on full size PSMP mounting plates. Power Centers with SW Series II inverters may be configured for grid-tie with battery back up operation with the addition of the GTI option.

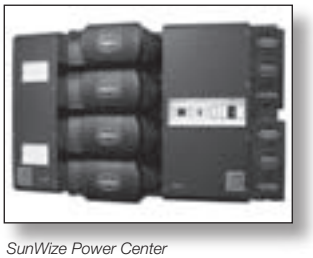
Reading the model numbers: After the OBPP- is the inverter model (i.e. -DR1512 is Xantrex DR 1512). For each inverter the last two digits of the model number refer to the DC input voltage (DR1512 = 12 Vdc input). After the slash (/) is the number of inverters (S for single, D for dual). Systems for other voltages and frequencies are available by request.

Model	Continuous Power Watts	Output Voltage	Charger Current Amps	Weight lb.	MSRP
OBPP-DR1512/S	1500	120	70	160	$2,680.00
OBPP-DR1512/D	1500	120/240	70 x 2	200	$4,160.00
OBPP-DR1524/S	1500	120	35	160	$2,680.00
OBPP-DR1524/D	3000	120/240	35 x 2	200	$4,120.00
OBPP-DR2412/S	2400	120	120	170	$2,960.00
OBPP-DR2412/D	4800	120/240	120 x 2	220	$4,680.00
OBPP-DR2424/S	2400	120	70	165	$2,960.00
OBPP-DR2424/D	4800	120/240	70 x 2	205	$4,680.00
OBPP-DR3624/S	3600	120	70	170	$3,240.00
OBPP-DR3624/D	7200	120/240	70 x 2	220	$5,195.00
OBPP-SW4024/S	4000	120	120	235	$4,820.00
OBPP-SW4024/D	8000	120/240	120 x 2	336	$8,195,00
OBPP-SW4048/S	4000	120	60	235	$4,840.00
OBPP-SW4048/D	8000	120/240	60 x 2	336	$8,150.00

Model	Continuous Power Watts	Output Voltage	Charger Current Amps	Weight lb.	MSRP
OBPP-SW5548/S	5500	120	75	262	$5,520.00
OBPP-SW5548/D	11,000	120/240	75 x 2	378	$9,750.00
OBPP-SWP2524/S	2500	120	70	235	$4,480.00
OBPP-SWP2524/D	5000	120/240	70 x 2	325	$7,680.00
OBPP-SWP2548/S	2500	120	40	235	$4,480.00
OBPP-SWP2548/D	5000	120/240	40 x 2	325	$7,680.00
OBPP-SWP4024/S	4000	120	110	235	$4,820.00
OBPP-SWP4024/D	8000	120/240	110 x 2	325	$8,195.00
OBPP-SWP4048/S	4000	120	60	235	$4,840.00
OBPP-SWP4048/D	8000	120/140	60 x 2	336	$8,150.00
OBPP-SWP5548/S	5500	120	75	262	$5,520.00
OBPP-SWP5548/D	11,000	120/240	75 x 2	378	$9,750.00

Power Centers

SunWize®
Reliable People ::: Reliable Products ::: Reliable Power!



SunWize Power Center

SunWize Assembled OutBack Power Centers with OutBack Inverters

Reading the model numbers: After the OBPP- is the inverter model (i.e. FX2524T is OutBack 2524T). Models ending in "T" have fans installed for optimal cooling, VFX models are vented. For each inverter, the last two digits of the model number refer to the DC input voltage (2524T= 24 Vdc input). After the dash (–) is the number of inverters. Three inverter Power Centers may be wired for three phase output. Systems for other voltage and frequencies are available by request.

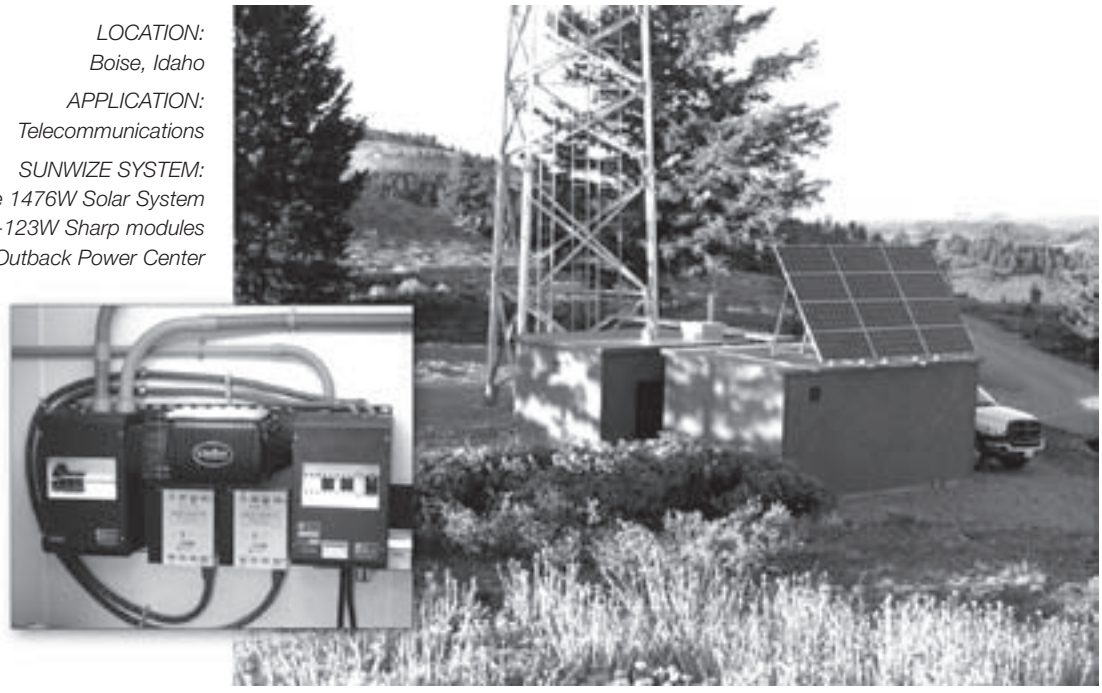
Model	Continuous Power Watts	Output Voltage	Charger Current Amps	Weight lb.	MSRP
Power Centers for Off-Grid					
OBPP-FX2524T-1	2500	120	55	186	$3,650.00
OBPP-FX2524T-2	5000	120/240	55 x 2	256	$6,350.00
OBPP-FX2524T-3	7500	120	55 x 3	326	$9,750.00
OBPP-FX2524T-4	10,000	120/240	55 x 4	396	12,350.00
OBPP-FX3048T-1	3000	120	30	186	$3,650.00
OBPP-FX3048T-2	6000	120/240	30 x 2	256	$6,350.00
OBPP-FX3048T-3	9000	120	30 x 3	326	$9,570.00
OBPP-FX3048T-4	12,000	120/240	30 x 4	396	$11,990.00
OBPP-VFX2812-1	2800	120	125	186	$4,095.00
OBPP-VFX2812-2	5600	120/240	125 x 2	256	$7,295.00
OBPP-VFX2812-3	8400	120	125 x 3	326	$10,895.00
OBPP-VFX2812-4	11,200	120/240	125 x 4	396	$13,880.00
OBPP-VFX3524-1	3500	120	85	186	$4,095.00
OBPP-VFX3524-2	7000	120/240	85 x 2	256	$7,295.00
OBPP-VFX3524-3	10,500	120	85 x 3	326	$10,895.00
OBPP-VFX3524-4	14,000	120/240	85 x 4	396	$13,880.00
OBPP-VFX3648-1	3600	120	45	186	$4,050.00
OBPP-VFX3648-2	7200	120/240	45 x 2	256	$7,295.00
OBPP-VFX3648-3	10,800	120	45 x 2	256	$10,895.00
OBPP-VFX3648-4	14,400	120/240	45 x 2	256	$13,880.00
Power Centers for Grid-Tie with battery backup					
OBPP-GTFX2524-1	2500	120	55	186	$3,650.00
OBPP-GTFX2524-2	5000	120/240	55 x 2	256	$6,350.00
OBPP-GTFX3048-1	3000	120	35	186	$3,650.00
OBPP-GTFX3048-2	6000	120/240	35 x 2	256	$6,280.00
OBPP-GVFX3524-1	3500	120	85	186	$4,050.00
OBPP-GVFX3524-2	7000	120/240	85 x 2	256	$7,295.00
OBPP-GVFX3648-1	3600	120	45	186	$4,050.00
OBPP-GVFX3648-2	7200	120/240	45 x 2	256	$7,295.00

Project Spotlight

LOCATION:
Boise, Idaho

APPLICATION:
Telecommunications

SUNWIZE SYSTEM:
SunWize 1476W Solar System using 12-123W Sharp modules and an Outback Power Center



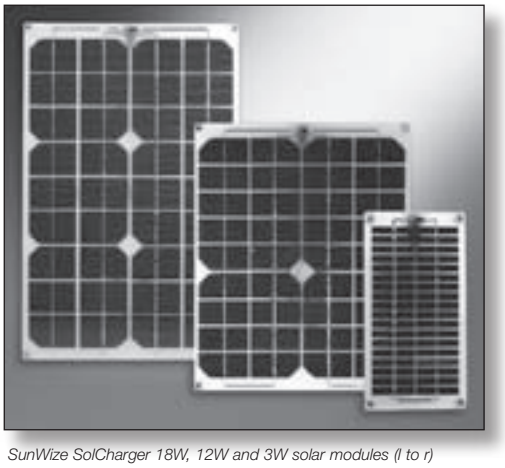
Adding Power Center Accessories

SunWize assembled Power Centers offer the best of two worlds; they are fully listed to UL 508A when they leave our shop and they can be customized for virtually any application. On the page below is a list of the most commonly ordered options which we install on OutBack Power Centers.

When ordering a complete assembly choose the base Power Center first (i.e. OBPP-VFX2812-2) and then add options as desired. Some options are limited to installation on full sized PSMP systems only. Charge controllers are installed with all necessary DC breakers.

Part Number	Description	MSRP
AC Circuit Accessories		
7150PPO-24	X-240 Step Up Xformer	$429.00
7150PPO-43	X-240 Generator Balancing	$429.00
7150PPO-44	X-240 OB Classic Stacking (FX only)	$429.00
7150PPO-25	Fan kit X-240 boosts output to 6 kVA	$69.00
7150PPO-64	Generator Receptacle 240V, 50A, 4 wire	$199.00
7150PPO-37	AC Surge Arrestor	$68.00
DC Circuit Accessories		
7150PPO-23	PVGFP/2 Ground Fault Breaker -2 PV input	$199.00
7150PPO-68	DC-DC converter 200W 48V in 24 V out	$469.00
7150PPO-38	DC Surge Arrestor	$69.00
DC Circuit Breakers 125V "OBDC" for PSDC or PSDC2		
7150PPO-8	100A 1.0" wide, 5/16" stud	$105.00
7150PPO-9	60A 1.0" wide, 1/4" stud	$69.00
7150PPO-10	40A 1.0" wide, 1/4" stud	$55.00
7150PPO-11	30A 1.0" wide, 1/4" stud	$52.00
7150PPO-46	20A 1.0" wide, 1/4" stud	$52.00
7150PPO-12	15A 1.0" wide, 1/4" stud	$52.00
7150PPO-50	10A 1.0" wide, 5/16" stud	$52.00
AC Circuit Breakers Square D "QOU" for PSAC		
7150PPO-13	60A 120 Vac, single pole, 3/4"	$39.00
7150PPO-14	60A 240 Vac, two pole, 1.5"	$54.00
7150PPO-60	40A 120 Vac, single pole, 3/4"	$39.00
7150PPO-75	30A 120 Vac, single pole, 3/4"	$39.00
7150PPO-16	30A 240 Vac, two pole, 1.5"	$54.00
7150PPO-18	20A 120 Vac, single pole, 3/4"	$39.00
7150PPO-74	15A 120 Vac, single pole, 3/4"	$39.00
AC Circuit Breakers "OBAC" for PS2AC or PSAC		
7150PPO-62	50A 120 Vac, single pole, 1/2"	$41.00
7150PPO-76	50A 240 Vac, two pole, 1"	$69.00
7150PPO-15	30A 120 Vac, single pole, 1/2"	$41.00
7150PPO-17	25A 240 Vac, two pole, 1"	$69.00
7150PPO-61	20A 120 Vac, single pole, 1/2"	$41.00
7150PPO-19	15A 120 Vac, single pole, 1/2"	$41.00
Other Installed Options for Power Panels		
7150PPO-20	Ground Bus Bar	$31.00
7150PPO-21	Terminal Bus Bar (black)	$37.00
7150PPO-34	Terminal Bus Bar (red)	$43.00

Part Number	Description	MSRP
OutBack Controllers and Meters		
7150PPO-32	1 MX 60 on PSMP	$919.00
7150PPO-33	2 MX 60 on PSMP	$1,779.00
7150PPO-45	1 MX 60 on PS2MP	$869.00
7150PPO-73	2 MX 60 on PS2MP	$1,769.00
7150PPO-39	Mate	$346.00
7150PPO-42	DC12 Fan for FX inverters	$78.00
7150PPO-59	2 wire Generator Start Relay for FX only	$49.00
Morningstar TriStar Controllers		
7150PPO-51	1 TS45 on PS2MP	$369.00
7150PPO-67	1 TS45 on PSMP	$419.00
7150PPO-71	3 TS45 on PSMP	$1,099.00
7150PPO-52	1 TS60 on PS2MP	$429.00
7150PPO-56	1 TS60 on PSMP	$469.00
7150PPO-57	2 TS60 on PSMP	$859.00
7150PPO-58	3 TS60 on PSMP	$1,259.00
7150PPO-55	TSM for TS45/TS60	$129.00
Blue Sky Controllers		
7150PPO-30	Kit to install SB on top of PSDC	$72.00
Controller sold separately		
Xantrex Controllers, Meters, and Accessories		
7150PPO-1	1 C40 on PSMP	$389.00
7150PPO-2	2 C40 on PSMP	$719.00
7150PPO-3	3 C40 on PSMP	$999.00
7150PPO-4	1 C60 on PSMP	$435.00
7150PPO-5	2 C60 on PSMP	$799.00
7150PPO-6	3 C60 on PSMP	$1,159.00
7150PPO-47	1 C40 on PS2MP	$349.00
7150PPO-48	1 C60 on PS2MP	$359.00
7150PPO-7	CM for C40/C60	$129.00
7150PPO-22	Link 10 12/24 on PSMP	$349.00
7150PPO-49	Link 10 12/24V on PS2MP	$349.00
7150PPO-54	TM500A 12/24 V	$289.00
7150PPO-53	TM500A 48V	$325.00
7150PPO-66	GSM (Gen Start Module) for SW Plus	$279.00
7150PPO-31	GTI (Grid Tie Interface) for 1 SW Inverter	$619.00
7150PPO-41	GTI assembly for 2 SW (field install)	$1,399.00
7150PPO-63	SWI Parallel kit for Xantrex inverters	$565.00



SunWize SolCharger 18W, 12W and 3W solar modules (l to r)

SunWize

SolCharger Modules

SolCharger modules, available in rated output power from 3W to 24W, operate DC loads with small to moderate energy requirements. Lightweight and durable, SunWize SolCharger modules are designed to perform in any environment and for any remote power application. Instead of the standard glass surface, a polymer coating produces a module that is impact resistant and flame retardant. The polymer allows maximum light transmission to the single crystalline cells for high efficiency operation. SolChargers are easy to integrate into load equipment since there is no need for a metal frame, creating a smaller profile than other modules.

SolChargers are ideal for areas where vandalism is a concern such as roadside call boxes, automated parking meters and fence chargers. Each module features a three-foot output cable and four mounting holes with stainless steel grommets. The SC3, SC6 and SC12 models are available in 6V and 12V. Ten-year limited warranty.

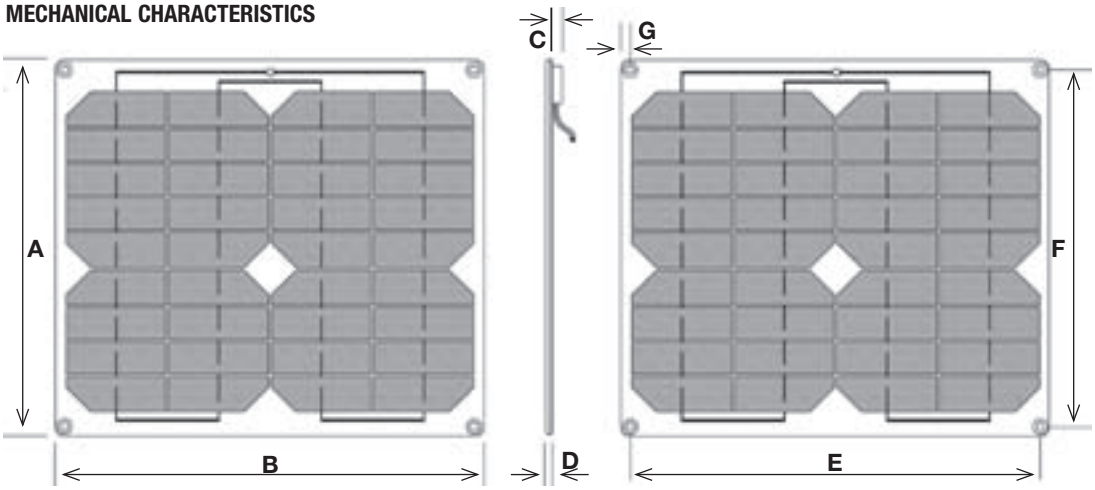
FEATURES:

• High efficiency performance • Vandal Resistant
• Flame Retardant • Durable • Lightweight

Model	Rated Power (Watts)	Rated Voltage (Vmp)	Rated Current (Imp)	Open Circuit (Voc)	Short Circuit (Isc)	Dims (Inches)	Unit Wgt (lbs)	MSRP
SC3–6V	3.0	9.34	0.30	11.2	0.33	9.43 x 5.55	0.60	$54.00
SC3–12V	3.0	18.7	0.15	22.4	0.16	9.43 x 5.55	0.60	$54.00
SC6–6V	6.0	9.34	0.61	11.2	0.65	9.43 x 9.43	1.00	$94.00
SC6–12V	6.0	18.7	0.30	22.4	0.33	9.43 x 9.43	1.00	$94.00
SC12–6V	12.0	9.34	1.28	11.2	1.37	13.3 x 11.68	2.00	$169.00
SC12–12V	12.0	18.7	0.62	22.4	0.66	13.3 x 11.68	2.00	$169.00
SC18	18.0	18.7	0.93	22.4	0.99	13.3 x 16.55	2.80	$208.00
SC24	24.0	18.7	1.24	22.4	1.32	13.3 x 21.18	3.70	$325.00

ELECTRICAL SPECIFICATIONS: ±10% @25ºC @ 1000W/M²

MECHANICAL CHARACTERISTICS



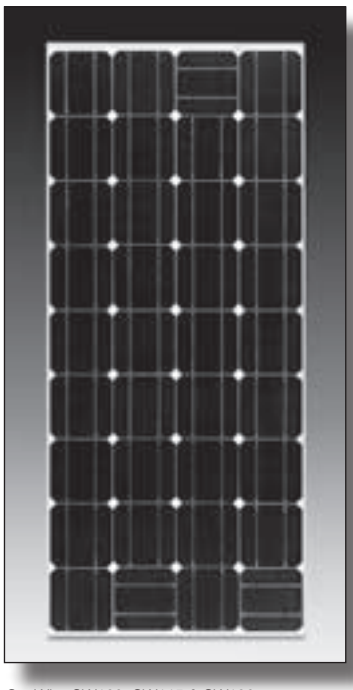
WIRE:
18/2 TYPE TC (tray cable),
Red (+) Black (-),
36" (.91 M) Long

SUBSTRATE:
FR4 .118 (3mm) thick,

COLOR: Tan

MOUNTING GROMMET:
15/64 inch [6mm] diameter

Model	A	B	C	D	E	F	G
SC3	9.425 [239.4]	5.550 [141.0]	.354 [9.0]	.190 [4.8]	8.875 [225.4]	5.000 [127.0]	.275 [7.0]
SC6	9.425 [239.4]	9.425 [239.4]	.354 [9.0]	.190 [4.8]	8.875 [225.4]	8.875 [225.4]	.275 [7.0]
SC12	11.675 [296.5]	13.300 [337.8]	.346 [8.8]	.190 [4.8]	12.75 [323.9]	11.125 [282.6]	.275 [7.0]
SC18	16.550 [420.4]	13.300 [337.8]	.356 [9.0]	.190 [4.8]	12.75 [323.9]	16.000 [406.4]	.275 [7.0]
SC24	21.175 [537.8]	13.300 [337.8]	.356 [9.0]	.190 [4.8]	12.75 [323.9]	20.625 [523.9]	.275 [7.0]



SunWize SW100, SW115 & SW120

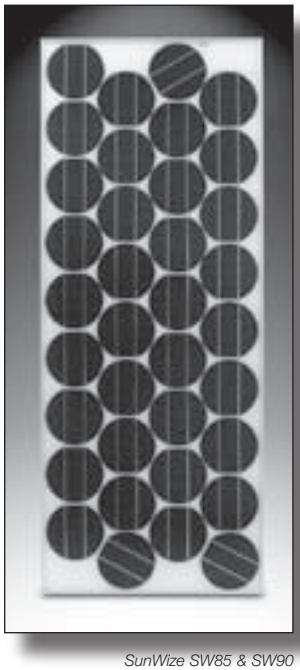
SunWize®

SW Series Solar Modules

SunWize Solar Modules deliver top-quality performance for all photovoltaic applications including rural electrification, water pumping, telemetry, communications, and general battery charging. SunWize modules can be used in single-module and multiple-module installations. Each module consists of 36 solar cells connected in series (except the SW90C which is 48 cells in series), providing maximum charging power.

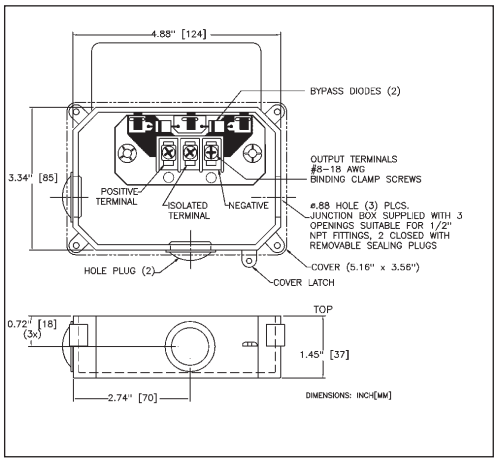
FEATURES:

• The glass surface is impact resistant and allows maximum light transmission. • Single crystalline solar cells are encapsulated and bonded to the glass in multiple layers of ethylene vinyl acetate (EVA) and laminated with a white Tedlar™ backing insuring long life in severe environmental conditions. • A weather resistant junction box accommodates all wiring methods including moisture-tight strain relief connectors and electrical conduit. Bypass diodes insure reliable operation. • Anodized aluminum tubular frames add strength and durability to the modules. Pre-drilled mounting holes. • UL listed to UL1703 and cUL listed (except SW90C), FM approved for hazardous locations Class 1 Div.2 (except SW90C), and ISPRA certified to IEC61215. All SunWize modules carry a limited 25-year, 80% power output warranty.



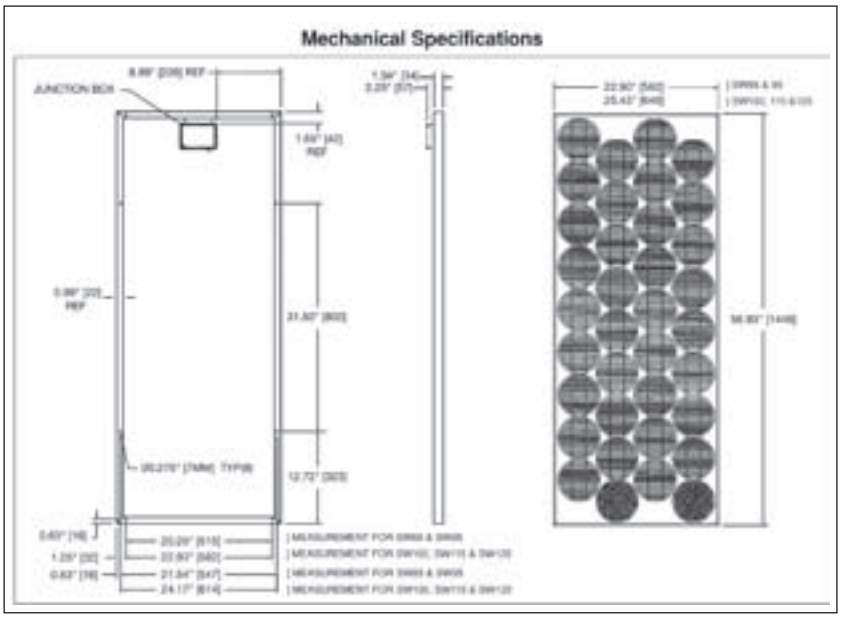
SunWize SW85 & SW90

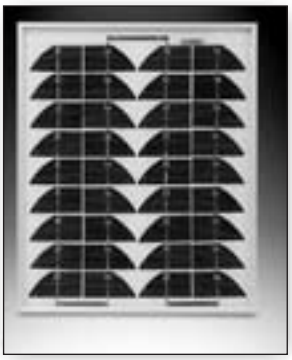
Model	Watts	Vmp	Imp	Voc	Isc	Dimensions in.	Weight lb.	MSRP
SW50C	50	16.4	3.05	21.0	3.40	39.40 x 19.68 x 1.33	13.7	$465.00
SW55	55	16.7	3.30	21.0	3.65	39.40 x 19.68 x 1.33	13.7	$512.00
SW60	60	16.7	3.30	21.0	3.95	39.40 x 19.68 x 1.33	13.7	$558.00
SW85	85	17.4	4.88	21.4	5.70	56.89 x 22.80 x 1.33	23	$779.00
SW90	90	17.4	5.17	21.4	5.90	56.89 x 22.80 x 1.33	23	$825.00
SW90C	90	23.0	3.90	28.5	4.45	56.89 x 22.80 x 1.33	23	$825.00
SW100	100	16.7	6.00	21.0	6.70	56.93 x 25.43 x 1.33	26	$905.00
SW115	115	16.7	6.89	21.0	7.65	56.93 x 25.43 x 1.33	26	$1,042.00
SW120	120	16.7	7.18	21.0	8.00	56.93 x 25.43 x 1.33	26	$1,087.00



SW Series Module Junction Box

SW Series Module Mechanical Specifications





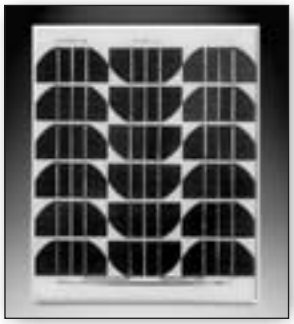
SunWize OEM5

SunWize®

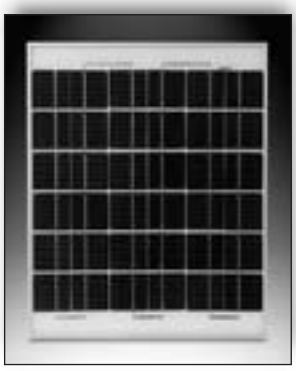
OEM Series Solar Modules

SunWize OEM modules deliver top-quality performance for all photovoltaic applications Including rural electrification, water pumping, telemetry, communications, and general battery charging. Ideal for AC and DC installations, SunWize OEM modules can be used in single module and multiple-module systems. Each module consists of 36 solar cells connected in series providing maximum charging power. The glass surface is impact resistant and allows maximum light transmission. Single crystalline solar cells are encapsulated and bonded to the glass in multiple layers of ethylene vinyl acetate (EVA) and laminated with a white Tedlar™ backing insuring long life in severe environmental conditions. Bypass diodes contained within the junction box insure reliable operation. Anodized aluminum tubular frames add strength and durability to the modules. Includes pre-drilled mounting holes. The weather resistant junction box accommodates all wiring methods including moisture-tight strain relief connectors and electrical conduit. OEM series modules are FM and CSA approved for Class 1, Div. 2 hazardous locations. OEM series modules carry a 20-year, 80% power output warranty.

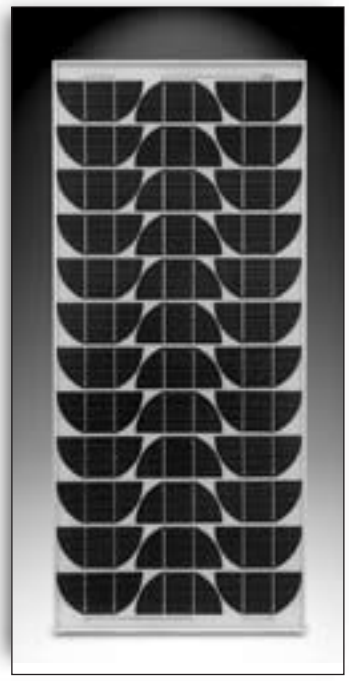
Model	Watts	Vmp	Imp	Voc	Isc	Dimensions in.	Weight lb.	MSRP
OEM5	5	16.4	0.31	20.5	0.38	11.85 x 9.88 x 1.33	3.0	$92.00
OEM10	10	16.4	0.61	21.0	0.70	15.20 x 14.80 x 1.33	4.5	$138.00
OEM20	20	16.5	1.22	21.0	1.38	20.86 x 16.93 x 1.33	6.5	$208.00
OEM40	40	16.7	2.40	21.0	2.68	38.30 x 17.16 x 1.33	12.5	$385.00



SunWize OEM10

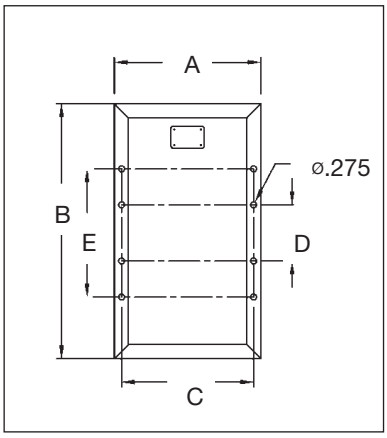


SunWize OEM20



SunWize OEM40

MODULE DIMENSIONS



OEM	A	B	C	D	E
5	9.84	11.82	8.66	7.87	–
10	14.76	15.15	13.58	9.84	–
20	16.93	20.86	15.75	9.84	–
40	17.13	38.38	15.90	9.84	23.64

SunWize OEM 10 Kit

SunWize® OEM and SW Solar Module Kits

SunWize OEM and SW Solar Module kits include a solar module and the SunWize SWIL6 voltage regulator pre-wired with output cable. The SW100, SW115 and the SW120 use the Morningstar SunKeeper 12A regulators. The OEM kits are also offered with a fixed tilt, 45° side-of-pole mount. Each kit is also available without the mount. The SWIL6 is mounted in the module junction box. The waterproof REGULATOR features a multi-function LED indicator and fuse protection.

SunWize single crystalline, high-efficiency solar modules are manufactured to exceed industry standards providing exceptional reliability and maximum power output. A twenty-year warranty reflects the superior quality and assures long product life. The aluminum side-of-pole mounts include two clamps for nominal 2.5" through 4" poles (OD 2.875" through 4.5"). The OEM 5/10/20/40 kits include a 15 ft. (#14AWG) cable, the SW50/55/60 include a 15 ft. (#10 AWG) cable and the SW85/90/100/115 kits include a 10 ft. (#10 AWG) cable.

Model	Watts	Vmp	Imp	Voc	Isc	Dimensions in.	Weight lb.	MSRP
OEM5 kit	5	16.4	0.31	20.5	0.38	11.82 x 9.84 x 1.33	7.0	$199.00
without mount							5.75	$175.00
OEM10 kit	10	16.4	0.61	21.0	0.70	15.98 x 13.38 x 1.33	8.5	$259.00
without mount							7.25	$235.00
OEM20 kit	20	16.5	1.22	21.0	1.38	20.86 x 16.93 x 1.33	12.5	$356.00
without mount							10.5	$310.00
OEM40 kit	40	16.7	2.40	21.0	2.68	38.3 x 17.13 x 1.33	18.5	$561.00
without mount							16.5	$515.00
SW50C kit	50	16.4	3.05	21.0	3.40	39.40 x 19.68 x 1.33	20.0	$645.00
without mount							16.0	$595.00
SW55 kit	55	16.7	3.30	21.0	3.65	39.40 x 19.68 x 1.33	20.0	$695.00
without mount							16.0	$645.00
SW60 kit	60	16.7	3.30	21.0	3.95	39.40 x 19.68 x 1.33	20.0	$745.00
without mount							16.0	$695.00
SW85 kit	85	17.4	4.88	21.4	5.70	56.89 x 22.83 x 1.33	23.0	$1,059.00
without mount							18.0	$959.00
SW90 kit	90	17.4	5.17	21.4	5.90	56.89 x 22.83 x 1.33	23.0	$1,109.00
without mount							18.0	$1,009.00
SW100 kit	100	16.7	6.00	21.0	6.70	56.93 x 25.43 x 1.33	35.0	$1,295.00
without mount							29.0	$1,185.00
SW115 kit	115	16.7	6.89	21.0	7.65	56.93 x 25.43 x 1.33	35.0	$1,445.00
without mount							29.0	$1,335.00
SW120 kit	120	16.7	7.18	21.0	8.00	56.93 x 25.43 x 1.33	35.0	$1,505.00
without mount							29.0	$1,395 .00

Note: modules, charge controllers and mounts can be purchased separately.

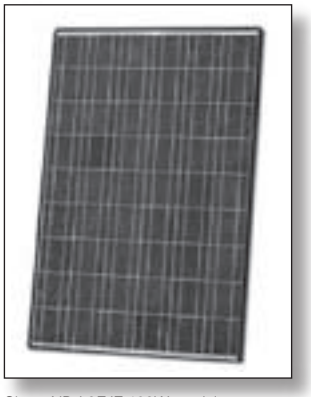
P3-108 Portable Power Pack, shown deployed and stowed

Global Solar

Portable Power Packs

Global Solar P3 series Portable Power Packs are solar-energized power generators for mobile power needs. They fold into a compact size for easy transport and deployment and are built with rip stop nylon backing, which is available in Forest Camo or Desert Camo. Portable Power Packs use thin-film PowerFLEX solar cells and include built in blocking diodes. The P3 series provide an excellent choice for applications that require lightweight, flexible and highly portable self-sustaining power. Standard 2-prong trailer plug provided.

Model	Watts	Vmp	Imp	Deployed Dimensions in.	Stowed Dimensions in.	Weight lb.	MSRP
P3-15	15	18.8	0.78	28 x 21 x 0.1	10.5 x 8.5 x .75	1.6	$445.00
P3-30	30	18.8	1.50	44 x 21 x 0.1	10.5 x 8.5 x 1.2	2.4	$690.00
P3-48	48	18.8	2.5	52 x 29 x 0.1	14.5 x 8.5 x 1.4	3.9	$1,095.00
P3-48-24Vdc	48	37.8	1.2	52 x 29 x 0.1	14.5 x 8.5 x 1.4	3.9	$1,095.00
P3-55	55	20.0	2.8	55 x 32 x 0.1	11.0 x 9.0 x 1.3	3.7	$1,235.00

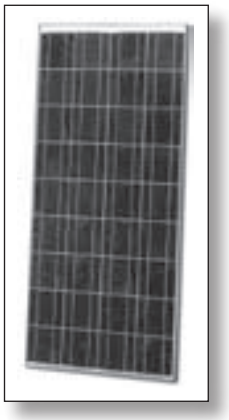


Sharp ND-L3EJE 123W module

Sharp

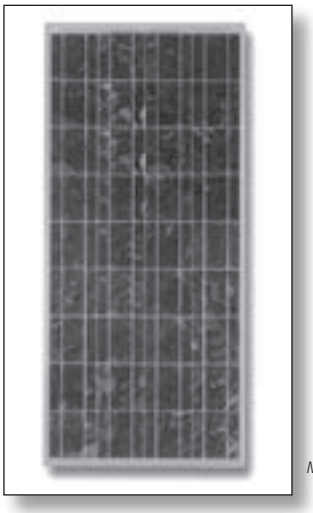
Solar Modules

Sharp's modules are designed for a variety of electrical power requirements. Based on crystal silicon solar technology, the modules have superb durability to withstand rigorous operating conditions. Both Sharp modules in this section use multi-crystal silicon solar cells. The modules feature: bypass diodes to minimize power drop caused by shade; a BSF (Back Surface Field) to improve cell conversion efficiency; anodized aluminum frames with pre-drilled mounting holes; conduit ready J-box. UL listed to UL1703 and cUL listed. 25-year limited warranty.



Sharp NE-80EJE 80W module

Model	Watts	Vmp	Imp	Voc	Isc	Dimensions	Weight lb.	MSRP
NE-80EJEA	80	17.1	4.67	21.3	5.3	47.28 x 21.14 x 1.81	20.94	$745.00
ND-L3EJEA	123	17.2	7.16	21.3	8.12	59.02 x 26.06 x 1.81	30.87	$980.00



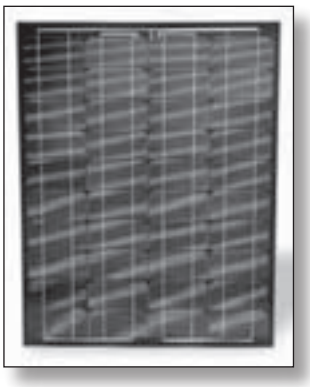
Mitsubishi

Solar Modules

The Mitsubishi PV-MF110EC3 modules do not use any lead solder resulting in a module that is friendlier to the environment. High power output is achieved with the use of 150 mm square polycrystalline cells. The modules feature: clear anodized aluminum frames with pre-drilled holes; built-in bypass diodes; conduit ready J-boxes. UL listed to UL 1703. 20-year limited warranty.

Model	Watts	Vmp	Imp	Voc	Isc	Dimensions in.	Weight lb.	MSRP
PV-MF110EC3	110	17.1	6.43	21.2	7.16	56.1 x 25.4 x 2.2	25.4	$876.00

Mitsubishi PV-MF110EC3



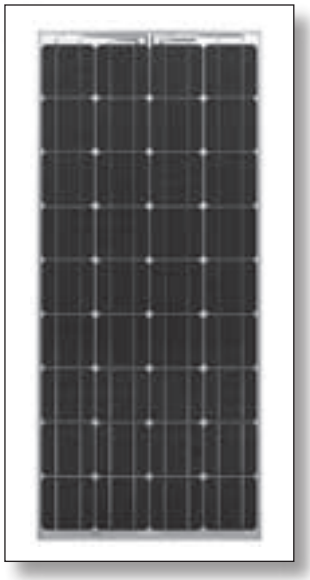
General Electric

GEPV 50 Solar Module

The GEPV-50 offers nearly 3 amps of battery-charging current in full sunlight and is designed specifically for 12 to 48 VDC systems. The GEPV-50 features a weather resistant junction box for easy and safe field installation. The dual low-loss bypass diodes provide superior protection and minimum power loss when shaded. Heavy duty anodized aluminum frame provides strength and convenient mounting access. 25-year warranty.

