

# The Modern Outpost Solar Module Slate

As at : December 1, 2023



This is a comprehensive list of all solar modules currently available through Modern Outpost. Product details can be found on ModernOutpost.com &/or manufacturer websites. Contact Modern Outpost for more information, or to request an estimate.

The list is divided into module types & application groups, with the residential/commercial modules further subdivided into 'A' & 'B' groups according to their ranking on the PV Evolution Labs' random HALT testing reports (PVEL.com), and the ethics monitor SolarScorecard.com (solarscorecard.org). We also take into account a company's sales & support reputations. Distinguishing module characteristics are noted where possible, and we encourage you to visit our website & manufacturers websites for more detail. The industry has pushed cell technology very close to theoretical limits over the last 5 years while constantly improving commercial viability. This means maximizing light capture & energy conversion while avoiding exotic, costly, & often toxic materials. You can be assured of reasonable future-proofing of both performance & aesthetics with the members of this list.

## How To Choose?

There are many solar products on the market, and even more applications in which to use them. Grid-tied net metering, off-grid living, remote lighting, water pumping, work site tools & equipment, research data collection, HAM radios, personal electronics, and many more. So how do you choose what's right for you? Besides the reliability testing & ethics monitor mentioned above, use the following to narrow the field...

### 1 : Yield

How much daily energy do you need or want?

Notice the word 'Energy', not 'Power'. Solar modules are rated according to Watts (Power), but it is the energy (power x time) that is most important. This is primarily governed by your local weather patterns, your installation geometry, & the quality of the solar module. While you can't do much about your local weather patterns, or your installation geometry, you can choose the quality of your solar module.

Example: Two modules may both be rated at 400W, but before you consider just the price difference, consider three other metrics:

- Temperature coefficient
- Cell chemistry & efficiency
- Module dimensions

A high quality cell will have a smaller temperature coefficient which results in more power as cell temperature rises... at least 2-3% in full summer sun! That same premium manufacturer will likely also employ more advanced module construction techniques including half-cell architecture, minimized cell busbars, miniscule inter-cell spacing, high-transmissivity glass, and more. This will all result in a slightly smaller module for that same 400W performance. Which of course means you can fit more modules onto a roof space or pole mount, thereby improving yield.

Note the math: A 5% greater yield on an 8kW array is equivalent to getting a free 400W solar panel.

Performance estimates are beyond the scope of this buying guide. Try the PVWatts calculator (pvwatts.nrel.gov), or contact us for a custom simulation report.

### 2 : Design

Size : What roof space do you have available for your solar array? Don't forget about suitable setbacks from the ridge & gutter.

Strength : Look for numbers on the spec sheet pertaining to kPa. This is a measure of the physical strength of the module to withstand wind, hail, and snow.

Aesthetic : Sometimes it's not important for the installation, but it doesn't usually cost much more to do the little things that make your system look good.

Bifacial : Most modern solar cells are designed to maximize internal reflection to capture more light energy. Glass-glass bifacial modules go further by capturing ambient light too. For best results, use with bifacial-friendly ground mounts, low-pole mounts, & high-albedo surroundings.

Portable : Of course, if you need to pack your power to a remote site, then typical rooftop modules won't be very useful.

### 3 : Build

You are building your own personal electric utility, and investing in energy production for years/decades to come. This is why this list is populated with quality manufacturers. Avoid bargain brands that use second-rate cells, weak module frames, poor backsheets, low-transmissivity glass, & poor assembly methods. How do you know? Compare spec sheets, & do some online research. Trust Modern Outpost's 'Solar Slate' where the top modules live.

### 4 : Warranty & Certifications

Most major brands offer at least 12 years on their modules' construction, and at least 25 years on the performance. Some, however, promise greater performance after that 25-year period than others. Example: REC projects over 90% of original performance vs the 84% promised by other brands. We've listed the warranty info for each brand on this list.

It is also relevant to have manufacturing & safety certifications for solar modules. This is apart from any HALT testing done by independent labs. Certifications both satisfy electrical code requirements, and are an indication of how professional & dedicated a manufacturer is. If you don't see Intertek, CSA, or UL on the label, then it's not worth your time or dollars.

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## Residential & Commercial Grid-Tie & Off-Grid Modules

### The 'A' Group

#### Our preferred list of modules & manufacturers

To make our 'A Group', manufacturers must be a 'Top Performer' in PV Evolution Labs reports (PVEL.com), and be identified as 'Leader' on the ethics scorecard.

