

## Monocrystalline Solar Module

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### Product Overview

USP Module delivers the performance and efficiency required for large power output applications.

Featuring a smooth, all-blue surface and a tight  $\pm 3\%$  power tolerance.

Provides an aesthetically attractive and efficient option for residential, commercial, and utility installations.

### Technical Features

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- 5 year product warranty, 25 year performance warranty\*
- Module certified to withstand high snow loads, up to  $5.4\text{kN/m}^2$ \*\*
- Tight power tolerance:  $\pm 3\%$ , anti-reflective coating
- Free module recycling through membership in PV Cycle

### Warranty

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5-year limited product warranty

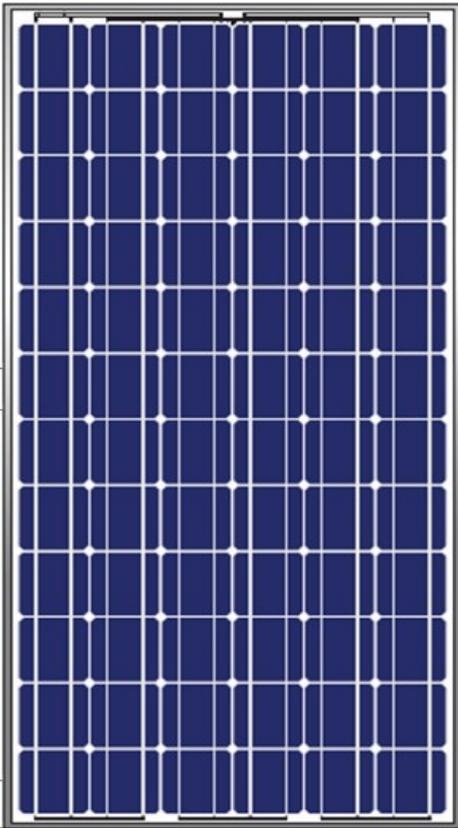
Limited performance warranty: 10 years at 90% of the minimal rated power output, 25 years at 80% of the minimal rated power out

### About USP

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USP is a vertically integrated manufacturer of photovoltaic modules designed to meet the demands of the global energy consumer. From high-grade crystalline silicon, to module production, to project development and financing, USP is setting the new standard in innovation and value.

- High reliability, guaranteed quality, and excellent cost-efficiency due to vertically integrated production and control of the supply chain;
- Optimization of product performance and manufacturing processes through a strong commitment to research and development;
- Global presence throughout Europe, North America, and Asia, offering regional technical and sales support.



## Electrical Characterist

### Electrical Characteristics At Standard Test Conditions (STC)

Maximum Power (P <sub>max</sub> )	175W	180W	185W	190W	195W	200W
Open Circuit Voltage (V <sub>oc</sub> )	44.40V	44.88V	45.18V	45.39V	45.50V	45.62V
Short Circuit Current (I <sub>sc</sub> )	5.36A	5.44A	5.52A	5.58A	5.63A	5.66A
Voltage At Maximum Power (V <sub>mp</sub> )	36.26V	36.42V	36.54V	36.66V	36.96V	37.26V
Current At Maximum Power (I <sub>mp</sub> )	4.83A	4.95A	5.06A	5.19A	5.28A	5.37A
Module Efficiency (%)	13.70	14.10	14.50	14.90	15.27	15.67

P<sub>max</sub>, V<sub>oc</sub>, I<sub>sc</sub>, V<sub>mp</sub>, and I<sub>mp</sub> tested at STC defined as irradiance of 1000W/m<sup>2</sup> at AM 1.5G solar spectrum and temperature 25 ±2°C.  
Power tolerance of ±3% refers to measured performance.

### Electrical Characteristics At Normal Operating Cell Temperature (NOCT)

Maximum Power (P <sub>max</sub> )	126W	130W	133W	137W	140W	145W
Open Circuit Voltage (V <sub>oc</sub> )	40.50V	40.80V	41.00V	41.20V	41.40V	40.86V
Short Circuit Current (I <sub>sc</sub> )	4.44A	4.53A	4.60A	4.68A	4.74A	4.89A
Voltage At Maximum Power (V <sub>mp</sub> )	31.70V	31.90V	32.00V	32.20V	32.40V	33.64V
Current At Maximum Power (I <sub>mp</sub> )	3.98A	4.09A	4.17A	4.26A	4.34A	4.31A
Module Efficiency (%)	9.87	10.18	10.42	10.73	10.97	11.36

P<sub>max</sub>, V<sub>oc</sub>, I<sub>sc</sub>, V<sub>mp</sub>, and I<sub>mp</sub> tested at NOCT defined as irradiance of 800W/m<sup>2</sup>; wind speed 1m/s.  
Power tolerance of ±3% refers to measured performance.

### Temperature Characteristics

Normal Operating Cell Temperature (NOCT)	45 ±3°C
Temperature Coefficients OFP	-0.45%/°C
Temperature Coefficients OFV	-0.32%/°C
Temperature Coefficients OFI	-0.04%/°C

### Maximum Ratings

Maximum System Voltage	1000V (IEC); 600V (UL)
Series Fuse Rating	10A
Maximum Reverse Current	Series Fuse Rating Multiplied By 1.35

### Mechanical Characteristics

Dimensions	1580mm x 808mm x 40mm
Weight	15kg
Frame	Aluminum alloy
Front	Tempered glass
Encapsulant	EVA
Back Cover	Composite sheet
Cell Technology	Monocrystalline
Cell Size	125mm x 125mm
Number of Cells (Pieces)	72 (6 x 12)
Junction Box	Protection class IP65 with bypass-diode
Output Cables	Solar cable: 4mm <sup>2</sup> ; length 900mm

### Packaging and Storage

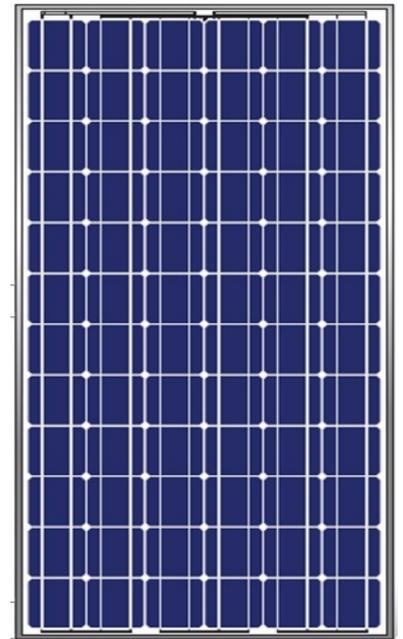
#### System Design

Operating Temperature	-40°C to 85°C	Storage Temperature	-40°C to 85°C
Hail safety Impact Velocity	25mm at 23m/s	Packaging Configuration	25 pcs per pallet
Fire Safety Classification	Class C	Loading Capacity	700 pieces
Static Load Wind/snow	5.4kN/m <sup>2</sup>		

### Performance At Low Irradiance:

The typical relative change in module efficiency at an irradiance of 200W/m<sup>2</sup> in relation to 1000W/m<sup>2</sup> (both at 25°C and AM 1.5G spectrum) is less than 5%.

### Various Irradiance Levels



Basic Design

