



MONOCRYSTALLINE SOLAR MODULE

IS 270 M - 60 C

Ikram Solar, with its commitment to harness the solar energy, has opened up new vistas in the field of solar energy field. Backed by an integrated 2BG srl (Italy) 15MW annual production facility to manufacture high-performance 100-300Watt Mono & Poly crystalline solar modules for solar electric systems that deliver higher efficiency, lower installation costs, and a smaller system footprint with the state-of-the-art technology based in Sundar Industrial Estate Raiwind Road, Lahore-Pakistan.

The IS270M-60C Monocrystalline is the most reliable PV Solar module for all applications including residential, commercial, industrial and power plants in Pakistan. The first module generation from Ikram Solar has been optimized using Monocrystalline Solar cells from one of the world's most famous cell manufacturer SolarWorld AG Germany as solar cell is considered the engine of any module and the cells supplied are PID & HotSpot free and offer >18% efficiency range.

INNOVATIVE ALL-WEATHER TECHNOLOGY

- Maximum yields with excellent low- light and temperature behavior.
- Increased efficiency and performance by improved layout & three bus bar technology.

ENDURING HIGH PERFORMANCE

- Long-term Yield Security of modules due to PID Technology in the solar cells and PID free EVA Encapsulant film.
- Hot-Spot Protection of modules as each Cell is individually tested for Hot-Spot by SolarWorld AG Lab in Germany.
- U shaped Unique logo on each busbar of cells that's shows its originality from SolarWorld AG.

SAFE ELECTRONICS

- Protection against short circuits and thermally induced power losses due to breathable junction box with IP67 Protection and welded cables.
- Increased flexibility due to MC4 inter-mateable connectors.

PROFIT-INCREASING GLASS TECHNOLOGY

- Reduction of light reflection by 50 %, plus long-term corrosion resistance due to high-quality »Sol-Gel roller coating« processing.

LIGHTWEIGHT QUALITY FRAME

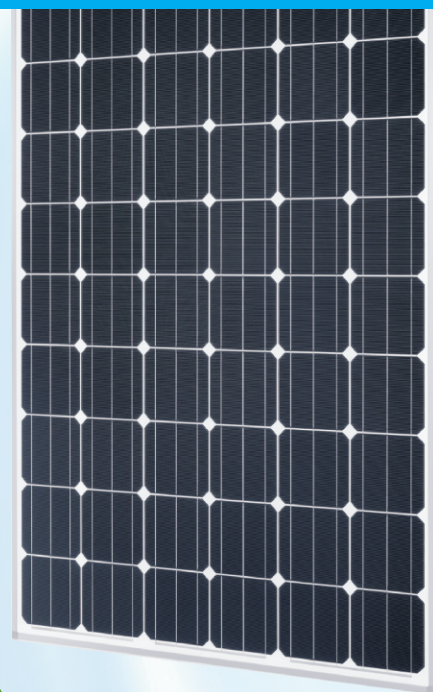
- Stability at wind loads of up to 5400 Pa with a module weight of just 19.5 kg due to slim frame design with high-tech alloy.

LONGER LIFE SPAN

- With TPT (Tedlar/PET/Tedlar) backsheet from Dupont (USA), the average module life is above 30 year.

EXTENDED WARRANTIES

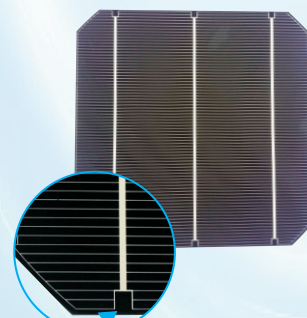
- Investment security due to 10-year product warranty and 25-year linear performance warranty.



PRODUCT WARRANTY



LINEAR PERFORMANCE WARRANTY



Original SolarWorld Logo  on each Solar Cell


10 YEAR PRODUCT WARRANTY

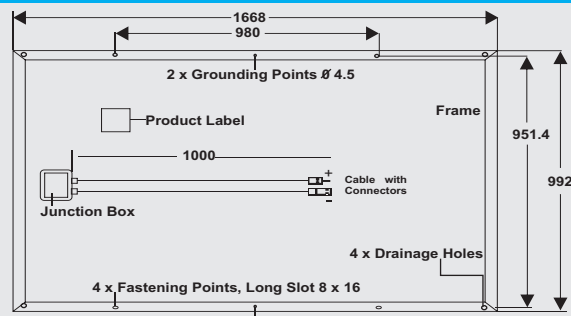
For material defects or processing defects. HOT-SPOT PROTECT and ANTI PID TECHNOLOGY

25 YEAR LINEAR PERFORMANCE WARRANTY

At least 97% of the nominal power within the first year. Thereafter, decrease of the power output will not exceed 0.7% p.a. Minimal nominal rated power after 10 year at least 90% and 80% after 25 year.