#### REC GROUP

Norwegian company with vertically integrated wholly-owned manufacturing plant in Singapore.

Leader in cell & module power output & module efficiency. Pioneering developer of the split-cell module architecture for shade mitigation. Exceptional aesthetics.

Warranty (product/performance) : 20/25

REC360NP2 Black	360W	60-Cell (120 ½ Cut) N-Type	All-Black	Strength	1755 x 1040 x 30mm
REC365NP2 Black	365W	60-Cell (120 ½ Cut) N-Type	All-Black	Strength	1755 x 1040 x 30mm
REC360TP4 Black	360W	60-Cell (120 ½ Cut) Mono	All-Black	Strength	1755 x 1040 x 30mm
REC365TP4 Black	365W	60-Cell (120 ½ Cut) Mono	All-Black	Strength	1755 x 1040 x 30mm
REC400NP3 Black	400W	66-Cell (132 ½ Cut) N-Type	All-Black	Strength	1900 x 1039 x 30mm
REC390AA ALPHA PURE	390W	66-Cell (132 ½ Cut) Hetero N-Type	All-Black	Strength	1821 x 1016 x 30mm
REC395AA ALPHA PURE	395W	66-Cell (132 ½ Cut) Hetero N-Type	All-Black	Strength	1821 x 1016 x 30mm
REC405AA ALPHA PURE	405W	66-Cell (132 ½ Cut) Hetero N-Type	All-Black	Strength	1821 x 1016 x 30mm
REC410AA PURE-R	410W	40-Cell (80 ½ Cut) Hetero-N-Type	All-Black	Shade mitigation, Strength	1821 x 1016 x 30mm

#### HANWHA Q.Cells

Korean company, with pan-Asian manufacturing. Q.Cells German engineering & development division.

One of the long-time top-quality producers in the industry.

Warranty (product/performance) : 12/25

Q.PEAK DUO BLK ML G10+ 395	395W	66-Cell (132 ½ Cut) Mono PERC	All-Black	Aesthetics	1879 x 1045 x 32mm
Q.PEAK DUO BLK ML G10+ 400	400W	66-Cell (132 ½ Cut) Mono PERC	All-Black	Shade, aesthetics	1879 x 1045 x 32mm
Q.PEAK DUO BLK ML G10+ 405	405W	66-Cell (132 ½ Cut) Mono PERC	All-Black	Shade, aesthetics	1879 x 1045 x 32mm
Q.PEAK DUO XL-G10/BFG 480	480W	78-Cell (156 ½ Cut) Mono PERC	Silver/Clear	Bifacial	2216 x 1045 x 35mm

#### TRINA SOLAR

Chinese company, with Chinese manufacturing.

One of the long-time top producers in the industry. Leader in value, and consistently one of the top-ranked companies on the SVTC.org scorecard

Warranty (product/performance) : 12/25 & 25/25

TSM-325DD06M.05(II)	325W	60-Cell (120 ½ Cut) Mono	All-Black	Shade, Strength, Aesthetics	1630 x 996 x 35mm
TSM-335DD06M.05(II)	335W	60-Cell (120 ½ Cut) Mono	All-Black	Shade, Strength, Aesthetics	1630 x 996 x 35mm
TSM-395DE09.05	395W	60-Cell (120 ½ Cut) Mono	All-Black	Shade, Strength, Aesthetics	1754 x 1096 x 30mm
TSM-415NE09RC.05	415W	72-Cell (144 ½ Cut) Mono PERC	All-Black	Bifacial	1762 x 1134 x 30mm
TSM-360-DE06X.05(II)	360W	66-Cell (132 Half-Cut) Mono PERC	All-Black	Shade mitigation	1852 x 996 x 35mm
TSM-365-DE06X.05(II)	365W	66-Cell (132 Half-Cut) Mono PERC	All-Black	Shade mitigation	1852 x 996 x 35mm

#### JINKO SOLAR

Chinese manufacturer, with global facilities including the USA.

Currently the largest volume manufacturer in the world. Consistently top-rated on the SVTC scorecard.