Model	Watts	Vmp	Imp	Voc	Isc	Dimensions in.	Weight lb.	MSRP
GEPV-50	50	17.3	2.9	22.0	3.3	33.8 x 25.0 x 2.1	16.5	$495.00

GEPV-50 module



Shell Ultra SQ80-P, SQ85-P

Shell Solar

Ultra SQ-P Series Solar Module Features

The Ultra SQ-P line of modules replaces the SP module series and has the same dimensions. It was created specifically for off grid application. The SQ modules feature mono-crystalline cell technology enhanced by TOPS™ and silicon nitride anti-reflection coatings. PowerMax® mono-crystalline solar cells deliver maximum power output even under reduced light conditions.

A torsion and corrosion-resistant anodized aluminum frame ensures dependable performance, even under harsh weather conditions. Pre-drilled mounting holes are provided for ease of installation. Both modules use the ProCharger conduit ready J Box, which includes twin, field replaceable by-pass diodes. The SQ80 has a module efficiency of 12.7%, the SQ85 has a module efficiency of 13.4%. Twenty five-year limited warranty. FM approved for hazardous locations Class 1 Div. 2, UL listed to UL1703.

Model	Watts	Vmp	Imp	Voc	Isc	Dimensions in.	Weight lb.	MSRP
Ultra SQ80-P	80	16.9	4.76	21.8	5.35	47.2 x 20.8 x 1.3	16.7	$760.00
Ultra SQ85-P	85	17.2	4.95	22.2	5.45	47.2 x 20.8 x 1.3	16.7	$805.00

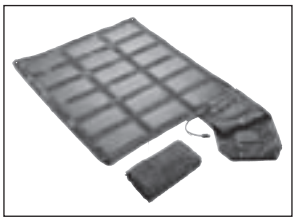
Uni-Solar US-64

UNI-SOLAR®

UNI-POWER™ Module Features

The heart of the UNI-POWER module is the Triple Junction silicon solar cell unique to Uni-Solar. Each cell is composed of three semiconductor junctions stacked on top of each other for diverse light level absorption. This spectrum splitting capability is the key to higher efficiency and superior operation in low light levels. The cell junctions are deposited onto a stainless steel film encapsulated in UV stabilized EVA polymers and laminated to a Galvalume™ coated, steel backing plate. The modules feature a clear Tefzel® front covering. The unbreakable, non-glass module is bonded to an anodized aluminum frame for strength. Frame includes mounting holes. The US-64 features bypass diodes, weather resistant, conduit ready junction box, it is configured for 12 Vdc battery charging . Twenty-year limited warranty. UL listed to 1703.

Model	Watts	Vmp	Imp	Voc	Isc	Dimensions in.	Weight lb.	MSRP
US-64	64	16.5	3.9	23.8	4.8	53.8 x 29.2 x 1.3	20.2	$499.00
ES-62	62	15.0	4.1	21.0	5.1	49.5 x 31.3 x 1.3	24.0	$489.00

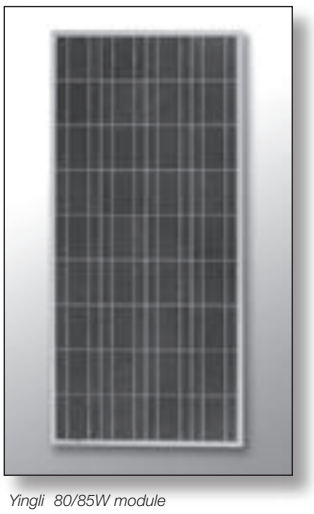


Uni-Pac Portable Solar Chargers

UNI-PAC® Solar Charger

The unique design of the UNI-PAC is lightweight, glass-free construction. The tough nylon fabric covering allows the unit to be folded to a convenient book size, for easy storage and transport. The UNI-PAC10 offers dual voltage charging for 12V and 24V, the UNI-PAC 15 and the UNI-PAC 34 are for 12V charging. The UNI-PAC was designed to meet military requirements for durability, performance and reliability. Individual solar laminates contain by-pass diodes, making the UNI-PAC solar chargers tolerant of severe shadow or partial covering. Charging rate and voltage can even be adjusted to meet specific needs. The UNI-PAC 10, 15 and 34 are covered by a 5-year limited warranty.

Model	Watts	Vmp	Imp	Voc	Isc	Deployed Dimensions in.	Weight lb.	MSRP
UNI-PAC 10	10.5	17.6	0.6	26.0	0.7	46 x 19.5	2.1	$596.00
UNI-PAC 15	15.8	17.6	0.9	26.0	1.1	47.5 x 28	3.3	$796.00
UNI-PAC 34	34.0	17.6	1.9	25.2	2.4	58 x 33.3	4.7	$996.00



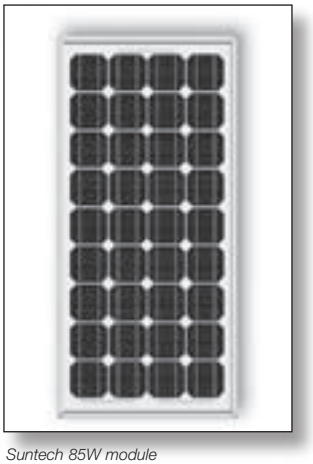
Yingli 80/85W module

Yingli Solar

Solar Modules

Yingli solar modules use 36 high-efficiency polycrystalline silicon solar cells producing maximum power even under low light conditions. EVA and TPT encapsulants create an environmental seal and the anti-reflective coating and high transmission glass increase power output and enhance the mechanical strength of the module. Anodized aluminum frame. Multi-function junction box with waterproof lid. All modules are UL and CE listed and carry a 10-year, 90% output warranty and a 25-year, 80% output warranty.

Model	Watts	Vmp	Imp	Voc	Isc	Dimensions in.	Weight lb.	MSRP
YL80	80	17.5V	4.6A	22.0V	5.1A	46.1 x 21.3 x 1.3	17	$745.00
YL85	85	17.5V	4.9A	22.0V	5.3A	46.1 x 21.3 x 1.3	17	$790.00



Suntech 85W module

Suntech Power

Solar Modules

Suntech modules are designed with durability to withstand harsh environments. The 36-cell monocrystalline silicon module includes a sealed terminal box with pre-terminated 29.52” cables with MC connectors. All modules are CE listed and carry a 12-year, 90% output warranty and a 25-year, 80% output warranty.

Model	Watts	Vmp	Imp	Voc	Isc	Dimensions in.	Weight lb.	MSRP
STP085S	85	17.6V	4.83A	21.9V	5.14A	47 x 21.3 x 1.2	17.6	$790.00

System Spotlight

LOCATION: Baton Rouge, LA

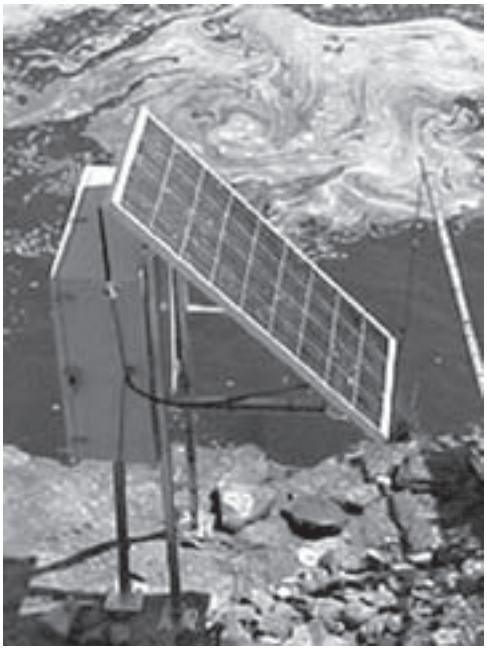
APPLICATION: Security camera system

SUNWIZE SYSTEM: SunWize PR500

LOCATION: Northern Indiana

APPLICATION: Water monitoring

SUNWIZE SYSTEM: SunWize PR123



Charge Controller or Regulator

Another essential component in a solar electric system is the charge controller or regulator. The basic function of the controller is to prevent the PV array from overcharging the batteries. Excess charge will damage batteries. A controller provides overcharge protection by disconnecting the PV array when the batteries reach a set voltage and reconnects when a lower voltage occurs. Controllers are rated by the maximum continuous PV charge current they are able to support. Most controllers offer Pulse Width Modulation to provide more precise and complete battery charging. Maximum Power Point Tracking controllers ensure delivery of the maximum possible PV power into the battery bank.

Controllers can also include additional features such as low voltage disconnects and alarms and remote reporting functions. Temperature compensation is a highly recommended feature since batteries and modules behave differently under particular temperature conditions. Temperature compensation modifies the solar charging voltage in response to battery temperature. A warm battery undergoes faster chemical reactions and needs less voltage and current to fully charge. A cold battery needs more robust charging since cold temperatures rob a battery of its capacity.

We recommend you discuss controller features with your dealer to determine which one fits your project requirements.

SunWize SW-IL6

SunWize

SW-IL6 Charge Regulator

The SW-IL6 battery charge regulator is designed for 12 volt PV systems rated up to 100 watts. This small regulator package fits into the junction box of most solar modules. The waterproof assembly is encapsulated within a black ABS plastic shell with 4" lead wires. A pressure sensitive adhesive strip is supplied for mounting. This controller is designed to mount in the module junction box. Can also be installed on the battery. Features transient surge protection, multi-function green LED charge indicator, reverse polarity protection, operating temperature: -35ºC to + 75ºC, temperature compensation, dual comparator - PWM charging algorithm, self-consumption 4 ma., fixed 14.2 Vdc. Includes 8 amp battery fuse. FM approved for Hazardous Locations Class 1 Div. 2. One-year warranty.

Model	Vdc	PV Amps	Dimensions in.	Weight lb.	MSRP
SW-IL6	12	6	1.25 x 1.5 x .40	.125	$42.00

SunWize Solsum Controller

Steca Solsum Controller

The Steca Solsum Controller is an economical pulse-width modulated shunt controller designed for small and mid-sized systems. Using the most up-to-date and innovative technology, the Solsum controllers fulfill the task of overcharge and over discharge protection.
The overcharge protection operates as a pulse-width-modulated (PWM) shunt controller and guarantees faster charging of the battery. A tricolor LED indicates three ranges of battery voltage and a green LED indicates array current. These controllers include temperature compensated charging, MOSFET transistors and fuse protection.

Other features include, automatic adjustment for 12 or 24 Vdc systems, protection against extreme temperature, battery voltage, module overcurrent and load current. Temperature compensated overcharge and overdischarge protection is also built in. Solsum Controllers, certified for World Bank projects, ensure maintenance-free operation and long product life. One-year warranty.

Model	Vdc	PV Amps	Load Amps	Dimensions in.	Weight lb.	MSRP
Solsum 5.0C	12/24	5	N/A	3.34 x 3.85 x 1.33	.22	$39.00
Solsum 6.6C LVD	12/24	6	6	3.34 x 3.85 x 1.33	.22	$47.00
Solsum 8.0C	12/24	8	N/A	3.34 x 3.85 x 1.33	.22	$49.00
Solsum 8.8C LVD	12/24	8	8	3.34 x 3.85 x 1.33	.22	$59.00

SunWize Steca Controller

SunWize

Steca Controller

The SunWize–Steca controller uses an advanced control algorithm that sets new standards for solar charge technology. The state-of-charge algorithm combines battery temperature, battery voltage, and load discharge rate to determine the true battery state of charge (SOC). The controller's memory of discharge patterns enables the controller to know the degree of battery sulfation. This allows even greater accuracy towards determining true battery SOC. The self-learning controller automatically adjusts for the capacity and age of the battery. The resultant battery SOC is displayed within a 10% accuracy range. The patented hybrid regulator design combines both series and shunt technology for nominal power consumption. Maximum wire gauge for terminal: 4 AWG.

The Tarom features adjustable set points that are stored in the controller's memory. Available Tarom options are an external data logger, external shunts for measuring current and a remote temperature sensor. Other options include control modules that load shed or PV shed based on the battery SOC that is communicated with the controller over a DC data bus. Two-year warranty.

Options:

- Audible buzzer fault condition warning alarm (not available with the LCD display)
- Opto-isolated fault condition warning alarm that can be connected to any analog input monitoring device (not available with the LCD display)

Other Features Include:

- TUV and UL recognized component
- Automatically adjusts for 12 V or 24 V system
- Automatic battery equalization can be disabled when using gel or AGM type lead-acid batteries
- Protection against over temperature, battery overvoltage, module overcurrent, and load overcurrent
- Low voltage disconnect and a low voltage warning
- Tricolor information LED and tricolor "SOC" LED annunciating controller status, errors, and battery SOC
- IP 22 (NEMA 12) protection
- Operating temperature range is -25° C to +50° C
- Manual setting to override the SOC algorithm to allow SOC to be determined by temperature compensated voltage levels. This is useful when other loads are connected directly to the battery.

Model	Vdc	PV Amps	Load Amps	Dimensions in.	Weight lbs.	MSRP
Alpha	12/24	8	8	7.4 x 4 x 1.93	1	$82.00
Gamma	12/24	12	12	7.4 x 4 x 1.93	1	$99.00
Sigma	12/24	20	20	7.4 x 4 x 1.93	1	$119.00
Omega	12/24	30	30	7.4 x 4 x 1.93	1	$150.00
Tarom 235	12/24	35	35	7.4 x 4 x 1.93	1	$335.00
Tarom 245	12/24	45	45	7.4 x 4 x 1.93	1	$385.00
Tarom 430	48	30	30	7.4 x 4 x 1.93	1	$445.00
PR1010*	12/24	10	10	7.4 x 4 x 1.93	1	$136.00
PR1515*	12/24	15	15	7.4 x 4 x 1.93	1	$160.00
PR2020*	12/24	20	20	7.4 x 4 x 1.93	1	$187.00
PR3030*	12/24	30	30	7.4 x 4 x 1.93	1	$219.00

* LCD Display standard on PR Series regulators.

SunWize-Steca and Solsum Controller Operational Settings

Set point values based on:	SunWize-Steca SOC algorithm	SunWize-Steca Battery Voltage	SunWize-Steca Solsum Battery Voltage
Load Disconnect Prewarning	SOC < 40%	11.7	NONE
Low Voltage Disconnect (LVD)	SOC < 30%	11.1	11.1
Reconnection of Load after an LVD	SOC > 50%	12.6	12.6
Equalization Charge* of 14.7 V occurs after	SOC < 40%	11.7	12.4
Cycle Charge of 14.4 V occurs after	SOC < 70%	12.4	12.4
Final Charge Voltage	13.7	13.7	13.7
Temperature Compensation	-4mV/K/Cell	-4mV/K/Cell	-4mV/K/Cell

Voltage Values are doubled for 24 V systems

* Not applicable to sealed gel or AGM batteries, equalization charge of 14.4 volts for Solsum controllers

ProStar Controller

Morningstar

ProStar Controller

The ProStar features highly accurate set points, low voltage drops, and sealed & flooded control parameters. Self-diagnostic testing provides assurance the controller is working correctly or indicates a fault is present. The self-diagnostics plus the currents displayed in the digital meter will provide a comprehensive test of the controller. The ProStar's constant voltage PWM regulation uses 4 stages of charging including boost charging. Battery type selections are made via rotary switch and include gel, sealed or flooded. ProStar provides higher charging efficiency, increases the battery capacity, reduces water loss, and extends the life of the battery. Five-year limited warranty.

Features:

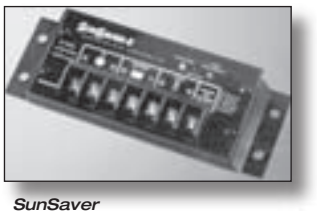
- Low voltage disconnect
- Operating temperatures of -40°C to +85°C
- PWM battery charging
- Automatic equalization of wet batteries
- PG models are positive ground
- Temperature compensation

Model/ Description	Voltage	Rated PV Current	Rated Load Current	Dimensions in.	Weight (oz.)	MSRP
PS 15	12/24V	15 amps	15 amps	6.01 x 4.14	12	$112.00
PS 15M (w/meter)	12/24V	15 amps	15 amps	6.01 x 4.14	12	$179.00
PS 15M-48V	48V	15 amps	15 amps	6.01 x 4.14	12	$222.00
PS 15M-48V-PG	48V	15 amps	15 amps	6.01 x 4.14	12	$239.00
PS 30	12/24V	30 amps	30 amps	6.01 x 4.14	12	$152.00
PS 30M	12/24V	30 amps	30 amps	6.01 x 4.14	12	$219.00
PS 30M-PG	12/24V	30 amps	30 amps	6.01 x 4.14	12	$236.00

Accessories:

Remote Temperature Sensor

The temperature sensor provides accurate battery charging where the controller and the battery experience different ambient temperatures. For maximum environmental protection, the sensor is encapsulated in epoxy inside a stainless steel housing. The RTP is easily installed by soldering 2 wires to the circuit board. Corrects for temperatures from -30ºC (-22ºF) to +80ºC (+176ºF). Five-year warranty. 25 ft cable $32.00



SunSaver

SunSaver Controller

SunSaver's battery charging design closely copies the ProStar's advanced charging algorithm. The series PWM algorithm is very stable, yet responds instantly to changing conditions. The constant voltage PWM charging is a proven advancement compared to the common on/off PV regulators. Five-year limited warranty. L models include Low Voltage Disconnect.

Features:

- True 0-100% PWM duty cycle
- Field selectable for sealed or flooded battery
- Temperature compensation
- Series design for constant voltage charging
- Pulse charging
- Approved for use in hazardous (Class 1, Div 2, groups A,B,C,D) locations
- UL1604 listed and CSA 22.2 (Canada)

Model	Voltage	Rated PV Current	Rated load Current	Dimensions in.	Weight lb.	MSRP
SS6-12	12V	6.5 amps	N/A	6.0 x 2.2 x 1.32	.5	$48.00
SS6L-12	12V	6.6 amps	6 amps	6.0 x 2.2 x 1.32	.5	$59.00
SS10-12	12V	10 amps	N/A	6.0 x 2.2 x 1.32	.5	$55.00
SS10L-12	12V	10 amps	10 amps	6.0 x 2.2 x 1.32	.5	$70.00
SS10L-24	24V	10 amps	10 amps	6.0 x 2.2 x 1.32	.5	$76.00
SS20L-12	12V	20 amps	20 amps	6.0 x 2.2 x 1.32	.5	$95.00
SS20L-24	24V	20 amps	20 amps	6.0 x 2.2 x 1.32	.5	$101.00

SunGuard-4

Morningstar

SunGuard-4 Controller

The SunGuard is an economical controller that uses the same charging circuit as the SunSaver controller. It offers true 0-100% PWM duty cycle and setpoint accuracy to 60mV. The SunGuard is fully encapsulated in epoxy potting and has an ABS plastic, impact-resistant case. Five-year limited warranty.

Features:

- Temperature compensation • Series design
- Lightning protected • No need to derate
- Outdoor rated
- Operating temperatures of -40°C to +85°C

Model	Voltage	Rated PV Current	Dimensions	Weight (oz.)	MSRP
SunGuard-4	12V	4.5 amps	2" x 2.5" x 1.5"	3	$30.00


SunLight

SunLight Controller

The SunLight solar lighting controller combines the SunSaver PWM battery charging circuit with a microcontroller for automatic lighting functions. The SunLight features a rotary switch to select among ten lighting time options including pre-dawn settings and LVD override protection. Detects day and night using the PV array. Five-year limited warranty.

Features:

- Sealed/flooded battery select
- Temperature compensation
- Parallel operation compatible
- Adjustable 2-10 hours, 4 + 2, 6 + 2 or dusk to dawn

Model	Voltage	Rated PV Current	Rated Load Current	Dimensions	Weight (oz.)	MSRP
SL 10-12	12V	10 amps	10 amps	6" x 2.18" x 1.32"	9	$108.00
SL 10-24	24V	10 amps	10 amps	6" x 2.18" x 1.32"	9	$116.00
SL 20-12	12V	20 amps	20 amps	6" x 2.18" x 1.32"	9	$141.00


TriStar

TriStar Controller

The TriStar is a three-function controller providing reliable solar battery charging, load control or diversion regulation. This controller operates in only one of these modes at a time but two or more controllers may be used to provide multiple functions. The digital meter option displays self-test results, system information and controller setpoints. Remote temperature sensor option rated from -30ºC (-22ºF) to +80ºC (+176ºF). White power-coated steel, indoor rated, vertical mounting enclosure. UL listed. Five-year warranty.

Features:

- Standard model switch selectable for 12/24V or 48V battery
- Choice of 7 regulation or LVD setpoints • Conduit-ready enclosure for large wire sizes
- RS-232 comm port provides custom setpoints • Self test runs continuously

Charge Controller Mode: • Temperature compensation
• PWM may be changed to "on-off" controller to minimize any possible telecom noise
Load Control Mode: • Starts all loads including inductive
• Short circuit and overload protection with automatic reconnect
Diversion Control Mode: • May be used for solar, wind or hydroelectric

Model/Description	Voltage	Rated PV Current	Rated Load Current	Dimensions	Weight (lbs.)	MSRP
TS-45	12/24/48V	45 amps	45 amps	10.1" x 4.9" x 2.3"	4	$169.00
TS-60	12/24/48V	60 amps	60 amps	10.1" x 4.9" x 2.3"	4	$218.00
TS Digital Meter	Replaces existing cover to provide digital display					$99.00
TS Remote Digital Meter	Can be located up to 30 meters away from controller					$136.00
Remote Temperature Sensor						$32.00
Relay Driver				6.4" x 3.2" x 1.3"	1	$169.00

SunKeeper

Features:
- Extensive electronic protections
- Bi-color LED
- Easy to install
- Operating temperatures of -40˚C to +70˚C

Morningstar

SunKeeper Controller

Morningstar's SunKeeper solar controller provides a low cost regulated output directly from the solar module to maximize battery life in small solar power applications. The SunKeeper is epoxy encapsulated and rated for outdoor use. By mounting directly to the module junction box and wiring through the junction box knockout, the connection is weather-proof. This eliminates the need for an additional housing for the controller. The SunKeeper is available in a 6 amp or 12 amp version (both at 12 volts DC). To withstand the high temperatures at the solar module, the controller has been designed using extremely efficient power electronics and is rated to 70°C. Series PWM with 3 stage charging: bulk, PWM regulation and float. The SunKeeper is also certified for use in Class 1, Division 2 hazardous locations, making it an ideal controller for solar powered oil/gas applications.

Model	Voltage	Rated PV Current	Dimensions	Weight (oz.)	MSRP
SK-6	12V	6 amps	3.9" x 2.0" x 0.5"	4	$63.00
SK-12	12V	12 amps	3.9" x 2.0" x 0.5"	4	$89.00

Xantrex C40

Xantrex

C-Series-Charge, Diversion or Load Controllers

The C Series from Xantrex has long been the leader in durable multi-purpose charge controllers. These pulse width modulated (PWM), field adjustable controllers work as a solar charge regulator or a DC load controller or a battery diversion controller. In controller mode all models automatically initiate a three-stage battery charging cycle. A manual switch makes routine battery equalization easy. The C Series is used extensively in micro hydro and wind generator applications where basic diversion control is desired.
All models feature a LED status light which displays charging functions and battery state-of-charge. Control set points are adjustable by trim-pots. BTS option adds battery temperature compensation to all models. UL listed to UL 1741. Two-year limited warranty.

Model	Voltage	PV Amps		Load Amps	Dimensions in.	Weight lb.	MSRP
C35	12/24	35	or	35	8.0 x 5 x 2.5	2.5	$119.00
C40	12/24/48	40	or	40	10 x 5 x 2.5	3.0	$159.00
C60	12/24	60	or	60	10 x 5 x 2.5	3.0	$199.00
Accessories							
CM	LCD digital display mounts on the front of the controller for C35, C40 & C60						$99.00
CM/R-50	Remote LCD digital display with 50' cable for C35, C40 & C60						$126.00
CM/R-100	Remote LCD digital display with 100' cable for C35, C40 & C60						$146.00
BTS/15	Battery Temperature Sensor with 15' Cable			n/a		.5 lbs	$29.00
BTS/35	Battery Temperature Sensor with 35' Cable			n/a		.5 lbs	$32.00

Xantrex C12

Xantrex

C12 – PWM 3 stage solar charge, DC load and auto lighting controller

The C12 has an LED status light displaying both charging functions and battery charge state at a glance. The load control function (LVD) will disconnect DC loads if batteries reach low-voltage condition and reconnect once batteries are recharged. A simple one-time reconnect switch turns power back on for ten minutes once in LVD. An optional temperature sensor ensures precise battery charging regardless of battery temperature fluctuations. Field adjustable setpoints with removable knobs. Automatic reset of overload protection. Automatic control of lighting systems with adjustable run duration from 2 to 8 hours or dusk to dawn. ETL listed to UL1741. Two-year limited warranty.

Model	Voltage	PV Amps	Load Amps	Dimensions in.	Weight lbs	MSRP
C12	12	12	12	6.5 x 4.3 x 1.5	1.5	$110.00


Mark 15

Specialty Concepts, Inc.


ASC Charger

The Automatic Sequencing Charger™ (ASC) is a very compact, efficient 100% solid-state battery charger regulator for use in PV systems. The ASC is a negative-ground switching shunt regulator, housed in an anodized aluminum chassis and encapsulated in a hard epoxy resin. The terminal block accepts up to 10-gauge wire or a space connector, providing simple installation. The ASC is FM approved for hazardous locations, UL listed, and provides lightning and reverse leakage protection. The ASC PLUS features a low-voltage load disconnect, a waterproof battery fuse, and a linear LED display indicating battery status.

The MARK/15™ is a solid-state charge controller for use in PV systems with currents up to 15 amps. It includes a full-featured LCD meter to display battery voltage, array current and charge set-point. It is intended to flush-mount within a wall for a very distinctive appearance. General specifications include fuse protection on both battery and array and bar graph battery condition indicator. The Mark/15 is UL Recognized.

The MARK/22 is similar to the MARK/15 but is rated for 22 amps of PV current. It also has a low-power consumption LCD digital display, which can show two different system parameters -battery voltage and array current.

Model	Description	Voltage	Rated PV Current	Rated Load Current	Dimensions	Weight (lbs)	MSRP
ASC-12/4		12 V	4 A	n/a	6” x 3.5” x 3”	0.63	$46.00
ASC-12/8		12 V	8 A	n/a	6” x 3.5” x 3”	0.63	$49.00
ASC-12/8 A	Temp Compensation	12 V	8 A	n/a	6” x 3.5” x 3”	0.63	$58.00
ASC-12/8 AE	Temp Comp, Low-volt Disc	12 V	8 A	10 A	6” x 3.5” x 3”	0.63	$70.00
ASC-12/8 E	Low-volt Disconnect	12 V	8 A	10 A	6” x 3.5” x 3”	0.63	$61.00
ASC-12/12		12 V	12 A	n/a	6” x 3.5” x 3”	0.63	$56.00
ASC-12/12 A	Temp Compensation	12 V	12 A	n/a	6” x 3.5” x 3”	0.63	$66.00
ASC-12/12 AE	Temp Comp, Low-volt Disc	12 V	12 A	10 A	6” x 3.5” x 3”	0.63	$83.00
ASC-12/12 E	Low-volt Disconnect	12 V	12 A	10 A	6” x 3.5” x 3”	0.63	$72.00
ASC-12/16		12 V	16A	n/a	6.5” x 5” x 3”	1.00	$65.00
ASC-12/16 A	Temp Compensation	12 V	16A	n/a	6.5” x 5” x 3”	1.00	$76.00
ASC-12/16 AE	Temp Comp, Low-volt Disc	12V	16A	10 A	6.5” x 5” x 3”	1.00	$92.00
ASC-12/16 E	Low-volt Disconnect	12 V	16A	10 A	6.5” x 5” x 3”	1.00	$81.00
ASC-24/8		24 V	8 A	n/a	6” x 3.5” x 3”	0.63	$49.00
ASC-24/8 A	Temp Compensation	24 V	8 A	n/a	6” x 3.5” x 3”	0.63	$60.00
ASC-24/8 AE	Temp Comp, Low-volt Disc	24 V	8 A	10 A	6” x 3.5” x 3”	0.63	$76.00
ASC-24/8 E	Low-volt Disconnect	24 V	8 A	10 A	6” x 3.5” x 3”	0.63	$65.00
ASC-24/16		24 V	16 A	n/a	6.5” x 5” x 3”	1.00	$65.00
ASC-24/16 A	Temp Compensation	24 V	16 A	n/a	6.5” x 5” x 3”	1.00	$76.00
ASC-24/16 AE	Temp Comp, Low-volt Disc	24 V	16 A	10 A	6.5” x 5” x 3”	1.00	$92.00
ASC-24/16 E	Low-volt Disconnect	24 V	16 A	10 A	6.5” x 5” x 3”	1.00	$81.00
MARK/15-12		12 V	15 A	n/a	9.5” x 6” x 4”	1.25	$99.00
MARK/22-12		12 V	22 A	n/a	9.5” x 6” x 4”	1.50	$114.00

Solar Boost 3024i w/IPN

Solar Boost 2000E

Blue Sky Energy, Inc.

Solar Boost™ Maximum Power Point Tracking (MPPT) Controllers

Blue Sky Energy controllers employ MPPT which increases charge current up to 30%. These controllers offer Pulse Width Modulation (PWM) charge voltage control using reliable power MOSFET transistors. A fully automatic electronic current limit prevents overload. A manual equalize function is also provided to periodically condition liquid electrolyte lead-acid batteries. A digital display shows battery voltage, solar panel current, output charge current, charge mode and state-of-charge.

The controllers feature an advanced fully automatic three-stage charge control system to ensure the battery is properly and fully charged. An optional digital display for 6024HL, 3048L and 50L models can be provided in the controller or as a remote panel installed up to 300' away (or both). See Accessories section below for pricing. The 2000E includes a multifunction digital display. The 6024H is specially designed to receive a high voltage 36V or 48V PV array input and charge a 12V or 24V battery at up to 60A.

Solar Boost 3024i is a mid-sized MPPT type charge controller featuring the IPN network interface. A simple LED/switch interface provides basic system setup, no analog adjustments, digital setpoints retained if power is interrupted. Other features include a multi-stage charge control plus automatic or manual equalization and an auxiliary output. 2-year warranty. Solar Boost 3048, 50 and 6024H are ETL listed to UL 1741 and covered by a 3-year limited warranty.

Features:

- Patented MPPT technology
- Multi-stage PWM charge control
- Durable powder coat finish
- Conformal coated electronics
- 3 year extended warranty
- Optional temperature compensation

Model	Voltage	Rated PV Current	Rated Load Current	Dimensions	Unit Weight (lbs)	MSRP
Solar Boost 2000E	12V	25A	25A	4.6" x 6.4" x 1.8"	2.0	$236.00
Solar Boost 2512i	12V	25A	25A	5.3" x 5.3" x 1.9"	2.2	$179.00
Solar Boost 6024HDL with display	48V	60A	60A	10" x 8.75" x 3.5"	9.5	$599.00
Solar Boost 6024HL w/o display	48V	60A	60A	10" x 8.75" x 3.5"	9.25	$518.00
Solar Boost 3048DL with display	24/48V	30A	30A	10" x 8.75" x 3.5"	9.0	$575.00
Solar Boost 3048L	24/48V	30A	30A	10" x 8.75" x 3.5"	8.75	$493.00
Solar Boost 3024i	12/24V	30A	20A	7.0" x 6.5" x 3.5"	4.5	$299.00
Solar Boost 50DL with display	12/24V	50A	50A	10" x 8.75" x 3.5"	9.0	$514.00
Solar Boost 50L	12/24V	50A	50A	10" x 8.75" x 3.5"	8.75	$432.00
Accessories:						
SB2000E Wall Mount Box –1/2" conduit knockouts					2.0	$29.00
IPNPRO-S Remote Display for 3024i with Shunt				4.5" x 4.5"	2.0	$199.00
IPNPRO Remote Display for 3024i					1.0	$169.00
SB3048PDL Front panel digital display – Add to SB3048L to make SB3048DL					1.0	$119.00
SB50PDL Front panel digital display – Add to SB50L to make SB50DL					1.0	$119.00
SB6024HPDL Front panel digital display – Add to SB6024HL to make SB6024HDL					2.0	$119.00
SB50RD25 Remote display w/25' cable for SB3048L, SB50L, SB6024HL4.5" x 4.5" 1.75"					2.0	$112.00
Battery Temperature Sensor w/20' cable for all Blue Sky controllers					1.0	$29.00

OutBack MX60

OutBack Power

MX60 Maximum Power Point Tracking (MPPT) Charge Controller

The MX60 has established itself as the controller of choice for many residential PV system designers. This is because of the great flexibility designed into the controller. A single model is suitable for systems from 12 to 60 Vdc. Due to the MPPT circuitry the MX60 allows you to use a higher output voltage PV array with a lower voltage battery.

Many designers now use nominal 72 Vdc PV arrays to charge 48 Vdc battery banks. This allows for longer wire runs and simplified array installations. It can be used with battery systems from 12 to 60 Vdc with PV open circuit voltage as high as 150 Vdc.

Set points are fully adjustable. The MX60 comes standard with a display of the PV system's performance and power production. The four-line, 80 character, backlit LCD display is used for programming and monitoring of the system's operation. It can be connected to the Mate system controller and display to allow monitoring of up to eight MX60 controllers up to 1000 feet away. RS232 port included. Two-year warranty.

Model	Battery Vdc	PV Amps	Maximum PV Voc	Dimensions in.	Weight lb.	MSRP
MX60	12-60	60	150	14.5 x 5.75 x 5.75	12	$649.00

System Spotlight

LOCATION:
Kingston, NY

APPLICATION:
Part of 15kW grid-tie system

SUNWIZE SYSTEM:
1840W SunWize Power Station with battery backup

LOCATION:
Freeport, TX

APPLICATION:
Wireless bridge and network security camera

SUNWIZE SYSTEM:
1320W SunWize Power Ready System with battery backup providing 12Vdc and 120Vac

TriMetric TM-2020

TriMetric

TM-2020 Battery Meter

The TriMetric battery monitors are designed to assist in battery care, conservation and system maintenance of battery powered systems. The TM-2020 measures volts, amps and amp-hours and features a “battery % full” display and a “battery reminders” display. The TriMetric is one of our most popular meters because of its accuracy and relative ease of use.

Model	Voltage	Dimensions in.	MSRP
TM-2020	12-24	4.75 x 4.50 x 1.75	$199.00
48V Adapter - Used to adapt MT-2020 for 48 Vdc use			$30.00
Wiremold Box for flush mounting TM-2020			$12.00

Xantrex Link 10

Xantrex

Link 10 (formerly E-Meter)

Easy to use multi-color displays show volts, amps, amp hours consumed and operating time remaining. The Link 10 allows you to select Automatic, Sleep and Scanning modes and calculate and display charging efficiency. Includes shunt. 18 month warranty. Dimensions: Face diameter: 2.5”, Barrel diameter: 1.95”, Depth: 3.15”

Model	Weight lb.	MSRP
Link 10 Standard - w/500 amp shunt (12 and 24 Vdc systems)	.5	$250.00
Color-coded twisted pair cable - 25 ft.		$55.00
Prescaler - 0-100 volts to extend voltage range covered by meter (Required for 48 Vdc systems)		$125.00
Prescaler - 0-500 volts`		$195.00

Xantrex TM500A

TM500A

The TM500A provides data on all critical system functions - energy production and consumption - and is capable of monitoring total accumulated charge power from multiple DC sources such as PV, wind generators, microhydros and inverter battery chargers. 50 feet of RJ-11 terminated communication cable and a 500 amp shunt included. Compatible with 12 or 24 volt DC systems (optional TM-48 adaptor for 48 Vdc systems). This meter is exceptionally easy to read. Two-year warranty.

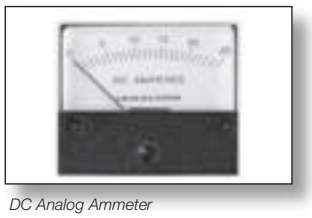
Model	Dimensions in.	Weight	MSRP
TM500A - with shunt, 50’ cable, shunt board	3.88 x 5.377 x 1.25	2.5 lbs	$245.00
TM500A-NS - no shunt, 50’ cable, shunt board	3.88 x 5.377 x 1.25	2.5 lbs	$195.00
TM-48 - high voltage shunt board for 48Vdc systems			$65.00

Xantrex Battery Monitor

Battery Monitor (XBM)

The XBM uses sophisticated microprocessor technology to provide complete battery status information. A simple display shows; volts, amps, current (positive or negative), amp hours consumed, percent of charge, and operating time remaining. A communications kit including Windows based software is optional. The information is displayed in a clear and user friendly format. XBM is compatible with 12 and 24 Vdc systems only. The Link 10 voltage prescaler will work with the XBM for use on higher voltage systems. They work with any battery type and the basic meter includes a DC shunt and is covered by a one year warranty.

Model	Weight lb.	MSRP
Xantrex Battery Monitor - w/500-amp shunt (12 and 24 Vdc systems)	.5	$275.00
XBM Communication Kit	.5	$150.00
Connection Kit 32' (10m)	.5	$50.00
Connection Kit 50' (15m)	.5	$62.50
Temperature Sensor Kit 32' (10m)	.5	$40.00
Temperature Sensor Kit 65' (20m)	.75	$60.00



DC Analog Ammeter

DC Ammeter – Analog

Useful for measuring current flow from PV or wind sources to battery-draws 1ma. Accuracy 3%, 2-3/4" face-flush mount, simple 2-wire connection from shunt. Shunt included.

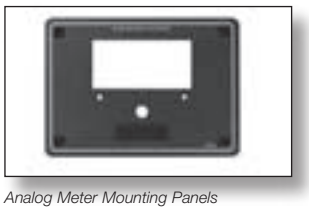
Model	Scale	Dimensions	Weight (lbs)	MSRP
8005	25A	2.8" x 2.4"	0.24	$42.75
8022	50A	2.8" x 2.4"	0.24	$80.00

DC Analog Voltmeter

DC Voltmeter – Analog

Meter with 2-3/4" face-flush mount, 3% accuracy, simple 2-wire connections, draws 1ma.

Model	Voltage Scale	Dimensions	Weight (lbs)	MSRP
8003	8-16V DC	2.8" x 2.4"	0.23	$37.50
8240	18-32V DC	2.8" x 2.4"	0.23	$48.00



Analog Meter Mounting Panels

Analog Meter Panels

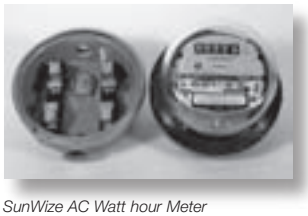
Attractive slate gray powder coated 1/8' aluminum panels flush mount 2-3/4" analog (or digital) meters.

Model	Type	Dimensions	Weight	MSRP
8013	Single Meter	3.75" x 5.25"	0.22	$26.00
8014	Dual Meters	7.50" x 5.25"	0.36	$33.50

Deltec

Shunts for all Meters

Model	MSRP
500 amp shunt	$30.00
100 amp shunt	$28.00



SunWize AC Watt hour Meter

SunWize®

AC Watt hour Meter

This standard utility grade meter, certified and calibrated, monitors the solar energy production from sine wave DC-AC inverters. Rated for indoor/outdoor use for 120/240V-60Hz single-phase operation. Displays in kilowatt-hours enables cumulative reading of solar energy produced. Meter socket, sold separately, includes meter ring, painted cast aluminum body with 1" threaded conduit hubs & ground lug. Meter seal is used to determine unauthorized entry.

