

High-efficiency photovoltaic module using silicon nitride polycrystalline cells.

### Performance

Rated power ( $P_{max}$ )	220W
Power tolerance	± 3%
Nominal voltage	24V
Limited Warranty	25 years

### Configuration

SM-220PA2 Bronze frame with output cables



### Electrical Characteristics

#### SM-220PA2

Maximum power ( $P_{max}$ )	220W
Voltage at Pmax ( $V_{mp}$ )	29.2V
Current at Pmax ( $I_{mp}$ )	7.55A
Warranted minimum $P_{max}$	213W
Short-circuit current ( $I_{sc}$ )	8.20A
Open-circuit voltage ( $V_{oc}$ )	36.6V
Temperature coefficient of $I_{sc}$	4.40mA/°C
Temperature coefficient of $V_{oc}$	-129mV/°C
Temperature coefficient of power	-0.46%/°C
NOCT (Air 20°C; Sun 0.8kW/m <sup>2</sup> ; Wind 1m/s)	47±2°C
Maximum Series fuse rating	10A
Maximum system voltage	1000V

### Mechanical Characteristics

Dimensions	Length : 1620mm	Width : 980mm	Depth : 50mm
Weight	19 kg		
Solar Cells	60 cells (156mm x 156mm) in a 6 x 10 matrix connected in series		
Output Cables	RHW-2, 12AWG (4mm <sup>2</sup> ) cable with polarized weatherproof DC rated connectors; Cable length-1000mm (+ -)		
Construction	Front : High-transmission 3.2mm low iron tempered glass; White back sheet Encapsulant; EVA		
Frame	Anodized aluminum frame; Color: silver		

1. Warrant : Power output for 25 years (10% of minimum output power per 10 years). Freedom from defects in materials and workmanship for 3 years.
2. These data represent the performance of typical SM-220PA2 products, and are based on measurements made in accordance with ASTM E1038 corrected to SRC (STC)
3. During the stabilization process that occurs during the first few months of deployments, module power may decrease by up to 3% from typical  $P_{max}$

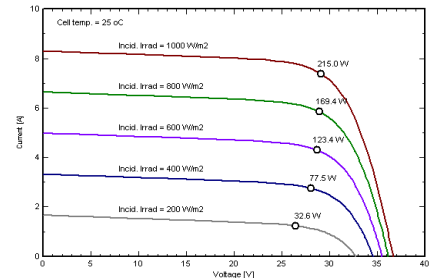
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### Quality Assurance

S-Energy photovoltaic modules have passed the following tests.

Thermal shock / cycling test	Mechanical loading test
UV preconditioning test	Hot-spot endurance test
Humidity – Freeze test	Water proof test
Electrical insulation test	Outdoor exposure test
Damp-heat test	Hail impact test

### Irradiance coefficient

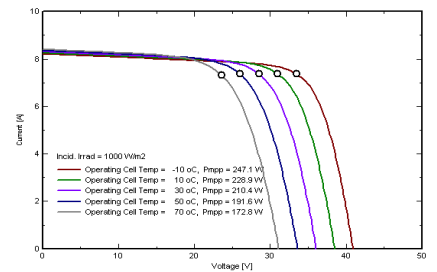


### Qualification Test Parameters

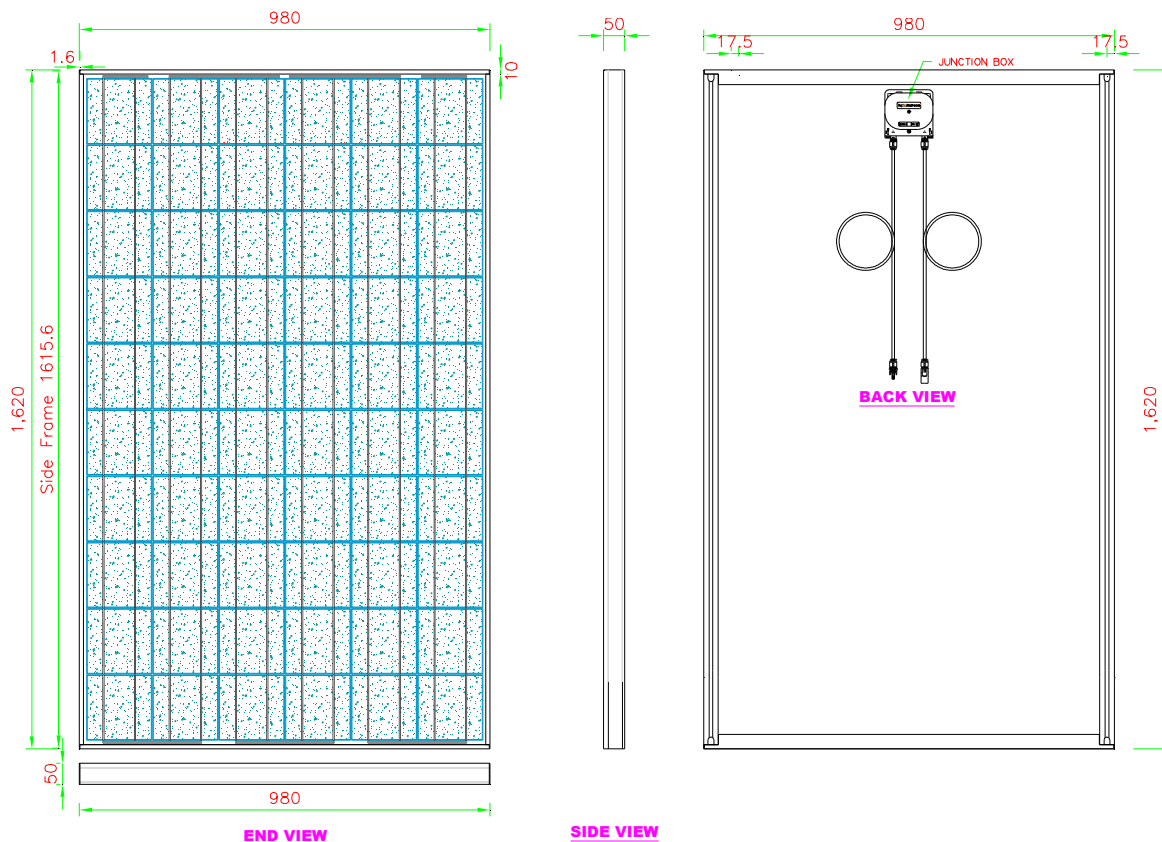
Tests are proceeded by IEC 61215 standard.

Thermal cycling Range	-40°C to +85°C
Humidity Freeze, damp heat	85% RH
Static load front and back	540kg/m²
Hailstone impact	25mm at 23 m/s
STC	1000W/m² ; 25°C ; AM 1.5

### Temperature coefficient



### Module Diagram



**NOTE :** This publication summarizes product warranty and specification, which are subject to change without notice