Warranty (product/performance) : 10/25

JKM390M-72HBL-V	390W	72-Cell (144 ½ Cut) Mono PERC	All-Black	Shade, strength, aesthetics	2008 x 1002 x 40mm
JKM460M-7RL3-TV	460W	78-Cell (156 ½ Cut) Mono PERC	Silver/Clear	Bifacial	2205 x 1032 x 40mm
JKM465M-7RL3-TV	465W	78-Cell (156 ½ Cut) Mono PERC	Silver/Clear	Bifacial	2205 x 1032 x 40mm

#### JA SOLAR

Chinese company, with Chinese manufacturing.

Leader in value, and consistently one of the top-ranked companies on the SVTC.org scorecard

Warranty (product/performance) : 12/25

JAM54531-405/MR	405W	54-Cell (108 ½ Cut) Mono	All-Black	Lower voltage,	1722 x 1134 x 30mm
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# The Modern Outpost

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### Honourable Mentions...

These manufacturers are smaller-scale producers of top-quality modules designed for specialized projects. As such, they may not appear in the scorecards.

#### LUMOS SOLAR

US-based manufacturer with US manufacturing. PV Evolution Labs 'Top Performer'.

Specializing in architectural solar modules using frameless glass-glass construction, and bifacial cells. All concealed wiring & racking.

Warranty (product/performance): Vision:10/30 : ClearSpan:12/30

#### Vision Module System

Ideal for carports, concourses, atriums, transit shelters, shade structures, gazebos, & greenhouses

Modules : L-Type : 0-72-Cell : 0-400W	Mono, bifacial	2134 x 1078.85 x 52.17mm
S-Type : 0-60-Cell : 0-355W	Mono, bifacial	1797.50 x 1072.50 x 52.17mm

Each module Type offers unique mounting options for another level of design customization

#### ClearSpan Module System

Ideal for carports, parking decks, atriums

Modules : CSX : 72-Cell (144 ½ Cut) : 555W Mono, bifacial 2134 x 1078.85 x 50.546mm

Unique shingled frames, together with the ClearSpan Rail create an ultra durable waterproof array

#### SolarZone

Off-grid solar charging station and shade structure.

SolarZone Café : 750W Mono, bifacial

SolarZone Team : 1710W Mono, bifacial

Does not require foundations or under-ground electrical work. Powder coated steel construction with a variety of finish colours.

Featuring Bluetooth programmable LED lighting, wireless device charging, USB ports, weatherproof AC outlets, and data monitoring.

Optional bench seats and is ADA Compatible.

#### SolarPort

Residential solar car shelter. Ideal for EV charging.

SolarPort Single: 4.26kW : 12x Vision S60 355w Modules

SolarPort Double: 8.52kW : 24x Vision S60 355w Modules

Powder-coated steel construction with a variety of finish colours.

Integrated LED lighting. Integrated leveling. Optional gutter and downspout.

#### SolarScape

Prefabricated modular solar structures.

Utilizes the Vision Module System : Design-dependent yield

Modular solar structures made from powder coated aluminum or steel with virtually infinite configurations to meet the needs of any project.

Built with state-of-the-art U.S. manufacturing, SolarScapes integrate Lumos' frameless bifacial Vision Module System.

Aesthetics, functionality and durability.

Meets the highest high wind, snow, and seismic loads : Bolt together assembly with no field welding

Stamped structural engineering provided : Foundation design provided : Permit package available

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## The 'B' Group

A strong supporting cast of leading manufacturers

The manufacturers in this group either do not participate in PVEL randomized HALT testing, or fail to participate or score well in the ethics survey.

### APTOS SOLAR

US-based manufacturer with global manufacturing

Aptos solar panels are optimized with their patented Dual Nano Absorber (DNA) technology

Warranty (product/performance): 25/30

DNA-120-BF26-370W	370W	60-Cell (120 ½ Cut) DNA Mono	Black/Clear	Bifacial	1762 x 1048 x 35mm
DNA-108-BF10-400W	400W	54-Cell (108 ½ Cut) DNA Mono	Black/Clear	Bifacial	1722 x 1134 x 35mm
DNA-108-MF10-400W	400W	54-Cell (108 ½ Cut) DNA Mono	All-Black		1722 x 1134 x 35mm
DNA-144-BF26-440W	440W	72-Cell (144 ½ Cut) DNA Mono	Black/Clear	Bifacial	2095 x 1039 x 35mm

### SEG SOLAR

US-based manufacturer with US manufacturing.

SEG actively works to reduce their manufacturing footprint.