Model	Size	Weight lbs	MSRP
120 Vac only kWhr Meter	6" dia.	4.5	$65.00
120/240 Vac kWhr Meter	6" dia.	4.5	$39.00
Meter Socket	6" dia.	1.5	$29.00
Meter Seal	NA	NA	$1.00

Kill A Watt Meter

P3 International

Kill A Watt Meter

Low-cost watt-hour meter provides you with accurate appliance energy consumption data. Large LCD displays AC volts, AC amps, watts, volt-amps, frequency, power factor, cumulative kWh and elapsed time. 0.2% accuracy. ETL listed.

Model	Max Voltage	Max Current	Max Power	Dimensions inches	Weight oz.	MSRP
P4400	125 Vac	15A	1875VA	5.13 x .625 x 2.38	5	$40.00

Storing Energy in Batteries

The batteries used in solar and wind systems are rated for deep-cycle applications and are not designed to start engines. The internal construction of automotive batteries and most marine batteries requires the battery to provide very high current flow for a very short amount of time. To meet that requirement, these batteries are constructed with many thin, lead plates. The thickness of the lead plate is a direct indicator of potential battery life in deep-cycle applications. When a battery is cycled deeply, 30% to 80% emptied, the lead plates undergo significant mechanical stress. The thin automotive-type plates do not have the structural integrity to withstand repeated deep cycling and therefore quickly fail.

There are two types of deep cycle batteries offered in this catalog: Valve Regulated Lead Acid (VRLA) and Flooded Lead Acid (FLA). VRLA technology includes non-spillable gelled electrolyte and absorbed glass mat (AGM) batteries. A gel battery uses an electrolyte consisting of a silica gel/acid mixture. In an AGM battery, the electrolyte is absorbed in separators of matted glass fibers. VRLA batteries are less susceptible to freezing than FLA batteries and carry a non-hazardous classification. FLA batteries are filled with a water/sulfuric acid electrolyte and are better for large applications such as remote homes where greater currents are required. The amount of energy a battery is able to store is finite and is expressed in amp hours. A dealer will consider the following information when sizing a battery bank for your off grid application:

Total Load - how much electricity is required.

Peak Load - the largest combined amount of electricity required.

Autonomy - number of days the batteries will support the load without being recharged.

Depth of Discharge – the level the battery will be discharged.

Temperature Derating – the highest and lowest expected ambient temperature.

SunWize dealers will then determine which battery and how many are needed for your system.

Concorde Sun-Xtender 1040T Battery

Concorde

Concorde – Sun-Xtender VRLA-AGM

Sun-Xtender batteries are sealed, maintenance free, valve-regulated, lead-calcium alloy batteries designed for deep-cycle PV applications. These batteries feature immobilized, non-spillable electrolyte in AGM microporous sun glass separators. The T series feature copper alloy M8 terminals except on the PVX 340T & 420T which are M6. The L series feature heavy-duty "L" blade terminals. Both are designed for heavy duty, high current capacities.

Sun-Xtenders have a wide range of operating temperatures from -40ºF (-40ºC) to 160ºF (72ºC) as well as low self-discharge of approximately 1% per month at 77ºF (25ºC). All include 5/16" silicon bronze bolts for connection except the PVX340T and 420T which include 1/4" bolts. Battery racks available, call for information. "Non-spillable batteries" for transport-complies with DOT HMR49 Non-hazardous materials. UL recognized system component. 1-year warranty from the date of install, 18 months from the ship date.

Expected life cycles versus depth of discharge (DOD) @ 1-hour rate/25ºC (77ºF):

- 5200 @ 10% DOD
- 1850 @ 30% DOD
- 1050 @ 50% DOD

Full charge termination voltage (@ 25ºC) 14.40 Vdc, **Float charge termination voltage (@ 25ºC)** 13.40 Vdc, **Temperature compensation** +/- 3.75mv per cell/ºC degrees @ 25ºC, from (0ºC to 40ºC)

Model Number	Voltage	AH Capacity @ C/120	Dimensions in.	Weight lbs	MSRP
PVX-340T	12	38	7.71 x 5.18 x 6.89	25	$122.00
PVX-420T	12	45	7.71 x 5.18 x 6.89	03	$144.00
PVX-490T	12	55	8.99 x 5.45 x 8.82	31	$159.00
PVX-560T	12	63	8.99 x 5.45 x 8.82	36	$179.00
PVX-690T	12	79	10.22 x 6.60 x 8.93	51	$206.00
PVX-890T	12	102	12.90 x 6.75 x 8.96	62	$253.00
PVX-1040T	12	120	12.00 x 6.77 x 8.93	66	$269.00
PVX-1080T	12	126	12.90 x 6.75 x 8.96	69	$285.00
PVX-2120L*	12	253	20.75 x 8.71 x 10.66	138	$539.00
PVX-2580L*	12	305	20.72 x 10.94 x 10.23	165	$639.00

* rope handles

MK Battery

MK Battery

VRLA- Gel

The MK Battery series of valve-regulated, gelled-electrolyte batteries is designed to offer reliable, maintenance-free power for renewable energy applications where frequent deep cycles are required and minimum maintenance is desirable. The sealed construction eliminates periodic watering, corrosive acid fumes and spills. The electrolyte will not stratify so no equalization charging is required. Less than 2% per month standing loss means little deterioration during transport and storage.

They are ideal for small to medium sized PV systems and are rated non-spillable by ICAO, IATA and DOT. These batteries feature-polypropylene containers with handles and self sealing vents. They are constructed with lead-calcium plate alloy within sulfuric acid thixotropic gel. Batteries do not include terminal bolts-all use 5/16"-18 x 1" (except for 8GU1 = 1/4"-20 x 1") sold separately. Five-year limited warranty – free replacement on the first two years and pro-rated on the last three years of the warranty.

VRLA–Gel

Expected life cycles versus depth of discharge (DOD) @ 2-hour rate/25ºC:

- 6000 @ 10% DOD
- 2500 @ 25% DOD
- 1100 @ 50% DOD

VRLA–AGM

Expected life cycles versus depth of discharge (DOD) @ 3-hour rate/25ºC:

- 920 @ 30% DOD
- 410 @ 50% DOD
- 200 @ 80% DOD

Model	Vdc	A/h Capacity @ 100 Hr. Rate	Bolt Size	Dimensions L x W x H	Weight (lbs)	MSRP
8GUI	12	36	1/4	7.75 x 5.13 x 7.25	24	$105.00
8G22NF	12	58	11/32	9.40 x 5.50 x 9.25	39	$166.00
8G24	12	84	5/16 stud	10.88 x 6.75 x 9.88	54	$216.00
8G27	12	99	5/16 stud	12.75 x 6.75 x 9.88	64	$245.00
8G31	12	108	3/8"	12.90 x 6.75 x 9.40	74	$280.00
8G4D	12	210	3/8	20.75 x 8.50 x 10.00	131	$532.00
8G8D	12	265	3/8	20.75 x 11.0 x 10.00	161	$638.00
8GGC2	6	198	11/32	10.25 x 7.13 x 10.88	68	$290.00

VRLA–AGM MK Battery

VRLA–AGM

Sealed, maintenance-free, valve-regulated type AGM batteries are available in smaller size capacity ratings, perfect for use with solar applications for powering lighter loads such as telemetry, SCADA, remote monitoring, UPS systems, LED and emergency lighting. Capacity discharge ratings are at the 20-hour rate- 20ºC at -4ºF to 122ºF. Charge termination voltage-cyclic use = 14.40 Vdc, float 13.80Vdc. Rated Non-Spillable-DOT. Two-year limited warranty.

Model	Vdc	A/h Capacity @ 20 Hr. Rate	Terminal Size in.	Dimensions in. L x W x H	Weight lb.	MSRP
ES 712	12	7	0.187 tab	5.95 x 2.56 x 3.70	5.5	$21.00
ES1212	12	12	0.250 tab	5.95 x 3.86 x 3.70	9	$33.00
ES1712	12	17	0.50 flag	7.13 x 2.99 x 6.58	13.5	$44.00

DS-1000

Innovative Energy Systems

DeSulfator Battery Conditioners

When a lead-acid battery is discharged a soft, lead sulfate material forms on the battery plates. During the battery's recharge, this material is lifted off of the plates and recombined into the battery's electrolyte solution. When a battery is left in a partial state of discharge the lead sulfate material will begin to harden and crystallize - sulfation - which hampers the battery's ability to accept a charge or deliver energy. The DeSulfator connects to the battery and electronically eliminates and prevents sulfation and helps extend battery life by emitting a "sweeping pulse" of energy at a frequency which is tuned to enable sulfation to revert back into the electrolyte solution.

Model	Battery Capacity A/h	Power Consumption Watts	Dimensions in.	Weight lb.	MSRP
DS-500	Up to 350	0.2	2 x 3 x 1.5	0.4	$115.00
DS-1000	350-1000	0.4	3 x 3 x 1.5	0.6	$169.00

Rolls 4000 Series

Surrette

Rolls 4000 and 5000 Series

The flooded, deep-cycle line features extended standard warranties and double insulated, enveloped positive plates that eliminate the possibility of separator misalignment, cracked separators, treeing or shorting at the bottom or sides. Each battery cell has increased liquid reserve levels, resulting in fewer watering intervals. The 4000 Series is rated for a 10-year average life; the 5000 Series is rated for 12 to 15 years. The 4000 have rope handles, the 5000 Series' handles are integrated into the case.

The 5000 series are constructed in a non-breakable modular dual container. Each 2-volt cell is assembled in its own inner polypropylene container within a moisture tight, protective outer container eliminating short circuits due to water or falling metal objects. This series battery is supplied with Hydrocaps which extends the service intervals for adding water to the cells. FOB destination with minimum weight quantities–call for details. Available dry charged. Bolt size is 5/16".

Series 4000 batteries carry a 24-month free replacement warranty (FOB factory) and include an 84-month adjustment period from date of installation. Series 5000 batteries carry a 36-month free replacement warranty (FOB factory) and include a 120-month adjustment period from date of installation (USA only).

Rolls 5000 Series

4000 series expected life cycles vs depth of discharge, @ 100 hr. rate/25ºC:

- 2688 @ 10% DOD
- 2048 @ 30% DOD
- 1536 @ 50% DOD

5000 series expected life cycles vs depth of discharge, @ 100 hr. rate/25ºC:

- 6600 @ 10% DOD
- 5040 @ 30% DOD
- 3840 @ 50% DOD

Model	Voltage	A/h Capacity @ 100 Hr. Rate	Dimensions L x W x H in.	Wet Weight lb.	Dry Weight lb.	MSRP
4000 Series						
S-460	6	460	12.28 x 7.13 x 16.75	129	90	$309.00
S-530	6	530	12.28 x 7.13 x 16.75	140	115	$352.00
5000 Series						
4-CS-17PS	4	770	14.38 x 8.25 x 18.25	128	98	$575.00
4-KS-21PS	4	1557	15.75 x 9.75 x 24.75	230	186	$1,099.00
4-KS-25PS	4	1900	15.75 x 10.63 x 24.75	315	220	$1,370.00
6-CS-17PS	6	770	22.00 x 8.25 x 18.25	221	178	$862.00
6-CS-21PS	6	963	22.00 x 9.75 x 18.25	271	217	$1,025.00
6-CS-25PS	6	1156	22.00 x 11.25 x 18.25	318	254	$1,225.00
8-CS-25PS	8	1156	28.25 X 11.25 X 18.25	492	342	$1,635.00

Water Miser Vent Caps

Water Miser Vent Cap

Battery safety vent caps reduce the maintenance of constantly replenishing the water in flooded batteries. Condensing pellets within the cap capture and return electrolyte droplets into each cell during the charging to assure better electrolyte maintenance. A flip-top design allows easier watering without needing to remove the cap.

Model	MSRP
Water Miser Vent Caps	$7.50

OutBack PSR Battery Rack

OutBack PSR-FO Battery Rack

OutBack Power

OutBack Power System Rack

The Power System Rack is a combined battery cabinet and system component rack. It combines battery disconnects, overcurrent protection devices and the inverter/chargers into a single enclosure. ETL listed. Can be configured for outdoor or indoor use.

Model	Description	MSRP
PSR	Power System Rack. Includes removable top & side panels, two shelves and conduit/breaker knockout plates. PSR front bracket will hold one DC-GFP/2, two PV array disconnect breakers and one large inverter/battery breaker. Holds eight - group 27/31 batteries. 42" x 33.6" x 16.6". Ships in 3 boxes.	$649.00
PSR-FO	Power System Rack – Frame only. Same as the standard PSR except without enclosure panels or conduit/breaker brackets. Comes standard with three shelves. Holds 12 - group 27/31 batteries. Not ETL listed. Ships in 2 boxes.	$399.00
Accessories		
PSR-3RK	Type 3R/Outdoor Rainproof Kit – allows mounting of the PSR outdoors. Includes insulated powder coated aluminum rainshield, gasketed and lockable, transparent flip up circuit breaker cover. ETL listed.	$149.00
PSR-BCK	Transparent flip up circuit breaker cover w/mounting screws & padlock hasp.	$19.00
PSR-JBK	J-Bolt kit with 4 bolts and mounting hardware for 1 inverter on PSR shelf	$12.00
PSR-HDT	Heavy Duty Top – allows mounting of an SW series inverter/charger with conduit box on top of the PSR cabinet.	$79.00
PSR-MP	Mounting Plate – attaches to the back of any PSR version to allow mounting of electrical components. Predrilled for TBB and GBB options and various other control/inverter components - fits inside of enclosure panel.	$39.00
PSR-SCT	Spill Containment Tray – Holds four Group 31, T105 or L16 batteries - fits on one PSR shelf - molded polyethylene.	$29.00
PSR-SK	Shelf Kit – adds another shelf to the PSR for more batteries or inverter/charger when using sealed batteries.	$89.00
PSR-SZ4	Seismic Zone 4 kit – includes two mounting feet and battery restraint straps for up to 12 batteries.	$89.00

System Spotlight

LOCATION:
Idaho

APPLICATION:
Outdoor area lighting for a boat ramp

SUNWIZE SYSTEM:
SunWize Designer Lighting System

SunWize Premium Enclosures

SunWize®

Hinged Cover Premium Battery Enclosures

SunWize F-series hinged cover enclosures are engineered specifically for the PV industry allowing the installer to add controllers and other electrical components. Additional back and side panels are available. Designed for outdoor use, NEMA type 3R/12 construction, enclosures have bottom-to-top rain and dust proof vent design. A removable front opening door is lined with a sealing gasket and includes a special keyed cam-lock and dust cover. These enclosures are white powder coated aluminum for ultimate protection in severe climates. For applications in extreme hot or cold conditions, space is available for additional 1" foam insulation around the battery.

Features: 3 models for either 1, 2 or 4 Group 31 batteries. Vertical design on 4 battery enclosure (2 + 2) with removable interior shelf, Passive venting with dust filtration pads. Doors have 1/4 turn locking door latches with special key and dust cover. Electrical knockouts and ground lug hole on rear. Rear-top of enclosure 'hanger' built in for easy installation onto mounting brackets. Vandal resistant wall or pole mounting brackets and U-bolt sets are sold separately.

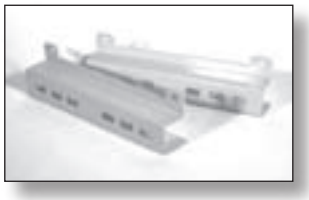
Model	Dimensions in.	DIM.A	Weight lb.	MSRP
F1 - 1 battery	20.75 x 16.00 x 9.38	12 7/8	25	$345.00
F2 - 2 batteries	20.75 x 16.00 x 14.38	12 7/8	30	$389.00
F4 - 4 batteries	32.00 x 16.00 x 14.38	24 1/8	40	$515.00
Extra Door Key – #E3-5-15, Cylinder type				$4.50

SunWize Economy Enclosures

Economy Battery Enclosures

Available in five sizes, E-series economy battery enclosures are cost-effective solutions for housing one to four batteries. These aluminum enclosures feature removable covers fastened by aluminum screws, NEMA 3R type rainproof, rear louver-vented construction, and a brushed grain finish. Includes dual bottom and rear 1/2" electrical knockouts and a removable back panel for mounting PV controls and other components (except E1-38 size). The two small enclosures, have two external mounting feet sized for 2" pipe U-bolt attachment. The E1-125 through E1-500 enclosures include a stainless steel door lock-hasp and rear mounting holes. Brackets sold separately. Space is provided to allow for 1" foam insulation around the battery. Tamper proof door screws can be added for extra security.

Model	Quantity x Battery Group	Dimensions in.	Weight lb.	MSRP
E1-38	1 x ES1712	11.25 x 9.13 x 5.88	4	$95.00
E1-63	1 x 8G22NF	14.50 x 10.25 x 7.50	6	$125.00
E1-125	1 x 8G31	17.00 x 16.00 x 9.50	12	$139.00
E2-250	2 x 8G31	17.00 x 16.00 x 15.00	17	$159.00
E4-500	4 x 8G31	32.00 x 16.00 x 15.00	25	$349.00



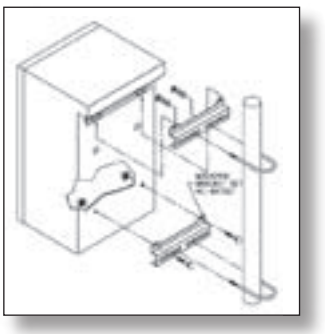
SW Premium Mounting Brackets

SW Economy Mounting Brackets

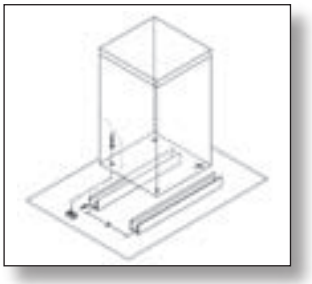
Mounting Brackets for F and E Series Enclosures

Brackets are identical except for the surface coating which matches the enclosure series; white powder coating for F Series, brushed aluminum for E Series. Matching aluminum channels are used for wall or pole mounting. Slotted pattern allows U-bolt sizes from 2" to 8" (schedule 40 pipe) or larger band clamps.

Brackets are first mounted in place on wall or pole. For extra vandal resistance the enclosure is then hung in place on top bracket and bolted through lower bracket with 5/16" carriage-bolts which are included.



Model	Dimensions in.	Weight lb.	MSRP
F-BKTSET(Premium)	2 x 13	2.0	$35.00
E-BKTSET(Economy)	2 x 13	2.0	$29.00



SW Pad Brackets

Concrete Pad Mounting Brackets F and E Series Enclosures

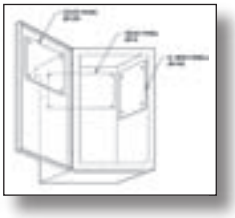
Aluminum strut channels are used in combination with captive lock nuts and supplied with 3/8" stainless steel fasteners for attachment to enclosure bottom - allows clearance for air flow, flood water and door opening. Concrete anchors not furnished. Requires four bottom holes added by installer. Can be used with either F or E series enclosures.

Model	Dimensions in.	Weight lb.	MSRP
PD-MTGBKTSET	1 x 20	4.0	$45.00

SW Enclosure Mounting Panels

Hinged Cover Mounting Panels F Series Enclosures

All F-series enclosures include interior studs for mounting panels. Back panels are made of 0.080" brushed aluminum with four mounting holes. Right-side and door panels are blank, rear panels are either blank or with 39 pre-located holes for #8 self tapping screws, allowing simple attachment of most commonly used PV controllers, breakers, terminal strips, surge arrestors, and ballasts.



Model	Dimensions in.	Weight lb.	MSRP
F-HC-RP-B Rear panel-blank	15.50 x 6.50	0.70	$12.00
F-HC-RP-D Rear panel-drilled	15.50 x 6.50	0.70	$15.00
F-HC-RSP-1B Right side (one battery)	8.75 x 3.75	0.23	$10.50
F-HC-RSP-2/4B Right side (2/4 battery)	9.50 x 6.25	0.41	$11.00

SW Top Opening Enclosure

Top Opening Chest Type Battery Enclosures

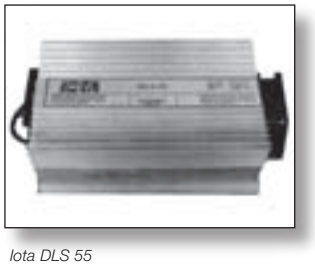
Exterior white powder coated finish, T-series battery enclosures are designed for housing larger group 4D (250 Ah) & 8D (300 Ah) batteries and will house many other battery sizes as well. These enclosures feature 0.125" aluminum, NEMA 3R type rainproof-vented construction and include lower 3" x 5" channel skids with pad anchoring holes to provide ground clearance. The continuous ST-ST hinged cover includes a prop rod, lock hasp and 1/2" side conduit entries. Interior mounting panel studs on sides and top cover for additional PV control & component mounting – panels are sold separately. Extra space for 2" foam insulation around the battery and under top cover.

Model	Quantity x Battery Group	Dimensions in.	Weight lb.	MSRP
T-3X4D	3 x 4D or 2 x 8D	31.25 x 23.75 x 20.5	55.0	$789.00
T-6X4D	6 x 4D or 4 x 8D	48.25 x 30.25 x 20.5	100.0	$909.00
T-6X8D	8 x 4D or 6 x 8D	48.25 x 40.25 x 20.5	125.0	$1,119.00

Top Opening Enclosure Mounting Panels

Blank panels are 0.125" brushed aluminum with four mounting holes for side and top cover locations to allow attachment of PV charge controllers and other components.

Model	Dimensions in.	Weight lb.	MSRP
MP-S Side Panel	15.5 x 6.5	0.70	$12.00
MP-T pre-drilled Top Panel	17.0 x 17.0	4.00	$60.00



Iota DLS 55

Iota Engineering Company

DLS Series

The DLS Series automatic battery charger/power supply uses switch-mode technology to insure service free operation even when subjected to extremely harsh conditions. The clean DC output operates electronic and motor loads. They feature regulated converter/power supply, tight line-load regulation, two-step voltage switch, current limiting, transient voltage protection and short circuit/over-current protection. The IQ4 Smart Controller adds 3-stage charge control to the DLS Series Chargers. They plug into the dual voltage jack on the top of the DLS unit. All DLS models include cooling fan. Charger efficiency approx. 85%. Two-year warranty. 24V units available.

Model	Output Vdc	Output Amps	Input Vac	Dimensions in.	Weight lb.	MSRP
DLS15	13.6/14.2	15	120	7.0 x 6.5 x 3.5	4.0	$149.00
DLS30	13.6/14.2	30	120	7.0 x 6.5 x 3.5	5.5	$199.00
DLS45	13.6/14.2	45	120	7.0 x 6.5 x 3.5	5.5	$229.00
DLS55	13.6/14.2	55	120	7.0 x 6.5 x 3.5	5.5	$269.00
DLS75	13.6/14.2	75	120	10.0 x 6.5 x 3.5	7.8	$555.00
DLS90	13.6/14.2	90	120	10.0 x 6.5 x 3.5	7.8	$610.00

Iota ITS-30R

ITS Transfer Switches

The ITS are relay-based automatic transfer switches. They provide switching between two separate power sources and can be used in conjunction with another ITS transfer switch for additional power sources.

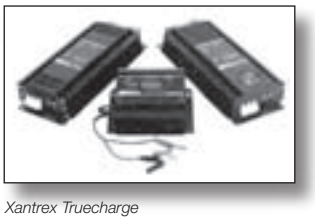
Model	Max Power cord Size	Max Generator	Max Main Breaker	Case Material	Wiring	Dimensions in.	Weight lb.	MSRP
ITS-30R	30A	4kW	30A 1P	Plastic	Hard Wire	7.5 x 8.5 x 4	2	$95.00
ITS-50R	50A	12kW	50A 2P	Plastic	Bridge	7.5 x 8.5 x 4	3	$225.00
ITS-100R	100A	24kW	100A 2P	Steel	Bridge	10 x 12 x 4	15	$590.00

Iota IQ4

IQ4 Smart Controller

The IQ4 Smart Controller offers automatic charging control for the DLS Series Chargers to provide longer and safer use of the system's battery. IQ4 controllers feature an installation jack plug which plugs into the dual voltage jack on the top of the DLS unit. The IQ Controller allows the DLS charger to operate as an automatic 3-stage smart charger. For 12V only. Two-year warranty.

Model	Dimensions	Weight	MSRP
IQ4 Smart Controller	3.06" x 1.88" x 1.44"	1 lb	$38.00



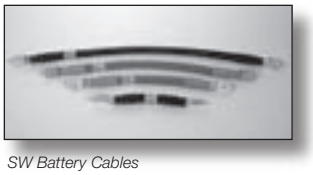
Xantrex Truecharge

Xantrex

Truecharge Battery Charger

Microprocessor controlled for fast and accurate three-stage charging of all deep-cycle batteries. Features such as adjustable temperature compensation and independent settings for flooded, gel and AGM batteries prevent battery damage due to overcharging. All feature over-temperature shutdown, and reverse polarity, short circuit and surge protection. The Truecharge 20 and Truecharge 40 offer many features including overload protection and equalization mode. Charger efficiency approx. 85%. CSA listed to UL 1236 and CSA 107.2. One-year warranty.

Model	Output Vdc	Output Amps	Input Vac	Fan	Dimensions in.	Weight lb.	MSRP
Truecharge 10- I bank clip lead	13.8/14/8	10	95-135	No	9.0 x 6.5 x 2.75	3	$200.00
Truecharge 10TB - 2 bank hardwire	13.8/14/8	10	95-135	No	9.0 x 6.5 x 2.75	3	$160.00
Truecharge 20+ - 3 bank	13.8/14.4	20	95-135	No	15 x 6.5 x 2.75	6.9	$340.00
Truecharge 40+ - 4 bank	13.8/14.4	40	95-135	Yes	15 x 6.5 x 2.75	7.4	$450.00
Remote Display Panel - Truecharge 20+							$40.00
Remote Display Panel - Truecharge 40+							$40.00
Remote Temperature Sensor (RTS) Truecharge 20/40+							$30.00

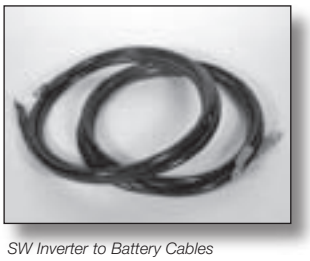

SW Battery Cables

SunWize®

Battery Cables

SunWize high quality battery interconnect cables are the best value available featuring xtra-flex, multi-stranded copper cable - rated 105°C degrees, 600 volt, (UL) type MTW/THW, CSA -TEW. All cables are assembled with large, tin-plated copper lugs for 3/8" bolts (for 2/0 and 4/0), 5/16" bolts (for 4AWG), double crimped and heat sealed with color-coded melt wall tubing, ensuring long life. Maximum conductor ampacity in free air: 4AWG=120A, 2/0=265A, 4/0=360A. Other lengths available.

AWG	Length in.	Color	Weight lb.	MSRP	AWG	Length in.	Color	Weight lb.	MSRP
4	8	black	0.4	$6.90	2/0	48	black	2.2	$33.20
4	8	red	0.4	$6.90	2/0	48	red	2.2	$33.20
4	13	black	0.5	$7.80	2/0	60	black	2.7	$40.50
4	13	red	0.5	$7.80	2/0	60	red	2.7	$40.50
4	16	black	0.6	$8.90	4/0	8	black	0.8	$14.50
4	16	red	0.6	$8.90	4/0	8	red	0.8	$14.50
4	24	black	0.8	$10.25	4/0	13	black	1.1	$16.75
4	24	red	0.8	$10.25	4/0	13	red	1.1	$16.75
2/0	8	black	0.6	$11.60	4/0	18	black	1.3	$21.50
2/0	8	red	0.6	$11.60	4/0	18	red	1.3	$21.50
2/0	13	black	0.7	$13.40	4/0	24	black	1.7	$26.75
2/0	13	red	0.7	$13.40	4/0	24	red	1.7	$26.75
2/0	16	black	0.8	$14.50	4/0	36	black	2.4	$37.50
2/0	16	red	0.8	$14.50	4/0	36	red	2.4	$37.50
2/0	24	black	1.3	$18.50	4/0	48	black	3.1	$51.20
2/0	24	red	1.3	$18.50	4/0	48	red	3.1	$51.20
2/0	36	black	1.6	$25.50	4/0	60	black	3.9	$60.75
2/0	36	red	1.6	$25.50	4/0	60	red	3.9	$60.75


SW Inverter to Battery Cables

Inverter to Battery Cables

Pre-cut and crimped, UL rated MTW cables reduce system installation time, improve system integrity and assure code compliance. These flexible cables are made with machine crimped 3/8 tinned copper ring terminals and color-coded melt-wall heatshrink. NEC rated in conduit for 230 amp (#4/0 AWG). 175 amp (#2/0 AWG) and in free air for 360 amp (#4/0 AWG) or 265 amp (#2/0 AWG). Cables sold as pairs.

Model	Wire Size AWG	Description	Weight lb.	MSRP
IBC10-2/0	2/0	10' pair, one red and one black cable	10.0	$155.00
IBC10-4/0	4/0	10' pair, one red and one black cable	15.0	$225.00
IBC15-2/0	2/0	15' pair, one red and one black cable	15.0	$235.00
IBC15-4/0	4/0	15' pair, one red and one black cable	22.5	$350.00


SW Battery Hardware Kit

Battery Terminal Hardware Kits

SunWize battery hardware kits are necessary for connecting cabling to battery flag terminals. Kits contain two bolt sets of high quality, stainless steel to eliminate corrosion. Each bolt set consists of a hex head screw, flat washers, lock-washer and hex nut.

Model	MSRP
1/4-20 x 1"	$1.90
5/16-18 x 1"	$1.90
3/8"-16 x 1"	$2.40

Inverters

Inverters are designed to manage the flow of electricity into and out of the batteries to provide an automatic supply of utility grade AC electricity for loads such as household appliances. Three factors for consideration when choosing an inverter are:

• Input Vdc - the inverter DC input voltage must match the battery bank voltage; • Continuous Power - the maximum continuous load run by the inverter; • Surge current – some loads, such as electric motors, demand more power when they start. All inverters consume energy (tare loss). To counteract tare loss, most inverters offer a sleep mode or low power mode to save energy consumption. Ask your SunWize dealer for more information.

Pure Sine Wave Inverters

Depending on the model, the AC output of an inverter is either a modified or pure sine wave. Modified sine wave power is suitable for some loads but not for electronics such as home theater systems, high-end televisions and computers. Pure sine wave output is ideal for sensitive electrical devices due to the low electromagnetic interference level. All inverters in this section produce 120 Vac, 60 Hz. Some of the inverters may be stacked to power 240 Vac loads or a 120/240 transformer can be used to power 240 Vac loads from a single 120 Vac inverter. Modified sine wave inverters will be discussed in the next section.

OutBack VFX Inverter/Charger

OutBack Power Systems

FX Series Inverters

OutBack Power's line-up of inverters has grown considerably over the past few years. Now six different power levels are offered at a variety of voltages ranging from 12 to 48 Vdc. All FX inverters offer pure sine wave output, a high current battery charger and AC transfer switch. Multiple FX inverters can be connected in series for 240 Vac, parallel at 120 Vac, or three-phase configurations. Ten FXs can be connected together to provide up to 36 kW of continuous power conversion capacity. All models have a single 60 amp AC input and transfer relay.

The gasketed die-cast aluminum chassis protects and keeps the power conversion components cool. Sealed units are waterproof to IEC529 IP65 standards and have an operational temperature range of -40°C to -60°C. Vented versions are also available featuring micro-porous stainless steel screens to protect the air intake and internal fan. The air inlet comes with a removable, washable foam filter insert. FX inverters are compatible with OutBack AC and DC enclosures and racks. UL listed. All carry a two-year warranty. Available in 230VAC, 50 Hz versions and mobile versions with built-in AC neutral/ground switching system. Call for more information.

Model	Input Vdc	Continuous Power Watts	Surge Amps	Charger Current Amps	Peak Efficiency %	Dimensions (in.)	Weight lb.	MSRP
With Turbo Fan								
FX2012T	12	2000	56	80	90	16.25 x 8.25 x 13	56	$1,995.00
FX2524T	24	2500	70	55	92	16.25 x 8.25 x 13	56	$1,995.00
FX3048T	48	3000	70	35	93	16.25 x 8.25 x 13	56	$1,995.00
Vented								
VFX2812	12	2800	56	125	90	16.25 x 8.25 x 12	54	$2,345.00
VFX3524	24	3500	70	85	92	16.25 x 8.25 x 12	54	$2,345.00
VFX3648	48	3600	70	45	93	16.25 x 8.25 x 12	54	$2,345.00
Accessories								
FX-DCA	DC Conduit Adapter allows direct mounting to a PSDC or connection of 2" conduit. Includes 2" snap-in bushing							$45.00
FX-ACA	AC Adapter extends the AC wiring compartment. Required for connection to PSAC enclosure							$35.00
STACK-2	Stacking Kit for 2-FX2000's. Allows for connection for two inverters in series or parallel							$85.00
STACK-4	Stacking Kit for 4-FX2000's. Allows for connection for four inverters in series or parallel							$125.00
RTS	Remote Temperature Sensor with 20 foot cable							$29.00
X-240	Auto transformer, 4kVA 120/240 step up/down or generator balancing. Includes 25A, 2-pole breaker. Enclosure not included							$290.00
X-Fan	Fan kit for X-240. Increases power to maximum of 6kVA continuous							$29.00
PSX-240	Auto transformer, 6kVA 120/240 step up/down. With enclosure and fan							$390.00

NOTE- See pages 82 and 83 for AC and DC enclosures and wiring accessories for Outback inverters.

OutBack Mate

OutBack Power Systems

Mate

The Mate is a complete system controller and display for FX Inverters and MX60 charge controller (see Controller section). The Mate also coordinates the entire system operation. A single Mate is able to connect to multiple FX inverters. It includes a 4-line backlit LCD display, a real time clock and calendar and an opto-isolated RS232 port with a DB9 jack. All programmed set points are stored in permanent memory. Two-year warranty.

Model	Description	Dimensions in.	Weight lb.	MSRP
MATE	OutBack digital display and system control unit with 50 ft cable	5.75 x 4.25 x 2	1	$295.00
MATE_B	Same as above but with black face plate	5.75 x 4.25 x 2	1	$295.00
MATE2	Same as above but with square black face plate designed for flush mounting on wall	5.75 x 4.25 x 2	1	$295.00
MATE2M	Mobile version. Black square housing without RS232	5.75 x 4.25 x 2	1	$219.00
HUB-4	Communication Manager allows up to 4 FX inverters/ MX60 controllers to be connected to a single MATE.			$195.00
HUB-10	Ten port communication manager for one Mate and up to ten inverters			$375.00
CATV-3	Communications cable CATV.5e, 3 ft. long with RJ45 plug			$5.00
CATV-6	Communications cable CATV.5e, 6 ft. long with RJ45 plug			$8.00
CATV-50	Communications cable CATV.5e, 50 ft. long with RJ45 plug			$25.00

SW Plus Inverter

Xantrex

SW Plus Inverter/Charger

The SW Plus Inverter/Charger comes in three power levels, 2500, 4000 and 5500 watts. They are intended for off-grid and backup renewable power applications. Designed to provide homes with a completely independent power supply, SW Plus models combine an inverter, battery charger and dual 60 amp AC inputs and transfer switches in one package. The SW Plus provides sine wave AC power for household appliances and DC power to charge batteries. As part of an off-grid renewable power system, it converts all forms of renewable energy into utility grade household power. With its high surge capacity, the SW Plus can start high power loads such as deep well pumps and compressors. A “Smart Energy Management” system controls utility and/or generator usage. Non-volatile memory keeps personalized settings stored if the inverter is shut down and the new silent mode turns off the battery charger once the charge cycle is complete for longer battery life particularly in back up power application.

Features include forced air cooling, multi-stage charging, control panel and a battery temperature sensor. The SW Plus Inverter/ Charger is one of the very few off grid inverters that meet FCC Part B specifications. This means there is less chance of noise and interference when powering radio and telecommunications equipment. The Sine Wave Interface (SWI) can be used to stack two SW Plus units for double the power output. All models produce 120 Vac 60 Hz and can be stacked in series for 120/240 Vac output or parallel for double the power at 120 Vac 60 Hz. All SW Plus models are CSA listed to UL 1741 and CSA 107.1. Two-year limited warranty.

Model	Input Vdc	Continuous Power Watts	Surge Amps	Charger Current	Peak Efficiency %	Dimensions	Weight lb	MSRP
SW PLUS 2524	24	2500	80	70	95	22.5 x 15 x 9	105	$2,500.00
SW PLUS 2548	48	2500	80	40	95	22.5 x 15 x 9	105	$2,500.00
SW PLUS 4024	24	4000	85	110	95	22.5 x 15 x 9	113	$2,800.00
SW PLUS 4048	48	4000	95	60	95	22.5 x 15 x 9	113	$2,800.00
SW PLUS 5548	48	5500	105	75	96	22.5 x 15 x 9	136	$3,500.00
Accessories								
GSM	Generator Start Module - automatic generator control system for two and three wire start AC and DC generators							$225.00
ALM	Auxiliary Load Module - user adjustable voltage controlled signal relays for control of loads or charging sources							$250.00
ICM/25	Remote Inverter Control Module - full function remote control with LCD and LED indicators with 25' cable							$275.00
ICM/50	Remote Inverter Control Module - full function remote control with LCD and LED indicators with 50' cable							$295.00
SWI/PAR	Sine wave paralleling kit – connects 2 identical SW inverters together for twice the output power at the same voltage							$445.00
SWI	Series stacking interface for 2 identical SW inverters, provides 120/240 Vac, 3 wire 240 Vac, Doubles output							$45.00
DCCB	Side mount conduit box for code-compliant DC wiring connections - USA							$135.00
ACCB	Side mount conduit box for code-compliant AC wiring (bypass/disconnect circuit breaker)							$400.00

SW Series Inverter

Xantrex

SW Series II

The SW Series II is a pure sine wave DC-AC power conversion inverter for use in off-grid, grid-tie and backup power applications. Literally tens of thousands of these powerful and reliable inverters are in daily service around the world. This inverter provides three-stage battery charging with a remote temperature sensor for increased performance. Other features include a programmable control module with LCD display and LED indicators, and a low idle current that conserves energy when no loads are present. With the addition of the GTI option, the SW Series II can be used in grid tie operation. UL listed to UL 1741, two-year warranty.

Model	Input Vdc	Continuous Power Watts	Surge Amps	Charger Current	Peak Efficiency %	Dimensions in.	Weight lb.	MSRP
SW4024	24	4000	78	120 amp	94	22.5 x 15 x 9.0	105	$2,750.00
SW4048	48	4000	78	60 amp	95	22.5 x 15 x 9.0	105	$2,750.00
SW5548	48	4500	78	75 amp	96	22.5 x 15 x 9.0	136	$3,450.00

SW Accessories

SWCA	Sine wave communications adapter allows PC connection and monitoring of up to eight SW Series inverters – includes adapter, DOS based software, 50' of cable and DB9 connector	$175.00
SWRC	Full function remote control with LCD display for all SW inverters with 25' cable	$295.00
SWRC/50	Full function remote control with LCD display for all SW inverters with 50' cable	$329.00
SWI/PAR	Sine wave paralleling kit – connects 2 identical SW inverters together for twice the output power at the same voltage	$445.00
SWI	Series stacking interface for 2 identical SW inverters, provides 120/240 Vac, 3 wire 240 Vac, Doubles output	$45.00
SWCB	Conduit box for SW Series – fits on the DC end of the inverter (1/2", 3/4" and 2" knockouts) – adds 6"	$94.00
GTI	Grid Tie Interface, an integrated assembly that allows you to connect the SW to the utility grid.	$449.00

Prosine 2.5 Inverter

Prosine Inverter/Chargers

A powerful all-in-one solution, Prosine inverter/chargers deliver clean true sine wave output power for all types of appliances along with three-stage charging for longer battery life. Inverters include a full function remote control panel and battery temperature sensor. Built in transfer switch. CSA/NRTL certified. Two-year warranty.

