

S-ENERGY

High-efficiency photovoltaic module using silicon nitride polycrystalline cells.

SM-XXXPK1 Series

205 ~ 230 Watt Photovoltaic Module

Performance

| | |
|---------------------------|-----------|
| Rated power (P_{max}) | 205~230W |
| Power tolerance | $\pm 3\%$ |
| Limited Warranty | 30 years |



Electrical Characteristics

| Model | 230PK1 | 225PK1 | 220PK1 | 205PK1 |
|--|---------------------------|-----------|-----------|---------------------------|
| Maximum power (P_{max}), W | 230 | 225 | 220 | 205 |
| Voltage at P_{max} (V_{mp}), V | 30.4 | 30.0 | 29.8 | 33.4 |
| Current at P_{max} (I_{mp}), A | 7.57 | 7.51 | 7.39 | 8.19 |
| Warranted minimum P_{max} , W | 223 | 218 | 213 | 198 |
| Short-circuit current (I_{sc}), A | 8.23 | 8.17 | 8.04 | 7.53 |
| Open-circuit voltage (V_{oc}), V | 37.2 | 37.0 | 36.7 | 27.3 |
| Temperature coefficient of I_{sc} | 0.07%/°C | 0.07%/°C | 0.07%/°C | 0.03%/°C |
| Temperature coefficient of V_{oc} | -0.36%/°C | -0.36%/°C | -0.36%/°C | -0.35%/°C |
| Temperature coefficient of power | -0.40%/°C | -0.40%/°C | -0.40%/°C | -0.43%/°C |
| NOCT (Air 20°C; Sun 0.8kW/m²; Wind 1m/s) | 47±2°C | 47±2°C | 47±2°C | 47±2°C |
| Maximum series fuse rating, A | 15 | 15 | 15 | 10 |
| Maximum system voltage, V | 1000 | 1000 | 1000 | 1000 |
| Module efficiency | 14.14% | 13.83% | 13.52% | 13.96% |
| Dimensions | 1620mm x 980mm Depth:50mm | | | 1460mm x 980mm Depth:50mm |
| Weight | 19Kg | | | 18Kg |
| Solar cells | 60 cells (6 x 10 matrix) | | | 54 cells (6 x 10 matrix) |

Mechanical Characteristics

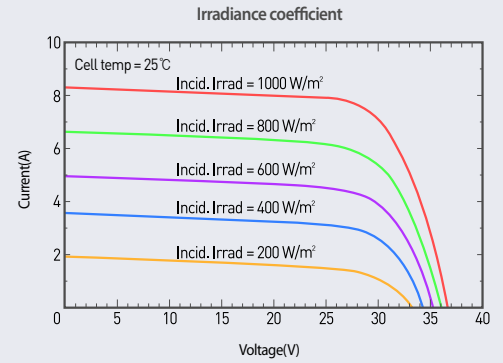
| | |
|---------------|---|
| Frame | Anodized aluminum frame; Color: silver or Black |
| Output Cables | RHW-2, 12AWG (4mm²) cable with polarized weatherproof DC rated Multicontact connectors; Cable length-1000mm (+ -) |
| Construction | Front : High-transmission 3.2mm low iron tempered glass; White back sheet Encapsulant; EVA |

- Warrant : Power output for 30 years (90% of minimum output power for 10 years, 80% of minimum output power for 30 years).
Freedom from defects in materials and workmanship for 10 years.
- These data represent the performance of typical SM-XXXPK1 Series products, and are based on measurements made in accordance with ASTM E1038 corrected to SRC (STC)
- 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}