Warranty (product/performance): 25/25

SEG-410-BMD-HV "Yukon"	410W	54-Cell (108 ½ Cut) Mono PERC	All-Black	Lower voltage	1722 x 1134 x 30mm
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### LONGI

Chinese company with manufacturing in China & Malaysia.

Value positioning. Performs well in random HALT testing. Poor rating in ethics monitor.

Warranty (product/performance): 12/25 : 12/30

LR4-60HPB-360M	360W	60-Cell (120 ½ Cut) Mono	All-Black		1755 x 1038 x 35mm
LR5-54HABB-400M	400W	54-Cell (108 ½ Cut) Mono	All-Black	Lower voltage	1722 x 1134 x 30mm
LR5-54HPB-405M	405W	54-Cell (108 ½ Cut) Mono	All-Black	Lower voltage	1722 x 1134 x 30mm
LR5-54HPB-410M	410W	54-Cell (108 ½ Cut) Mono	All-Black	Lower voltage	1722 x 1134 x 30mm
LR4-72HPH-450M	450W	72-Cell (144 ½ Cut) Mono	Silver/White		2094 x 1038 x 35mm
LR4-72HPH-460M	460W	72-Cell (144 ½ Cut) Mono	Silver/White		2094 x 1038 x 35mm
LR5-66HBH-500M	500W	66-Cell (132 ½ Cut) Mono	Silver/White	Utility large format	2094 x 1038 x 35mm
LR5-66HBH-505M	505W	66-Cell (132 ½ Cut) Mono	Silver/White	Utility large format	2094 x 1038 x 35mm
LR5-72HPH-545M	545W	72-Cell (144 ½ Cut) Mono	Silver/White	Utility large format	2256 x 1133 x 35mm
LR5-72HBD-545M	545W	72-Cell (144 ½ Cut) Mono	Silver/Clear	Bifacial, utility	2256 x 1133 x 35mm
LR5-72HPH-550M	550W	72-Cell (144 ½ Cut) Mono	Silver/White	Utility large format	2256 x 1133 x 35mm

### MISSION SOLAR

US-based manufacturer with US manufacturing.

Warranty (product/performance): 25/25

MSE380SX5R	380W	66-Cell (132 ½ Cut) Mono PERC	All-Black	USA Made	1907 x 1044 x 40mm
MSE430SX9Z	430W	72-Cell (144 ½ Cut) Mono PERC	All-black	USA Made	2085 x 1054 x 40mm

### CANADIAN SOLAR

Headquartered in Guelph, ON with global manufacturing. Majority shareholder of CSI Solar (China).

Value positioning, with limited appearances on PVEL's reports. Does not participate in ethics survey.

Warranty (product/performance) : 12/25 & 12/30 & 25/25

CS6R-395-HL-BB	395W	54-Cell (108 ½ Cut) Mono PERC	All-Black	Strength	1722 x 1134 x 35mm
CS3N-400MS	400W	66-Cell (132 ½ Cut) Mono PERC	All-Black	Strength	1940 x 1048 x 35mm
CS3W-455MB-AG	455W	72-Cell (144 ½ Cut) Mono PERC	Silver/White	Bifacial	2132 x 1048 x 30mm
CS3Y-485MB-AG	485W	78-Cell (156 ½ Cut) Mono PERC	Silver/White	Bifacial	2260 x 1048 x 32mm

## Off-Grid Modules : 32 & 36 Cell

Standard 32 & 36-cell crystalline solar modules for 12V, 24V, 48V systems

These are the modules that find their way into smaller projects, and remote systems that have more restricted transport requirements. Remote lighting, water pumping, security, radio, data collection, irrigation controls, research stations, and more.

### GO POWER!

GP-PV-260M	260W	36-Cell Mono	Silver frame	n/a
GP-PV-200M	200W	36-Cell Mono	Silver frame	1500 x 668 x 40mm
GP-BF-200M	200W	36-Cell Mono	Black frame	1500 x 668 x 40mm
GP-PV-100M	100W	36-Cell Mono	Silver frame	1196 x 545 x 35mm
GP-BF-100M	100W	36-Cell Mono	Black frame	1196 x 545 x 35mm
GP-PV-100-SM	100W	36-Cell Mono	Black frame, Narrow Frame	1530 x 355 x 35mm
GP-PV-100-SM-BF	100W	36-Cell Mono	Black frame, Narrow Frame	1530 x 355 x 35mm
GP-PV-80M	80W	36-Cell Mono	Silver frame	780 x 672 x 35mm
GP-PV-50P	50W	36-Cell Poly	Silver frame	n/a
GP-PV-45M	50W	36-Cell Mono	Silver frame	n/a
GP-PV-20M	20W	36-Cell Mono	Silver frame	345 x 470 x 25mm
GP-PV-10M	10W	36-Cell Mono	Silver frame	335 x 235 x 25mm

### SolarFlex Series : Semi-Flexible Frameless Modules

Go Power's "SolarFlex" modules use high-efficiency back-contact cells (IBC) from SunPower. These cells are uniquely strong & therefore well-suited to the semi-flex encapsulation.