TECHNICAL SPECIFICATION

Format	1668 mm x 992 mm x 40 mm (including frame)
Weight	19.5 kg
Front Cover	3.2 mm thermally pre-stressed glass with anti-reflection technology
Back Cover	TPT (Tedlar/PET/Tedlar) film
Frame	Anodized Aluminium
Cell	6x10  Monocrystalline solar cells (Germany)
Junction Box	101.5 mm x 60 mm x 25.5 mm, TUV & UL Approved class Protection IP67, with bypass diodes
Cable	4 mm ² Solar cable; (+) ≥ 1000 mm, (-) ≥ 1000 mm
Connectors	Sunbolts Dual Approved (TUV & UL), IP67



ELECTRICAL CHARACTERISTICS

PERFORMANCE AT STANDARD TEST CONDITIONS (STC: 1000 W/m², 25 °C, AM 1.5 G SPECTRUM)¹

NOMINAL POWER (+5 W/-0 W)		[W]	260	265
Average Power	P _{MPP}	[W]	263	269.4
Short Circuit Current	I _{SC}	[A]	9.02	9.05
Open Circuit Voltage	V _{OC}	[V]	38.90	39.0
Current at P _{MPP}	I _{MPP}	[A]	8.47	8.69
Voltage at P _{MPP}	V _{MPP}	[V]	30.70	31.74
Efficiency (Nominal Power)	η	[%]	≥ 17.80	≥ 18.0

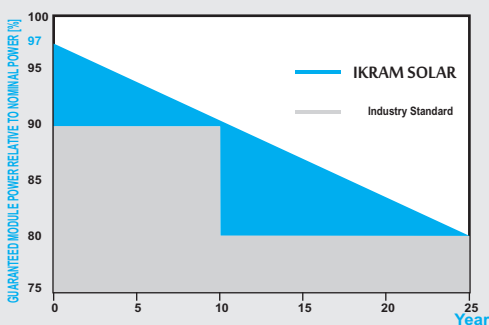
PERFORMANCE AT NORMAL OPERATING CELL TEMPERATURE (NOCT: 800 W/m², 45 ± 3 °C, AM 1.5 G SPECTRUM)²

NOMINAL POWER (+5 W/-0 W)		[W]	260	265
Average Power	P _{MPP}	[W]	194.2	197.8
Short Circuit Current	I _{SC}	[A]	7.42	7.53
Open Circuit Voltage	V _{OC}	[V]	35.6	35.70
Current at P _{MPP}	I _{MPP}	[A]	6.92	7.02
Voltage at P _{MPP}	V _{MPP}	[V]	28.1	28.20

¹Measurement tolerances STC: ±3% (P_{MPP}); ±10% (I_{SC}, V_{OC}, I_{MPP}, V_{MPP})

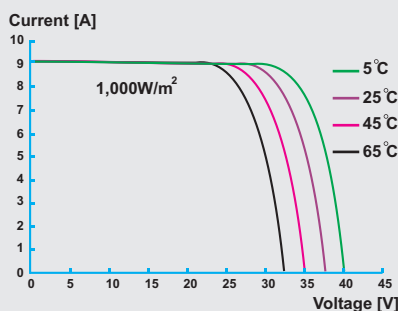
²Measurement tolerances NOCT: ±5% (P_{MPP}); ±10% (I_{SC}, V_{OC}, I_{MPP}, V_{MPP})

IKRAM SOLAR LINEAR PERFORMANCE WARRANTY

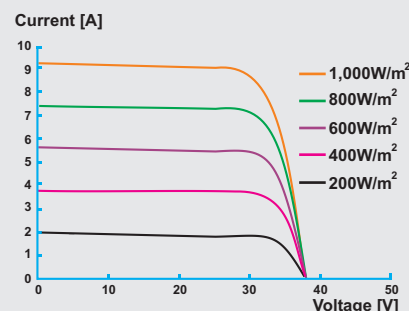


- At least 97 % of nominal power during first year. Thereafter max. 0.7 % degradation per year.
- At least 90 % of nominal power after 10 years.
- At least 80 % of nominal power after 25 years.
- All data within measurement tolerances. Full warranties in accordance with the warranty terms of the IKRAM SOLAR sales

[I-V] CURVE With Respect to Temperature



[I-V] CURVE With Respect to Sun Intensity



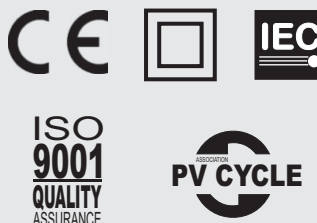
TEMPERATURE COEFFICIENTS (AT 1000 W/m², 25 °C, AM 1.5 G SPECTRUM)

Temperature Coefficient of I _{SC}	[%/K]	+0.04
Temperature Coefficient of V _{OC}	[%/K]	-0.30
Temperature Coefficient of P _{MPP}	[%/K]	-0.41

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V _{sys}	[Y]	1000
Maximum Reverse Current I _R	[A]	16
Wind/Snow Load (In Accordance with IEC 61215)	[Pa]	5400
Safety Class	II	
Fire Rating	C	
Permitted module temperature on continuous duty		-40 °C to +85 °C

CERTIFICATION



Conformity to International Quality & Safety Standards IEC 61215, IEC 61730-1

SOLAR PANEL RANGE

160Watt	IS160P-36C
240Watt	IS240P-54C
260Watt	IS260P-60C
290Watt	IS290P-66C
320Watt	IS320P-72C

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