The Prosine 3.0 has unusually high no-load drain, of approximately 60 watts and therefore is not a suitable always-on inverter in most off-grid applications. The remote on/off switch can be used so that these inverters are only powered up when needed. Temperature sensor optional on these models.

The Prosine 2.0 has a no load drain which is consistent to most sine wave inverters on the market, it only draws 20 watts of power to operate and has a good sleep mode for even less consumption. It includes the temperature sensor and a remote LCD control module/status display. All Prosine models CSA/NRTL listed to UL 1741, 458. Two-year warranty.

Model	Input Vdc	Continuous Power	Surge Amps	Charger Current Amps	Peak Efficiency %	Dimensions	Weight	MSRP
Prosine 2.0	12	2000	50	100	87	17.7 x 11 x 5.7	24	$1,700.00
Prosine 2.0/GFCI w/GFCI outlets	12	2000	50	100	87	17.7 x 11 x 5.7	24	$1,700.00
Prosine 3.0	12	3000	50	120	88	20.0 x 15 x 7.0	32	$3,000.00
Prosine 3.0/24V	24	3000	50	60	88	20.0 x 15 x 7.0	32	$3,300.00
Remote Temperature Sensor (RTS) – Remote battery temperature sensor for Prosine 3.0 (standard on Prosine 2.0)								$30.00

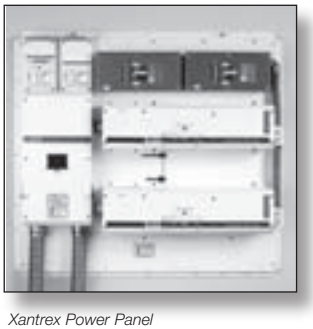
Prosine 1000 Inverter

Xantrex

Prosine Inverters

Offering quality true sine wave output, the Prosine inverter is ideally suited for electrical systems that already have a quality multistage battery charger. Designed for recreational and industrial applications, its output is capable of handling both heavy duty and smaller, multiple AC loads. A removable LCD display can be mounted remotely for control and monitoring. The powersave mode draws only 1.5 watts under no load. CSA listed to UL 1741, UL 458 and CSA 107.1. Two-year warranty.

Model	Input Vdc	Continuous Power Watts	Surge Amps	Peak Efficiency %	Dimensions in.	Weight lb.	MSRP
Prosine 1000	12	1000	12.5	89	15.4 x 11.5 x 4.5	14.5	$890.00
Prosine 1000/24V	24	1100	12.5	90	15.4 x 11.5 x 4.5	14.5	$980.00
Prosine 1800	12	1800	24	89	15.4 x 11.5 x 4.5	16.5	$1300.00
Prosine 1800/24V	24	1800	24	90	15.4 x 11.5 x 4.5	16.5	$1430.00
Models with hardwire/15 amp AC Transfer Relay:							
Prosine 1000 HW/TR	12	1000	12.5	89	15.4 x 11.5 x 4.5	14.5	$910.00
Prosine 1000/24V HW/TR	24	1000	12.5	90	15.4 x 11.5 x 4.5	14.5	$1000.00
Prosine 1800 HW/TR	12	1800	24	89	15.4 x 11.5 x 4.5	16.5	$1350.00
Prosine 1800/24V HW/TR	24	1800	24	90	15.4 x 11.5 x 4.5	16.5	$1480.00
Remote Interface Kit – Allows LCD panel to be removed - includes 25' of cable and replacement on/off switch panel for inverter cavity							$50.00



Xantrex Power Panel

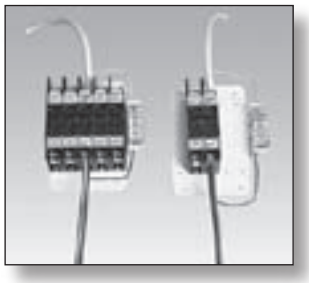
Xantrex

Xantrex Power Panels

Power Panels are packaged power systems built by Xantrex. Power Panels include inverters and are assembled with components specified by the customer.

Features include: One or two SW or DR inverters, powder coated steel back-plate pre-wired to meet all NEC/UL requirements. Single or dual C Series charge controllers may be added. Flexible conduit for connection of the system to the battery enclosure, and 60 amp AC system bypass that allows inverter servicing while keeping AC loads connected to the grid or generator are included. Power Panels are designed for indoor installation only. Standard warranties apply to inverters and controllers installed on Power Panels. Power Panels are built to UL and CSA standards.

Model	DC Voltage Input	Continuous Power Watts	Charger Current Amps	AC Volts Output	Dimensions LxWxH (back plate) in.	Weight (lbs)	MSRP
PP-SW5548S	48	5500	75	120VAC 60 Hz	40 x 43 x 1	248	$5,150.00
PP-SW5548D	48	11,000	75 x 2	120/240VAC 60Hz	40 x 43 x 1	396	$8,905.00
PP-SW4024S	24	4000	120	120VAC 60Hz	40 x 43 x 1	217	$4,250.00
PP-SW4024D	24	8000	120 x 2	120/240VAC 60Hz	40 x 43 x 1	334	$7,505.00
PP-SW4048S	48	4000	60	120VAC 60 Hz	40 x 43 x 1	217	$4,250.00
PP-SW4048D	48	8000	60 x 2	120/240VAC 60 Hz	40 x 43 x 1	334	$7,647.00
OPTIONS							
PPO-C40	C40 DC charge or load or diversion controller, installed complete with prewired 60 amp DC breaker						$258.00
PPO-DVM/C40	Accumulating amp hour meter with LCD display, installed on the front of the C40						$99.00
PPO-CD15	15 amp DC load breaker, prewired and installed in the DC disconnect						$59.00
PPO-CD20	20 amp DC load breaker, prewired and installed in the DC disconnect						$59.00
PPO-CD60	60 amp DC load breaker, prewired and installed in the DC disconnect						$59.00



PVGFP4 (left) and PVGFP1 (right)
Ground Fault Protection

Xantrex Accessories

T240 Autotransformer

Xantrex offers a number of accessories for their inverters. The T240 is a simple way to operate 240 Vac loads from a single inverter. It also works in reverse and can turn 240 Vac into 120 Vac, this allows the full output of a 240 Vac generator to be used for 120 Vac battery chargers. Includes built-in dual pole 25 amp circuit breaker disconnect. UL listed to UL1741, two-year warranty.

Battery Temperature Sensors (BTS) are available as options for products which don't include the BTS standard, or as replacements when necessary. The RC is a simple and effective on/off switch for DR inverters.

Model		Weight lb.	MSRP
T240	120-240 step-up or step-down transformer 3.9 kVA	39.4	$425.00
BTS/15	Battery temperature sensor with 15' cable for SW, SW Plus and DR inverters	.5	$29.00
BTS/35	Battery temperature sensor with 35' cable cable for SW, SW Plus and DR inverters	.5	$32.00
RC8/50	Remote on/off for DR inverters with 50' cable	.5	$110.00
PVGFP1	Ground fault protection, one pole for one solar array		$275.00
PVGFP2	Ground fault protection, two pole for two solar sub-arrays		$325.00
PVGFP3	Ground fault protection, three pole for three solar sub-arrays		$375.00
PVGFP4	Ground fault protection, four pole for four solar sub-arrays		$425.00

Invertek Combi Inverter/Charger

Invertek

DAI Series Inverters and Inverter/Chargers

Invertek inverters supply pure sine wave AC output power and are housed in an indoor rated aluminum chassis. Built-in output overload protection and RS485 interface for remote control except on the 300 W model. All models have LED status indicators.

The 1500C and 3000C models include a built-in microprocessor controlled battery charger and transfer switch along with a integrated solar charge regulator. The charger is power factor corrected. LED status lights provide operational status indication. All Invertek inverters carry a one-year warranty.

Invertek 300W Inverter

Remote Control for L models

Model	Input Vdc	Continuous Power Watts	Surge Power Watts	Output Vac	Dimensions in.	Weight lb.	MSRP
Inverters							
DAI-0300L-12-1-A	12	300	450	110	9.5 x 11.2 x 4.7	11	$250.00
DAI-0300L-12-2-A	12	300	450	220	9.5 x 11.2 x 4.7	11	$250.00
DAI-0300L-24-1-A	24	300	450	110	9.5 x 11.2 x 4.7	11	$250.00
DAI-0600L-12-1-A	12	600	900	110	14.6 x 10.6 x 4.7	20	$375.00
DAI-0600L-24-1-A	24	600	900	110	14.6 x 10.6 x 4.7	20	$375.00
DAI-1000L-12-1-A	12	1000	1400	110	18.5 x 10.6 x 4.7	33	$485.00
DAI-1500L-12-1-A	12	1500	2000	110	21.0 x 10.6 x 4.7	39	$635.00
DAI-1500L-24-1-A	24	1500	2000	110	21.0 x 10.6 x 4.7	39	$635.00
DAI-3000L-12-1-A	12	3000	4000	110	21.0 x 10.6 x 7.3	41	$1,250.00
DAI-3000L-24-1-A	24	3000	4000	110	21.0 x 10.6 x 7.3	41	$1,250.00
On/off remote Control for L Models							$65.00
Combi Inverters/Chargers							
DAI-1500C-12-1-A	12	1500	3000	110	13.8 x 11.2 x 7.3	33	$890.00
DAI-1500C-24-1-A	24	1500	3000	110	13.8 x 11.2 x 7.3	33	$890.00
DAI-3000C-12-1-A	12	3000	6000	110	20.1 x 11.2 x 7.3	49	$1,650.00
DAI-3000C-24-1-A	12	3000	6000	110	20.1 x 11.2 x 7.3	49	$1,650.00
Remote Control for C Models -full function with numeric display							$99.00

XP Series Inverter

Exeltech

XP Series

Exeltech XP Series are lightweight, high-performance, pure sine wave inverters that operate any type of load. All models are 120Vac, 60 Hz. 85% efficiency, 100% solid state. These inverters include protection circuitry for over and under voltage, over temperature and short circuits. Painted aluminum finish and a full year parts and labor warranty. UL listed.

Model	Input Vdc	Continuous Power Watts	Surge Watts	Dimensions in.	Weight lb.	MSRP
XP125-12	12	125	150	7.90 x 4.93 x 2.16	2.0	$289.00
XP125-24	24	125	150	7.90 x 4.93 x 2.16	2.0	$289.00
XP250-12	12	250	300	12.03 x 5.23 x 2.77	5.0	$560.00
XP250-24	24	250	300	12.03 x 5.23 x 2.77	5.0	$560.00
XP600-12*	12	600	1100	12.10 x 7.70 x 3.60	6.5	$785.00
XP600-24*	24	600	1100	12.10 x 7.70 x 3.60	6.5	$785.00
XP1100-12*	12	1100	2200	15.05 x 7.70 x 3.60	10.0	$935.00
XP1100-24*	24	1100	2200	15.05 x 7.70 x 3.60	10.0	$1,020.00

* Denotes that the inverter has a built-in cooling fan

System Spotlight

LOCATION:
Queens, NY

APPLICATION:
Grid-connected power for a NYCTA station. The BIPV modules also provide lighting and shading for the bus depot

SUNWIZE SYSTEM:
58 kW SunWize Power System

LOCATION:
Memphis, TN

APPLICATION:
Grid-connected power for building as part of the TVA Green Power Switch Program

SUNWIZE SYSTEM:
26kW SunWize Power Station

Modified Sine Wave Inverters

Modified sine wave inverters are inexpensive and are ideal for basic loads such as power tools and simple appliances. However, they are not suitable for sensitive electronics. Light duty models such as the small PROwatt inverters are best for occasional duty, easy to run loads. Heavy-duty models such as the Xantrex DR Series are workhorses and will start large pumps and motors. All inverters in this section produce 120 Vac, 60 Hz.

DR Series Inverter

Xantrex

DR Series

The DR Series inverter is a robust, proven performer designed for remote, medium sized, off-grid and utility backup systems in residential and commercial applications. This modified sine wave inverter comes with a three-stage battery charger and automatic AC transfer relay. LED status indicators show charge mode, high or low battery voltage and over temperature or over load. Selectable settings for FLA, gel and AGM batteries, 230 VAC, 50Hz versions available. ETL listed to UL1741.Two-year warranty.

Model	Input Vdc	Continuous Power Watts	Surge Amps	Charger Current Amps	Efficiency Peak %	Dimensions in.	Weight lb.	MSRP
DR512	12	500	8.4	20	90	5.5 x 6.5 x 16.25	25	$360.00
DR1012	12	1000	16.6	35	90	5.5 x 6.5 x 16.25	30	$475.00
DR1512	12	1500	27	70	94	8.5 x 22 x 7.25	35	$850.00
DR1524	24	1500	29	35	94	8.5 x 22 x 7.25	35	$850.00
DR2412	12	2400	55	120	94	8.5 x 22 x 7.25	45	$1,100.00
DR2424	24	2400	58	70	95	8.5 x 22 x 7.25	45	$1,100.00
DR3624	24	3600	72	70	95	8.5 x 22 x 7.25	49	$1,350.00
Accessories								
DRI	Stacking interface for 2 DR inverters, providing 120/240 Vac, 3 wire 240 Vac–(doubles output) includes two 1.5' battery cables and the stacking comm. cable							$85.00
DRCB	Conduit box for all DR's - fits either end - AC/DC (1/2", 3/4" and 2" knockouts), adds 6"							$150.00

PROwatt 3000 Inverter

PROwatt Mid to High Powered Inverters

These PROwatt inverters are designed to operate a wide range of applications including household products, recreational, large single loads, and high power industrial. All models provide standard protection. The PROwatt 800 to 1500 models feature a dual GFCI outlet, a built-in LED display for volts and amps, and a remote on/off switch. The PROwatt 1750 and 3000 models include heavy-duty terminals for trouble-free battery connection. One-year warranty.

Model	Input Vdc	Continuous Power Watts	Surge Power Watts	Efficiency Peak	Dimensions in.	Weight lb.	MSRP
PROwatt 600	12	600	1200	90	2.5" x 6.25" x 11"	4.1	$130.00
PROwatt 1000	12	1000	2000	90	3.25 x 9.5 x 10.25	5.2	$300.00
PROwatt 1500	24	1500	3000	90	3.25" x 9.5" x 16.25"	8.25	$850.00
PROwatt 1750	12	1750	3000	90	3.25 x 9.5 x 16.25	8.25	$460.00
PROwatt 3000	12	2500	5000	90	6.25 x 8 x 18.5	20.0	$800.00
Remote on/off switch for PROwatt inverters							$25.00

PROwatt Inverter

Xantrex

PROwatt Low Powered Handheld Inverters

The modified sine wave handheld PROwatt inverters plug into a 12 volt lighter socket of a vehicle, boat or RV to provide continuous power suitable for a variety of electronics. One-year warranty.

Model	Input Vdc	Continuous Power Watts	Surge Watts	Efficiency Peak %	Dimensions in.	Weight lb	MSRP
PROwatt 150	12	150	400 W	90	2.0 x 4.7 x 4.7	1.375	$40.00
PROwatt 250– 24	24	225	500 W	90	1.5 x 4.5 x 6.0	1.625	$136.00
PROwatt 300	12	300	500 W	90	2.0 x 4.7 x 6.3	1.8	$60.00
PROwatt 400	12	400	800 W	90	1.8 x 4.7 x 6.3	2.0	$80.00

Freedom 458 10-12 Inverter

Freedom 458

With filtered modified sine wave output, Freedom inverter/chargers run virtually anything from office equipment to household appliances and electronics. Temperature controlled multistage charging ensures your batteries are recharged quickly, and automatic shutdown and other safety features protect your deep-cycle batteries from excessive depletion. Programmable front panel and LED indicators. Built-in transfer switch. For advanced battery monitoring and remote control, Freedom 458 systems can be paired with Link instrumentation. CSA listed to UL 458 and CSA standards. 30-month warranty.

Mode	Input Vdc	Continuous Power Watts	Charger Current Amps	Efficiency Peak %	Dimensions in.	Weight lb.	MSRP
Freedom 458 10-12	12	1000	50	85	14 x 11.5 x 7.75	34	$975.00
Freedom 458 15-12	12	1500	75	86	14 x 11.5 x 7.75	45	$1,125.00
Freedom 458 20-12	12	2000	100	85	14 x 11.5 x 7.75	45	$1,225.00
Freedom 458 25-12*	12	2500	130	87	14 x 11.5 x 7.75	50	$1,425.00
Freedom 458 30-12	12	3000	140	86	14 x 11.5 x 7.75	50	$1,625.00
Freedom Basic Remote (84-2056-01)		Optional remote for system monitoring					$150.00
Link 1000 with 500 Amp shunt		Inverter Remote w/1 battery bank monitor			3 x 4.75 x 1.1	1	$330.00
Link 20		Battery meter for two battery banks w/500A shunt					$380.00

* dual input, dual output

G-12-060C

Genius™

Genius high efficiency, 100% solid state inverters feature low battery alarm, low battery shut down, overload and short circuit protection, thermal protection and a cooling fan. All models: 120Vac, 60Hz output. Battery cables included. 90% efficiency. Note: Tare loss is less than 1 watt with switch “off”. UL listed, CSA approved and CE certified. One-year warranty.

Model	Input Vdc	Continuous Power Watts	Surge Watts	Dimensions in.	Weight lb.	MSRP
DC-AC Modified Sine Waver Inverter with 3 amp Battery Charger						
G-12-060C	12	600	1500	12.99 x 8.07 x 2.87	6.16	$119.00
G-12-100C	12	1000	2000	18.7 x 9.53 x 3.15	10.23	$169.00
DC-AC Modified Sine Wave Inverter						
G-12-060	12	600	1500	11.41 x 8.07 x 2.87	4.62	$99.00
G-12-080	12	800	2000	12.99 x 9.45 x 3.03	5.94	$115.00
G-12-100	12	1000	2000	15.47 x 9.53 x 3.15	6.93	$149.00
G-12-250	12	2500	5000	19.53 x 7.99 x 6.54	20.0	$499.00

Air-X Land LX-1 Wind Turbine

Southwest Windpower

Generating power from the wind is site specific. The wind generator generally needs to be installed a least 15' above any other object within a 400' radius. If the wind speed in your area averages 9 mph or greater, wind can be a cost-effective way to generate electricity. A hybrid system combining a wind turbine with PV is an efficient and reliable method to generate your own electricity.

Air-X

The Air-X features a new microprocessor-based peak power tracking controller resulting in increased performance, improved battery charging capability and the elimination of "flutter" noise. The circuit monitors the wind speed and slows the blades as it reaches its rated output preventing it from going into flutter. The carbon-reinforced, fiber composite blades, with a modified pitch angle, further increase power production. The Air-X Marine is powder coated for corrosion protection. Three-year warranty.

AIR WIND TURBINES	Vdc	Rotor Diameter in.	Start Up Wind Speed mph	Rated Power @ 28 mph watts	Weight lb.	MSRP
Air X Land LX-1	12	46	7	400	13	$680.00
Air X Land LX-2	24	46	7	400	13	$680.00
Air X Marine MX-1	12	46	7	400	13	$875.00
Air X Marine MX-2	24	46	7	400	13	$875.00
Air Industrial no regulator	12, 24 or 48 (specify voltage)	46	7	400	14	$920.00
Air Industrial Package with regulator and dump load	12, 24 or 48 (specify voltage)	46	7	400	15	$1,150.00
AIR & WINDSEEKER TOWER KITS						
Air Marine Tower Hardware Kit	for aluminum powder coated masts					$169.00
9' Air Marine Aluminum Pole Set	includes pole and stays only					$179.00
Roof Mount Kit with Seal	does not include pole or lag screws (Air only)					$109.00
Roof Mount Kit without Seal	does not include pole or lag screws (Air only)					$95.00
Roof Seal	for roof mount kit (Air only)					$51.00
27' Air Guyed Tower Kit	does not include poles & anchors					$150.00
45' Air Guyed Tower Kit	does not include poles & anchors					$250.00
ACCESSORIES						
Circuit Breaker	30 amp					$24.00
Circuit Breaker	50 amp					$24.00
Circuit Breaker	100 amp					$46.00
Stop Switch	50 amp					$17.00
Amp meter	30 amp					$25.00
External regulator and dump load	for Air Industrial					$299.00
External dump load	for Air Industrial					$115.00

SunWize AIR-X Junction Box Assembly

SunWize® Wind Junction Box Assembly-AIRX-12/24

This fully assembled wind turbine junction box is designed for use with single AIRX-12V or 24V generator installations. The aluminum-3R enclosure, intended for U-bolt mounting at tower base, can be wall mounted on buildings or enclosures. The junction box provides a large wire terminal block for up to #4 AWG and features a 25A current meter, a 50A run/stall switch, a 50A battery circuit breaker and SOV type lightning surge arrestor with grounding lug. Two-year warranty.

Model	Vdc	Max Current Amp	Box Size in.	Weight lb.	MSRP
WJB-AIRX	12/24	50	11 x 9 x 5	5.0	$339.00

SunWize® Wind Combiner Box Assembly-Two AIRX-12/24

For installations with more than one wind turbine, this assembly has all the features of the Junction Box Assembly. It combines the output of two-AIRX wind turbines and allows for independent monitoring, control and disconnection. Circuit breaker rated 100A, DC ammeter is 0-50A. Two-year warranty.

Model	Vdc	Max Current Amp	Box Size in.	Weight lb.	MSRP
WCB-2AIRX	12/24	100	14 X 10 X 7	10.0	$499.00

Whisper 200 Wind Turbine

Southwest Windpower

Whisper Wind Turbines

Whisper wind turbines feature a patented side furling angle governor to protect the turbine in high winds by turning the alternator and blades out of the wind. Other features include field adjustable voltage, a four bearing spindle for efficiency, upgraded yaw shaft and a new bushing for smoother operation. Voltage is factory set at 24 Vdc and is adjustable to 12/36/48 Vdc. High voltage versions of the Whisper 200 and 500 produce 220 VAC transmitting to a step down transformer that changes it to nominal system voltage (transformer sold separately). High voltage versions are used in applications where there is a long distance from the turbine to the batteries.

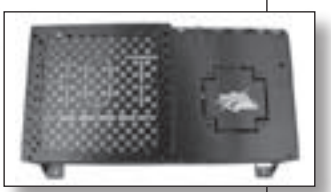
Every Whisper 100 and 200 comes with the Whisper Charge Controller. The SCR-based shunt-type controller, housed in a single unit, is dedicated to wind only. LED lights indicate regulation operation and Power ON. Other features include individually rectified phases, battery/turbine shunt isolation, quiet diversion-powered fan, a large heat sink and easy access block connectors for turbine and battery wires. The new Whisper Link combines a high voltage Whisper 200 and SMA Windy Boy inverter to rectify 220 Vac to DC voltage. Step down transformer not necessary.

The marine versions, designed for coastal and offshore applications, feature powder coating for corrosion protection, stainless steel hardware, marine grade wire and watertight housings. All Whisper models carry a 5-year warranty.

WHISPER WIND TURBINES	Voltage	Rotor Diameter ft.	Start Up Wind Speed mph	Rated Power	Weight lb.	MSRP
Whisper Link Utility Tie	220 Vac	9	7.0	1000W @ 24 mph	125	$5,650.00
Whisper 100 with Multi Voltage Controller	12, 24, 36, 48 Vdc	7	7.5	900W @ 28 mph	47	$2,085.00
Whisper 200 with Multi Voltage Controller	12, 24, 36, 48 Vdc	9	7.0	1000W @ 24 mph	65	$2,600.00
Whisper 100 Marine w/Multi Voltage Controller	12, 24, 36, 48 Vdc	7	7.5	900W @ 28 mph	47	$2,299.00
Whisper 200 Marine w/ Multi Voltage Controller	12, 24, 36, 48 Vdc	9	7.0	1000W @ 24 mph	65	$2,825.00
Whisper 200 High Voltage /no controller	220 Vac	9	7.0	1000W @ 24 mph	65	$2,295.00
Whisper 200 Step Down Transformer	Transformer and enclosure					$1,330.00
Whisper 200 Water Pump/no controller	150 Vac					$2,295.00
Whisper 500 Wind Generator & EZ Wire I	24, 48 Vdc	15	7.1	3000W @ 24 mph	155	$7,095.00
Whisper 500 High Voltage & EZ Wire	220 Vac	15	7.1	3000W @ 24 mph	155	$7,095.00
Whisper 500 Step Down Transformer	Transformer and enclosure					$2,030.00
Whisper 100/200 Multi Voltage Controller	12, 24, 36, 48 Vdc		Dimensions: 22" x 14" x 10"		10	$710.00
LCD Display for 100/200 Controller	Adjustable from 12-48V, displays total kilowatt hours and peak amps					$100.00

WHISPER TOWER KITS	Description	
24' Whisper Guyed Tower Kit	Does not include poles & anchors (100 & 200)	$285.00
30' Whisper Guyed Tower Kit	Does not include poles & anchors (100 & 200)	$450.00
50' Whisper Guyed Tower Kit	Does not include poles & anchors (100 & 200)	$625.00
65' Whisper Guyed Tower Kit	Does not include poles & anchors (100 & 200)	$835.00
80' Whisper Guyed Tower Kit	Does not include poles & anchors (100 & 200)	$995.00
30' Whisper Guyed Tower Kit	Does not include poles & anchors (Whisper 500)	$920.00
42' Whisper Guyed Tower Kit	Does not include poles & anchors (Whisper 500)	$990.00
70' Whisper Guyed Tower Kit	Does not include poles & anchors (Whisper 500)	$1,365.00

Screw augers for AirX, WHI-100 and WHI-200	Description	MSRP
36" Augers	Set of four earth anchors	$100.00
36" Galvanized Augers	Set of four earth anchors	$142.00
48" Augers	Set of four earth anchors	$108.00
48" Galvanized Augers	Set of four earth anchors	$165.00
60" Galvanized Augers	Set of four earth anchors (for 65', 80')	$200.00



Whisper Charge Controller

Solar powered water pumping systems are currently being used to irrigate crops, water thirsty livestock and provide potable water. They should be considered for replacing generators and power line extensions. Unlike generator powered systems, solar water pumping systems do not require trips for refueling or constant maintenance. Since solar water pumping systems produce the most water when it is sunny and hot, they are a natural power solution. The pump you use will depend on your application and the water source. A surface pump is a more economical solution if you are pumping from a water source close to the surface. These pumps can push water a great distance or pressurize it for domestic water use. Submersible pumps can deliver water from as deep as 1200 feet. A common application is to use a submersible pump operating only during daylight hours which pumps water into a storage tank. A separate system with a booster pump operating from a battery bank can pressurize the water and deliver the water day or night.

There are several important factors you need to specify to choose the optimum solar pumping system. The worksheet below will help you compile the information you need. Contact your SunWize representative once you have this worksheet filled out for a price quote.

SIZING YOUR SOLAR PUMPING SYSTEM WORKSHEET

Type of Water Source (Check one): _____ Stream, Lake or Pond _____ Cistern or Dug Well _____ Drilled/Deep Well

Other _____ Season of operation (months) _____

Depth to Water: _____ Ft. (Be sure to account for variations) Distance of Float Switch Cable _____

Estimated Well Capacity: _____ GPM Amount of Water Required: _____ GPD (Winter) _____ GPD (Spring)

Well Inside Diameter (If applicable) _____ in. _____ GPD (Summer) _____ GPD (Fall)

Type of Application (Check one): _____ Domestic Water _____ Livestock _____ Irrigation Other _____

Vertical Lift Required From Water Surface to Outlet: _____ ft. Type of Storage: _____ Above Ground Other _____

Geographical Location of System _____ Temperature: _____ °F Min. _____ °F Max

Elevation Above Sea Level: _____ Ft. Distance from Solar Array to Pump: _____ ft.

Options: (please check if you would like one of the following) Float Switch _____ Generator Backup_____

General Solar Pumping Information

Flow Rates

GPD - Gallons per Day (To estimate GPD, multiply GPH by peak sun hours for location)
GPH - Gallons per Hour (To estimate GPH, multiply GPM by 60 min./hour)
GPM - Gallons per Minute

Pump Performance Vs. Solar Array Output

As voltage varies, flow rate will vary proportionally
Average stays nearly constant
Watts = Volts x Amps

Conversion Factors

Feet of Lift to PSIG - Divide Feet by 2.31
US Gallons to Liters - Multiply Gallons by 3.785
Feet to Meters - Divide Feet by 3.28

Consumption Estimates

People–10-100 GPD per person for all purposes
Large Livestock (horses, cattle) - 10 GPD per animal
Dairy Cattle - 35 GPD per animal
Small Livestock (sheep, hogs, etc.) - 2-4 GPD per animal
100 Chickens - 4 GPD

USPC 2000 Controller

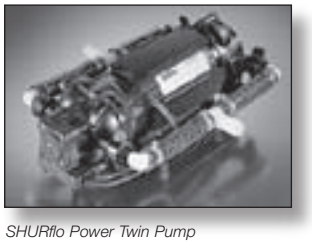
AeroVironment

Universal Solar Pump Controller

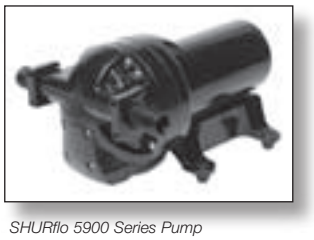
Water pumping is the most common use for the AeroVironment Universal Solar Pump Controller. It can operate nearly any standard AC motor up to 5 HP directly from a solar array. Less costly, locally made and serviceable pumps may be used. The USPC enables the water pumping system to use a generator or the utility grid for a backup. A solar water pumping system using the USPC controller should be considered if you need more water or more lift than a Grundfos solar electric pumping system can handle. Two-year standard warranty.

Model	Max PV Array Isc	Max Amps	Power Max Sustained Watts	Peak Efficiency %	Dimensions in.	Weight lb.	MSRP
USPC 2000	18	9.5	2200	97	18 x 9 x 6	17	$4,250.00
USPC 5000	18	24	5500	97	18 x 9 x 6	17	$5,490.00

SHURflo 2088 Surface Pump



SHURflo Power Twin Pump



SHURflo 5900 Series Pump

SHURflo

SHURflo 2088 series surface pumps offer an inexpensive, simple to rebuild, rugged booster pump that can deliver up to 3.6 GPM from a 12 or 24 Vdc battery bank. A good pump for a cabin or small home system. They can run dry without damage and are UL listed.

The Power Twin Pump is one of the most efficient high-flow, self-priming pumps and features a Santoprene® diaphragm, Viton® valves, and a thermally protected motor with heat sink. Includes dual manifold system with 5/8" hose barb ports. One-year warranty.

The SHURflo 5900 series pump delivers up to 5.7 GPM from a 12V or 24Vdc battery bank. The variable speed feature provides smooth and quiet operation at any flow. A perfect pump for cabin or small home systems. One-year warranty.

SHURflo 902-200 Controller

Other features include:

- 5-chambered design with extra-large inlet and outlet passages for maximum flow
- Extra-large umbrella valves designed to provide superior leak proof seal to maximize flow and hold pressure
- Seamless heat electro-coated motor shell eliminates motor corrosion while maximizing flow efficiency
- Oversized rubber grommet eliminates moisture from entering motor housing
- O-ring sealed to eliminate moisture from entering the motor housing.

The 9300 model submersible pump will provide many years of service and can be rebuilt in the field with simple tools. This pump has become a favorite with ranchers, remote homeowners and missionaries for the small solar arrays needed and ease of use. This pump produces around 1 GPM from up to 220 feet of lift. One-year warranty.

Model	Voltage	Current amps.	Flow Rate gpm.	Weight lb.		MSRP
Demand Pumps						
2088-443-144 Standard	12 Vdc	9.1	3.6	4.8		$118.00
2088-514-145 High Flow	12 Vdc	9.0	3.6	6.8		$189.00
2088-414-534 Premium	12 Vdc	9.0	3.6	6.8		$225.00
2088-474-144 Standard	24 Vdc	2.71	3.0	4.9		$130.00
2088-574-534 Premium	24 Vdc	4.5	3.6	6.4		$225.00
2088-594-154 Standard	115 Vac	0.94	3.3	5.1		$160.00
170-061-29 Strainer for 2088's	Twist on strainer, stainless steel screen, 1/2"MPT inlet, 1/2"FPT outlet					$12.00
8-021-00 1/2" NPT to 1/2" barb fitting						$.89
170-061-20 Inline filter for 2088's						$6.75
4111-035 Power Twin	12 Vdc	12.1	6.25	7.9		$330.00
5904-0201 Smart Sensor	12 Vdc	10	5.70	8.5		$295.00
5904-1211 Smart Sensor	24 Vdc	10	5.70	8.5		$319.00
Submersible Pump					Vertical Lift ft.	
9325-043-011 Submersible	24 Vdc	2.6	1.0	6.0	220ft	$875.00
902-100 Pump Controller	24 Vdc with float switch terminals			2.0		$155.00
902-200 Pump Controller	12/24 Vdc with weatherproof enclosure, float switch terminals and water level probes			8.0		$350.00

SQ Flex Pumps

Grundfos

SQ Flex

The Grundfos SQ Flex pumping systems are a giant leap forward for solar water pumping. Grundfos, the world's largest pump manufacturer, has reduced the cost of the pumps along with reducing the power needs. The result is a Grundfos centrifugal or helical rotor quality system for about the cost of a diaphragm pump. The Grundfos SQ Flex pumping system can also be powered by a wind generator if you have the right site. The Whisper WHI-200 Waterpumper on page 53 is the required generator.

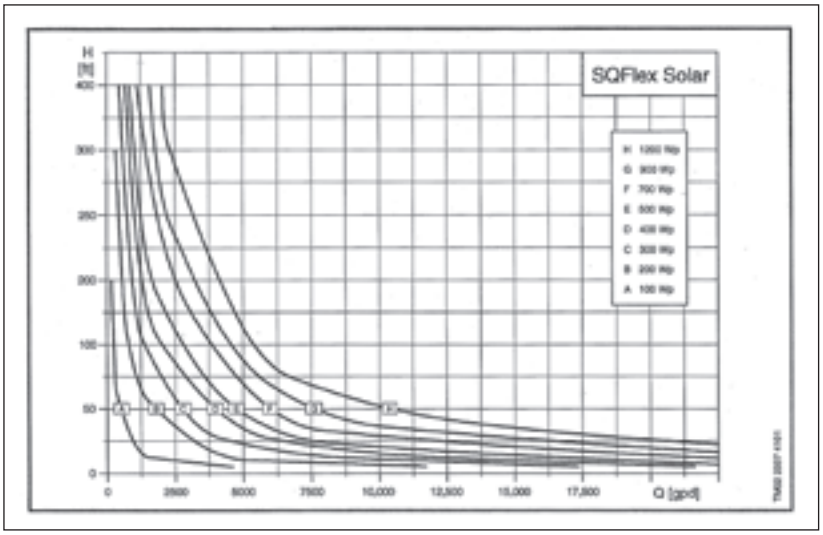
Features:

- Up to 390 foot head applications • 30-300 Vdc, or 90-240 Vac single-phase AC input.
- Permanent magnet high efficiency motor • Overload protection • Over temperature protection • Dry running protection
- Maximum Power Point Tracking to optimize pump operation according to DC Power available.
- Power line communication with the CU200 (optional) to display operational conditions

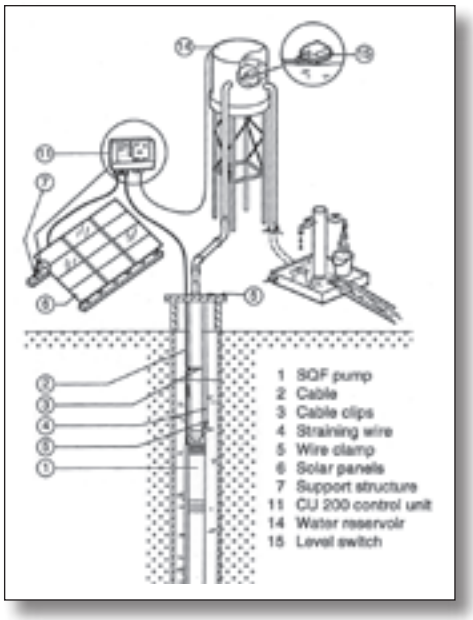
Model	TDH Range Ft.	Nominal GPM	Length in.	NPT Output Size in.	MSRP
3 SQF-2	120 - 390	3	47	1	$1,849.00
6 SQF-2	120 - 390	6	48	1	$1,849.00
11 SQF-2	40 - 300	11	49	1 1/4	$1,849.00
25 SQF-3	0 - 40	25	33	1 1/2	$1,849.00
25 SQF-6	0 - 60	25	35	1 1/2	$1,849.00
40 SQF-3	0 - 20	40	37	2	$1,849.00
75 SQF-3	0 - 40	75	39	2	$1,849.00

Accessories		MSRP
IO 100 –	Simple On/Off switch box for Grundfos SQFlex solar electric system. No float switch terminals. *Use CU200 pump controller for the Grundfos SQ Flex if a float switch is needed.	$139.00
IO 101 –	Generator Interface Box for Grundfos SQFlex. Includes On/Off switch (replaces IO 100) and allows for operation of SQFlex pump for either solar or manual-start generator. No float switch terminals. *Add a CU200 pump controller for the Grundfos SQFlex if a float switch is needed.	$399.00
IO 102 –	Wind Generator Breaker Box. This box includes a rectifier for the wind generator and a stop switch, and allows the Grundfos SQFlex pump to operate from either the H80 wind generator or a combination of wind and solar. *Add a CU200 pump controller for the Grundfos SQFlex if a float switch is needed.	$365.00
CU 200 –	SQFlex Control Box. This controller and system monitor can be used with solar alone or in combination with the IO101 (for manual generator backup) and/or the IO102 (for wind generator). The CU200 will allow you to add a float switch to shut off the pump when the storage tank is full. The system monitor display on the CU200 shows the following: • Pump operation • Full Tank • Input Power (Watts) • Alarm Indicator for dry running, overvoltage, overload and overtemperature.	$315.00
Water Level Switch –	Mechanical float switch	$19.00

SQFlex Performance Range



Grundfos *continued*



SQFlex Solar Application Example

Grundfos SQ Flex water pumping system in Southern Wyoming

Grundfos Solar Pump 2000 Sizing Chart

Water production based on 4 kwh/m2 Winter and 6 kwh/m2 Summer insolation (POA)

Trackers will increase daily water production 25-30% above listed values.