GP-FLEX-190	190W	Mono (SunPower IBC)	Full Heliobond backing available	1422 x 691 x 3mm
GP-FLEX-110	110W	Mono (SunPower IBC)	Full Heliobond backing available	1134 x 544 x 3mm
GP-FLEX-55	55W	Mono (SunPower IBC)	Semi-flexible, frameless	1070 x 286 x 3mm
GP-FLEX-35	35W	Mono (SunPower IBC)	Semi-flexible, frameless	620 x 380 x 3mm
GP-FLEX-10HB	10W	Mono (SunPower IBC)	Full Heliobond backing available, 25' cable	446 x 185 x 3mm

### GOAL ZERO

Boulder 50	50W	Mono	All-black, 8mm connector	700 x 552 x 44mm
Boulder 100	100W	Mono	All-black, 8mm connector	1016 x 700 x 44mm

### POWERFILM Soltronix

R3-8F13.7V	27W	Mono (SunPower IBC), Semi-Flex, Integrated Power Boost Controller		609.6 x 330.2 x 2.5mm
R3-15F13.7V	50W	Mono (SunPower IBC), Semi-Flex, Integrated Power Boost Controller		751.8 x 431.8 x 2.5mm
R3-32F13.7V	110W	Mono (SunPower IBC), Semi-Flex, Integrated Power Boost Controller		1130.3 x 531 x 2.5mm
R3-32F18.9V	110W	Mono (SunPower IBC), Semi-Flex (no built-in controller)		1130.3 x 531 x 2.5mm

### PowerDrive Series : Golf Car Solar Panel

SunPower crystalline silicon solar cells in a ruggedized semi-flex construction. Mounts to roof with snaps or adhesive. Less than 4kg!

C3-48F28.3VT :	165W	Mono (SunPower IBC), Semi-Flex	Fits: E-Z-GO TXT	1219.2 x 914.4 mm
C3-48F28.3VP :	165W	Mono (SunPower IBC), Semi-Flex	Fits: Club Car Precedent	1409.7 x 952.5 mm
C3-48F28.3VR :	165W	Mono (SunPower IBC), Semi-Flex	Fits: E-Z-GO RXV	1409.7 x 952.5 mm
C3-48F28.3VT :	165W	Mono (SunPower IBC), Semi-Flex	Fits: All/Generic	1219.2 x 914.4 mm

### VOLTAIC SYSTEMS

P150	50W	Mono	Black frame, MC4 connector	595 x 515 x 30mm
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### Portable Solar Chargers

For USB, 12V, and other low voltage devices.

Models with integrated battery packs are also listed with battery capacity noted.  
Only folded/storage dimensions shown here.

#### VOLTAIC SYSTEMS

ARC 10W	10W	Mono, Rigid folding, water-resistant ETFE	USB port	232 x 193 x 25mm	358g
ARC 20W	20W	Mono, Rigid folding, water-resistant ETFE	12V connector	244 x 193 x 19mm	770g
ARC 45W	45W	Mono, Rigid folding, water-resistant ETFE	12V connector	337 x 293 x 19mm	2.88kg

#### Pre-wired cases & Backpacks

Fuse 6W	6W	Mono, Rigid piggy-back case	Battery: 25Wh LiPo, USB port		
Fuse 9W	9W	Mono, Rigid piggy-back case	Battery: 50Wh LiPo, USB port (x2)		
Fuse 10W	10W	Mono, Rigid piggy-back case	Battery: 88Wh LiPo, USB/12V/16V/19V/24V		
Switch	6W	Mono, Rigid satchel case	Battery: 25Wh LiPo, USB port		
Converter	5W	Mono, Solar backpack	Battery: 25Wh LiPo, USB port		
Off-Grid	10W	Mono, Solar backpack	Battery: 50 or 75Wh LiPo, USB port (x2)		
Array	10W	Mono, Solar backpack	Battery: 88Wh LiPo, USB/12V/16V/19V/24V		

