



## SAPPHIRE SERIES

310 - 345 Watt

72 Cell Module

Poly Crystalline Solar PV Modules

**Solarium PV Modules** are manufactured with the highest quality materials and features best in class quality and performance. Our Meticulous product design and stringent quality control ensures our modules deliver an exceptional high PV yield.



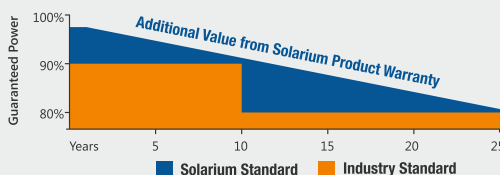
Excellent Module Efficiency  
**Upto 17.75%**

Product Warranty  
**10 Years**

Positive Power Tolerance  
**Upto 4.99W**

PID Resistant

**25 Year Linear Warranty**



### Qualifications & Certificates

IEC 61215, IEC 61730 -1 & 2  
IEC 62804, IEC 61701,  
ISO 9001, 14001, 18001



### High Power Density

High conversion efficiency and more power output per square meter



### Durability

Certified for Salt Mist Corrosion and PID Resistance



### Advanced Glass

High-transmission glass features a unique anti-reflective coating that directs more light on the solar cells



### Reliability

100 % EL tested before and after lamination



### Premium Quality

Built to the most stringent quality standards in the industry.

### Sapphire + PERC Modules

Designed with latest PERC Technology  
Higher Module Efficiency with High Power Output  
Lower Temperature Co-efficient



Engineered in  
**INDIA**

#### ELECTRICAL PERFORMANCE

##### Electrical Parameters at Standard Test Conditions (STC)

Module Type	SGE 24Pxxx (xxx=Pmax)							
	SAPPHIRE				SAPPHIRE+			
Maximum Power P <sub>max</sub> (Wp)	310	315	320	325	330	335	340	345
Maximum Voltage V <sub>mpp</sub> (V)	36.30	36.50	36.70	36.9	37.10	37.00	37.40	37.60
Maximum Current I <sub>mpp</sub> (A)	8.54	8.63	8.72	8.81	8.90	9.01	9.10	9.18
Open-Circuit Voltage V <sub>oc</sub> (V)	45.60	45.80	46.00	46.20	46.40	46.60	47.00	47.29
Short-Circuit Current I <sub>sc</sub> (A)	9.04	9.13	9.23	9.32	9.41	9.50	9.59	9.68
Module Efficiency (%)	15.97	16.23	16.49	16.74	16.98	17.24	17.50	17.75

**STC:** 1000W/m<sup>2</sup> irradiance, 25°C module temperature, AM1.5g spectrum according to EN 60904-3. Average relative efficiency reduction of 3.0% at 200W/m<sup>2</sup> according to EN 60904-1.

##### Electrical Parameters at Nominal Operating Cell Temperature (NOCT)

Maximum Power P <sub>max</sub> (Wp)	226.10	229.80	233.40	237.10	240.73	244.38	247.86	251.51
Maximum Voltage V <sub>mpp</sub> (V)	33.02	33.20	33.38	33.56	33.74	33.92	34.05	34.25
Maximum Current I <sub>mpp</sub> (A)	6.85	6.92	6.99	7.06	7.13	7.20	7.28	7.34
Open-Circuit Voltage V <sub>oc</sub> (V)	41.95	42.14	42.32	42.50	42.65	42.80	43.24	43.51
Short-Circuit Current I <sub>sc</sub> (A)	7.31	7.38	7.46	7.53	7.58	7.63	8.06	8.13

**NOCT:** open-circuit module operation temperature at 800W/m<sup>2</sup> irradiance, 20°C ambient temperature, 1m/s wind speed.

#### THERMAL CHARACTERISTICS

Nominal Operating Cell Temperature	NOCT	°C	46+/-2
Temperature Coefficient of P <sub>max</sub>	γ	%/°C	-0.42
Temperature Coefficient of V <sub>oc</sub>	β	%/°C	-0.34
Temperature Coefficient of I <sub>sc</sub>	α	%/°C	0.05

#### OPERATING CONDITIONS

Maximum System Voltage	1000V <sub>dc</sub>
Maximum Series Fuse Rating	15.0 A
Limiting Reverse Current Rating	15.0 A
Operating Temperature Range (°C)	-40°C to 85°C
Maximum Static Load, Front	5400 Pa
Maximum Static Load, Back (e.g., wind)	2400Pa
Max. Hailstone Impact (diameter / velocity)	25mm / 23m/s

#### MECHANICAL DATA

Cell Type	Poly Crystalline (or Poly Crystalline PERC) / 156.75mm x 156.75mm
Cell Arrangement	72 (6 X 12)
Dimensions (L / W / H)	1960mm / 990mm / 35mm
Weight	21.5Kg
Superstrate ( Glass )	3.2 mm -High Transmission Low-Iron Tempered Glass (AR Coated)
Frame Material	Silver Anodized Aluminum Frame With Twin Wall Profile ( Black Optional)**
Cell Encapsulant	EVA (Ethylene Vinyl Acetate) - FC/UFC
Back Sheet	Composite Film - White (Black and Transparent Optional)**
Junction Box	IP 67 rated
Cable	1200mm / 4mm <sup>2</sup>
Connectors	2 Nos. Black MC4 Compatible Connectors
By- Pass Diodes	3 Pcs

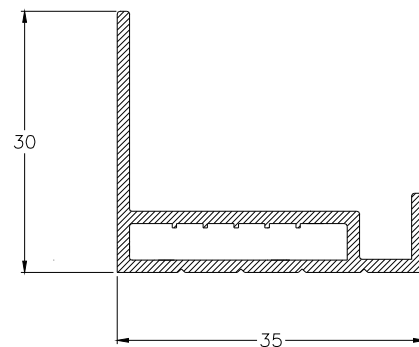
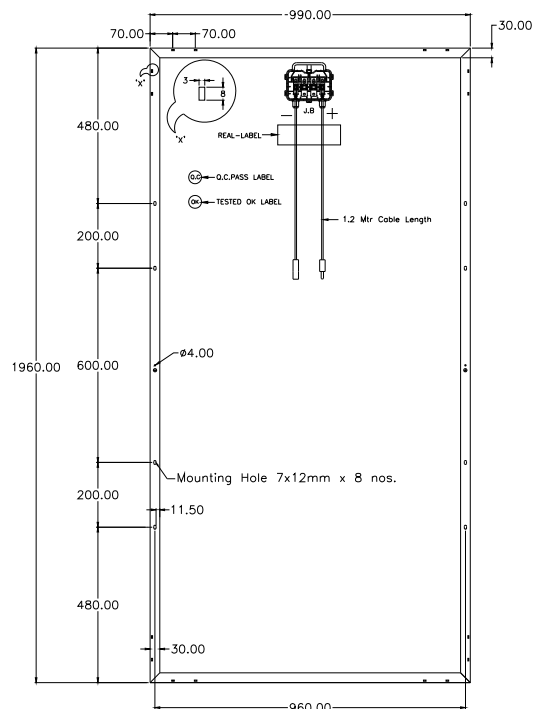
**CAUTION:** READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT.

\*Due to continuous innovation, research and product improvement, the specifications in this product information sheet are subject to change without prior notice. The specifications may deviate slightly and are not guaranteed.

\*\* Black and Transparent back sheet and black frame module without IEC certification

#### PACKAGING SPECIFICATIONS

Number of Modules Per Pallet	25 Nos
Pallet dimensions (L / W / H)	1995mm/1145mm/950mm
Weight Per Pallet	600Kg



#### I-V Curve (for different Irradiances)