Head/ Wattage	270 W	360 W	540 W	690 W	920 W	1150 W
30 ft./ 10M	11SQF-2	25SQF-3	25SQF-3	40SQF-3	75SQF-3	75SQF-3
Summer GPD	3,700	5,100	8,100	11,000	15,450	18,700
Winter GPD	2,500	3,000	5,200	6,850	9,990	12,500
Max Flow	8	14	20	28	37.5	45
50 ft./ 15M	11SQF-2	11SQF-2	11SQF-2	25SQF-6	25SQF-6	25SQF-6
Summer GPD	3,100	4,000	5,300	7,150	9,550	11,700
Winter GPD	2,000	2,700	3,900	4,400	6,250	8,000
Max Flow	7.5	9	10	18	22.5	26
65 ft./ 20M	11SQF-2	11SQF-2	11SQF-2	11SQF-2	25SQF-6	25SQF-6
Summer GPD	2,700	3,600	4,900	5,550	7,650	9,700
Winter GPD	1700	2,350	3,450	4,200	4,750	6,300
Max Flow	7	8	9.5	10.5	20	24
95 ft./ 30M	11SQF-2	11SQF-2	11SQF-2	11SQF-2	11SQF-2	11SQF-2
Summer GPD	1,700	2,450	3,800	4,700	5,350	5,650
Winter GPD	900	1,450	2,500	3,300	4,100	4,450
Max Flow	5	7	9	10	10	10
130 ft./ 40M	11SQF-2	11SQF-2	11SQF-2	11SQF-2	11SQF-2	11SQF-2
Summer GPD	1,100	1,600	2,800	3,800	4,650	5,100
Winter GPD	600	850	1,700	2,450	3,350	3,900
Max Flow	3	5	8	10	10	10
160 ft./ 50M	6SQF-2	6SQF-2	11SQF-2	11SQF-2	11SQF-2	11SQF-2
Summer GPD	900	1,300	2,200	3,100	4,100	4,600
Winter GPD	500	800	1,250	1,900	2,750	3,450
Max Flow	3	4	7	8	9	9
195 ft./60M		6SQF-2	6SQF-2	11SQF-2	11SQF-2	11SQF-2
Summer GPD		1,100	1,800	2,400	3,450	4,050
Winter GPD		600	1,100	1,400	2,150	2,800
Max Flow		3	5	7	9	9
225 ft./70M			6SQF-2	6SQF-2	11SQF-2	11SQF-2
Summer GPD			1,600	2,000	2,750	3,550
Winter GPD			950	1,350	1,600	2,250
Max Flow			4	5	8	8
260 ft./80M			6SQF-2	6SQF-2	6SQF-2	11SQF-2
Summer GPD			1,350	1,800	2,200	2,950
Winter GPD			750	1,150	1,600	1,700
Max Flow			4	4	5	8
295 ft./ 90M			6SQF-2	6SQF-2	6SQF-2	6SQF-2
Summer GPD			1,100	1,600	1,950	2,200
Winter GPD			600	950	1,400	1,700
Max Flow			3	4	5	5
325 ft./ 100M			3SQF-2	6SQF-2	6SQF-2	6SQF-2
Summer GPD			1,000	1,400	1,800	2,100
Winter GPD			700	800	1,250	1,550
Max Flow			2	4	4	5

System Spotlight

LOCATION:
Wyoming

APPLICATION:
Water pumping for livestock

SYSTEM:
1440 Watt Grundfos water pumping system

SunWize® Designer Lighting Systems

SunWize Designer Lighting Systems (DLS) use solar technology to provide lighting in areas where there is no utility power or where excavation for underground power lines make utility power too costly. The SunWize Designer Lighting Systems combine the latest technology available to provide years of reliable, low maintenance operation. The factory assembled electronic control panel and batteries are contained in a 'slim-line', outdoor enclosure and fully tested for simple, trouble free installation.

The SunWize Designer Lighting Systems feature an ultra high efficiency luminaire incorporating a computer-designed, polished specular reflector to maximize the lighting intensity and coverage area. SunWize Designer Lighting Systems are color coordinated in attractive powder coated architectural bronze including the optional pole and arm. The luminaire is available with either low pressure sodium (LPS) or fluorescent (FL) lamps. The LPS lamp is a monochromatic (yellow-orange) light source, delivering the highest possible lumens per watt. Compact fluorescent lamps provide slightly less lumens, but produce a white light (4100K), which appears brighter than low pressure sodium lamps and should be used in areas where color rendition is desired. The use of fluorescent fixtures in areas that experience temperatures of 5ºF (-15ºC) or below is not recommended.

Hinged and gasketed door has keyed, locking mechanism

Vented, outdoor battery and control enclosure. Pole mounting brackets and enclosure are vandal and corrosion resistant.

Convenient wiring access

High density solar modules have a 20+ year warranty

Pole top mount adjusts 0–90˚ horizontal and 360˚ about pole

Corrosion resistant luminaire with captive screw, hinged cover and slip fits on 2" sch. 40 pipe/arm.

Entire pole-mounted system is designed to withstand 90 MPH wind loads with a 1.3 gust factor

APPLICATIONS

- School ground security lighting
- Marinas and campgrounds
- Parks and recreation areas
- Community area lighting
- Parking lots
- Bicycle and jogging paths
- Residential roadways and intersections

FEATURES AND BENEFITS

- Eliminates utility line extensions
- Fast and easy installation
- Location flexibility
- Automatic lighting controller with adjustable run times
- Maintenance free, long life batteries
- Over-current protection and status LEDs

DLS's are offered with a choice of light fixtures:

Fixture	Rated Lumens
35 W LPS	4800
55 W LPS	8000
36 W Fluorescent	2900
72 W Fluorescent	5800

Controls and Battery Enclosure Dimensions:

Number of Batteries	Dimensions H x W x D
1	21" x 16" x 10"
2	32" x 16" x 10"
4	32" x 16" x 16"

SunWize®
Reliable People ::: Reliable Products ::: Reliable Power!

SunWize Designer Lighting Systems

Complete lighting systems include: • Luminaire • Solar array • Top pole mount • Electrical control panel • All wiring • Sealed batteries and enclosure • Standard systems do not include pole and arm – choose from options.

Options: (ordered separately)

DLS-A – Pre-assembled PV array, top pole mount & wiring

DLS-B – Protective aluminum module back plates

DLS-D – 6" sq. x 20' pole w/48" arm

DLS-E – 5" sq. x 20' pole, 2" top tenon, w/48" arm

DLS-G – 5" sq. x 20' pole, 2.5" tenon, w/48" arm

DLS-F – Lightning Surge Protection and ground rod

(Options D, E and G include pole base cover, enclosure U-bolts, cable fittings, hardware and 4 – 1" x 36" anchor bolts)
FOB destination - domestic US on minimum order of 4 poles

SunWize DLS Selection and Operation Guide

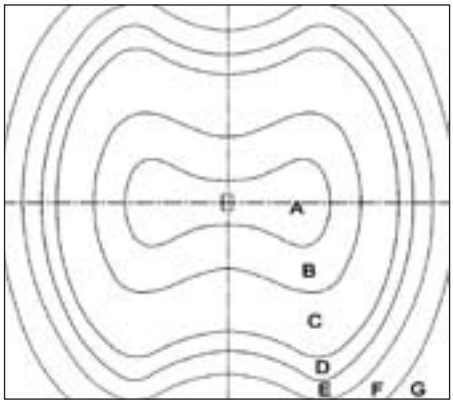
*Model Number	Geographical Location – Worst Month Average Sun Hours – Solar Array at Tilt								Battery	Pole
	2.0–2.5		3.0–3.5		4.0–4.5		5.0–5.5			
Low Pressure Sodium	Runtime	Reserve	Runtime	Reserve	Runtime	Reserve	Runtime	Reserve	Qty.	Option
DLS-115-115-35	4 hrs	7 days	6 hrs	5 days	8 hrs	4 days	10 hrs	3 days	1	E
DLS-180-200-35	6 hrs	9 days	8 hrs	7 days	10 hrs	5 days	D/Dawn	3 days	2	G
DLS-240-230-35	8 hrs	7 days	10 hrs	6 days	D/Dawn	4 days			2	G
DLS-300-340-35	10 hrs	9 days	D/Dawn	6 days					4	D
DLS-460-230-35	D/Dawn	7 days							4	D
DLS-100 -85 -55					4 hrs	5 days	6 hrs	4 days	2	E
DLS-120-100-55			4 hrs	9 days	6 hrs	6 days	8 hrs	5 days	2	G
DLS-180-100-55	4 hrs	9 days	6 hrs	6 days	8 hrs	5 days	10 hrs	4 days	2	G
DLS-240-115-55	6 hrs	7 days	8 hrs	6 days	10 hrs	5 days	D/Dawn	3 days	2	G
DLS-340-170-55	8 hrs	7 days	10 hrs	6 days	D/Dawn	5 days			4	D
DLS-400-200-55	10 hrs	7 days	D/Dawn	6 days					4	D
Fluorescent										
DLS -50 -85 -36					4 hrs	7 days	6 hrs	5 days	1	E
DLS -60 -100-36			4 hrs	8 days	6 hrs	6 days	8 hrs	4 days	1	E
DLS -90 -100-36	4 hrs	9 days	6 hrs	6 days	8 hrs	4 days	10 hrs	3 days	1	E
DLS-120-115-36	6 hrs	7 days	8 hrs	6 days	10 hrs	4 days	D/Dawn	3 days	1	E
DLS-170-170-36	8 hrs	7 days	10 hrs	6 days	D/Dawn	4 days			2	G
DLS-200-200-36	10 hrs	7 days	D/Dawn	6 days					2	G
DLS-345-340-36	D/Dawn	7 days							4	D
DLS-100-115-72					4 hrs	5 days	6 hrs	4 days	1	E
DLS-120-200-72			4 hrs	9 days	6 hrs	6 days	8 hrs	5 days	2	E
DLS-180-200-72	4 hrs	9 days	6 hrs	6 days	8 hrs	5 days	10 hrs	4 days	2	G
DLS-240-230-72	6 hrs	7 days	8 hrs	6 days	10 hrs	5 days	D/Dawn	3 days	2	G
DLS-345-340-72	8 hrs	7 days	10 hrs	6 days	D/Dawn	5 days			4	D
DLS-400-200-72	10 hrs	7 days	D/Dawn	6 days					4	D

***** DLS model numbers depict PV watts - Battery Ah - Lamp watts. (example: DLS-90-160-35)

Select Lamp Watts and Run Time-Hrs desired vs worst month sun hours in your location. Use the map on the back cover to select the insolation zone that corresponds to the site location. The table above illustrates standard systems. For competitive bids or other system combinations not listed, professional computer aided lighting system design services are free of charge. Contact your salesperson to determine the most cost effective solution for your location.

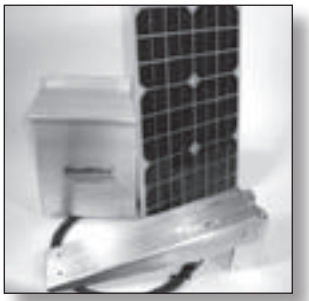
Horizontal Foot Candles @20 foot Mounting Height				
	FIXTURE TYPE			
CONTOUR	35W LPS	55W LPS	36W FL	72W FL
A	4.0	8.0	1.5	3.3
B	3.0	6.0	1.1	2.5
C	2.0	3.0	.75	1.5
D	1.2	1.8	0.5	1.0
E	0.5	1.0	0.3	0.6
F	.25	0.7	.15	0.3
G	.15	0.5	.10	0.2

50' x 50' Grid Area



Lighting Power Ready shown with front cover removed

SunWize



SunWize LPR18-19

Lighting Power Ready (LPR) – Solar-Powered 12Vdc Power Supply for Lighting Applications

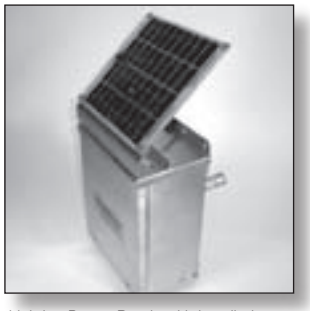
Versatile 12Vdc systems are plug and play. Base models include vandal-resistant, non-glass, urethane encapsulated solar module, sealed 12V gel battery, solid-state charge controller with fuse and low battery protection. Aluminum enclosure and solar mount brackets are universal for wall or pole mounting.

Four sizes of matched 12Vdc power supply systems are offered pre-assembled and include a choice of several options. Base models intended for user-remote on/off switch for general purpose lighting when needed. Combine with SunWize 12Vdc lighting fixtures such as fluorescent floodlights or decorative LED landscape lights for on-demand purposes.

Determine proper model based on location sun hours for year-round dusk to dawn or timed lighting depending on intended light fixture current draw and run time. Recommend that the usable solar amp-hours per day (AH/D) to be 30% larger than expected load.

For example: 12VDC light is 1.0 amp and run time is 2 hours/night, total load is 2.0 amp hours, solar ready power supply must deliver minimum 2.60 amp hours. Use the SunWize insolation map on back cover for location sun hour reference.

Model	Solar Watts	Solar Charging Amps (Imp)	Battery Capacity Amp Hours C/20	Solar Amp Hours/Day (ah/d) *Sun Hrs: 2.0	3.0	4.0	5.0	Weight (lbs)	MSRP
LPR6-7	6	0.30	7	0.6	0.9	1.2	1.5	13	$439.00
LPR12-12	12	0.60	12	1.2	1.8	2.4	3.0	17	$549.00
LPR18-19	18	0.91	19	1.8	2.7	3.6	4.5	22	$639.00
LPR24-26	24	1.20	26	2.4	3.6	4.8	6.0	27	$789.00



Lighting Power Ready with installed solid-state dusk to dawn sensor

LPR-Lighting Control Options-Installed

Order your choice of one installed lighting control option with any base model. Choose either a dusk to dawn sensor, a self-resetting PIR motion-sensing activated timer (6 seconds to 12 minutes), or a dusk activated run timer selectable from 2-10 hours. For extra security, order vandal-resistant hardware installed for solar mount and battery box.

Model	Description	MSRP
LPR-DD3	Automatic dusk to dawn operation. 3 amp load max. (for LED only)	$89.00
LPR-PIR	Automatic motion detection operation. 10 amp load max.	$115.00
LPR-TMR	Automatic on at dusk and operate 2-10 hrs. Adjustable. 10 amp load max.	$135.00
LPR-TP	Vandal-resistant hardware.	$55.00

SunWize LED Spotlight System

SunWize 18-LED Spotlight System – Solar-Powered 12Vdc

This ready to install, stand-alone solar powered LED spot light works every night from dusk to dawn, with a week reserve. Select from three system sizes depending on geographic location. Features include vandal resistant enclosure system, solar module with roof/pole/wall mount bracket, sealed battery, solid state system controller, dusk to dawn sensor, 18 LED premium outdoor 'bullet' fixture and ready-post. System designed for 10-20ft. flagpole, landscape path, tall trees, security, small signs and entry/exit spotlight. 1 year system warranty.

Model	December Avg. Sun Hours	Geographic Location	PV Watts	Battery Size (ah)	Amount of Reserve	Weight (lbs)	MSRP
18LED6W	5+	Phoenix, AZ	6	7	5 days	15	$649.00
18LED12W	3+	Philadelphia, PA	12	12	8 days	19	$759.00
18LED18W	1.5+	Olympia, WA	18	19	11 days	24	$859.00

Outdoor Floodlight System with SunWize SC12 watt module

SunWize

SunWize LED Outdoor Floodlight System with PIR – Solar-Powered 12Vdc

Complete, industrial quality, solar-powered security floodlight system includes passive infrared (PIR) motion detector and LED lamps. Self-contained wall or pole mount enclosure with sealed battery and solid state charge controller w/load disconnect is ready to install. Includes corrosion-proof white lamp holders with two PAR30 screw base LED floodlights rated for wet locations. Vandal-resistant solar module includes remote universal roof/pole/wall mount bracket with 20-foot outdoor cable. PIR sensor features: motion detection range 30 meters -120 degree angle; self-resetting adjustable time base from 6 seconds to 12 minutes; day/night mode; 3ma self-consumption. Both models are designed to operate for approximately 1 hour for every hour of peak sunlight received (example: one sun hour = 12 five-minute timed operations possible. Battery is sized for many days of reserve power without sun. 1- year warranty.

Model	Lamp	QTY	Amps	PV Module	Battery AH	Weight (lbs)	MSRP
LEDPIR12W-2X48	PAR30-48W	2	0.36	SC12	12	20	$679.00
LEDPIR18W-2X99	PAR30-99W	2	1.00	SC18	19	25	$809.00

Outdoor Security Floodlight w/PIR

SunWize LED Outdoor Security Floodlight with PIR–12Vdc

This ready to install outdoor security floodlight is pre-wired with passive infrared (PIR) motion detector and 20-foot cable. White powder-coated aluminum round box with gasketed cover and lamp holders is corrosion-proof and rated for wet locations. Select either one or two PAR30 medium screw base LED lamps. PIR sensor features: motion detection range 30 meters -120 degree angle; self-resetting adjustable time base from 6 seconds to 12 minutes; day/night mode; 3ma self-consumption. 1 year warranty.

Model	Lamp	QTY	Amps	Foot Candles @10 feet	Weight (lbs)	MSRP
LEDPIR-1X48	PAR30-48W	1	0.18	4.0	3.0	$199.00
LEDPIR-1X99	PAR30-99W	1	0.50	10.0	3.0	$235.00
LEDPIR-2X48	PAR30-48W	2	0.36	8.0	3.0	$249.00
LEDPIR-2X99	PAR30-99W	2	1.00	20.0	3.0	$309.00

SunWize DC-PIR Floodlight

SunWize DC-PIR Floodlight

The DC-PIR Floodlight is a self-contained 12V floodlight requiring no assembly and is ready to install. Just connect a solar module. The all aluminum, wall pack enclosure design can also be pole mounted. The sensor and fixture can be aimed up/down or left/right. The 12V PIR motion sensor allows day or night operation with adjustable 1-18 minute self-resetting timer. Includes PV charge controller, 13W fluorescent floodlight and a sealed 17AH battery. Use with an OEM 10, 20 or 40W module depending on regional location and frequency of operation.

Model	Voltage	Current	Enclosure Size	Weight (lbs)	MSRP
DC-PIR-13W	12Vdc	1.2A	11" x 9" x 5”	10.0	$449.00

UNI-KIT 30

Uni-Solar Lighting Kits

The UNI-KIT is a durable lighting system providing extended lighting hours. Simple plug-in connections make it easy to install. A Power Control Center manages the system and easy to read indicators display current battery conditions. Each unit is complete with a 25-foot wire from the modules to the Power Control Center, a 10-foot wire for connecting lights, plus a 15-foot wire from the Power Control Center to the lights. UL listed. The Power Control Center carries a one-year warranty. These systems can also power a 12 volt radio or television. Battery sold separately.

Model	Rated Power	Battery Capacity Ah	Performance	MSRP
UNI-KIT 60	64W	90-120	24-32 lamp hours	$759.00

Trilight

SunWize

Economy Fixture – Fluorescent Indoor

The slim line Trilight, 12 volt DC fixture offers a unique design allowing the operation of one, two or three 8 watt tubes. If one tube fails, the others will still work. Low power consumption; one tube is <0.5 amp, three tubes are 0.85 amps (supplied with one tube). Includes on/off switch and unbreakable lens.

Model	Vdc	Rated Tube Life	Design Lumens	Dimensions (in)	Weight (lbs)	MSRP
KL8	12	5000+ hours	400	15 x 3 x 1	1	$22.50
8W	Replacement Lamp				.25	$5.00

Outdoor Wall Ceiling Fixture

SunWize Wall Ceiling Fixture – Fluorescent Outdoor

Attractive and virtually indestructible, this wall/ceiling mount fixture is rated for use in wet locations and features a molded prismatic polycarbonate lens and internal specular aluminum reflector. Fixture body can accept conduit wiring and includes energy efficient ballast and PL compact fluorescent lamp. Tamperproof screws. UL listed.

Model	Vdc	Watts	Lumens	Amps	Dimensions (in)	Weight (lbs)	MSRP
2020-7	12	7	400	0.65	11 x 5 x 3	2	$105.00
2020-9	12	9	600	0.85	11 x 5 x 3	2	$110.00
2020-13	12	13	900	1.20	11 x 5 x 3	2	$110.00
2020-13	24	13	900	1.20	11 x 5 x 3	2	$110.00

SunWize DLS Fixture

SunWize DLS Fixtures

The DLS outdoor light fixture is designed for floodlighting large areas, for use with either low pressure sodium (LPS) or fluorescent (FL) lamps-included. Aluminum fixture body is powder coated dark bronze, includes captive screw hinged door with gasket and clear 'polycarbonate' unbreakable lens. Welded rear collar set screw fitting for 2" pipe attachment. A multi-faceted polished-parabolic aluminum reflector enables enhanced light output over a 2500 SF area. Fixture is designed for remote ballast(s) and includes 30 ft. output cable with strain relief fitting. See Designer Lighting System data for foot candle table. Ballast sold separately.

Model	Watts	Qty	Lumens	Vdc	Amps	Dimensions (in)	Weight (lbs)	MSRP
251DLS001	35-LPS	1	4800	12	3.0	19 X 13 X 4	10.5	$475.00
251DLS002	55-LPS	1	8000	24	2.2	19 X 13 X 4	10.5	$495.00
251DLS003	36-FL	1	2900	12	2.2	19 X 13 X 4	10.5	$420.00
251DLS004	36-FL	2	5800	12	4.4	19 X 13 X 4	11.5	$435.00

Outdoor Floodlight

Floodlight – Fluorescent Outdoor

This directional floodlight is ideal for signs, wall washing, driveway or security lighting. Fixtures feature black powder coated aluminum housing with 1/2" NPT swivel mount, a specular aluminum parabolic reflector, clear polymer lens, solid state electronic ballast and compact PL lamp. UL listed – wet locations.

Model	Vdc	Watts	Lumens	Amps	Dimensions (in)	Weight (lbs)	MSRP
1001-13	12	13	900	1.1	9.3 x 6.6 x 4.6	1	$133.00
1001-13	24	13	900	1.1	9.3 x 6.6 x 4.6	1	$133.00
1001-36	12	36	2900	2.2	18.0 x 6.6 x 4.6	1	$210.00
1001-36	24	36	2900	2.2	18.0 x 6.6 x 4.6	1	$220.00

Outdoor Economy Floodlight

SunWize

Economy Floodlight – Fluorescent Outdoor

This non-metallic molded black fixture features a self-contained ballast, a polished reflector, clear lens screw cover and 1/2" NPT pivot mount. Twin tube replacement lamps are 4100K color temperature, 10,000 hours rated life.

Model	Vdc	Watts	Dimensions (in)	Weight (lbs)	MSRP
LIT-ELF12/9	12	9	9.3 x 4 x 4	1.5	$87.50
LIT-ELF12/13	12	13	9.3 x 4 x 4	1.5	$87.50

PL Compact Fluorescent

Replacement Lamps-Compact Fluorescent 4 Pin Base

Model	Watts	Lumens	Base	Length (in)	MSRP
PL9	9	600	2G7	5.7	$12.00
PL13	13	900	2GX7	6.2	$15.00

RL001 (top) and RL002 Compact Fluorescents

Replacement Lamps-Compact Fluorescent

Twin tube "PL" lamps are 4100K-color temperature. For fixture models 1001, 2020 and DLS.

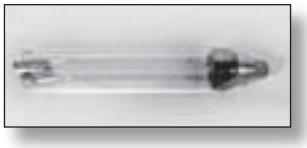
Model	Watts	Rated Life	Lumens	Base	Length (in)	MSRP
RL004	7	10,000 hours	400	G23	5.25	$6.00
RL006	9	10,000 hours	600	G23	6.0	$7.50
RL001	13	10,000 hours	900	GX23	7.3	$7.50
RL002	36	10,000 hours	2900	2G11	16	$19.00

Fluorescent DC Ballast

DC Ballasts – Fluorescent

These energy efficient, long life, solid state electronic 12Vdc ballasts are for use with single compact fluorescent lamps. All are 2-wire connection. 1-year warranty.

Model	Wattage	Dimensions (in)	Weight (lbs)	MSRP
2D12-1-9	5/7/9	1.9 x 1.9 x 2.5	.5	$35.00
2D12-1-13	13	1.9 x 1.9 x 2.5	.5	$39.00
2D24-1-13	13 for 24V system	1.9 x 1.9 x 2.5	.5	$39.00
2D12-1-32	18-36	5.4 x 1.9 x 1.4	1	$58.00
2D24-1-32	18-36 for 24V system	5.4 x 1.9 x 1.4	1	$58.00



Low Pressure Sodium Lamp

Lamps - Low Pressure Sodium

Replacement lamps for DLS fixture.

Model	Watts	Lumens	vBase	Length in.	Rated Life	MSRP
SOX-35	35	4800	T17	8.5	16,000 hours	$64.00
SOX-55	55	8000	T17	12.2	16,000 hours	$75.00

LPS DC Ballast

DC Ballasts – LPS

These energy efficient, long life, solid state electronic ballasts are for use with SOX-LPS lamps.

Model	Watts	Vdc	Amps	Dimensions (in)	Weight (lbs)	MSRP
DCB-SOX35	35	12	3.0	1.5 x 1.5 x 5	1.0	$85.00
DCB-SOX55	55	24	2.2	1.5 x 2.5 x 9	2.0	$105.00


27 LED Wall Mount Fixture

SunWize

27 LED Wall Mount Indoor Light Fixture

This attractive indoor wall mount fixture includes bright white 27-LED-MR16 bulb (GU10 base), emitting beam at 20-30 degree view angle for reading or room lighting, perfect for remote home, RV or marine cabins. Features stylish design, brushed finish, adjustable lamp pivot, on/off switch and wall mount bracket. Size: 4.5" diameter, 6" long. 1 year warranty.

Model	Vdc	Watts	Amps	Foot Candles @ 6 feet	Weight (lbs)	MSRP
292008	12	0.87	0.70	6.0	1.0	$109.00


LED Lamp

LED Wall or Ceiling Lamp

This durable light fixture contains either 4 or 6–1 watt high power, white LED's. The average life of 100,000 hours results in a 20-year lifetime estimate when operated all night. The WP6X LED's wide-view angle is perfect for coverage of large areas up to 20 x 20 feet. The WP4X includes dual 10º spot LEDs and dual wide-angle LEDs. Ideal for bus stops, porches, and outbuildings. Housed in a vandal resistant enclosure.

Model	Vdc	Amps	Lumens	Dimensions (in)	Weight (lbs)	MSRP
WP4X	12	0.52	625	8.5 x 4.5 x 4	1	$175.00
WP6X	12	0.70	720	8.5 x 4.5 x 4	1	$245.00


27/45 LED Outdoor Spotlight Fixture

27/45 LED Wall/Ceiling Outdoor Spotlight Fixture

This versatile adjustable spotlight fixture, either 27-LED or 45-LED bright-white LED's on PCB emits a 20-30 degree light angle. Use for shelters, landscape/path, entry/exit lighting & small signage. Heavy-duty cast aluminum, waterproof housing in black finish can mount almost anywhere including flush mount. Includes pivoting bracket and 10 ft. long output cable. Measures 4 in. x 4 in.

Model	Vdc	Watts	Amps	Foot Candles @ 6 feet	Weight (lbs)	MSRP
292009	12	1.0	0.08	5.0	2.0	$72.00
292010	12	1.75	0.14	10.0	2.0	$80.00


99 LED Outdoor Floodlight Fixture

99 LED Outdoor Floodlight Fixture

Compact economy waterproof flood fixture includes bright-white 99-LED PCB which emits a 50-60 degree light angle. Suitable for driveway/area lighting, security, landscape, entry/exit lighting and small signage. Includes pivoting bracket and sealed 10 ft. long output cable. The heavy-duty cast aluminum waterproof housing in white finish.

Model	Vdc	Watts	Amps	Lumens	Foot Candles @ 6 feet	Weight (lbs)	MSRP
PL99FW	12	6.0	0.50	198.0	20.0	2.0	$129.00


LED Industrial Outdoor Floodlight Fixture

LED Industrial Duty Outdoor Floodlight Fixture

This rugged, outdoor fixture features a silver finished, heavy-cast aluminum body. The adjustable ½" conduit pivot and thick domed glass includes a threaded-sealed lens for dirty or high moisture locations. Use for wall washing, tall flagpole, landscape, security and area floodlighting. Includes medium screw base, bright-white 12Vdc LED lamp emits a 20-30 degree light angle.

Model	Lamp	Watts	Amps	# LEDs	Foot Candles @ 10 feet	Weight (lbs)	MSRP
292027	PAR30-99	6.0	0.50	99	10.0	4.0	$219.00
292028	PAR38-198	12.0	1.00	198	20.0	4.0	$289.00

LED "Bullet" Outdoor Floodlight Fixture
292022, 292023 (left); 292024 (right)

SunWize

LED 'Bullet' Outdoor Floodlight Fixture

Premium UL listed outdoor fixtures are perfect for wet locations. Ideal for up or down-lighting for wall washing, flagpole, landscape, security, driveway spotlight or area floodlighting. Each fixture features a durable cast aluminum, black powder-coated housing with o-ring sealed glass lens and sunshield. All include medium screw base 12Vdc white LED lamp. Adjustable pivot is for ½" conduit fitting, with 10 ft. outdoor cable attached. Select 'Mighty Post' for ground mounted installations. LED's available in red, blue, green or yellow by special order.

292025, 292026 LED "Bullet" Fixture

Model	Lamp	Watts	Amps	# LED's	Foot Candles @ 10 feet	LED Angle	Weight (lbs)	MSRP
292022	MR16-18	0.8	0.06	18	1.5	20-30º	1.0	$120.00
292023	MR16-27	1	0.08	27	2.5	20-30º	1.0	$132.00
292024	PAR20-45	2	0.15	45	4.0	50-60º	2.0	$140.00
292025	PAR30-99	6	0.45	99	10.0	50-60º	2.5	$180.00
292026	PAR38-198	12	1.00	198	20.0	50-60º	2.5	$252.00

Mighty Post

Mighty–Post

This black 2" PVC wiring post is perfect for lawn lights and includes 'ground grabber' stabilizer ribs, and a ½" female threaded top cap. Post is tapered for easy installation and will not cut through wires.

Model	Length (in)	Weight (lbs)	MSRP
MP-17	17	1.5	$29.00

Vandal-Resistant Fluorescent Fixture

Vandal-Resistant Wall Ceiling Fixture – Fluorescent

These indoor/outdoor fixtures with compact fluorescent lamp (CFL) are ideal with solar-powered battery charging systems for public buildings, restrooms, garages and parks. VAN2 fixtures are with choice of 7W or 15W CFL lamp for timer-based or on/off switch installations.

All fixtures feature heavy-gauge steel base, reflector with gasket in white finish with clear vandal-resistant polycarbonate refractor and tamperproof screws. UL listed wet locations. (24Vdc models available special order).

Model	Vdc	Watts	Dimensions (in)	CFL Lamp	Weight (lbs)	MSRP
VAN2-7	12	7	8.5 X 8.5 X 4.1	LTM-07-12	2.0	$125.00
VAN2-15	12	15	8.5 X 8.5 X 4.1	LTT-15-12	2.1	$129.00

Vandal-Resistant Fluorescent Fixture
with PIR

Vandal-Resistant Wall Ceiling Fixture with PIR – Fluorescent

The VAN3 fixture features a PIR motion-sensor and 7W or 15W compact fluorescent models. Select the VAN5 fixture for higher power lamps of 23W, 30W & 45W with PIR motion-sensor. Both models include bronze color die-cast aluminum housing and tamperproof screws. PIR continuous tare loss = 3 ma. UL listed wet locations. 1 year warranty.

Model	VDC	Watts	Dimensions (in)	CFL Lamp	Weight (lbs)	MSRP
VAN3-7 PIR	12	7	8.5 X 8.5 X 4.1	LTM-07-12	4.0	$195.00
VAN3-11 PIR	12	15	8.5 X 8.5 X 4.1	LTT-15-12	4.1	$199.00
VAN5-23 PIR	12	23	12 X 12 X 9	LTT-23-12	6.0	$299.00
VAN5-30 PIR	12	30	12 X 12 X 9	LTQ-30-12	6.4	$309.00
VAN5-45 PIR	12	45	12 X 12 X 9	LTQ-45-12	6.7	$311.00

Solsum ESL

Steca

Solsum Energy Saving Lamp

The Solsum Energy Saving Lamp is a 12V compact fluorescent bulb with a long life and an 80% reduced consumption of electricity. Operating temperature range is 14°F to 122°F. Installs in any standard incandescent socket.

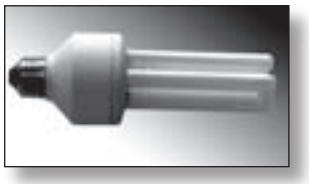
Model	Vdc	Watts	Current mA	Lumens	Avg. Life Span hrs.	MSRP
ESL7 Cool White	12	7	580	400	6000	$18.00
ESL11 Cool White	12	11	920	600	6000	$18.00
ESL 7 Warm White	12	7	580	400	6000	$18.00
ESL11 Warm White	12	11	920	600	6000	$18.00

SolLED LED Lamp

SolLED LED Lamp

The SolLED is a 12V light emitting diode lamp that is three times brighter than a halogen lamp. It has a long life with a power consumption of less than 1 watt. Operating temperature range is -4° F to 122° F. Installs in any standard incandescent socket.

Model	Vdc	Watts	Current mA	Lumens	Avg. Life Span hrs.	MSRP
SolLED .70 yellow	12	.70	60	15	100,000	$30.50
SolLED .70 white	12	.70	60	11	100,000	$35.00
SolLED .35 yellow	12	.35	30	8	100,000	$21.00
SolLED .35 white	12	.35	30	6	100,000	$29.00



ESL 18

SunWize Lighting Products

Energy Saving Lamps – 115Vac

Top quality Edison base fluorescent lamps offer tremendous energy savings as compared to typical incandescent bulbs. Compact design can be used in most lamps and screw-in fixtures. Single use assembly with bulb. Installs in standard incandescent socket.

Model	Watts	Lumens	Average Life	Dimensions	MSRP
ESL18	18	990	5000 hrs.	2” x 6.4”	$4.95
ESL26	26	1430	5000 hrs.	2” x 7.0”	$5.95

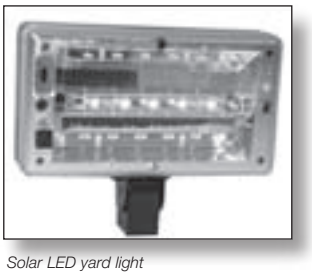
LTM, LTT and LTQ CFL lamps

Compact Fluorescent (CFL) Lamps – 12Vdc and 24Vdc

A wide range of medium screw-base compact fluorescent lamps featuring integral DC ballasts. For a traditional bulb look, select LTB-11 or for spiral design, select LTS lamps. All are reverse polarity protected. 24VDC lamps available as special order. 1 year warranty.

Model	DC Volts	Watts	Amps	Color Temp.	Lumens	Length	Weight (lbs)	MSRP
LTM-03	12	3	0.25	6400K	150	4.0”	0.15	$9.00
LTM-07	12	7	0.55	6400K	320	5.0”	0.20	$9.00
LTM-11	12	11	0.70	6400K	600	5.5”	0.20	$9.00
LTB-11	12	11	0.70	4100K	500	5.5”	0.20	$11.00
LTT-15	12	15	1.10	6400K	850	5.5”	0.30	$11.00
LTS-15	12	15	1.10	6400K	850	5.5”	0.30	$12.00
LTT-23	12	23	1.50	4100K	1250	6.5”	0.40	$11.00
LTS- 25	12	25	1.60	6400K	1400	6.0”	0.50	$12.00
LTQ-30	12	30	1.75	6400K	1650	7.5”	0.70	$21.00
LTQ-45	12	45	2.50	6400K	2500	8.0”	1.00	$23.00

LTB model shown at left,
LTS model on right



Solar LED yard light

SunWize

Solar LED Yard Light

This multi-light LED comes with 5 bright LEDs. 8 hours of charging in full sun provides 18 hours of continuous light. Includes a manual switch and a photo switch to turn the light on at night. Complete with a detachable solar panel with six-foot cord, the light can be placed anywhere.

Model	Dimensions (in)	Weight (lbs)	MSRP
Multi Light	11.7 x 11.7 x 7.8	2	$49.00

Motion Sensor Light

20 Watt Motion Sensor Light

With a removable solar panel on a 12 foot cord, this makes a perfect gate light. It can also be used for lighting sheds, outbuildings or interior rooms. Bright 20W halogen bulb, adjustable sensitivity and run time.

Model	Watts	Dimensions (in)	MSRP
Motion Sensor Light	20	11.7 x 11.7 x 7.8	$109.00

Dusk/Dawn Switch

Dusk/Dawn Switch

Turns on light at dusk, off at dawn. Two models available; 3A or 6A. Both are available as on at dawn off at dusk.

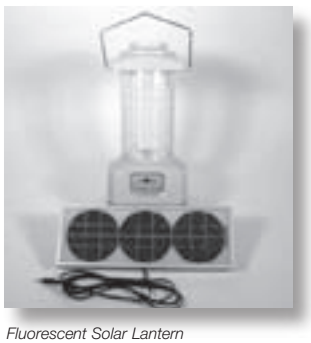
Model	Max. Load Amps	Voltage	MSRP
LALC-03	3	12/24	$55.00
LALC-06	6	12/24	$65.00

Motion Sensor

SunWize 12 Vdc Motion Sensor- PIR

This passive infrared motion sensor detects heat and movement to activate 12 Vdc lighting and is rated for outdoor use in wet locations. The sensor includes sensitivity adjustment to deter false trigger and will allow day or night only operation. Adjustable timer for 5 sec. to 12 minutes. Unit is self-resetting during movement. Range 50' x 110º wide. Includes swivel base. UL listed.

Model	Vdc	Max. Load Amps	Dimensions (in)	Weight (lbs)	MSRP
PIR-2000/12	12	8	9.0 x 5.5 x 1.6	2	$99.00



Fluorescent Solar Lantern

Outdoor Solar Lantern-Fluorescent

The popular hanging lantern design is perfect for camping or emergency lighting. Durable molded plastic is waterproof and self contained with a sealed battery and dual 6 watt lamps. Features include a one or two lamp selection switch and a 3W solar module with cord and plug, 115 Vac adapter and charging LED. Built-in circuitry prevents battery overcharge and over-discharge. Solar panel packaged separately.

Model	MSRP
Outdoor Solar Lantern	$95.00

Module Mounts

SunWize®
Reliable People ::: Reliable Products ::: Reliable Power!

SunWize offers a wide variety of mounting options

Single modules and arrays are attached to metal structures called mounts or racks. Mounts provide a stable base for the array. Once the modules are secured to the mounting structure, the assembly can then be fastened to a pole or roof, or placed on the ground and positioned at the appropriate angle to maximize available solar radiation.

Most mounting structures are stationary or fixed. If an application needs the highest output from the modules, trackers are available. Trackers follow the movement of the sun throughout the day for applications requiring the greatest efficiency such as water pumping.

Mounts are available in a variety of materials including milled aluminum, anodized aluminum, painted steel and galvanized steel. Choosing which material for your mount will depend on the environment. Consult with your SunWize dealer to review the different mounting structures available.

SW Adjustable SOP Mount

SunWize®

Universal Side-of-Pole Mount – One Module, Adjustable

Single module side-of-pole mounts are made of 1/8" brushed aluminum and feature a module clamping method that eliminates any need to drill additional holes. Mounts consist of a pole saddle bracket and a 0 to 90-degree adjustable mounting arm with tilt indicators. Clamps and bracket include captive stainless nuts for easy assembly, stainless bolts and two stainless band clamps adjustable from 2" to 4" OD poles. For larger modules mount comes with adjustable tilt legs. Tamperproof hardware is available.