#### GOAL ZERO

Boulder 100BC	100W	Mono, Rigid, framed, briefcase panel,	8mm connector, All-black	700 x 552 x 89mm	11.7kg
Boulder 200BC	200W	Mono, Rigid, framed, briefcase panel,	8mm connector, All-black	1016 x 700 x 89mm	19kg
Ranger 300BC	300W	Mono, Rigid, framed, briefcase panel,	Anderson connector, All-black	794 x 594 x 97mm	17.12kg
Nomad 5	5W	Mono, Rigid composite	USB	240 x 178 x 2mm	360g
Nomad 10	10W	Mono, Rigid folding composite	USB	241 x 184 x 32mm	510g
Nomad 20	20W	Mono, Rigid folding	USB(12W), 8mm DC (20W)	292 x 190 x 32mm	1.03kg
Nomad 50	50W	Mono, Rigid folding composite	USB(12W), 8mm DC (50W)	432 x 286 x 64mm	3.1kg
Nomad 100	100W	Mono, Rigid folding	8mm DC	520 x 393.7 x 50.8mm	4.6kg
Nomad 200	200W	Mono, Rigid folding	Anderson connector	716 x 566 x 50mm	10kg

#### POWERFILM

##### Crystalline Series

F3-48F28.3VKHAS	160W	Mono, folding canvas	DC connector cable	317.5 x 279.4 x 38mm	3kg
PRESS 270	270W	36-Cell Mono	Briefcase folding design, military grade	1130 x 713.7 x 51mm	12.7kg

**All-in-One** : Built-in battery. Excellent low-light performance, but not as efficient as crystalline. Highly portable form factor.

LightSaver	3W	Amorphous, Flexible poly	USB port, 12Wh LiPo battery	198.1 x 38.1mm	139g
Lightsaver Max	10W	Amorphous, Flexible poly	USB port (x2), 12V (60W), 66Wh LiPo	342.9 x 63.5mm	700g

**Folding Series** : Lightweight, canvas tarp backing. Excellent low-light performance, but not as efficient as crystalline. Highly portable form factor.

F16-1200	20W	Amorphous, Folding canvas	Delphi Weather connector, 12V CLA socket	322.6 x 190.5 x 38mm	500g
F16-1800	30W	Amorphous, Folding canvas	Delphi Weather connector, 12V CLA socket	330.2 x 190.5 x 43.2mm	600g
F16-3600	60W	Amorphous, Folding canvas	Delphi Weather connector, 12V CLA socket	330.2 x 190.5 x 68.6mm	1.2kg
F16-6000	100W	Amorphous, Folding canvas	Delphi Weather connector, 12V CLA socket	355.2 x 342.9 x 68.6mm	2.1kg
F16-7200	120W	Amorphous, Folding canvas	Delphi Weather connector, 12V CLA socket	368.3 x 355.6 x 76.2mm	2.9kg
F32-3600	120W	Amorphous, Folding canvas	Delphi Weather connector, 30V	368.3 x 355.6 x 76.2mm	2.9kg
F16-14400	220W	Amorphous, Folding canvas	Delphi Weather connector, bag, cables	800.1 x 449.6 x 63.5mm	6.4kg
F32-7200	220W	Amorphous, Folding canvas	Delphi Weather connector, 30V, bag, cables	800.1 x 449.6 x 63.5mm	6.4kg

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**Rollable Series :** Waterproof, lightweight, ultra-flexible poly tarp backing. Excellent low-light performance, but not as efficient as crystalline. Highly portable form factor.

R-7	7W	Amorphous, Roll/flex waterproof	Delphi Weather connector, 12V CLA socket	370.8 x 76.2mm	300g
R-14	14W	Amorphous, Roll/flex waterproof	Delphi Weather connector, 12V CLA socket	370.8 x 76.2mm	500g
R-21	21W	Amorphous, Roll/flex waterproof	Delphi Weather connector, 12V CLA socket	370.8 x 76.2mm	700g
R-28	28W	Amorphous, Roll/flex waterproof	Delphi Weather connector, 12V CLA socket	370.8 x 76.2mm	900g
R-42	42W	Amorphous, Roll/flex waterproof	Delphi Weather connector, 12V CLA socket	673.1 x 76.2mm	1.2kg
R-60	60W	Amorphous, Roll/flex waterproof	Delphi Weather connector, 12V CLA socket	673.1 x 76.2mm	1.7kg