Quality Assurance

S-Energy photovoltaic modules have passed the following tests,

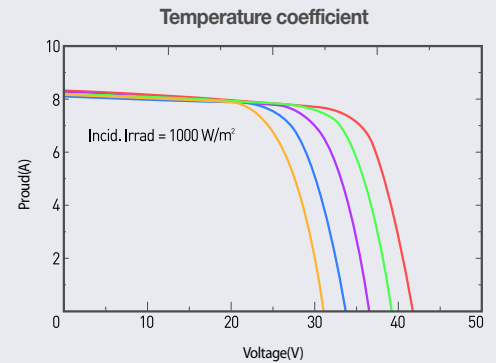
| | |
|------------------------------|-------------------------|
| Thermal shock / cycling test | Mechanical loading test |
| UV preconditioning test | Hot-spot endurance test |
| Humidity -Freeze test | Water proof test |
| Electrical insulation test | Outdoor exposure test |
| Damp-heat test | Hail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



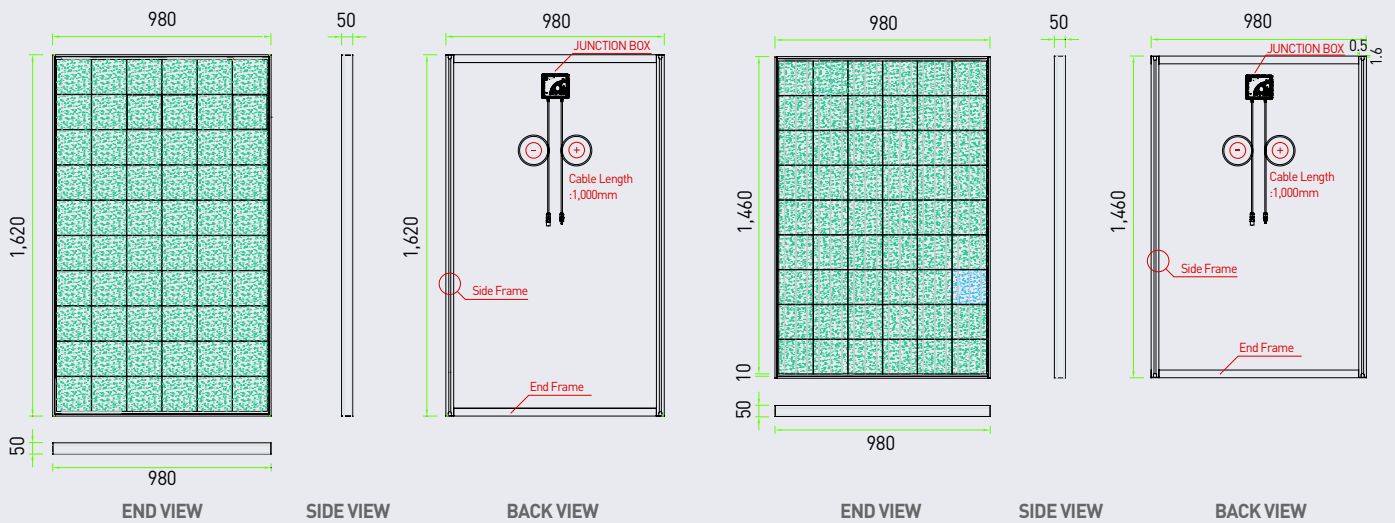
Qualification Test Parameters

Tests are proceeded by IEC 61215 standard.

| | |
|----------------------------|--------------------------------------|
| Thermal cycling Range | -40°C to +85°C |
| Humidity Freeze, damp heat | -40°C to +85°C(85% RH), 85°C(85% RH) |
| Static load front and back | 816kg/m² |
| Hailstone impact | 25mm at 23 m/s |
| STC | 1000W/m² ; 25°C ; AM 1.5 |



Module Diagram



Module : SM-230PK1, SM-225PK1, SM-220PK1

Module : SM-205PK1

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



S-ENERGY

E-mail : inquiry@s-energy.co.kr

TEL : +82-2-801-7100 / FAX : +82-2-801-8788

Address : 10th Fl, E&C Venture Dream Tower VI, 197-28 Guro-dong, Guro-gu, Seoul, Korea