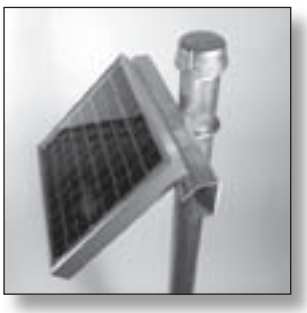
NUMBER OF MODULES: 1

Module Type	Part #	Price	Module Type	Part #	Price
GE PV50	950UNI1LRGKIT-B	$69.00	SunWize OEM5	950UNI1SMLKIT-B	$52.00
Mitsubishi 110	950037	$125.00	SunWize OEM10	950UNI1MEDKIT-B	$55.00
Sharp 80	950037	$125.00	SunWize OEM20	950UNI1MEDKIT-B	$55.00
Suntech 80/85	950037	$125.00	SunWize OEM40	950UNI1MEDKIT-B	$55.00
SunWize SC12	950UNI1SC11	$52.00	SunWize SW50/55/60	950UNI1LRGKIT-B	$69.00
SunWize SC18	950UNI1SC17	$55.00	SunWize 85/90/120	950037	$125.00
SunWize SC24	950UNI1SC22	$59.00	Shell 80	950037	$125.00
			Yingli 80/85	950037	$125.00

SW OEM 20/40 SOP Mount

SunWize OEM Module 45° Angle Side-of-Pole Mounts – One Module

11 gauge aluminum mounts are fixed at 45 degrees. Mounting brackets with slotted pattern allows for U-bolt attachment to poles from 2" to 4" diameter, and can also be wall or roof mounted. The small mount includes 2" pipe U-bolt, the larger mount includes two stainless band clamps for 2-4" diameter.



SW OEM 5 SOP Mount

SW OEM 5 SOP Mount detail

NUMBER OF MODULES: 1

Module Type	Part #	MSRP
SunWize SC5/10	950SW5/10MTASSY	$28.00
SunWize OEM5/10	950SW5/10MTASSY	$28.00
SunWize OEM20/40	950UNILRGOEM-A	$40.00

SW Universal Support Structure

SunWize®

Universal Roof/Ground Mount Support Structures

SunWize Universal roof/ground mount module support structures are engineered to endure the harshest environments. They feature a continuous slotted pattern on heavy gauge brushed aluminum channel supporting members. Three rail sizes, 96-1/4", 104-1/2" and 118-1/2" long, allow mounting of any large-framed solar module without the need to drill additional holes, including solar modules by other manufacturers not listed in table below. Simply divide the rail length by the width (inches) of the module to determine how many will fit. All can ship UPS except the 118" models. "U" and "USY" versions of the 118" models can ship via UPS.

Flush mount structures (**USF**) include four mounting feet and all stainless steel fasteners. Adjustable tilt models (**USA**) incorporate additional dual-telescoping support legs, infinitely adjustable from 25 to 55 degrees. Our unique captive bolt design in the tilt leg allows for one-handed angle adjustment.

Flush Mounts	*MSRP*
950SWUSF-96	$159.00
950SWUSF-104	$185.00
950SWUSF-118	$219.00
950SWUSF-118U	$229.00
950SWUSF-140	$259.00
SY versions	
950SWUSF-118SY	$219.00
950SWUSF-118USY	$229.00

Adjustable Mounts	*MSRP*
950SWUSA-96	$259.00
950SWUSA-104	$285.00
950SWUSA-118	$309.00
950SWUSA-118U	$319.00
SY versions	
950SWUSA-118SY	$309.00
950SWUSA-118USY	$319.00

FLUSH MOUNTS

# of Modules	3	4	5
Module Type			
GEPV 50	950SWUSF-96	950SWUSF-104	950SWUSF-140
Mitsubishi 110	950SWUSF-96	950SWUSF-104	950SWUSF-140
Sanyo 190/200	950SWUSF-118SY		
Sharp 80		950SWUSF-96	950SWUSF-118
Sharp 123	950SWUSF-96	950SWUSF-104	950SWUSF-140
Sharp 170/175	950SWUSF-96	950SWUSF-140	
Suntech 80/85		950SWUSF-96	950SWUSF-118
SunWize SW85/90	950SWUSF-96	950SWUSF-96	950SWUSF-118
SunWize SW100/115/120	950SWUSF-96	950SWUSF-104	950SWUSF-140
Uni-Solar US64	950SWUSF-96	950SWUSF-118	
Yingli 80/85		950SWUSF-96	950SWUSF-118

ADJUSTABLE MODELS

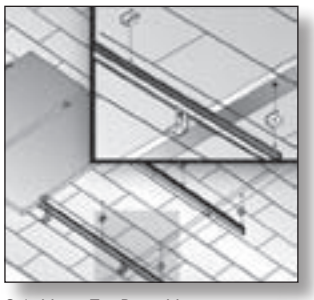
# of Modules	3	4	5
Module Type			
GEPV50	950SWUSA-96	950SWUSA-104	
Mitsubishi 110	950SWUSA-96	950SWUSA-104	
Sanyo 190/200	950SWUSA-118SY		
Sharp 80		950SWUSA-96	950SWUSA-118
Sharp 123	950SWUSA-96	950SWUSA-104	
Sharp 170/175	950SWUSA-96		
Suntech 80/85		950SWUSF-96	950SWUSF-118
SunWize SW85/90	950SWUSA-96	950SWUSA-96	950SWUSA-118
SunWize SW100/115/120	950SWUSA-96	950SWUSA-104	
Uni-Solar US64	950SWUSA-96	950SWUSA-118	
Yingli 80/85		950SWUSF-96	950SWUSF-118

SunWize Flush Mount Kits

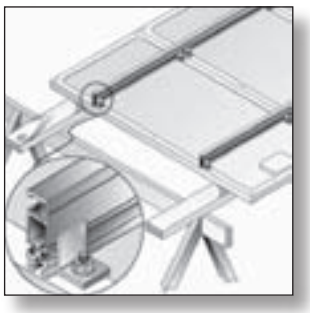
Universal Single-Module Flush Mount Kits

Aluminum flush mount kits include four "Z" brackets and four stainless steel bolts. Fits all modules.

Model	Weight lb.	MSRP
Flush Mount Kits	0.5	$9.00



SolarMount Top Down Mount



SolarMount Bottom Up Mount

Solar Mount SP2 Splice Kit

UniRac®

SolarMount™ Universal Roof Mounts - Top Down or Bottom Up

SolarMounts offer an easy, fast and safe way to install a PV array on the roof of any building. Top down clamps for framed PV modules facilitates rooftop assembly. An entire array can be fully installed and wired on the roof 1 module at a time. The racks may be assembled with bottom up clamps and preassembled on the ground. Continuous, slotted rails provide infinite adjustability for captive bolt positioning. Bi-directional Mounting – Mount modules horizontally or vertically or use both orientations in limited space situations. SolarMounts securely attach the array to the roof in compliance with U.S. Building Codes. SM108 and larger are usually shipped via Motor Freight due to their length. There is an additional charge to ship model #'s SMR120 through SMR216 via UPS. Rails are cut in half. Order the cut and splice kit to ship UPS – #963UNIUPS-20 – MSRP-$20.00. Contact SunWize for configurations and options not shown below.

Solar Module	Clamp	For this # of modules per row, order rail length below										
Top Down Mounting	**Size**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Mitsubishi 110	F	60	84	120	144	168	192	216	240*	276*	300*	324*
Sanyo 190/200	H	84	108	144	180	226*	264*	300*	336*	372*	408*	
Sharp 123	F	60	84	120	144	168	192	226*	252*	276*	300*	336*
Sharp 165/175	F	72	106	144	180	204	240*	276*	312*	348*	372*	408*
Sharp 167	F	84	132	168	216	252*	288*	336*	372*	408*		
Sharp 208	F	84	132	168	204	252*	288*	324*	372*	408*		
SunWize 85/90	C	60	84	106	132	156	180	204	226*	240*	264*	288*
SunWize 110/115/120	C	60	84	120	144	168	192	216	240*	276*	300*	324*
Bottom Up Mounting												
Mitsubishi 110		60	84	106	132	156	180	204	240*	264*	288*	312*
Sharp 123		60	84	106	132	168	192	216	240*	264*	288*	324*
Sharp 165/175		72	106	132	168	204	240*	264*	300*	336*	360*	396*
Sharp 167		84	120	168	204	240*	276*	324*	360*	396*		
Sharp 208		84	120	168	204	240*	276*	324*	360*	396*		
SunWize 85/90		48	72	96	120	144	168	192	216	240*	252*	27
SunWize 110/115/120		60	84	106	132	156	180	204	240*	264*	288*	312

Ordering Step 1: Use the table above to determine rail length for desired model and quantity of modules. Some lengths (*marked with an asterisk), will require multiple sets of rails (i.e. Mitsubishi 110 x 12 modules requires 3 sets of SMR108 rails and two splice kits). Each rail set includes mounting feet and 2 rails. Clamp sets sold separately.)

Ordering Step 2: The numeric value in the Top Mounting Clamp Set model number denotes the quantity of modules the set is for (i.e. CT8A will provide clamps for 8 modules which require a "Size A" clamp.) The last letter in the Top Mounting Clamp Set model number denotes the clamp size, refer to the table above to determine clamp size for desired module. The last numeral in the Bottom Mounting Clamp Sets denote the quantity of clamps in the set. Order 4 clamps per module.

Rails - includes 2 rails, L-feet and hardware

Model	# of L-feet	Weight lb.	MSRP
SMR48	4	13	$99.00
SMR60	4	14	$114.00
SMR72	4	16	$129.00
SMR84	4	17	$144.00
SMR96	4	19	$159.00
SMR106	4	20	$174.00
SMR108	4	21	$174.00
SMR120	6	22	$194.00
SMR132	6	24	$209.00
SMR144	6	25	$224.00
SMR156	6	27	$239.00
SMR168	6	28	$254.00
SMR180	6	30	$274.00
SMR192	8	31	$289.00
SMR204	8	33	$304.00
SMR216	8	34	$319.00

Top Mounting Clamp Sets

Model	Weight lb.	MSRP
CT2A through F	1	$19.00
CT3A through F	2	$22.50
CT4A through F	2	$26.00
CT5A through F	2	$29.50
CT6A through F	2	$33.00
CT7A through F	2	$36.50
CT8A through F	3	$40.00
CT2H	1	$18.50
CT3H	2	$21.00
CT4H	2	$23.50
CT5H	2	$26.00
CT6H	2	$28.50
CT7H	2	$31.00
CT8H	2	$33.50

Models CT2A through F are clear anodized finish, they are available in dark bronze.
CT-H models are dark bronze anodized finish.

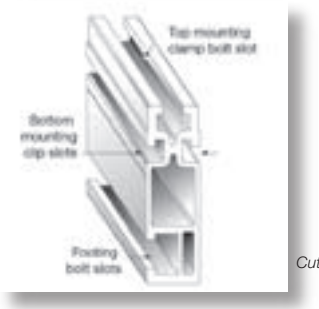
Bottom Mounting Clip Sets – For all modules w/mounting holes. Includes: clips, stainless steel bolts & flange nuts. Order four clips for each module.

Model	# Clips	Weight lb.	MSRP
321001	1	.5	$1.40
321218	4	1	$5.20
321002	20	5	$24.00

Rail Splice Sets - clear anodized

Order one splice wherever two segments are to be joined into a single rail. Two types are offered: "plate" with bolts and flange nuts, and "bar" with self-tapping screws. The dual plate kit includes 2 mid clamps.

Model	# Splices	Type	Weight lb.	MSRP
310202	1	Bar	1	$5.65
310204	20	Bar	10	$98.00
310214	1	Plate	1	$10.00
310215	2	Plate	2	$20.00
310216	20	Plate	5	$170.00



Cutaway view of SolarMount Rail

UniRac® Solar Mount Accessories

Pro-Pak Rail Bundles

Standard Pro-Pak bundles consist of 8 rails and do not include L-feet or hardware. See the sizing chart on the previous page to determine rail length appropriate for your installation. If desired rail length exceeds 240 inches, order a splice and two segments. Spliced segments should be equal or as close to equal as possible.

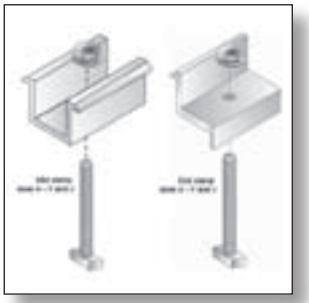
Model	Rail Length	Nom. Shipping Data inches	lbs.	MSRP	Model	Rail Length	Nom. Shipping Data inches	lbs.	MSRP
300102	60	63 x 5 x 3	36	$270.00	300109	144	147 x 5 x 3	78	$565.00
300103	72	75 x 5 x 3	44	$310.00	300110	156	159 x 5 x 3	102	$610.00
300104	84	87 x 5 x 3	50	$350.00	300111	168	171 x 5 x 3	100	$655.00
300105	96	99 x 5 x 3	55	$390.00	300112	180	183 x 5 x 3	108	$700.00
300106	106	109 x 5 x 3	61	$430.00	300113	192	195 x 5 x 3	114	$745.00
300107	120	123 x 5 x 3	67	$475.00	300114	204	207 x 5 x 3	120	$790.00
300108	132	135 x 5 x 3	72	$520.00	300115	216	219 x 5 x 3	128	$835.00

SolarMount L-Feet

Pro-Pak L-Feet

Each L-foot includes a stainless steel bolt and flange nut to attach the foot to a SolarMount rail. Lag bolts are not included. Rail set pricing on previous page lists the appropriate number of L-feet per pair of rails.

Model	Quantity	Nominal Shipping Weight (lbs)	MSRP
310002	1	1	$4.00
310006	20	10	$69.00

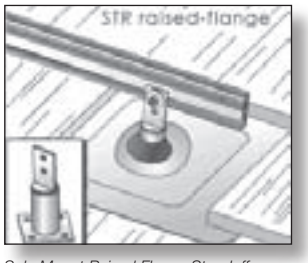


SolarMount Top Mounting Clamps

Pro-Pak Top Mounting Clamp Sets

Clamps with T-bolts and flange nuts. All are clear anodized except G & H which are bronze anodized. See previous page for the clamp size for your module type.

Model	# Clamps	Clamp Size	Weight	MSRP	Model	# Clamps	Clamp Size	Weight	MSRP
End Clamps					**Mid Clamps**				
320013	20	B	6 lbs.	$39.00	320020	20	A-C	6 lbs.	$39.00
320014	20	C	6 lbs.	$39.00	320021	20	D-F	6 lbs.	$39.00
320015	20	D	6 lbs.	$39.00	320087	20	G	6 lbs.	$44.00
320017	20	F	6 lbs.	$39.00	**Mid and End Clamps**				
320083	20	G	6 lbs.	$54.00	320086	20	H	5 lbs.	$36.00

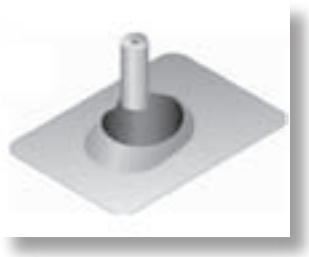


SolarMount Raised Flange Standoff

Raised Flange and Flat Top Standoffs

Standoffs in 3", 4", 6" and 7" in lengths are used for irregular roof surfaces or to elevate the array to promote better cooling. Raised flange standoffs used in place of L-feet, flat top standoffs used in conjunction with L-feet. Both are zinc plated steel, packed with stainless steel bolts, flange nuts and zinc plated lag bolts. The last numeral in the model number denotes the length of the standoff. Bulk packages of twelve are designated with a -12 in the model number.

Raised Flange	Weight lb.	MSRP	Flat Top	Weight lb.	MSRP
STR3	1.5	$18.00	STF3	1.5	$17.00
STR3-12	28	$192.00	STF3-12	18	$180.00
STR4	1.5	$18.50	STF4	1.5	$17.50
STR4-12	30	$198.00	STF4-12	20	$186.00
STR6	2.0	$19.00	STF6	2.0	$18.00
STR6-12	40	$204.00	STF6-12	24	$192.00
STR7	2.0	$19.50	STF7	2.0	$18.50
STR7-12	42	$210.00	STF7-12	26	$198.00



No-Calk Collared Flashing

UniRac® Solar Mount Accessories

No-Calk® Collared Flashing

These flashings work with our steel and aluminum standoffs. Soft aluminum standoffs can be molded to fit curved roofing material, such as Spanish tile. 12 flashings per package.

Model	Description	Shipping Weight (lbs)	MSRP
990101	Galvanized, 12 1/2″ x 8 3/4″ base, No-Calk collar	11	$75.50
990102	Aluminum, 12 1/2″ x 8 3/4″ base, No-Calk collar	6	$111.00
990103	Soft aluminum, 18″ x 18″ base, No-Calk collar	12	$158.50

SolarMount High Profile Tilt kit for 48" to 106" rails

SolarMount High Profile Tilt kit for 120" to 180" rails

SolarMount Low Profile Tilt

SolarMount Tilt Leg Kits

Tilt Leg Kits are used to tilt the array to a more optimum angle to enhance overall system performance. These kits feature a quick locking adjustment that makes even seasonal adjustments fast and easy. For Low Profile Adjustable tilt legs choose the correct maximum leg extension for your tilt angle and then the number of kits required from the charts below. Then choose the correct kit from the price list. When using High Profile Adjustable tilt legs the tilt angle depends on the length of the legs and the rails. Order one high profile tilt leg kit for each rail kit. Do not use high profile legs with rails longer than 180" or with splices.

Tilt Angles for Low Profile Legs

In low profile arrays, tilt angle depends on leg length and the location of the module mounting holes. Use this table to choose the appropriate maximum extension for your module and desired tilt angle.

	Low Profile Leg Lengths		
Module	12 in.	30 in.	44 in.
Mitsubishi 110	8-17º	18-45º	26-60º
Sanyo 190/200	8-19º	19-49º	29-60º
Sharp 80	9-20º	21-54º	31-60º
Sharp 123	7-16º	17-43º	25-60º
Sharp 170/175	7-16º	16-41º	24-60º
Sharp 167	8-18º	19-48º	28-60º
Sharp 208	7-15º	16-39º	23-59º
Shell SQ80/85	9-20º	21-54º	31-60º
Shell SQ165	7-15º	16-39º	23-60º
SunWize 85-120	8-17º	18-44º	26-60º

Quantity of Low Profile Adjust. Tilt Legs Required

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

Rail Length in.	Tilt Legs
48 - 106	2
120 -180	3
192 - 216	4
226 - 288	5
300 - 336	6
348 - 408	7
420 - 432	8

Low Profile Tilt Leg Kits

Model Number	Max Leg Extension in.	# Legs	Weight lb	MSRP
310121	12	1	2	$30.00
310122	30	1	3	$37.00
310123	44	1	4	$43.00

Tilt Angles for High Profile Legs

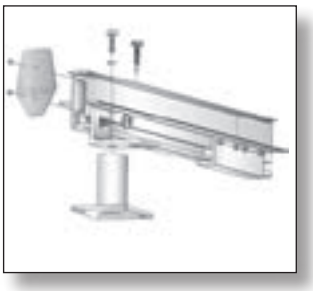
Choose the correct maximum tilt leg extension from this table. Then select the model from the price list. Rails longer than 106" require two legs per rail (TLH4).

Rail Length in.	Maximum length of leg		
	12 in.	44 in.	72 in.
48	10-23º	33-60º	
60	8-18º	26-60º	48-60º
72	7-16º	22-60º	36-60º
84	5-12º	17-47º	28-60º
96	5-11º	16-43º	26-60º
106	4-10º	15-39º	24-60º

Rail Length in.	Maximum length of rear leg		
	18 in.	64 in.	104 in.
120	5-10º	17-38º	27-60º
132	6-10º	17-37º	26-60º
144	6-9º	16-33º	19-43º
156	5-10º	14-30º	22-49º
168	5-7º	13-28º	20-46º
180	3-7º	12-26º	19-43º

High Profile Tilt Leg Kits

Model Number	Max Leg Extension in.	# Legs	Weight lb	MSRP
TLH2-12	12	2	3	$43.00
TLH2-44	44	2	7	$66.00
TLH2-72	72	2	10	$86.00
TLH4-18	18	4	7	$79.00
TLH4-64	64	4	16	$132.00
TLH4-104	104	4	20	$176.00



SunFrame components

UniRac®

SunFrame®

The SunFrame system is the answer when aesthetics is a priority. It is the only PV module mounting system designed to enhance the appearance of the home. The system consists of four major components. Standard length 192" rails to support modules are cut and/or spliced as required. Extruded aluminum rails attach to L-Feet which may be installed directly to asphalt roof surfaces. Full length cap strips secure modules and finish the array leaving a gap-free frame. Self-tapping screws 16" o/c provide holding power. Push-fit end caps neatly finish the rail ends. Optional aluminum or steel standoffs are available in range of heights to support L-feet above tile or shake roofs. All rails, cap strips and L-feet are available in either dark bronze or clear anodized finish. End caps are available in black or silver, stainless steel cap screws are available in black phosphate or bright finish. When installed according to manufacturer's directions, the SunFrame complies with the Uniform and California Building Codes.

Model	Description	Finish	Quantity	Shipping Data Inches	Weight lb.	MSRP
302011	192" threaded slot rail	Bronze	8 ea. 192"	195 x 6 x 8	144	$1,295.00
302012	192" threaded slot rail	Bronze	1 ea. 192" (2 rail min.)	195 x 2 x 3		$178.00
302013	96" threaded slot rail	Bronze	8 ea. 96"	99 x 6 x 8	72	$680.00
302014	96" threaded slot rail	Bronze	1 ea. 96"	99 x 2 x 3	10	$93.50
302015	192" threaded slot rail	Clear	8 ea. 192"	195 x 6 x 8	144	$1,125.00
302016	192" threaded slot rail	Clear	1 ea. 192" (2 rail min.)	195 x 2 x 3		$155.00
302017	96" threaded slot rail	Clear	8 ea. 96"	99 x 6 x 8	72	$590.00
302018	96" threaded slot rail	Clear	1 ea. 96"	99 x 2 x 3	10	$81.00
321129	Cap Strips for Sanyo lipped modules	Bronze	8 ea. 192"	195 x 2 x 3	42	$490.00
321130	Cap Strips for Sanyo lipped modules	Bronze	8 ea. 96"	99 x 2 x 3	23	$260.00
321131	Cap Strips for Sanyo lipped modules	Bronze	1 ea. 96"	99 x 2 x 3	6	$36.00
321105	Cap Strips for Sharp lipped modules	Bronze	8 ea. 192"	195 x 2 x 3	45	$535.00
321122	Cap Strips for Sharp lipped modules	Bronze	8 ea. 96"	99 x 2 x 3	25	$280.00
321123	Cap Strips for Sharp lipped modules	Bronze	1 ea. 96"	99 x 2 x 3	6	$38.50
321126	Cap Strips for 45–47 mm modules	Bronze	8 ea. 192"	195 x 2 x 3	45	$460.00
321127	Cap Strips for 45–47 mm modules	Bronze	8 ea. 96"	99 x 2 x 3	25	$245.00
321128	Cap Strips for 45–47 mm modules	Bronze	1 ea. 96"	99 x 2 x 3	6	$33.75
321109	Cap Strips for 45–47 mm modules	Clear	8 ea. 192"	195 x 2 x 3	45	$385.00
321120	Cap Strips for 45–47 mm modules	Clear	8 ea. 96"	99 x 2 x 3	25	$205.00
321121	Cap Strips for 45–47 mm modules	Clear	1 ea. 96"	99 x 2 x 3	6	$28.50
310226	End Caps with matching screws	Black	20		1	$48.00
310225	End Caps with matching screws	Black	2		1	$5.55
321141	3/4" cap strip screws for Sanyo modules	Black	100 ea.		2	$48.00
321142	1" cap strip screws for Sharp modules	Black	100 ea.		2	$52.00
321145	1" cap strip screws for Sharp modules	Black	10 ea.			$6.00
321148	1" cap strip screws for Sharp modules	Clear	100 ea.		2	$34.00

L-Feet

L-feet for threaded slot rails

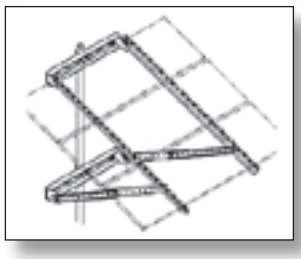
Select fininsh to match rails. Includes s/s bolts and flange nuts. Lag bolts not included.

Model	Description	Shipping Weight (lbs)	MSRP
310065	20 ea., Bronze	5	$79.00
310066	1 ea., Bronze		$4.55
310067	20 ea., Clear	5	$76.00
310068	1 ea., Clear		$4.40

Splice Bars

Splice bars for threaded slot rail

Model	Description	Shipping Weight (lbs)	MSRP
310227	20 ea., Bronze	10	$106.00
310228	1 ea., Bronze	0.5	$6.10
310229	20 ea., Clear	10	$100.00
310230	1 ea., Clear	0.5	$5.75



UniRac Side of Pole Mount

UniRac®

Side-of-Pole Mounts

UniRac mounting structures incorporate a slotted mounting pattern that fits most PV modules on the market and are manufactured of mill finish aluminum to withstand corrosion.
• 120 mph wind load design • PV module mounting hardware and U-Bolts for pole mounting are included • Stainless steel hardware • 1-year limited warranty • Adjustable tilt 15˚ to 60˚

*order 1 extra set of module bolts. ** order 2 extra sets of module bolts.

Solar Module	# of Modules	Pole Size in.	Part #	MSRP
GE50	1	2.5	400107	$120.00
	2	3	400213	$260.00
	3	4	400223	$330.00
Mitsubishi 110	1	2.5	400236	$170.00
	2	3	400214	$280.00
	3	4	400224	$350.00
Sharp 80	1	2.5	400110	$115.00
	2	2.5	400210	$205.00
	3	3	400219	$310.00
	4	4	400226	$355.00
Sharp 123	1	2.5	400236	$170.00
	2	3	400214	$280.00
	3	4	400224	$350.00
Sharp 170/175	1	2.5	400206	$170.00
	2	3	400220	$310.00
	3	4	400231	$375.00
Shell SQ80/85	1	2.5	400101	$112.00
	2	2.5	400211	$200.00
	3	3	400218	$290.00
	4	4	400225	$340.00
SunWize OEM 20/40	2	2	400208	$190.00
SunWize SW85/90	1	2.5	400204	$165.00
	2	3	400212	$270.00
	3	4	400222	$340.00
	4	4	400230*	$375.00
SunWize SW100/ 115/120	1	2.5	400204	$165.00
	2	3	400212	$270.00
	3	4	400222	$340.00
	4	4	400231	$375.00
Suntech 85	1	2.5	400103	$119.00
	2	2.5	400210	$205.00
	3	3	400220	$310.00
	4	4	400226	$355.00
Uni-Solar US 64	1	2.5	400237	$180.00
	2	3	400215**	$290.00
Yingli 80/85	1	2.5	400103	$119.00
	2	2.5	400211	$200.00
	3	3	400218	$290.00
	4	4	400227	$345.00

Zomeworks TrackRack

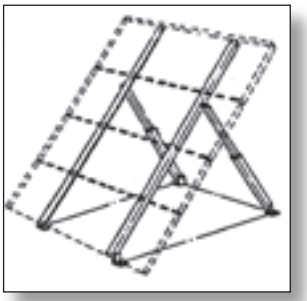
ZOMEWORKS

TrackRack™

Tracking can increase electrical output of modules by 25% over that of a fixed rack. The sun's heat moves liquid from side to side, allowing gravity to turn the Track Rack and follow the sun. The racks are ideal for applications such as water pumping where constant power levels enhance system output. The UTR comes in five standard sizes for holding 2 to 16 modules and accommodates most PV modules. The Zomeworks J Clip™ universal stainless steel, module-mounting clip eliminates the need for module-specific holes and increases the flexibility of each rack model. The numeric values in each model number refer to the square feet of module space on that rack. (i.e. UTRK040 has 40 sq. ft. of module space.) All Zomeworks racks are guaranteed for 10 years.

	Part # –	UTR020	UTRK040	UTRF64	UTRF90	UTRF120
	MSRP –	$606.00	$1,177.00	$1,632.00	$1,846.00	$2.085.00
	Pole Size –	2.5"	3"	6"	6"	6"
Solar Module						
Mitsubishi 110		1	2-3	4-5*	6-8	10-12
Sharp 80		1-2	3-5	6-8	10-12	14-16*
Sharp 123		1	2-3	4-5*	6-8	10-12
Sharp 140		1	2-3	4-5*	6	8-9*
Sharp 167		1	2	4	6	8
Sharp 170/175		1	2	4	6*	7*
Shell SQ80/85		1-2	4	6-8	10-12	14-16*
Suntech 85		1-2	4	6-8	10-12	14-16*
SunWize 85/90/95		1-2	4	6*	8	10-12
SunWize 100/115/120		1-2	4	6*	8	1
Yingli 80/85		1-2	4	6-8	10-12	14-16*
Extra Mounting "J" Clips						$8.50
Extra Set of Rails - Specify UTR or UTRF part number						$231.00

* Denotes that extra set of rails required (see above)



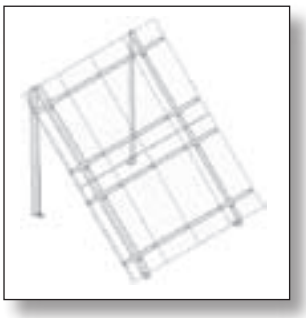
Power-Fab Roof/Ground Mounts

Power-Fab Mounts

Roof/Ground Mounts

Roof/Ground Mounts resemble an "A" frame and accommodate from 1 to 12 modules. The mounts are perfect for ground, roof and vertical surfaces. Racks with telescoping back legs are adjustable from 20 to 65 degrees. Racks with one piece leg have adjustable points at 30, 45 and 60 degrees. All racks are designed to withstand 30-lb/ft2 wind load. Stainless steel module mounting hardware is provided. Anchor bolts are not included.

Standard racks are mill-finish aluminum. For harsh environments, racks are available in anodized aluminum. You must specify which leg you prefer: TL– for telescoping leg or OPL– for a one-piece leg. Prices are for milled aluminum racks with telescoping legs. Add 30% to price for anodized aluminum.



Power-Fab Two-Tier
Roof/Ground Mount

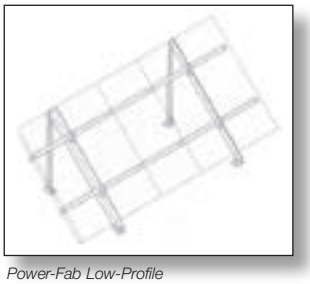
Two Tier Roof/Ground Mounts

Two rows of modules with module length vertical. Standard finish is Mill Aluminum. Optional finish is: Anodized Aluminum (**AA**). You must specify which leg you prefer: **TL** – for telescoping leg or **OPL** – for a one piece leg–at tilt. Prices are for telescoping legs.

Note: Part numbers with "GM" are for Roof/Ground Mounts (landscape orientation), those with "TT" are for Two Tier Mounts (two rows of portrait orientation)

Solar Module	# of Modules	Part #	MSRP
Mitsubishi 110	1	RGMMT1101	$134.00
	2	RGMMT1102	$209.00
	3	RGMMT1103	$284.00
	4	RGMMT1104	$369.00
	6	TTRGMMT1106	$482.00
	8	TTRGMMT1108	$555.00
Sharp 80	1	RGMSH801	$107.00
	2	RGMSH802	$155.00
	4	RGMSH804	$257.00
	6	RGMSH806	$385.00
Sharp 123	1	RGMSH1231	$134.00
	2	RGMSH1232	$209.00
	3	RGMSH1233	$284.00
	4	RGMSH1234	$369.00
	6	TTRGMSH1236	$482.00
	8	TTRGMSH1238	$555.00
Sharp 170/175	6*	TTRGMSH1656	$625.00
	8*	TTRGMSH1658	$728.00
	10*	TTRGMSH16510	$840.00
Sharp 167	6*	TTRGMSH1676	$665.00
	8*	TTRGMSH1678	$770.00
Shell SQ80/85	1	RGMSP751	$107.00
	2	RGMSP752	$155.00
	4	RGMSP754	$257.00
	6*	RGMSP756	$385.00
	8*	TTRGMSP758	$449.00
	10	TTRGMSP7510	$482.00
Shell SQ165	1	RGMSP1401	$155.00
	2	RGMSP1402	$246.00
Shell SQ165	3	RGMSP1403	$332.00
	4*	RGMSP1404	$434.00
	6*	TTRGMSP1406	$625.00
	8*	TTRGMSP1408	$728.00
SunWize SW50/55/60	1	RGMSW601	$107.00
	2	RGMSW602	$155.00
	3	RGMSW603	$193.00
	4	RGMSW604	$257.00
	6*	RGMSW606	$385.00
SunWize SW85/90	1	RGMSW851	$118.00
	2	RGMSW852	$182.00
	3	RGMSW853	$230.00
	4	RGMSW854	$310.00
	5*	RGMSW855	$412.00
	6	TTRGMSW856	$471.00
	8	TTRGMSW858	$503.00
	10	TTRGMSW8510	$589.00
SunWize SW100/115/120	1	RGMSW1151	$123.00
	2	RGMSW1152	$203.00
	3	RGMSW1153	$257.00
	4	RGMSW1154	$358.00
	5*	RGMSW1155	$428.00
	6	TTRGMSW1156	$492.00
	8	TTRGMSW1158	$578.00
	10	TTRGMSW11510	$653.00
Uni-Solar US64	1	RGMUS641	$155.00
	2	RGMUS642	$246.00
	3	RGMUS643	$332.00
	4*	RGMUS644	$433.00
	6	TTRGMUS646	$540.00

* cannot ship via UPS



Power-Fab Low-Profile Roof Ground Mount

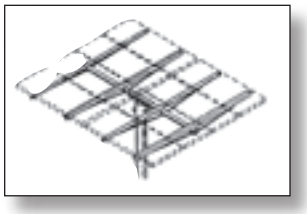
Power-Fab Mounts

Low-Profile Roof/Ground Mount

The module length is vertical and modules are mounted side by side. Standard finish is Mill Aluminum. Optional finish is Anodized Aluminum (AA).

You must specify which leg you prefer: TL– for telescoping leg (adjustable from 20 to 65 degrees) or OPL– for a one-piece leg (with adjustment points of 30, 45 and 60 degrees). Prices are for telescoping legs.

Solar Module	# of Modules	Part #	MSRP
Mitsubishi 110	4	LPRGMMT1104	$390.00
	6	LPRGMMT1106	$482.00
Sharp 123	4	LPRGMSH1234	$390.00
	6	LPRGMSH1236	$482.00
Sharp 170/175	4	LPRGMSH1654	$482.00
Sharp 167	3	LPRGMSH1673	$460.00
	4	LPRGMSH1674	$508.00
	5	LPRGMSH1675	$550.00
Shell SQ80/85	4	LPRGMSP754	$353.00
	6	LPRGMSP756	$428.00
	8	LPRGMSP758	$482.00
SunWize SW85/90	4	LPRGMSW854	$385.00
	6	LPRGMSW856	$482.00
	8	LPRGMSW858	$535.00
SunWize SW100/115/120	4	LPRGMSW1154	$401.00
	6	LPRGMSW1156	$498.00
	8	LPRGMSW1158	$583.00



Top-of-Pole Mounts

Top-of-Pole Mounts are designed with a collar ready to be mounted on a pole. The racks accommodate different size poles and are adjustable for optimal sun angle from 15˚ to 65˚ in 10-degree increments. They can be rotated on the pole for manual tracking. Stainless steel module mounting hardware is included. Anchor bolts and poles are not included. Standard racks have mill-finish aluminum module rails with painted steel pole collar and strong back. Mounts are available in galvanized steel and anodized aluminum.

Solar Module	# of Modules	Pole Size in.	Part #	MSRP
GEPV 50	2	2	TPMAP502	$149.00
	4	3	TPMAP504	$303.00
Mitsubishi 110	1	2	TPMMT1101	$132.00
	2	2.5	TPMMT1102	$255.00
	3	3	TPMMT1103	$295.00
	4	4	TPMMT1104	$460.00
	6	4	TPMMT1106	$595.00
	8	6	TPMMT1108	$835.00
	10*	6	TPMMT11010	$1015.00
Sharp 80	1	2	TPMSH801	$132.00
	2	2	TPMSH802	$142.00
	3	2.5	TPMSH803	$275.00
	4	3	TPMSH804	$295.00
	6	4	TPMSH806	$470.00
	8	4	TPMSH808	$555.00
Sharp 123	1	2	TPMSH1231	$132.00
	2	2.5	TPMSH1232	$255.00
	3	3	TPMSH1233	$295.00
	4	4	TPMSH1234	$460.00
	6	4	TPMSH1236	$595.00
	8	6	TPMSH1238	$835.00
	10	6	TPMSH12310	$1015.00
Sharp 170/175	8	6	TPMSH1658	$1105.00
	10*	8	TPMSH16510	$1375.00
	12*	8	TPMSH16512	$1820.00
Sharp 167	8	6	TPMSH1678	$1160.00
	10*	8	TPMSH16710	$1445.00
	12*	8	STPMSH16712	$1910.00
Shell SQ80/85	1	2	TPMSP751	$132.00
	2	2	TPMSP752	$142.00
	4	3	TPMSP754	$295.00
	6	4	TPMSP756	$470.00
	8	4	TPMSP758	$555.00
Shell 165/175	8	6	TPMSQ1658	$1105.00
	10*	8	TPMSQ16510	$1375.00
	12*	8	TPMSQ16512	$1820.00
SunWize SW50/55/60	1	2	TPMSW601	$132.00
	2	2	TPMSW602	$143.00
	4	3	TPMSW604	$297.00
SunWize SW85/90	1	2	TPMSW851	$137.00
	2	2.5	TPMSW852	$259.00
	4	3	TPMSW854	$352.00
	6	4	TPMSW856	$506.00
	8	6	TPMSW858	$817.00
SunWize SW100/115/120	1	2	TPMSW1151	$140.00
	2	2.5	TPMSW1152	$260.00
	3	3	TPMSW1153	$300.00
	4	4	TPMSW1154	$440.00
	6*	4	TPMSW1156	$598.00
	8	6	TPMSW1158	$835.00
	10	6	TPMSW11510	$1015.00

Electrical Safety

Electrical safety in DC power systems requires special consideration Battery based PV systems have high current circuits and grid-tie PV systems operate at high DC voltages In both cases, the National Electrical Code® (NEC), calls for specialized equipment Switches and disconnects must be DC rated, and in many cases rated for high-voltage DC as well Most commonly available switchgear is rated for AC power and not suitable for installation in a DC electrical system Many manufacturers including OutBack, Xantrex, SMA and Blue Seas have recognized the need for electrical safety gear which is suitable for PV systems In this section of the catalog, we list the switchgear and accessories used by our customers, if you don't see what you need, ask your SunWize sales person for assistance

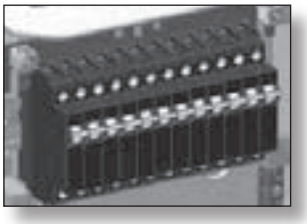
PSPV Combiner Box

OutBack Power Systems

PV Array Combiner

The PSPV Power System PV Array Combiner provides series overcurrent protection of PV module circuits allowing NEC compliant installation. Includes space for up to twelve 150 Vdc rated breakers or eight 600 Vdc rated fuse holders. Includes two positive output bus bars with two #1/0 terminals for single or dual output circuits. The type 3R outdoor rainproof enclosure can be mounted vertically or inclined to 14 degrees. Enclosure only, order breakers or fuses separately.

