

# Polycrystalline PV module

## 60 cells



### Electrical Characteristics

Model	UP-M215P	UP-M220P	UP-M225P	UP-M230P
Max Power Pm (W)	215	220	225	230
Max-Power Voltage Vm (V)	28.2	28.7	29.2	29.7
Max-Power Current Im (A)	7.45	7.67	7.71	7.75
Open-Circuit Voltage Voc (V)	36.1	36.7	37.0	37.2
Short-Circuit Current Isc (A)	8.10	8.25	8.27	8.30
Module Efficiency	12.9%	13.5%	13.8%	14.1%
Maximum System Voltage (V)	600 UL (TUV 1000)			
Power Tolerance	± 3%			

### Components & Mechanical Data

Front Glass	High Transparency Tempered Glass, 3.2mm (0.125") - <b>Saint Gobain</b> (Albarino)
Junction Box	<b>Tyco</b> , 1740971-1, IEC and UL approved
Bypass Diode	3 diodes - <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> , IP67, IEC and UL approved
Frame	Anodized aluminum alloy type 6063-T5
Encapsulation Material	EVA (0.50 ± 0.03mm thickness -- 0.019" ± 0.001")
Back Foil	White TPT (0.32 ± 0.03mm thickness -- 0.012" ± 0.001")
Silicone Sealant	<b>Dow Corning</b>
Temperature Range	-40°C to +90°C
Max Load	45 lbs/ft <sup>2</sup>
Impact Resistance	Steel ball - 1040g dropped from 1m high (2.3lb from 40")

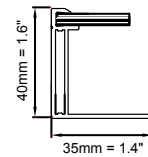
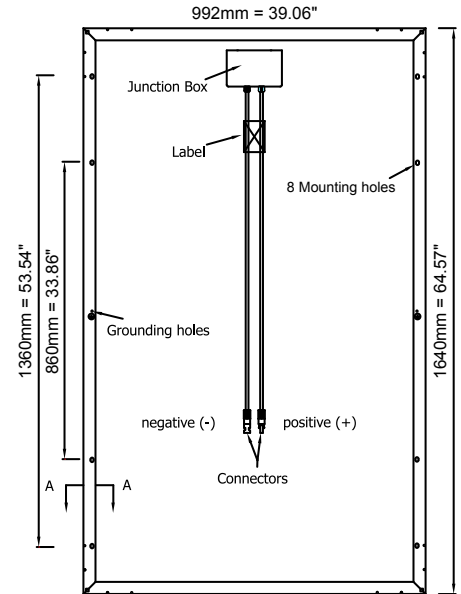
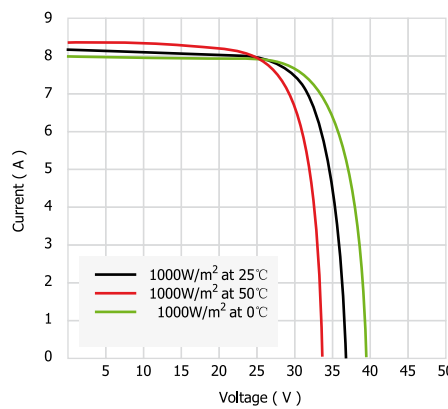
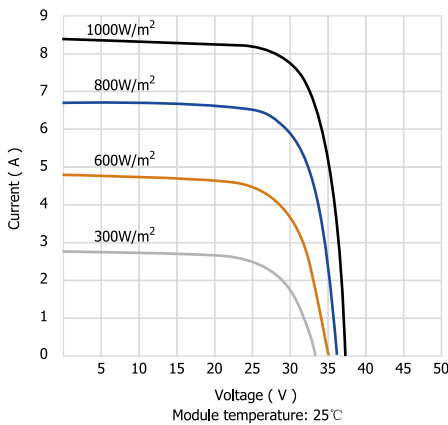
### Specifications

Cells	Polycrystalline silicon solar cells 156x156mm (6"x6")
Number of cells	60 (6x10)
Dimensions	1640 x 992 x 40mm (64.57"x39.06"x1.6")
Weight	20.0kg (44lb)



## Temperature Coefficients

<b>NOCT (°C)</b>	45±2
Current Temperature Coefficient of Isc (%/°C)	0.06±0.01
Voltage Temperature Coefficient of Voc (%/°C)	-0.34±0.01
Temperature Coefficient of Im (%/°C)	-0.02±0.01
Temperature Coefficient of Vm (%/°C)	-0.50±0.01
Temperature Coefficient of Pm (%/°C)	-0.40±0.05



Section A-A

### Guarantee:

**5-years** product guarantee

**10-years** performance guarantee at 90% power output

**25-years** performance guarantee at 80% power output

### 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%

SAN FRANCISCO  
 Upsolar America, INC.  
 Transamerica Pyramid Center  
 600 Montgomery Street - Floor 45  
 San Francisco, CA 94111  
 Tel : +1 415.263.9920  
 Fax: +1 415.685.4527