\* R-42 & R-60 can be supplied without edge grommets

## **HPS**

Folding 425	425W	Mono, Rigid folding	All-black, MC4	775 x 760 x 80mm	8kg
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## **GO POWER!**

GP-PSK-90	90W	Mono, Framed briefcase panel	Silver frame, 10A controller	550 x 505 x 65mm	9kg
GP-PSK-130	130W	Mono, Framed briefcase panel	Silver frame, 10A controller	824 x 503 x 70mm	15kg
GP-PSK-200	200W	Mono, Framed briefcase panel	Silver frame, 10A controller	1005 x 670 x 70mm	23kg
GP-DURALITE-100E	100W	Mono, Folding frameless panel	USB, Anderson connector	605 x 536 x 46mm	4.1kg

## **SAMLEX**

MSK-90	90W	Mono, Framed briefcase panel	All-black, 10A controller	673 x 360 x 114mm	11.45kg
MSK-135	135W	Mono, Framed briefcase panel	All-black, 10A controller	635 x 516 x 114mm	16.18kg

## **POWERWERX**

FSP-60	60W	Monocrystalline, folding	MC4 raw output, regulated USB/USB-C	422 x 520 x 41mm	2.7kg
FSP-100	100W	Monocrystalline, folding	MC4 raw output, regulated USB/USB-C	610 x 540 x 41mm	3.8kg
FSP-200	200W	Monocrystalline, folding	MC4 raw output, regulated USB/USB-C	610 x 540 x 57mm	7.0kg
FSP-300	300W	Monocrystalline, folding	MC4 raw output, regulated USB/USB-C	612 x 711 x 57mm	10.9kg

## **BIOENNO**

BSP-28	28W	Monocrystalline, Compact folding	18V DC barrel raw output, regulated USB	304 x 241 x 25mm	1.5kg
BSP-60-LITE	60W	Monocrystalline, Lightweight folding	36V MC4 raw output, regulated USB	845 x 520 x 5mm	



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## Project Solar Modules

Small format modules for USB, 12V, and other low voltage, off-grid applications

### VOLTAIC SYSTEMS

Rigid Frameless Modules. 3.5mm barrel connector (cabling & mounting accessories available).  
Ideal for remote cameras, scientific instruments, lighting, and security applications. 6V is suitable for most USB battery packs.

**Urethane UV encapsulation models** : Monocrystalline cells with rugged aluminum backing. IP67 waterproof. Highest durability & reliability.

P101C	: 1W, 6V	Mono	113 x 89 x 5 mm
P102C	: 2W, 6V	Mono	136 x 112 x 5 mm
P103C	: 3.5W, 6V	Mono	210 x 113 x 5 mm
P106C	: 6W, 6V	Mono	221 x 175 x 5 mm
P109	: 9W, 6V	Mono	257 x 22.1 x 5 mm
P107C	: 9W, 18V	Mono	257 x 22.1 x 5 mm
P117	: 17W, 18V	Mono	393 x 274 x 5 mm



**TFTE encapsulated models** : Monocrystalline cells with rigid backing. IP67 waterproof rating.

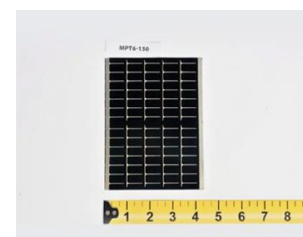
P134	: 0.4W, 2.5V	SPIC back contact mono	32.5 x 94 x 2.6 mm
P121	: 0.3W, 2V	SunPower IBC mono	52 x 52 x 2.6 mm
P122	: 0.3W, 6V	SunPower IBC mono	52 x 52 x 2.6 mm
P123	: 0.6W, 6V	SunPower IBC mono	66 x 66 x 2.6 mm
P124	: 1.2W, 6V	SunPower IBC mono	66 x 113 x 2.6 mm
P126	: 2W, 6V	SunPower IBC mono	112 x 136 x 2.7 mm
P105	: 5W, 6V	SunPower IBC mono	148 x 223 x 4 mm
P110	: 10W, 6V	SunPower IBC mono	223 x 274 x 4 mm
P120	: 20W, 6V	SunPower IBC mono	436 x 274 x 4 mm
P108	: 9W, 18V	Mono	223 x 274 x 4 mm

### POWERFILM THIN FILM MODULES

Ultra thin, ultra flexible, light-sensitive, state-of-the-art amorphous silicon thin film cells.  
Virtually unbreakable. Ideal for commercial projects, university & high school labs, & hobbies.