Model	Dimensions in.	Weight lb.	MSRP
PSPV	13.1 x 9.2 x 3.5	6	$139.00



PSPV PV Array Breakers

PV Array Breakers for PSPV

DIN rail snap-in mount with #2 AWG setscrew type compression terminals. UL listed. Maximum of twelve breakers. Approved for two wires per terminal. Ten-year warranty.

OBPV-6	PV breaker, 6 amp, 150 Vdc	$12.00
OBPV-9	PV breaker, 9 amp, 150 Vdc	$12.00
OBPV-10	PV breaker, 10 amp, 150 Vdc	$12.00
OBPV-15	PV breaker, 15 amp, 150 Vdc	$12.00
OBPV-30	PV breaker, 30 amp, 150 Vdc	$12.00

Fuseholder – 600 Vdc for PSPV – maximum of eight fuses per combiner

USM-1	Single pole for DIN rail mounting. UL listed. Finger-safe touch design, flip-up fuse cartridge for 13/32" x 1.5" fuses. 0.7" x 3" x 2.3"	$15.00

Fuses – 500 Vdc, 13/32" x 1.5" fast acting 100,000A interrupt rating.

ATM6	6 amps	$8.00
ATM10	10 amps	$8.00
ATM15	15 amps	$8.00

PSSB Combiner

PSSB Combiner

Specifically designed to work with Sunny Boy inverter systems. The PSSB allows connection of up to six low voltage sub-arrays in series to form a high voltage PV array. Each sub-array can have a maximum open circuit voltage of 100 Vdc. Includes one segmented 600 Vdc breaker assembly, with space for one additional OBSB-15 or a dual pole AC breaker for the Sunny Boy output. Eliminates the hazards of wiring high voltage PV arrays. Aluminum, raintight, NEMA 3R outdoor enclosure.

Model	Dimensions in.	Weight lbs	MSRP
PSSB	13.1 x 9.2 x 3.5	6	$249.00
	Accessories		
OBSB-15	Segmenting breaker assembly, 6 pole 15A-100V DC/pole		$110.00
PSSB-MP	Mounting Panel for PSSB + Sunny Boy inverter, 34" x 17 x 1"		$99.00

PSDC Enclosure

OutBack Power System DC

PS4DC and PS2DC Enclosures

The PS4DC indoor enclosure is designed to integrate the DC overcurrent protection and wiring needs of inverter/battery, PV charging systems and DC load distribution. Removable side panels allow for direct DC wiring access for up to 4 FX or 2 SW/SWP/DR inverters. The PS4DC includes mounting provisions for up to ten small (0.75" wide) and six medium (1" wide) or four large (1.5" wide) DC breakers. Charge controllers can be installed directly on top of the enclosure, or side-mounted by adding a charge controller bracket (PS4-CCB2).

The PS2DC is designed for one or two FX inverter/chargers. It comes standard with one battery circuit breaker with space for one additional battery breaker and eight 3/4" breakers. Includes mounting brackets for MX60 and MATE.

Both units include one 500A/50mV shunt, battery breaker (except as indicated), one combined ground/negative terminal bus bar and one isolated positive bus bar, 3/4", 1" and 2" knockouts. Forest green powder coated steel. ETL listed.

Model	DC Breaker Amps	Dimensions in.	Weight lb.	MSRP
PS4DC-250	250	32.5 x 15.75 x 8.88	24	$599.00
PS4DC-175	175	32.5 x 15.75 x 8.88	24	$599.00
PS4DC	N/A	32.5 x 15.75 x 8.88	22	$480.00
PS2DC-250	250	18.5 x 11.5 x 9	22	$385.00
PS2DC-175	175	18.5 x 11.5 x 9	22	$385.00
PS2DC	N/A	18.5 x 11.5 x 9	20	$266.00

DC Overcurrent Protection

PS4DC and PS2DC Accessories

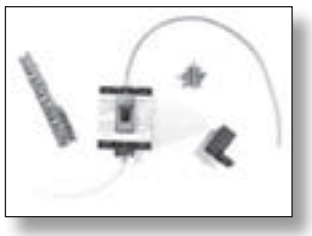
The OutBack 150 Vdc rated circuit breakers are available in a wide range of sizes to serve as either PV input breakers, DC load breakers, or inverter main breakers. Breakers fit into either the OutBack PSR enclosure or the PS4DC/PS2DC enclosure. UL 489 listed.

The DC-GFP/2 ground fault system is required by the NEC® for PV arrays mounted on residential dwelling roofs. It can be used with the PS4DC/PS2DC or PSR. It protects wiring and system components for one or two PV arrays up to 80 amps at 150 Vdc maximum. Requires three small breaker spaces. Includes a ground bus bar, neutral and ground connection wiring and mounting hardware.

The Charge Controller Bracket (PS4-CCB2) allows up to two OutBack MX60 controllers or three Xantrex C-Series to be mounted on either side of the PS4DC enclosure with matching knockouts (up to three MX60, C-series or two RVPP Solar Boost units can be top-mounted on the PS4DC without the PS4-CCB2).

Terminal and Ground Bus Bars are used for adding more wire terminations or for isolating multiple positive/negative circuits. All models have three #1/0 to 14 AWG and eight #6 to 14 AWG compression screw terminals (no ring lugs required).

CCB Bracket (shown mounted on the PSDC)



OBDC – GFP System

Model	Current Rating Amp	AIC Rating	Stud Terminal Size in.	Space Required in.	MSRP
OBDC-250	250	25K at 65 Vdc	3/8 stud	One 1.5	$119.00
OBDC-175	175	25K at 65 Vdc	3/8 stud	One 1.5	$119.00
OBDC-100	100	25K at 65 Vdc	5/16 stud	One 1.0	$59.00
OBDC-60	60	7.5K at 80 Vdc	1/4 stud	One .75	$29.00
OBDC-40	40	7.5K at 80 Vdc	1/4 stud	One .75	$29.00
OBDC-30	30	7.5K at 80 Vdc	1/4 stud	One .75	$25.00
OBDC-20	20	7.5K at 80 Vdc	1/4 stud	One .75	$25.00
OBDC-15	15	7.5K at 80 Vdc	1/4 stud	One .75	$25.00
OBDC-10	10	7.5K at 80 Vdc	1/4 stud	One .75	$25.00
OBDC-GFP/2	NEC Required ground fault system for roof mounted PV arrays				$129.00
PS4-CCB2	Charge Controller Bracket for PS4DC				$49.00
PS2-CCB2	Charge Controller Bracket for PS2DC for 2 - MX60s				$49.00
TBB	Terminal bus bar with black insulators				$19.00
TBB-R	Terminal bus bar with red insulators				$19.00
TBB-W	Terminal bus bar with white insulators				$19.00
GBB	Ground Bus bar - uninsulated				$15.00

GBB Ground Bus Bar

PSAC Enclosure

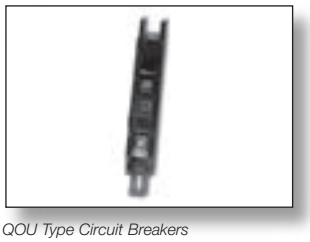
OutBack Power System AC

PS4AC and PS2AC Enclosures

The PS4AC indoor enclosure is designed to integrate the AC overcurrent protection wiring needs of input/output from inverter/generator systems and AC load distribution. Removable side panels allow for direct AC wiring access for up to 4 FX or 2 SW/SWP/DR inverters. The PS4AC houses two brackets with DIN rail mounts for up to 8 Square-D QOU type AC or 13 OBAC breakers on each bracket. PS4AC includes a separate ground bar, isolated neutral and two black and red isolated AC input/output hot buss bars. Space to install an optional X-240 auto transformer. "D" and "Q" models are configured for two and four inverters, with AC input/output bypass breakers.

The PS2AC has the same features as the PS4AC in a smaller package, it is designed to accept up to two OutBack FX inverters. It comes with a dual 50 amp input/output/bypass assembly, dual 50 OBAC only AC input/output breakers, and a 20 amp AC breaker and a side-mounted 15 amp AC receptacle with one 15 amp breaker. Both units are forest green powder coated steel. ETL listed.

Model	Inverter Type	AC Load Breaker	Dimensions in.	Weight lb.	MSRP
PS4AC	Four FX	N/A	32.5 x 10.5 x 8.9	24	$399.00
PS4AC-60-Q	Four FX	60 amp, 120Vac x 4	32.5 x 10.5 x 8.9	26	$649.00
PS4AC-100-Q	Four FX	100 amp, 120Vac x 4	32.5 x 10.5 x 8.9	26	$799.00
PS2AC-50-D	Two FX	50 amp, 120Vac x 2	18.5 x 11.5 x 8.9	22	$385.00



QOU Type Circuit Breakers

Circuit Breakers - Square D 'QOU' type, (fits PS4AC only)

UL listed, Square D single pole 'QOU' breakers feature a 'Visi-trip' indicator and are intended for flush or surface mounting with reversible lugs, or DIN rail mount. Includes mounting feet for convenient panel attachment. Wire lug size accepts #14 to # 2AWG. 3/4" wide single pole.

Outback AC Circuit Breakers

Outback AC Breakers for PS2AC and PS4AC - 'OBAC' type

Hydraulic-Magnetic type. DIN rail "snap-in" mountable. For input/output/load circuits. 1/2" wide.

Model	Current Rating	Pole	MSRP	Model	Current Rating	Pole	MSRP
QOU10	10A	1	$15.00	OBAC-15	15A	1	$15.00
QOU15	15A	1	$15.00	OBAC-15D	15A	2	$35.00
QOU20	20A	1	$15.00	OBAC-20	20A	1	$15.00
QOU30	30A	1	$15.00	OBAC-20D	20A	2	$35.00
QOU40	40A	1	$15.00	OBAC-30	30A	1	$15.00
QOU60	60A	1	$15.00	OBAC-30D	30A	2	$35.00
QOU30-2	30A	2	$35.00	OBAC-50	50A	1	$15.00
QOU60-2	60A	2	$35.00	OBAC-50D	50A	2	$35.00

AC IOB Assemblies

AC Input/Output/Bypass Assemblies - PS4AC

Complete kit with detailed instructions and drawings. Includes safety interlock. Allows bypassing of an inverter for maintenance or repair while maintaining power to AC loads supplied from a generator or utility grid. AC-I0B includes single and 2-pole QOU circuit breakers, safety interlock, wire, mounting screws and service lug. PS4-I0B includes OBAC breakers, interlock and wiring.

Model	Inverter Type	AC Breaker Amp	MSRP	Model	Inverter Type	AC Breaker Amp	MSRP
AC-I0B-30	1 DR	30	$85.00	PS4-I0B-50-3PH	4 FX	50	$299.00
AC-I0B-30D	2 DR	30	$159.00	PS4-I0B-60Q	4 FX	60	$249.00
AC-I0B-60	1 SW/SWP	60	$85.00	PS4-I0B-100Q	4 FX	100	$399.00
AC-I0B-60D	2 SW/SWP	60	$159.00				

PSMP Mounting Plate

PS4MP and PS2MP Mounting Plates

The PS4MP is a two-piece power system mounting plate, pre-drilled, for PS4AC and PS4DC and up to four FX or two SW/SWP or DR inverter/chargers. Split in half for UPS shipping. PS2MP is a one-piece mounting plate for PS2DC and PS2AC and two FX inverters. Includes fasteners.

Model	Dimensions in.	Weight lb.	MSRP
PS4MP	36 x 50 x 1	46	$179.00
PS2MP	20 x 44 x .75	22	$129.00

SMA-America Combi-Switch

SMA-America

Combi-Switch

The new SMA Combi-Switch is designed specifically for the Sunny Boy 6000U but will work with any high-power string inverter system where multiple high voltage PV strings are required. It conveniently combines an external DC disconnect and PV string fusing into a single, compact NEMA 3R enclosure. Up to four PV strings may be landed on individual Touch Safe™ fuse holders. 10 amp 600 Vdc Midget fuses provided. Switch is rated for a max voltage of 600 Vdc and a max continuous current of 32 amps. Input wire size #10-#8 AWG, output wire size #6-#2 AWG. ETL listed to UL 1741.

Model	Dimensions in.	Weight lb.	MSRP
Combi-Switch	15 x 7.75 x 5.75	10	$420.00


Xantrex TCB6 Combiner Box

Xantrex

TCB6 Combiner Box

The TCB6 combiner box makes installing solar arrays simple and code compliant. These devices meet the UL requirements for series fusing of Photovoltaic (PV) modules when connected in parallel to form larger arrays. The combiner box will accommodate six PV input circuits fused at up to 20 amps per circuit. The maximum continuous current rating of the TCB is 100 amps at 12, 24, or 48 Vdc. Fuses are available in 5, 6, 8, 10 and 15 amp sizes. The powder-coated steel NEMA 3R enclosure allows the TCB 6 to be used for either indoor or outdoor applications.

Model	Input Wire Size AWG	Input Fuse Size	Output Wire Size AWG	Dimensions in.	Weight lb.	MSRP
TCB6	6-14	type GBB	2-14	8 x 10 x 3.75	8	$275.00

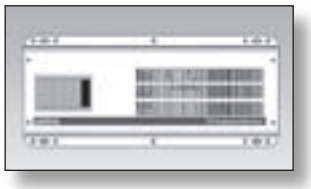
Fuse Model (min. order quantity: 10 fuses)	Current Rating Amps	Dimensions in.	MSRP
PCBF-15	15	0.25 x 1.25	$1.20
PCBF-10	10	0.25 x 1.25	$1.20
PCBF-8	8	0.25 x 1.25	$1.20
PCBF-6	6	0.25 x 1.25	$1.20
PCBF-5	5	0.25 x 1.25	$1.20


Xantrex DC250 Disconnect

DC Disconnects and Accessories

The DC rated circuit breaker/disconnect with indoor enclosure ensures your compliance with NEC and other safety standard requirements. Designed specifically for SW and DR Series inverters and most solar charge controllers for residential and commercial applications. Optional second inverter breaker, grounding/bonding block and circuit breaker allow field customization. ETL listed.

Model	Description	MSRP
DC250	250 amp DC breaker with enclosure	$329.00
DC175	175 amp DC breaker with enclosure	$329.00
GJ250	Additional 250A breaker (field installable) for a second, stacked or unstacked inverter	$195.00
GJ175	Additional 175A breaker (field installable) for a second, stacked or unstacked inverter	$195.00
CD60DC	60A circuit breaker for solar array input disconnect for C40/C60	$39.00
CD15	15A circuit breaker for small DC load - mounts on side of DC disconnect enclosure	$35.00
CD20	20A circuit breaker for small DC load - mounts on side of DC disconnect enclosure	$35.00
DCBB	Negative/ground bonding block - connects up to two #4/0 AWG negative cables and ground system cables	$75.00
TX4K	Transformer, 4.2kVA, 120/240 Vac. Enclosure includes space for five QOU circuit breakers	$750.00
TX6K	Transformer, 6.0kVA, 120/240 Vac. Enclosure includes space for five QOU circuit breakers	$800.00


TX4K Auto Transformer


250V Safety Switch

Safety Switches – 120/240 VAC

General duty UL listed safety disconnect switches are rainproof NEMA 3R with external lockable switch handle and door. These safety switches serve as service disconnects (non-fusible) and overcurrent devices (fusible) for 120/240 VAC systems. Fusible switches include factory installed, neutral assembly. Nonfusible switches do not include neutral assembly. Switches include main lugs and ground screw. 3R switches accept top bolt-on hubs.

Model	# Poles	Rated Current (amps)	Wire Size	Dimensions (in.)	Weight lb.	MSRP
Fusible						
D221NRB	2	30	#14-6AWG	10 x 7.3 x 3.8	6.0	$79.00
D321NRB	3	30	#14-6AWG	10 x 7.3 x 3.8	6.0	$124.00
D222NRB	2	60	#14-2AWG	14.8 x 6.7 x 5	11.0	$137.00
D322NRB	3	60	#14-2AWG	14.8 x 6.7 x 5	15.0	$189.00
D223NRB	2	100	#14-1/0AWG	17.5 x 8.5 x 6.5	17.0	$199.00
Non-Fusible						
DU221RB	2	30	#14-6AWG	10 x 7.3 x 3.8	6.0	$69.00
DU222RB	2	60	#14-2AWG	14.8 x 6.7 x 5	6.0	$149.00
DU322RB	3	60	#14-2AWG	14.8 x 6.7 x 5	11.0	$165.00
PK3GTA1 - Neutral/grounding kit						$10.00


Class R Fuse

Fuses - Class R

UL listed 125Vdc/250Vac dual, element-time delay type fuse for use in general duty safety switches. 20,000 AIC interrupt rating.

Model	Rated Current (amps)	Dimensions (in.)	MSRP
TR20R	20	0.56 diam. x 2.0	$5.00
TR30R	30	0.56 diam. x 2.0	$5.00
TR40R	40	0.81 diam. x 3.0	$7.00
TR50R	50	0.81 diam. x 3.0	$7.00
TR60R	60	0.81 diam. x 3.0	$7.00
FRNR-80	80	1.06 diam. x 5.88	$20.00
FRNR-100	100	1.06 diam. x 5.88	$20.00


B075 Bolt-On Hub

Bolt–On Hubs

Rainproof bolt-on hubs for use on NEMA 3R safety switches.

Model	Conduit Size	MSRP	Model	Conduit Size	MSRP
B075	.75”	$16.00	B125	1.25”	$16.00
B100	1”	$16.00	B150	1.5”	$16.00


600V Safety Switch

Safety Switches – 600V AC-DC

Heavy duty UL listed safety disconnect switches are offered fusible and non-fusible, indoor or outdoor, with external lockable handle and door. Service disconnect for AC or DC systems rated to 600 volts. 3R switches accept top bolt-on hubs. See pg.88 for solid neutral kit.

Model	# Poles	NEMA	Rated Current (amps)	Wire Size	Dimensions (in.)	Weight lb.	MSRP
Fusible							
H361	3	1 (indoor)	30	#14-6AWG	14.9 x 6.7 x 5	10	$240.00
H361RB	3	3R (outdoor)	30	#14-6AWG	14.9 x 6.7 x 5	10	$409.00
Non-Fusible							
HU361	3	1	30	#14-6AWG	14.9 x 6.7 x 5	10	$119.00
HU361RB	3	3R	30	#14-6AWG	14.9 x 6.7 x 5	10	$199.00
HU362RB	3	3R	60	#14-2AWG	14.9 x 6.7 x 5	15	$349.00
HU363	3	1	100	#14-1/0AWG	21.3 x 8.5 x 6.5	18	$399.00


600V AC/DC Fuse

Fuses- High Voltage AC/DC

For use with heavy duty fusible safety switches, 13/16” diameter x 5”.

Model	Rated Current (amps)	Max DC Voltage	Dimensions (in.)	MSRP
TRS12R	12	600	5 x 13/16	$12.50
A6Y15	15	500	5 x 13/16	$25.50

'SEA' Fuse Block

'SEA' Fuse Block System

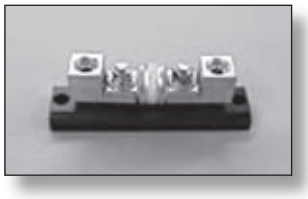
The most economical system for 100-300 ampere fusing for use with 12/24V DC systems. Features red glass filled nylon base with 5/16" non-ferrous studs supplied with two protective terminal boots for wiring up to #2/0 AWG.

Model	Dimensions in.	Weight lb.	MSRP
5001	1.25 x 4.0	0.29	$23.50

'SEA' Fuses

'SEA' Fuses **–** For 12/24 Vdc systems. Interrupt capacity 2000 Amps.

Model	Current Rating Amp	Dimensions in.	Weight lb.	MSRP
5103	150	0.75 x 2.70	0.06	$9.00
5105	200	0.75 x 2.70	0.06	$9.00
5107	250	0.75 x 2.70	0.06	$9.00
5108	300	0.75 x 2.70	0.06	$9.00



Powerhouse Fuse Blocks

Powerhouse Fuse Blocks – Class T

Powerhouse inverter fuse blocks provide safe and reliable overcurrent protection for DC loads connected to battery systems of 12, 24 or 48Vdc. This 'one size fits all' fuse block holds Class T fuses (sold separately) from 100 to 400 amps and includes heavy-duty set screw lugs for up to #4/0 cable with a removable protective cover.

Model	Dimensions in.	Weight lb.	MSRP
PH-FB	6.4 x 1.7 x 3.1	0.4	$35.00

Class T Fuse

Class T Fuses

For use on Powerhouse fuse blocks, rated 160Vdc max. UL rated for DC service. Fast short-circuit response.

Model	Current Rating Amp	Dimensions in.	Weight lb.	MSRP
5112	110	1.06 x 2.44	0.19	$21.00
5116	200	1.06 x 2.44	0.19	$21.00
5119	300	1.31 x 2.75	0.29	$36.00
5121	400	1.31 x 2.75	0.29	$36.00

AC/DC Circuit Breakers

Toggle Circuit Breakers-AC/DC

Toggle circuit breakers combine switching and circuit protection needs for 12/24/48 Vdc systems. Typically used for DC charge or load circuits rated 65 Vdc/277V AC max. All are single pole magnetic action in a phenolic case with screw terminals Compact size allows for less area consumed on DC panel assemblies 0.75" x 2", toggle is red color. UL, CE recognized.

Model	Current Rating Amp	Weight lb.	MSRP
7205	10	0.17	$17.50
7209	15	0.17	$17.50
7213	20	0.17	$17.50
7221	30	0.17	$17.50
7225	40	0.17	$17.50
7229	50	0.17	$17.50

Mounting Panel – Toggle Breakers

Attractive dark aluminum 1/8" panels hold one or two toggle type breakers or panel switches.

Model	Dimensions in.	Weight lb.	MSRP
8072 for one breaker	2.63 x 3.75	0.08	$18.00
8173 for two breakers	2.63 x 3.75	0.08	$22.50
8035 circuit breaker screws (6 pk) – flat head, black to match panel			$2.25

Lightning Arrestor shown with top mount bracket (l) and side mount bracket (r).

Lightning Arrestors

Silicon Oxide Varistor (SOV) lightning surge arrestors can handle high current surges that are too large for an MOV or capacitor. They provide protection to electrical equipment by reducing problems due to lightning strikes or power surges. Surge arrestors react in as little as five nanoseconds and begin to conduct when voltage rises above the nominal line voltage after a specific time delay and handle an unlimited number of surges. The waterproof case is designed to install into a 1/2" knockout opening. Includes 18" long #12AWG wires. UL listed.

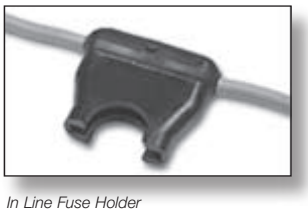
Model	Description	Rated Voltage	Dimensions in.	Weight lb.	MSRP
LA302DC	DC Arrestor	up to 250Vdc	2.25 diam. x 2.25	1	$40.00
LA602DC	DC Arrestor	up to 600Vdc	2.25 diam. x 4.50	1	$40.00
LA302R	AC Arrestor	up to 300Vac	2.25 diam. x 2.25	1	$36.00
510LAMOUNT	Side mount bracket for DC or AC Arrestor			.25	$3.00
510LASQDMOUNT	Top mount bracket for DC or AC Arrestor			.25	$9.00

5025 Fuse Block

Fuse Block System - ATO/ATC

This fuse block system features a stylish, clear insulating cover that protects conductive parts and includes label recess for marking. Tin-plated copper buses allow 30 amp fuse rating per circuit, 100A max rating per block. Two styles -6 circuit with/without NEG bus, less fuses.

Model	Description	Dimensions	MSRP
5025	6 circuit W/ Neg. bus	2.0" x 6.0"	$35.75
5028	6 circuit	2.0" x 4.0"	$31.25



In Line Fuse Holder

Fuse Holder – In Line , ATO/ATC

For direct in line wiring for one type ATO/ATC fuse holder rated 30A max, with 4" #12AWG lead wires.

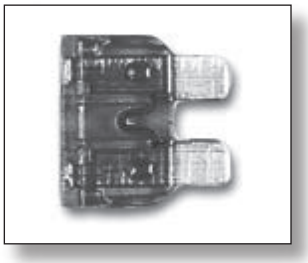
Model	Description	MSRP
46021	Fuse Holder	$2.50
46019	Fuse Cover Clear	$1.25

Water Resistant Fuse Holder

Fuse Holder – Water Resistant ATO/ATC

Sealed, weather resistant body and cap with mounting tab for one type ATO/ATC fuse, rated 30 amp max. with 8" x #12AWG lead wires.

Model	Description	MSRP
46033	Water Resistant Fuse Holder	$5.00



Blade Type Fuse

Fuses – Blade Type ATO/ATC

Automotive standard 1/4" blade fuses for use in marine, RV and other systems with 12/24V DC circuits (32V max).

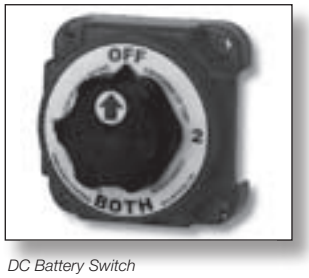
Model	Current Rating Amp	Color	MSRP
ATO-1	1	black	$0.30
ATO-3	3	violet	$0.30
ATO-5	5	tan	$0.30
ATO-7.5	7.5	brown	$0.30
ATO-10	10	red	$0.30
ATO-15	15	lt. blue	$0.35
ATO-20	20	yellow	$0.35
ATO-25	25	natural	$0.35
ATO-30	30	lt. Green	$0.35

Digital Multi Meter Assembly

Digital Multi-Meter – 5 DC Circuit Breaker Panel Assembly

This DC digital multi-meter displays voltage to 60 Vdc and amperes to 500A. Includes shunt, high and low voltage alarms, and a 3 position switch for multiple battery banks, positive and negative and ground buses, five - 15 amp, 65Vdc circuit breakers are pre-wired for load distribution with 30 common DC load labels. Gray powder coated 1/8" aluminum panel.

Model	Dimensions in.	Weight lb.	MSRP
8401	7.50 x 5.25	3.45	$425.00



DC Battery Switch

DC Battery Switch

UL listed to 32 Vdc, these compact, high-amperage, vapor-proof rotary on/off switches allow a means of disconnection between battery systems and DC loads up to 300 amps continuous rating (400A intermittent). Rugged molded Lexan® case design allows flush or surface mounting. Model 9001 allows switching from or combining two separate battery banks.

Model	Dimensions	Description	MSRP
9003	4.0" x 4.0" x 2.7"	ON/OFF	$35.00
9001	4.0" x 4.0" x 2.7"	OFF, #1, #2, BOTH	$37.00

Mini-Battery Switch

Mini-Battery Switch

Vapor proof case design and small size allows compact installations for indoor or outdoor use. For use with 12/24 Vdc battery systems, includes color-coded label with international ON-OFF symbols. Contoured knob rotates 360 degrees for ease of operation. Rated 250 amps continuous, 600A surge, with 3/8" stud terminals.

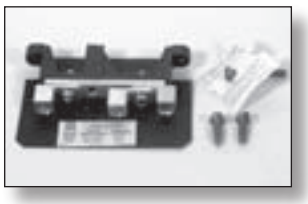
Model	Dimensions in.	MSRP
6006	2.7 x 2.7	$27.00

Waterproof DC Circuit Breaker

DC Circuit Breaker – Waterproof

Weatherproof, vapor proof DC circuit breaker combines switching and circuit protection function into one unit. Useful with 12/24/48V DC battery systems, this panel-mount, switchable, manual reset thermal breaker meets SAE marine & ignition standards. Designed to trip on fault current even if lever is held 'ON'. High torque 5/16" studs accept up to # 2/0 AWG cables. Smaller sizes available see price list or call Sunwize for more information

Model	Current Rating Amp	Dimensions in.	Weight lb.	MSRP
7109	30A	2.3 x 3.4 x 1.8	0.50	$47.00
7100	50A	2.3 x 3.4 x 1.8	0.50	$47.00
7102	100A	2.3 x 3.4 x 1.8	0.50	$47.00
7104	150A	2.3 x 3.4 x 1.8	0.50	$47.00



Solid Neutral Kit

Solid Neutral Kit

Isolated solid neutral bus contains three AL. lugs for # 3-14AWG. Field installable for use with heavy-duty 600V disconnect switches.

Model	Weight (lbs)	MSRP
SN03	1	$29.00

SW MIC Cable Assemblies

SunWize®

Module Interconnects – Cable Assemblies (MIC)

Module interconnect cables are used to wire modules to adjacent modules. Two conductor cables with #10AWG, red/black insulated, THHN stranded copper wires, can be used for series or parallel connection of 12, 24 and 48 Vdc systems. Designed for easy installation to all junction boxes, these cables (rated 90˚C, 600 volt) feature sunlight-resistant, PVC jacketed cable with two liquid-tight cord connectors for 1/2" NPT openings. The cable jacketing is removed 3" from each end, exposing un-terminated wires.

AWG-Conductors x Length	For PV module(s)	MSRP
MIC #10-2 x 23"	OEM20/40	$12.50
MIC #10-2 x 29"	SQ-80/85-P, SW50/55/60, SH80	$13.00
MIC #10-2 x 33"	GEPV50, SW85/90/100/115/120, SH123	$13.50
MIC #10-2 x 35"	US64	$13.75
MIC #10-2 x 39"	SQ165/175-PC	$14.00

SunWize LT Conduit Assemblies

Module Interconnects – Liquid Tight Conduit Assemblies (LT)

Liquid-tight conduit assemblies provide supplemental protection for individual wiring conductors between adjacent PV modules. In high-voltage installations, they may be required to satisfy the NEC. Standard assemblies include two #10AWG THHN conductors (rated 90˚C, 600 volt), red/black, contained within 1/2" flexible non-metallic conduit with gray PVC straight fittings and locknuts.

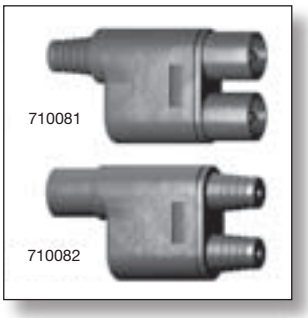
AWG-Conductors x Length	For PV module(s)	MSRP
MIC-LT #10-2 x 23"	OEM20/40	$18.00
MIC-LT #10-2 x 28"	SQ-80/85-P, SW50/55/60, SH80	$18.25
MIC-LT #10-2 x 33"	GEPV50, SW85/90/100/115/120, SH123	$18.75
MIC-LT #10-2 x 35"	US64	$19.25
MIC-LT #10-2 x 39"	SQ165/175-PC	$19.50

SW MC Cable Assemblies

Module Interconnects – MC® Cable Assemblies (Multi-Contact cables)

SunWize MC cables are assembled with automatic tooling for the highest degree of reliability. Used as module interconnects or output leads, SunWize UL listed MC cables are available with male or female fittings on one end (specify M or F). Each cable includes MC connector, 1/2"non-metallic cord connector with a #10AWG type 'USE' 600 V rated outdoor black wire. The type MC-M/F have a male fitting on one end and female on the other - no cord connector. Can be installed on conventional solar module junction box for 'plug n play' interconnection or added to solar modules with existing MC connectors for extended distances.

Branch plugs and sockets are used for a safe and reliable parallel connection of PV modules.



SW MC Branch Connectors

Model	Fitting Type	Length (in.)	MSRP
MC#10 - 24	M or F	24	$14.75
MC#10 - 36	M or F	36	$15.50
MC#10 - 48	M or F	48	$16.25
MC#10 - 72	M or F	72	$17.75
MC#10 - 120	M or F	120	$21.75
MC#10 - 240	M or F	240	$30.25
MC#10 - 360	M or F	360	$40.50
MC#10 - 420	M or F	420	$48.25
MC#10 - 36M/F	M and F	36	$18.50
MC#10 - 360M/F	M and F	360	$42.75
MC#10 - 600M/F	M and F	600	$58.50
MC#10 - 1200M/F	M and F	1200	$103.75
710081 connector - Branch w/male plug			$25.50
710082 connector - Branch w/female socket			$25.50

Module Interconnects

SunWize

Module Output Cables

Module Output Cables are used for connection from the solar array to the controller or PV combiner assemblies. Cables are sunlight-resistant, PVC tray cable and direct burial with red/black THHN conductors (rated 90˚ C, 600 volt). All are cut to length and outfitted with two strain-relief cord connectors for 1/2" NPT, one end terminated for connection into PV junction box, #10 AWG with fork terminals, #8-6AWG with copper lugs.

	MSRP	MSRP	MSRP	MSRP
AWG-Conductors	10FT	20FT	30FT	50 FT
#10-2	$25.25	$35.75	$47.00	————
#8-2	68.00	$93.50	$119.00	$159.00
#6-2	$80.50	$112.00	$143.00	$205.00

Electrical/Wire & Cable

SunWize USE-2 Wire

Service Entrance, USE-2, or RHH/RHW-2

General purpose wiring, suitable for power and control circuits in residential and commercial buildings, industrial plants, meters and utility substations. Suitable for outdoor, raceway or direct burial use. Single conductor 7-strand copper with XLP insulation. Rated 600 volts, 90˚C wet/dry. Minimum order 100 ft.

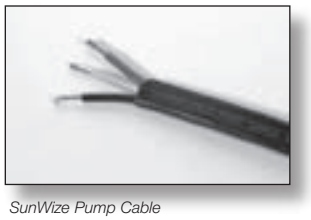
AWG / Color	O.D. in.	Weight lb./1000ft	Ampacity (75˚C)	MSRP
#12USE Red	0.19	31	30	$0.50 per ft.
#12USE Black	0.19	31	30	$0.50 per ft.
#10USE Red	0.21	45	40	$0.90 per ft.
#10USE Black	0.21	45	40	$0.90 per ft.
#10USE White	0.21	45	40	$0.90 per ft.
#10USE Green	0.21	45	40	$0.90 per ft.
#8USE Red	0.27	72	55	$1.20 per ft.
#8USE Black	0.27	72	55	$1.20 per ft.
#6USE Red	0.31	107	75	$1.90 per ft.
#6USE Black	0.31	107	75	$1.90 per ft.

SunWize Tray Cable

Tray Cable

Designed for power & control, traffic control, switching, lighting and signal transmission. May be used in Class 1, Div. 2 locations. Stranded copper conductors are THHN insulated with overall black PVC jacket. UL listed, sunlight resistant, direct burial or cable trays, 90˚C, 600 volts. Two conductor cables are red/black, oval construction, #8 & #6 AWG cables are round. Minimum order 100 ft.

AWG / Conductor	O.D. in.	Weight lb./1000ft	Ampacity	MSRP
#18/2 TC	0.18 x 0.28	41	14	$0.32 per ft.
#16/2 TC	0.20 x 0.33	49	18	$0.34 per ft.
#14/2 TC	0.21 x 0.32	64	25	$0.48 per ft.
#12/2 TC	0.23 x 0.36	83	30	$0.53 per ft.
#10/2 TC	0.26 x 0.43	120	40	$0.93 per ft.
#8/2 TC	0.56	220	55	$2.15 per ft.
#6/2 TC	0.63	310	75	$2.80 per ft.



SunWize Pump Cable

Pump Cable-Submersible

For use with submersible pumps in power and control circuits, stranded copper conductors with EPR insulation, color-coded red/black/yellow and overall PVC jacket. Flat construction, rated 90˚C, 600 volts. (W/G = with ground).

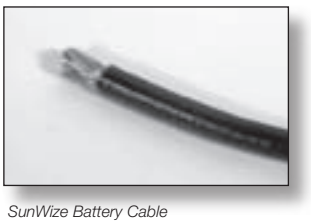
AWG	Dimensions in.	Weight lb./1000ft.	MSRP per ft.
#10/2 SUB	0.56 x 0.31	180	$1.50
#10/2 SUB W/Gnd	0.63 x 0.31	232	$1.70
#8/2 SUB W/Gnd	0.88 x 0.38	346	$2.29

SunWize Splice Kit

Splice Kits – Pump Cable

Waterproof heat shrink kit includes copper, crimp type, brazed-seam butt connectors, 3/8" conductor, insulation shrink tubing and overall 1" cable jacket heat-shrinkable tubing. Both tubings have inner melt wall adhesive.

Model	# Conductors x AWG	MSRP
SPLK-14	2 X #14	$14.00
SPLK-10	3 x #10	$18.00
SPLK-8	4 x #8	$24.00
SPLK-6	4 x #6	$28.00



SunWize Battery Cable

Battery Cable – UL

Recommended for hard service use. Suitable for connecting to battery or inverter systems. CSA type AWM/TEW, 105˚C, UL listed type MTW 90˚C, 600 volts, single conductor stranded copper with black PVC insulation. Minimum order 100 ft.

AWG	O.D. in.	Weight lb./1000ft	Stranding	MSRP per ft.
2/0	0.58	496	1320 x 0.010	$9.25
4/0	0.69	760	2090 x 0.010	$14.30

SunWize Ground Wire

Ground Wire

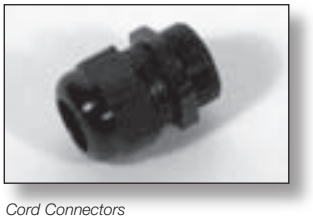
Bare-twisted, 7-strand medium hard drawn copper wire used for grounding connections. Minimum order 100 ft.

AWG	O.D.	Weight (lbs/1000ft)	MSRP
#8 Bare	0.15"	51	$0.66 per ft.
#6 Bare	0.19"	81	$1.05 per ft.

Grounding Rod Kit

The grounding kit includes 5/8" x 8' copper clad steel ground rod, acorn fitting, coupling and #2 copper lug.

Item	MSRP
Grounding Kit	$49.00



Cord Connectors

Fittings

Cord Connectors

Weather-resistant, liquid-tight cable strain relief fittings are black nylon with flexible rubber bushing that allows for flat or round cables. Used for cable entry connection to junction boxes or enclosures. Without locknuts.

Size	Cable Diameter in.	MSRP
1/2NPT	0.23 - 0.55	$1.75
1/2NPT	0.50 - 0.75	$14.80
3/4NPT	0.19 - 0.40	$16.00
3/4NPT	0.45 - 0.70	$8.75

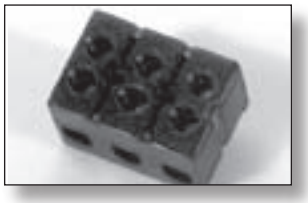
Euro-Style Terminal Block

Terminal Blocks

Euro-Style Terminal Block

Euro-Style terminal blocks feature a finger-safe screw terminal design and are rated 600Vac/DC. The nylon body meets insulating requirements without use of an external cover. Dual row screw and pressure plate combination accepts stripped wire without need for crimp-on terminals. A mounting hole is located between each terminal post, supplied in 12 positions and is easily cut for fewer connections.

Model	Wire Range	Mtg. Screw Size	Max Amp Rating	Dimensions in.	Weight lb.	MSRP
2812	#12-18	#4	27	0.80 x 4.61	0.12	$7.50
2912	#8-14	#6	40	0.90 X 5.50	0.25	$12.90



Dead Front Terminal Block

Dead Front Terminal Block

This heavy-duty black molded phenolic, dual row terminal block features a finger-safe design with tin plated brass pressure screw connections into an aluminum barrel. Supplied three position only. UL rated 600Vac/DC.

