



# Monocrystalline PV module

## 72 cells (Black series)



### Electrical Characteristics

Model	UP-M160M	UP-M165M	UP-M170M	UP-M175M	UP-M180M	UP-M185M
Max Power Pm (W)	160	165	170	175	180	185
Max Power Voltage Vm (V)	35.3	35.6	35.8	36.0	36.2	36.4
Max Power Current Im (A)	4.53	4.65	4.76	4.86	4.97	5.08
Open-Circuit Voltage Voc (V)	44.0	44.3	44.4	44.6	44.8	45.0
Short-Circuit Current Isc (A)	4.90	4.98	5.05	5.15	5.22	5.30
Cell Efficiency	15.5%	16.0%	16.5%	16.9%	17.4%	17.9%
Module Efficiency	12.5%	12.9%	13.3%	13.7%	14.1%	14.5%
Maximum System Voltage (V)	1000 (TUV) / 600 (UL)					
Power Tolerance	± 3%					
Series Fuse Rating (A)	15					

### Components & Mechanical Data

Front Glass	High Transparency Tempered Glass, 3.2mm - <b>Saint Gobain</b> (Albarino) // <b>Pilkington</b>
Junction Box	<b>Huber+Suhner</b> (IP 67) Radox RH3 // <b>Tyco</b> , 1740971-1
Bypass Diode	3 diodes - <b>ST</b> STPS145 // <b>Diotec</b> SL1515 (15A)
Output Cables	Cable <b>Tyco</b> 1m, ZHSCG (4mm <sup>2</sup> and 12AWG), IEC and UL approved
Connectors	<b>MC4</b> // <b>Tyco</b> , IP67, IEC and UL approved
Frame	Anodized aluminum alloy type 6063-T5
Encapsulation Material	EVA (0.50 ± 0.03mm thickness)
Back Foil	Black TPT (0.32 ± 0.03mm thickness)
Silicone Sealant	<b>Dow Corning</b>
Temperature Range	-40°C to +90°C
Max Load	6400 Pa
Impact Resistance	Steel ball - 1040g dropped from 1m high

Components subject to changes according to availability and market conditions.

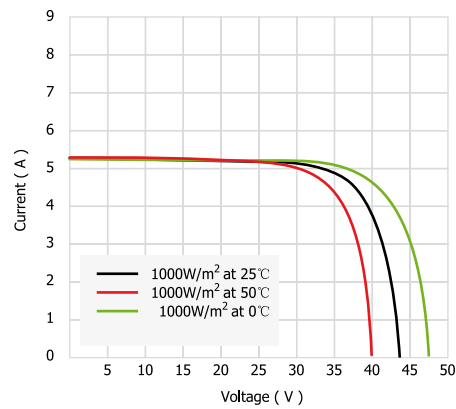
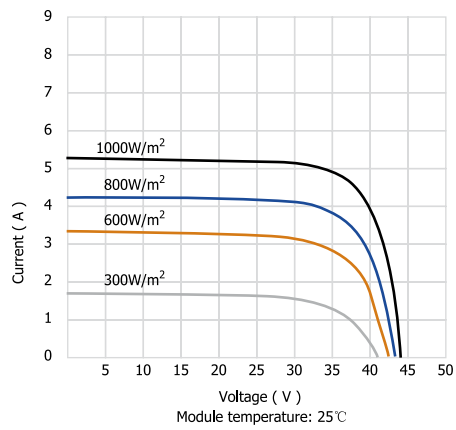
### Specifications

Cells	Monocrystalline silicon solar cells 125x125mm
Number of cells	72 (6x12)
Dimensions (mm)	1580 x 808 x 40
Weight (kg)	15.4

## Temperature Coefficients

<b>NOCT (°C)</b>	45±2
Temperature Coefficient of Isc (%/°C)	0.05±0.01
Temperature Coefficient of Voc (%/°C)	-0.32±0.02
Temperature Coefficient of Im (%/°C)	-0.02±0.02
Temperature Coefficient of Vm (%/°C)	-0.42±0.03
Temperature Coefficient of Pm (%/°C)	-0.43±0.05

## IV Curves



### NOTE

- STC: Irradiance 1000W/m<sup>2</sup>, Module temperature 25°C, AM=1.5
- Nominal Operating Cell Temperature above data is only for reference
- Deviation of Vm(V), Im(A), Voc(V) and Isc(A) of ±10%

### GUARANTEE

- 5-year** product guarantee
- 10-year** performance guarantee at 90% power output
- 25-year** performance guarantee at 80% power output