**Classic Series** : Standard, non-encapsulated. Ultra-thin, flexible profile, easy integration into devices for recharging or direct power.

ONP1.2-12x24	4mW	1.2V 3.3mA	24.0 x 12.0 mm
ONP1.2-37x54	61mW	1.2V 50.8mA	54.0 x 36.5 mm
ONP2.4-15x94	45mW	2.4V 18.6mA	94.0 x 14.6 mm
MPT2.4-21	34mW	2.4V 14.2mA	54.0 x 20.9 mm
SP3-37	66mW	3.0V 22mA	64.0 x 36.5 mm
MP3-25	93mW	3.0V 31mA	114.0 x 24.0 mm
MP3-37	150mW	3.0V 50mA	114.0 x 36.5 mm
MPT3.6-75	180mW	3.6V 50mA	74.0 x 73.0 mm
MPT3.6-150	360mW	3.6V 100mA	74.0 x 146.0 mm
SP4.2-37	92mW	4.2V 22mA	84.0 x 36.5 mm
MPT4.8-75	240mW	4.8V 50mA	94.0 x 73.0 mm
MPT4.8-150	480mW	4.8V 100mA	94.0 x 146.0 mm
MPT6-75	300mW	6.0V 50mA	114.0 x 73.0 mm
MPT6-150	600mW	6.0V 100mA	114.0 x 146.0 mm
MP7.2-75F	864mW	7.2V 120mA	253.0 x 73.0 mm
MP7.2-150F	1.73W	7.2V 240mA	253.0 x 146.0 mm
MPT15-75	770mW	15.4V 50mA	253.0 x 73.0 mm
MPT15-150	1.54W	15.4V 100mA	253.0 x 146.0 mm





# The Modern Outpost Solar Module Slate

As at : December 1, 2023



**WeatherLite Series** : Lightweight, can be soldered from the back of the panel. Extra edge seal for protection from the weather.

RC7.2-75F	864mW	7.2V / 120mA		271.0 x 92.0 mm
RC7.2-75 PSAF	864mW	7.2V / 120mA	Pressure sensitive adhesive	271.0 x 92.0 mm

**WeatherPro Series** : Full waterproof encapsulation with tinned solder strips.  
The perfect choice for permanent outdoor applications directly exposed to the elements.

P7.2-75 :	8.64mW	7.2V/100mA	283.0 x 99.0 mm
P7.2-150 :	1.73W	7.2V/200mA	283.0 x 172.0 mm
PT15-75 :	770mW	15.4V/50mA	283.0 x 99.0 mm
PT15-150 :	1.54W	15.4V/100mA	283.0 x 172.0 mm
PT15-300 :	3.08W	15.4V/200mA	283.0 x 313.0 mm

**Indoor Light Series** : Optimized to harvest artificial indoor light instead of sunlight

LL200-2.4-37	200 lux : 1.6V / 0.043mA	1000 lux: 2.1V / 0.214mA	54.0 x 36.5 mm
LL200-2.4-75	200 lux: 1.6V / 0.181mA	1000 lux: 2.1V / 0.904mA	94.0 x 73.0 mm
LL200-3-37	200 lux: 2.1V / 0.079mA	1000 lux: 2.6V / 0.419mA	114.0 x 36.5 mm
LL200-3.6-75	200 lux: 2.4V / 0.086mA	1000 lux: 3.2V / 0.423mA	73.0 x 74.0 mm
LL200-4.8-37	200 lux: 3.2V / 0.041mA	1000 lux: 4.2V / 0.207mA	94.0 x 36.5 mm
INP1.2-12x34	200 lux: 0.8V / 0.016mA	1000 lux: 1.1V / 0.059mA	34.0 x 12.0 mm
INP2.4-10x94T	200 lux: 1.6V / 0.021mA	1000 lux: 2.1V / 0.105mA	94.0 x 10.0 mm
INP3.6-24x44T	200 lux: 2.4V / 0.013mA	1000 lux: 3.2V / 0.063mA	44.0 x 24.0 mm
INP3.6-12x310	200 lux: 2.4V / 0.081mA	1000 lux: 3.2V / 0.307mA	310.0 x 11.86 mm