Model	Wire Size	Mtg Screw Size	Max Amp Rating	Dimensions in.	Weight lb.	MSRP
9-85-3	#4-14 AWG	#8	85	1.25 x 1.80	.027	$18.00

Power Post Cable Connector

Power Post Cable Connector

Sturdy glass reinforced nylon base supports a 1” tall stainless steel 5/16”-18 stud. Connects high amperage cables securely to common post. Can stack multiple terminals. Rated 48Vdc.

Model	Size in.	Mtg. Screw Size in.	MSRP
2002	1.75 x 3.0	1/4	$14.75

Power Distribution Block

Power Distribution Terminal Block

This terminal block allows a main conductor to be tapped with multiple conductors, useful for combining circuits. Set screw-type, aluminum lug mounted into an insulating phenolic holder.

Model	AWG main (qty)	AWG tap	Dimensions in.	Weight lb.	MSRP
PDB1-1	#2/0-14 (1)	#2/0-14 (1)	1.0” X 2.88”	0.25	$13.00
PDB1-4	#2/0-14 (1)	#8-14 (4)	1.0” X 2.88”	0.25	$19.00
PDB1-6	#2/0-12 (1)	#4-14 (6)	1.75” X 4.00”	1.25	$40.00

Common Bus Bar Terminal

Common Bus Bar Terminal

The stud type, 4 position terminal design allows for common bus connections of positive or negative DC circuits, rated for 48Vdc. Tin plated copper bus bar is mounted to an isolated phenolic base with recessed #10 mounting screw holes. Stainless steel studs allow high torque connections.

Model	Amp Rating	Stud Size	Dimensions in.	Weight lb.	MSRP
2305	100	#10	0.88 x 4.20	0.15	$12.60
2303	150	1/4”	1.25 x 6.10	0.34	$20.20
2106	250	5/16”	1.50 x 7.9	0.60	$41.50
2104	600	3/8”	2.00 x 7.00	1.71	$83.90

SunWize®
Reliable People ::: Reliable Products ::: Reliable Power!

Wiring Reference Guide

When additional wiring is needed, refer to the following charts to determine correct sizing. Selecting the correct size and type of wire will enhance the performance and reliability of your PV system. The size of the wire must be large enough to carry the maximum current expected without undue voltage losses. All wire has a certain amount of resistance to the flow of current. This resistance causes a drop in the voltage from the source to the load. Voltage drops cause inefficiencies, especially in low voltage systems (12V or less). There are several different types of wire available depending on how and where it will be used. For example, there are wire types designed for resistance to sunlight exposure, high temperatures and direct burial. Specify wiring that will withstand the worst conditions.

The wire sizing guide below provides the minimum wire size needed to limit voltage drops to 5% at a given distance in a 12V or 24V system. If you want to limit your losses to 2%, simply divide the distance by 2.5. For a 48V system, multiply the distance taken from the 24V chart by 2. The dashes represent currents which cannot be handled by the wire size.

How charts work

1. — On the left, locate the current you will be dealing with (either array or load current.) 2. — Move across to locate distance to be traveled. 3. — Move up to locate size of wire to be used.

Wire Sizing Chart 12 Volt System

Maximum one-way distance (feet) for 5% voltage loss in 12 volt systems. Wire Size (AWG)

Amps	14	12	10	8	6	4	2	1	0	00	000	0000
1	106	169	269	427	679	1080	1717	2166	2730	3444	4342	5475
2	53	85	134	214	340	540	859	1083	1365	1722	2171	2738
4	27	42	67	107	170	270	429	542	682	861	1086	1369
6	18	28	45	71	113	180	286	361	455	574	724	913
8	13	21	34	53	85	135	215	271	341	430	543	684
10	11	17	27	43	68	108	172	217	273	344	434	548
15	7	11	18	28	45	72	114	144	182	230	289	365
20	–	8	13	21	34	54	86	108	136	172	217	274
25	–	–	11	17	27	43	69	87	109	138	174	219
30	–	–	9	14	23	36	57	72	91	115	145	183
35	–	–	–	12	19	31	49	62	78	98	124	156
40	–	–	–	–	17	27	43	54	68	86	109	137
45	–	–	–	–	15	24	38	48	61	77	96	122
50	–	–	–	–	14	22	34	43	55	69	87	110

Wire Sizing Chart 24 Volt System

Maximum one-way distance (feet) for 5% voltage loss in 24 volt systems. Wire Size (AWG)

Amps	14	12	10	8	6	4	2	1	0	00	000	0000
1	213	338	537	854	1359	2160	3434	4332	5460	6887	8684	10951
2	106	169	269	427	679	1080	1717	2166	2730	3444	4342	5475
4	53	85	134	214	340	540	859	1083	1365	1722	2171	2738
6	35	56	90	142	226	360	572	722	910	1148	1447	1825
8	27	42	67	107	170	270	429	542	682	861	1086	1369
10	21	34	54	85	136	216	343	433	546	689	868	1095
15	14	23	36	57	91	144	229	289	364	459	579	730
20	–	17	27	43	68	108	172	217	273	344	434	548
25	–	–	21	34	54	86	137	173	218	275	347	438
30	–	–	18	28	45	72	114	144	182	230	289	365
35	–	–	–	24	39	62	98	124	156	197	248	313
40	–	–	–	–	34	54	86	108	136	172	217	274
45	–	–	–	–	30	48	76	96	121	153	193	243
50	–	–	–	–	27	43	69	87	109	138	174	219

Hardware Kits

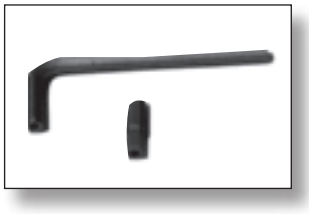
Fasteners are type 316 fully threaded, stainless steel, hex head bolts including flat and lock washers and full hex nuts. All are packaged in bag kits with the quantity of bolts noted.

Model	Description	Bolt Size	Bolt Qty	Weight lb.	MSRP
HK-1/4"	Module Hardware Kit	1/4"-20 x 3/4"	4	0.13	$2.25 (4 pk)
HK-3/8"	Medium Hardware Kit	3/8"-16 x 1"	8	0.77	$8.00 (8 pk)
HK-1/2"	Large Hardware Kit	1/2"-13 x 1.5"	8	1.70	$14.50 (8 pk)

Security Hardware Kits

Tamperproof fasteners are 18-8 stainless steel and employ a special head design requiring a special tool. Button head screws are pin-in hex drive and cannot be removed with conventional tools. Each bolt includes flat washers and a nylon-locking hex nut requiring two tools for assembly.

Model	Description	Bolt Size	Bolt Qty	Weight lb.	MSRP
SHK-1/4"	Module Security Hardware Kit	1/4"-20 x 3/4"	4	0.15	$4.25 (4 pk)
SHK-3/8"	Medium Security Hardware Kit	3/8"-16 x 1"	8	0.80	$15.00 (8 pk)



Security Hardware Tools

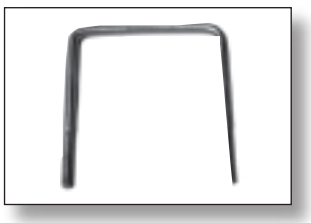
Hardened steel 1/4" hex bits for cordless drills and hand drivers or 'L' keys for tight locations, both for pin-in-hex drive screws.

Model/Hex Size	Screw Size	MSRP
Hex bit-5/32"	1/4" -20	$7.15
Hex bit-7/32"	3/8"-16	$7.15
'L' key-5/32"	1/4"-20	$5.00
'L' key-7/32"	3/8"-16	$7.15

U-Bolts

3/8"-16 stainless steel U-bolts are packaged in pairs including hex nuts, flat and lock washers.

Model/ Nom. Pipe Size in.	Width Between Legs in.	Bolt Length in.	Weight lb.	MSRP
U Bolt 2	2.5	3.12	0.50	$12.00
U Bolt 2-1/2	3.0	3.63	0.60	$15.75
U Bolt 3	3.5	4.12	0.80	$17.25
U Bolt 3-1/2	4.0	5.12	0.90	$19.25
U Bolt 4	4.5	6.0	1.20	$23.00



Square Bolts 5"

304 stainless steel square bolt is used mostly for enclosure attachment to 5" square lighting poles.

Model	Length in.	Thread Size	Weight lb.	MSRP
5" Square Bolt	6	3/8"-16	1.0	$23.50
6" Square Bolt	7	1/2" -13	1.0	$34.50

Pipe Clamps

Two piece, electro-galvanized, steel clamps are used for strong attachments of the strut channel to poles.

Model/Nominal Pipe Size in.	Design Load lb.	Gauge	Weight lb.	MSRP
Pipe Clamp 2	800	12	0.34	$4.50
Pipe Clamp 2.5	800	12	0.40	$4.75
Pipe Clamp 3	800	12	0.47	$3.00
Pipe Clamp 4	1000	11	0.67	$7.20
Pipe Clamp 6	1000	10	1.0	$13.50

Strut Channel-Aluminum

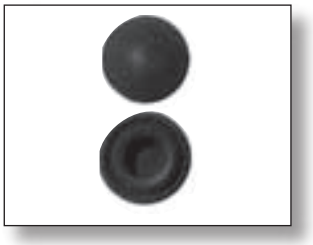
Extruded 1.63” sq. x 0.105” wall, 40” long aluminum strut channel can easily be cut and fits all types of strut clamps & nuts.

Model	Size	Weight lb.	MSRP
Strut Channel	1.63” sq. x 40” long	2.20	$22.00

Channel Nuts

Electro-galvanized steel nuts for 1-5/8” channels lock in place when fastened to strut-channel.

Model	Machine Screw Size	Weight lb.	MSRP
Channel Nut 1/4”	1/4”-20UNC	0.07	$0.75
Channel Nut 3/8”	3/8”-16UNC	0.09	$1.90



Hole Plugs- Enclosure

Rubber plugs form a liquid tight seal and fit standard NPT knockout sizes. For outdoor use.

Model/NPT Size	MSRP
Hole Plug 1/2”	$1.00
Hole Plug 3/4”	$3.10
Hole Plug 1”	$3.50

Battery Enclosure Accessories

Mini-Louvers

Round aluminum vents are rainproof, keep out insects, and relieve heat build-up in enclosures

Model	Color	MSRP
Mini- Louver 2” diameter	silver	$3.50
Mini-Louver 4” diameter	black	$7.50

Power Vent Fan

Commonly used to vent battery enclosures to outside air, this one-piece unit fits onto PVC pipe, 1.5” = 3cfm, or 2” = 6cfm. Includes back draft damper. When used with the control relays on the SW inverter, the fan can be programmed to operate only when flooded batteries are gassing. Power consumption = 2.2 watts.

Model/Voltage	MSRP
Power Vent Fan 12V	$155.00
Power Vent Fan 24V	$155.00
Power Vent Fan 48V	$195.00

The Portable Energy System

Portable Energy System

The SunWize® Portable Energy System is a solar charging system for laptop computers and communication devices. The Portable Energy System converts solar energy into electricity allowing the user to operate or charge a battery-operated portable device anywhere outdoors in direct sunlight.

SunWize's proprietary technology encapsulates high-performance solar cells in a durable polymer resulting in solar panels that are weather and impact resistant. In locations with limited access to utility-supplied power or where brown outs are common, the SunWize Portable Energy System provides the perfect power solution. Engineered with advanced solar technology, this dependable system keeps electronics running efficiently even under adverse conditions.

The standard Portable Energy System includes a Multi-Volt Controller, two computer cables and a multiple four-plug pinwheel cable for connecting the PES to other external electronic devices, an owner's manual, a self-storing 10-foot cord and a nylon storage sleeve.

Nylon Storage Bag

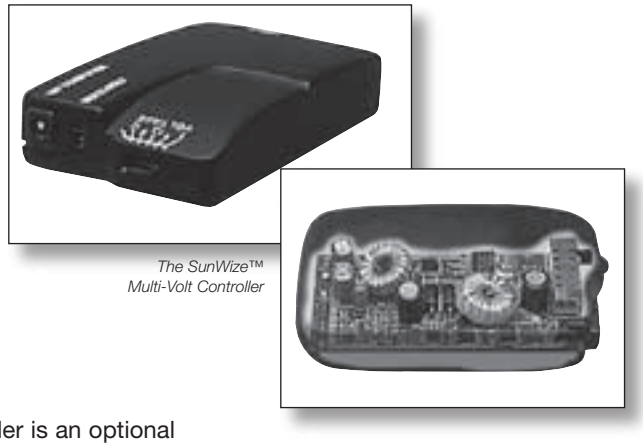
The SunWize™ OPTI-Meter

Patented OPTI-Meter

Each system is equipped with the SunWize OPTI-Meter, a patented LCD metering system that allows the user to maximize performance and to measure the results. The metering system responds to light intensity – the higher the number, the higher the power output. The user can achieve the highest power by simply positioning the Portable Energy System on its built-in stand to the highest meter reading.

Multi-Volt Controller

A SunWize exclusive, the Multi-Volt Controller is engineered specifically to regulate power flow between the Portable Energy System and the computer while providing proper voltage. It features an output for laptop computers as well as an additional output for other electronic devices. A five-position switch allows the user to select the appropriate voltage from 3 volts to 12 volts for that additional output.



The SunWize™ Multi-Volt Controller

The SunWize Portable Energy System with System Doubler connected to a laptop computer

System Doubler

The System Doubler is an optional panel that is connected to the Multi-Volt Controller to provide double the power for laptops using a Li-ion battery. This enables the user to run the laptop computer directly from the sun! With the System Doubler, the user can optimize the SunWize Portable Energy System's performance.

The SunWize Portable Energy System provides dependable power for remote, off-grid locations.
It provides truly portable power and INFINITE AUTONOMY**™ for:**

• Laptop Computer Users • Disaster Relief and Field Rescue Workers • Insurance Adjusters
• Travelers, Backpackers and Mountain Climbers • Geologists and Surveyors
• Scientific Expeditions • Sailors and Boating Enthusiasts • Military Personnel

SunWize®
Reliable People ::: Reliable Products ::: Reliable Power!

Portable Energy System

Portable Energy System Features:

- Lightweight & portable – only weighs 2.5 lbs. including wire and stand
- Weather-resistant
- Totally automatic
- Maintenance free - no moving parts
- SunWize™ OPTI-Meter reads light intensity and measures power output
- Built-in stainless steel stand to allow for continuous angle adjustment
- Self-storing 10' flexible, low loss connecting cable
- Standard laptop connector cables included
- Easy grip handle
- Solar module output rated at 9.9 Watts; system output rated at 8.5 Watts
- Size 10.5" x 15.5" x .56"
- Multi volt controller weighs 4 ounces

Digital Phones and Communication Devices

Operates Most Portable Electronic Devices Such As:

- Laptop Computers • PDAs and Mobil Organizers
- Cellular Phones • GPS Units
- CD Players & Radios • Video Cameras
- Two-way Radios • Medical & Environmental Equipment
- Other products with rechargeable batteries
- Will recharge or trickle charge most products with rechargeable batteries

Palm Pilot and other types of PDAs

GPS Units

SunWize offers carrying cases constructed of DuPont 1050 Denier ballistic nylon.

Traveler: Carrying case with two panel pockets.

Laptop Traveler: Carrying case with two panel pockets and one computer pocket.

Model/Description	Solar Output	System Output	Dimensions LxWxD	Weight (lbs)	MSRP
Portable Energy System	9.9 W	8.5 W	10.5" x 15.5" x .56"	2.5	$379.95
System Doubler (One additional panel)	9.9 W	8.5 W	10.5" x 15.5" x .56"	2.5	$309.95
ACCESSORIES					
Nylon Case, 2 panel pocket					$39.95
Case, 2 panel pocket/1 computer pocket					$99.95

Wiley Electronics, LLC

Acme Solar Site Evaluation Tool (ASSET)

The ASSET is a new patent pending system for evaluating shading at a site. The ASSET consists of a precise positioning system, a digital camera and software allowing the user to efficiently analyze and document installation sites.

The ASSET is easy to use:

1) Level the system

2) Align to south

3) Adjust tilt

The ASSET comes packed in a foam-padded hard shell case. Parts list:

- *Camera to computer USB cable*
- *Precision positioning assembly*
- *Digital camera*
- *CD Rom with software*
- *Camera documentation*
- *Optional: spare batteries*

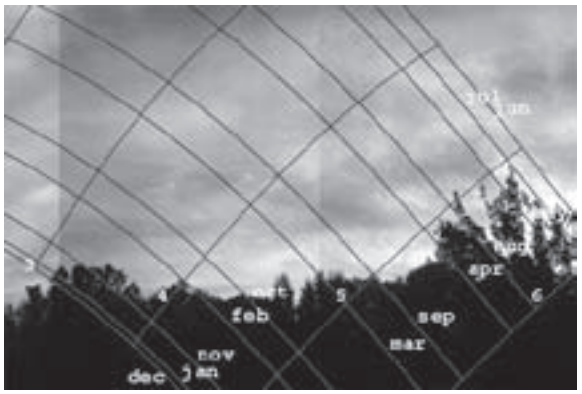
MSRP: $699.00

4) Take seven pictures

5) Download pictures to computer and analyze

The ASSET includes a bull's-eye type bubble level for leveling the positioning system. The compass is used to point the system towards the equator (south in the northern hemisphere) because the path of the sun appears in that portion of the sky. The compass has an inner ring which may be used to correct for local magnetic declination. The ASSET has a threaded hole for attachment of a standard 1/4-20 screw directly from a tripod, or from a hot shoe. Some tripods may contain magnetic pieces like steel screws, springs and pins. Such elements may cause compass errors. The panning head type tripods are the worst in this regard and have been found to cause errors up to 5 degrees. Ball head type tripods fabricated from aluminum are recommended.

The ASSET is positioned to take a series of pictures. The software assembles the pictures into a panorama with the path of the sun superimposed. The suitability of a site can be seen at a glance. Since a complete survey can be done much quicker than with past methods, it is easy to optimize installations.



The software also tabulates shading by month and combines with historical irradiance to give a shading factor for the year. The ASSET system ships field ready with a durable hard shell case.

An enlarged view shows more clearly the details of the survey. Portions of the sun path which are shaded are highlighted in red. The month labels and hour labels allow one to visualize when the shading occurs.

Solar Basics

PV power generation systems are made up of interconnected components, each with a specific function. One of the major strengths of PV systems is modularity. As your needs grow, individual components can be replaced or added to provide increased capacity. Following is a brief overview of a typical PV system.

Solar Array – The solar array consists of one or more PV modules which convert sunlight into electric energy. The modules are connected in series and/or parallel to provide the voltage and current levels to meet your needs. The array is usually mounted on a metal structure and tilted to face the sun.

Charge Controller – Although charge controllers can be purchased with many optional features, their main function is to maintain the batteries at the proper charge level, and to protect them from overcharging.

Battery Bank – The battery bank contains one or more deep-cycle batteries, connected in series and/or parallel depending on the voltage and current capacity needed. The batteries store the power produced by the solar array and discharge it when required.

Inverter – An inverter is required when you want to power AC devices. The inverter converts the DC power from the solar array/batteries into AC power.

AC and DC Loads – These are the appliances (such as lights or radios), and the components (such as water pumps and microwave repeaters), which consume the power generated by your PV array.

Balance of System – These components provide the interconnections and standard safety features required for any electrical power system. These include: array combiner box, properly sized cabling, fuses, switches, circuit breakers and meters.

Five Steps to Sizing a PV System

We have provided you with an easy-to-follow, step-by-step guide for sizing your photovoltaic (PV) system. Follow these five steps to determine your requirements and specify the components you will need.

1. Determine Your Power Consumption Demands

Make a list of the appliances and/or loads you are going to run from your PV system. Find out how much power each item consumes while operating. Most appliances have a label on the back which lists the wattage. Specification sheets, local appliance dealers, and the product manufacturers are other sources of information. We have provided a chart that lists typical power consumption demands of common devices which you can use as a guide. Once you have the wattage ratings, fill out the load sizing worksheet.

Load-Sizing Worksheet

List all of the electrical appliances to be powered by your PV system. Separate AC and DC devices and enter them in the appropriate table. Record the operating wattage of each item. Most appliances have a label on the back that lists the wattage. Local appliance dealers and the product manufacturers are other sources of this information. Specify the number of hours per day each item will be used. Multiply the first three columns to determine the watt-hour usage per day. Enter the number of days per week you will be using each item to determine the total watt-hours per week each appliance will require.

	DC Appliance	Watts	X	Qty	X	Hrs/Day	=	Wh/Day	X	Days/Wk	=	Wh/Wk
A.												
B.												
C.												
D.												
E.												

Total the numbers in the last column. This is your DC power requirement. Total _____

Multiply the total by 1.2 to compensate for system losses during battery charge/discharge cycle. DC WH/WK _____

... Power Consumption *continued*

Load Sizing Worksheet

	AC Appliance	Watts	X	Qty	X	Hrs/Day	=	Wh/Day	X	Days/Wk	=	Wh/Wk
A.												
B.												
C.												
D.												
E.												

Total the numbers in the last column. This is your AC power requirement. Total _____

Multiply the total by 1.2 to compensate for system losses during battery charge/discharge cycle. AC WH/WK _____

1. Add AC WH/WK and DC WH/WK together. This is your total power requirement per week. Total _____

2. Enter the voltage of your battery bank (usually 12 or 24 volts) VOLTS _____

3. Divide line 1 by line 2. This is your amp-hour requirement per week. AH/WK _____

4. Divide line 3 by 7 days. This is your average amp-hour requirement per day that will be used to size your battery bank and your PV module array. AH/DAY _____

2. Optimize Your Power System Demands

At this point, it is important to examine your power consumption and reduce your power needs as much as possible. (This is true for any system, but it is especially important for home and cabin systems, because the cost savings can be substantial.) First identify large and/or variable loads (such as water pumps, outdoor lights, electric ranges, AC refrigerators, clothes washers, etc.) and try to eliminate them or examine alternatives such as propane or DC models. The initial cost of DC appliances tends to be higher than AC, but you avoid losing energy in the DC to AC conversion process, and typically DC appliances are more efficient and last longer. Replace incandescent fixtures with fluorescent lights wherever possible. Fluorescent lamps provide the same level of illumination at lower wattage levels. If there is a large load that you cannot eliminate, consider using it only during peak sun hours or only during the summer. (In other words, be creative!) Revise your Load Sizing Worksheet now with your optimized results.

3. Size Your Battery Bank

Read “Characteristics of Batteries” and then choose the appropriate battery for your needs.
Fill out the Battery Sizing Worksheet.

Characteristics of Batteries

Sizing Your Battery Bank
The first decision you need to make is how much storage you would like your battery bank to provide. Often this is expressed as “days of autonomy,” because it is based on the number of days you expect your system to provide power without receiving an input charge from the solar array. In addition to the days of autonomy, you should also consider your usage pattern and the criticality of your application. If you are installing a system for a weekend home, you might want to consider a larger battery bank, because your system will have all week to charge and store energy. Alternatively, if you are adding a PV array as a supplement to a generator-based system, your battery bank can be slightly undersized since the generator can be operated if needed for recharging.

Temperature Effects
Batteries are sensitive to temperature extremes, and you cannot take as much energy out of a cold battery as a warm one. Use the chart on the Battery-Sizing Worksheet to correct for temperature effects. Although you can get more than rated capacity from a hot battery, operation at hot temperatures will shorten battery life.

... Battery Bank *continued*

Temperature Effects *continued*
Try to keep your batteries near room temperature. Charge controllers can be purchased with a temperature compensation option to optimize the charging cycle at various temperatures and lengthen your battery life.

Depth of Discharge
Depth of Discharge is the percentage of the rated battery capacity that is withdrawn from the battery. The capability of a battery to withstand discharge depends on its construction. Two terms, shallow-cycle and deep-cycle, are commonly used to describe batteries. Shallow-cycle batteries are lighter, less expensive and have a short lifetime. For this reason, we do not sell shallow-cycle batteries. Deep-cycle batteries should always be used for stand-alone PV systems. These units have thicker plates and most will withstand daily discharges up to 80% of their rated capacity. Most deep-cycle batteries are flooded electrolyte which means the plates are covered with the electrolyte and the level of fluid must be monitored and distilled water added periodically to keep the plates fully covered. We also offer sealed, lead-acid batteries that do not require liquid refills. There are other types of deep-cycle batteries such as nickel cadmium used in special applications. The maximum depth of discharge value used for sizing should be the worst case discharge that the battery will experience. The system control should be set to prevent discharge below this level.

Rated Battery Capacity
The ampere-hour capacity of a battery is usually specified together with some standard hour reference such as ten or twenty hours. For example, suppose the battery is rated at 100 ampere-hours and a 20-hour reference is specified. This means the battery is fully charged and will deliver a current of 5 amperes for 20 hours. If the discharge current is lower, for example 4.5 amperes, then the capacity will go to 110 ampere-hours. The relationship between the capacity of a battery and the load current can be found in the manufacturer's literature.

Battery Life
The lifetime of any battery is difficult to predict, because it is dependent on a number of factors such as charge and discharge rate, depth of discharge, number of cycles and operating temperature extremes. It would be unusual for a lead-acid battery to last longer than fifteen years in a PV system but many last for five to eight years.

Maintenance
Batteries require periodic maintenance. Even the sealed battery should be checked to make sure connections are tight and there is no indication of overcharging. For flooded batteries, the electrolyte level should be maintained well above the plates and the voltage and specific gravity of the cells should be checked for consistent values. Wide variations between readings may indicate cell problems. The specific gravity of the cells should be checked with a hydrometer particularly before the onset of winter. In cold environments, the electrolyte in lead-acid batteries may freeze. The freezing temperature is a function of a battery state of charge. When a battery is completely discharged, the electrolyte becomes water and the battery may freeze.

Battery Sizing Worksheet

1. Enter your daily amp-hour requirement. (From the Load Sizing Worksheet, line 4)	AH/Day	_____
2. Enter the maximum number of consecutive cloudy weather days expected in your area, or the number of days of autonomy you would like your system to support.		_____
3. Multiply the amp-hour requirement by the number of days. This is the amount of amp-hours your system will need to store.	AH	_____
4. Enter the depth of discharge for the battery you have chosen. This provides a safety factor so that you can avoid over-draining your battery bank. (Example: If the discharge limit is 20%, use 0.2.) This number should not exceed 0.8.		_____
5. Divide line 3 by line 4.	AH	_____

... Battery Bank *continued*

Battery-Sizing Worksheet

6. Select the multiplier below that corresponds to the average wintertime ambient temperature your battery bank will experience. _____

Ambient Temperature		Multiplier
80ºF	26.7ºC	1.00
70ºF	21.2ºC	1.04
60ºF	15.6ºC	1.11
50ºF	10.0ºC	1.19
40ºF	4.4ºC	1.30
30ºF	-1.1ºC	1.40
20ºF	-6.7ºC	1.59

7. Multiply line 5 by line 6. This calculation ensures that your battery bank will have enough capacity to overcome cold weather effects. This number represents the total battery capacity you will need. AH _____

8. Enter the amp-hour rating for the battery you have chosen. _____

9. Divide the total battery capacity by the battery amp-hour rating and round off to the next highest number. This is the number of batteries wired in parallel required. _____

10. Divide the nominal system voltage (12V, 24V or 48V) by the battery voltage and round off to the next highest number. This is the number of batteries wired in series. _____

11. Multiply line 9 by line 10. This is the total number of batteries required. _____

4. Determine The Sun Hours Available Per Day

Several factors influence how much sun power your modules will be exposed to:

- When you will be using your system – summer, winter, or year-round.
- Typical local weather conditions.
- Fixed mountings vs. trackers.
- Location and angle of PV array.

We have provided the following charts which show ratings that reflect the number of hours of full sunlight available to generate electricity. Your solar array's power generation capacity is dependent on the angle of the rays as they hit the modules. Peak power occurs when the rays are at right angles or perpendicular to the modules. As the rays deviate from perpendicular, more and more of the energy is reflected rather than absorbed by the modules. Depending on your application, sun tracking mounts can be used to enhance your power output by automatically positioning your array.

The charts reflect the difference in sunlight during spring, summer, autumn and winter. It is more difficult to produce energy during the winter because of shorter days, increased cloudiness and the sun's lower position in the sky. The charts list the sun hour ratings for several cities in North America for summer, winter and year round average. If you use your system primarily in the summer, use the summer value; if you are using your system year-round, especially for a critical application, use the winter value. If you are using the system most of the year (spring, summer and fall) or the application is not critical, use the average value. With the chart and the map, you should be able to determine a reasonable estimate of the sun's availability in your area.

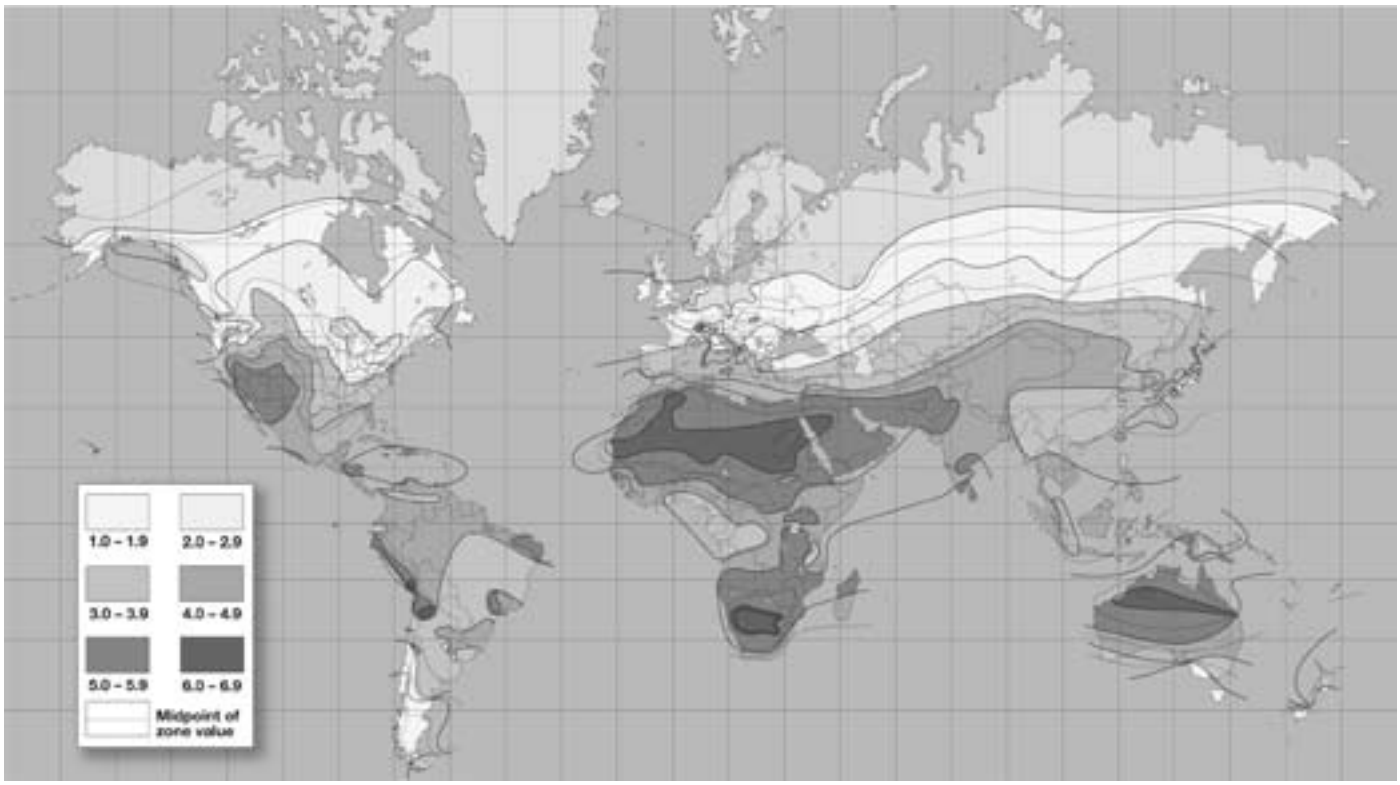
SUN HOURS PER DAY - NATIONAL

State, City	Summer Avg.	Winter Avg.	Yr. Round Avg	State, City	Summer Avg.	Winter Avg.	Yr. Round Avg
AL, Montgomery	4.69	3.37	4.23	CA, La Jolla	5.24	4.29	4.77
AK, Bethel	6.29	2.37	3.81	CA, Los Angeles	6.14	5.03	5.62
AK, Fairbanks	5.87	2.12	3.99	CA, Riverside	6.35	5.35	5.87
AK, Mantanuska	5.24	1.74	3.55	CA, Santa maria	6.52	5.42	5.94
AZ, Page	7.30	5.65	6.36	CA, Soda Springs	6.47	4.40	5.60
AZ, Phoenix	7.13	5.78	6.58	CO, Boulder	5.72	4.44	4.87
AZ, Tucson	7.42	6.01	6.57	CO, Granby	7.47	5.15	5.69
AR, Little Rock	5.29	3.88	4.69	CO, Grand Junction	6.34	5.23	5.86
CA, Davis	6.09	3.31	5.10	CO, Grand Lake	5.86	3.56	5.08
CA, Fresno	6.19	3.42	5.38	D.C. Washington	4.69	3.37	4.23
CA, Inyokem	8.70	6.97	7.66	FL, Apalachicola	5.98	4.92	5.49

Sun Hours Per Day - National *continued*

State, City	Summer Avg.	Winter Avg.	Yr Round Avg.
FL, Belle Island	5.31	4.58	4.99
FL, Gainsville	5.81	4.71	5.27
FL, Miami	6.26	5.05	5.62
FL, Tampa	6.16	5.26	5.67
GA, Atlanta	5.16	4.09	4.74
GA, Griffin	5.41	4.26	4.99
HI, Honolulu	6.71	5.59	6.02
IA, Ames	4.80	3.73	4.40
ID, Twin Falls	5.42	3.41	4.70
ID, Boise	5.83	3.33	4.92
IL, Chicago	4.08	1.47	3.14
IN, Indianapolis	5.02	2.55	4.21
KS, Dodge City	4.14	5.28	5.79
KS, Manhattan	5.08	3.62	4.57
KY, Lexington	5.97	3.60	4.94
LA, Lake Charles	5.73	4.29	4.93
LA, New Orleans	5.71	3.63	4.92
LA, Shreveport	4.99	3.87	4.63
MA, Blue Hill	4.38	3.33	4.05
MA, Boston	4.27	2.99	3.84
MA, E. Wareham	4.48	3.06	3.99
MA, Lynn	4.60	2.33	3.79
MA, Natick	4.62	3.09	4.10
MD, Silver Hill	4.71	3.84	4.47
ME, Caribou	5.62	2.57	4.19
ME, Portland	5.2	3.56	4.51
MI, E. Lansing	4.71	2.70	4.00
MI, Sault Ste. Marie	4.83	2.33	4.20
MN, St. Cloud	5.43	3.53	4.53
MO, Columbia	5.5	3.97	4.73
MO, St. Louis	4.87	3.24	3.78
MS, Meridian	4.86	3.64	4.44
MT, Glasgow	5.97	4.09	5.15
MT, Great Falls	5.70	3.66	4.93
MT, Summit	5.17	2.36	3.99
NC, Cape Hatteras	5.81	4.69	5.31
NC, Greensboro	5.05	4.00	4.71
ND, Bismark	5.48	3.97	5.01
NE, Lincoln	5.40	4.38	4.79
NE, North Omaha	5.28	4.26	4.90
NJ, Sea Brook	4.76	3.20	4.21
NM, Albuquerque	7.16	6.21	6.77
NV, Ely	6.48	5.49	5.98
NV, Las Vegas	7.13	5.83	6.41
NY, Bridgehampton	3.93	1.62	3.16
NY, Ithaca	4.57	2.29	3.79
NY, New York	4.97	3.03	4.08
NY, Rochester	4.22	1.58	3.31
NY, Schenectady	3.92	2.53	3.55
OH, Cleveland	4.79	2.69	3.94
OH, Columbus	5.26	2.66	4.15
OK, Oklahoma City	6.26	4.98	5.59
OK, Stillwater	5.52	4.22	4.99
OR, Astoria	4.76	1.99	3.72
OR, Corvallis	5.71	1.90	4.03
OR, Medford	5.84	2.02	4.51
PA, Pittsburgh	4.19	1.45	3.28
PA, State College	4.44	2.78	3.91
RI, Newport	4.69	3.58	4.23
SC, Charleston	5.72	4.23	5.06
SD, Rapid City	5.91	4.56	5.23
TN, Nashville	5.20	3.14	4.45
TN, Oak Ridge	5.06	3.22	4.37
TX, Brownsville	5.49	4.42	4.92
TX, El Paso	7.42	5.87	6.72
TX, Port Worth	6.00	4.80	5.83
TX, Midland	6.33	5.23	5.83
TX, San Antonio	5.88	4.65	5.30
UT, Flaming Gorge	6.63	5.48	5.83
UT, Salt Lake City	6.09	3.78	5.26
VA, Richmond	4.50	3.37	4.13
WA, Prosser	6.21	3.06	5.03
WA, Pullman	6.07	2.90	4.73
WA, Richland	6.13	2.01	4.43
WA, Seattle	4.83	1.60	3.57
WA, Spokane	5.53	1.16	4.48
WV, Charleston	4.12	2.47	3.65
WI, Madison	4.85	3.28	4.29
WY, lander	6.81	5.50	6.06
Province, City			
Alberta, Edmonton	4.95	2.13	3.75
Alberta, Suffield	5.19	2.75	4.10
British Columbia, Kamloops	4.48	1.46	3.29
British Columbia, Prince George	4.13	1.33	3.14
British Columbia, Vancouver	4.23	1.33	3.14
Manitoba, The Pas	5.02	2.02	3.56
Manitoba, Winnipeg	5.23	2.77	4.02
New Brunswick, Fredericton	4.23	2.54	3.56
Newfoundland, Goose Bay	4.65	2.02	3.33
Newfoundland, St. Johns	3.89	1.83	3.15
Northwest Territory, Fort Smith	5.16	0.88	3.29
Northwest Territory, Norman Wells	5.04	0.06	2.89
Nova Scotia, Halifax	4.02	2.16	3.38
Ontario, Ottawa	4.63	2.35	3.70
Ontario, Toronto	3.98	2.13	3.44
Prince Edward Isl., Charlottetown	4.31	2.29	3.56
Quebec, Montreal	4.21	2.29	3.50
Quebec, Sept-Isles	4.29	2.33	3.50
Saskatchewan, Swift Current	5.25	2.77	4.23
Yukon, Whitehorse	4.81	0.69	3.10

World Insolation Map



This map divides the world into six solar performance regions based on winter peak sun hours in the worst case month. A larger map in full color is located on the back cover of this catalog.

5. Size Your Array

1. Enter your daily amp-hour requirement (from your Load Sizing Worksheet, line 4) AH/Day _____

2. Enter the sun-hours per day for your area. Refer to chart. H/Day _____

3. Divide line 1 by line 2. This is the total amperage required from your solar array. _____

4. Enter the peak amperage of the solar module you have selected Peak A _____

5. Divide line 3 by line 4. This is the number of solar modules needed in parallel. _____

6. Select the required modules in series from the following chart. _____

Battery Bank Voltage	No. of Modules in Series
12V	1
24V	2
48V	4

7. Multiply line 5 by line 6 to find the total number of modules needed in your array. Total _____

8. Enter the nominal power rating (in watts) of the module you have chosen. W _____

9. Multiply line 7 by line 8. This is the nominal power output of your system. W _____