POLYCRYSTALLINE SOLAR MODULE

IS250P-60C

Ikram Solar, with its commitment to harness the solar energy, has opened up new vistas in the field of solar energy. Backed by an integrated 2BG srl (Italy) 15MW annual production facility to manufacture high-performance100-300 Watt 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 IS250P-60C Polycrystalline is the reliable evergreen 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 Polycrystalline solar cells from Q-CELLS Germany as solar cells are considered the engine of any module. Moreover, IS250P-60C polycrystalline modules offer across the board; improved output yield, higher operating reliability and durability, quicker installation and more intelligent design.

INNOVATIVE ALL-WEATHER TECHNOLOGY

- Maximum yields with excellent low-light and temperature behavior.
- Increased efficiency due to world record-holding cell concept Q.ANTUM.

ENDURING HIGH PERFORMANCE

- Long-term Yield Security due to Anti-PID Technology in the solar cells and PID free EVA Encapsulant film in our modules.
- Hot-Spot Protection using Q CELLS solar cells made in Germany.
- Traceable Quality.
- Q™ logo on each cell that's shows its originality from Q-CELLS..

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) bachskeet from Dupont (USA), the average module life is above 30 year.

EXTENDED WARRANTIES

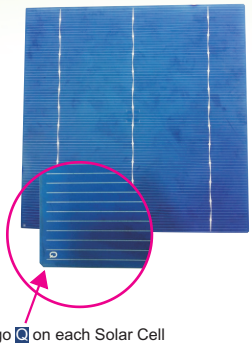
- Investment security due to 10-year product warranty and 25-year performance warranty.

10 YEARS
PRODUCT WARRANTY

25 YEARS
PERFORMANCE WARRANTY

Q CELLS
YIELD SECURITY

- ANTI PID TECHNOLOGY (APT)
- HOT-SPOT PROTECT (HSP)
- TRACEABLE QUALITY (TRA.Q™)



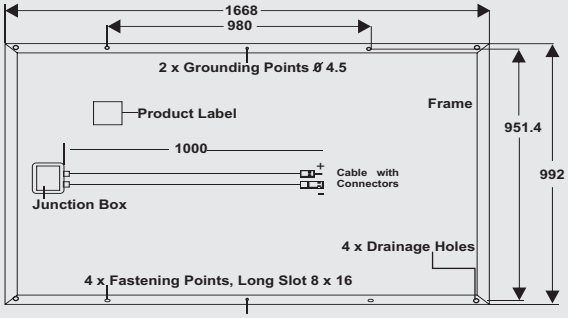
Original Q.CELLS Logo on each Solar Cell

10 YEAR PRODUCT WARRANTY
For material defects or processing defects. HOT-SPOT PROTECT and ANTI PID TECHNOLOGY

25 YEAR PERFORMANCE WARRANTY
At lease 97% of the nominal power within the first year. Thereafter, decrease of the power output will not exceed 0.6% p.a. Minimal nominal rated power after 10 year at least 92% and 83% 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 Q.CELLS Polycrystalline 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]	250	255
Average Power	P_{MPP}	[W]	253	257.5
Short Circuit Current	I_{SC}	[A]	8.71	8.90
Open Circuit Voltage	V_{OC}	[V]	37.6	37.83
Current at P_{MPP}	I_{MPP}	[A]	8.25	8.37
Voltage at P_{MPP}	V_{MPP}	[V]	30.76	30.77
Efficiency (Nominal Power)	η	[%]	≥ 15.0	≥ 15.3

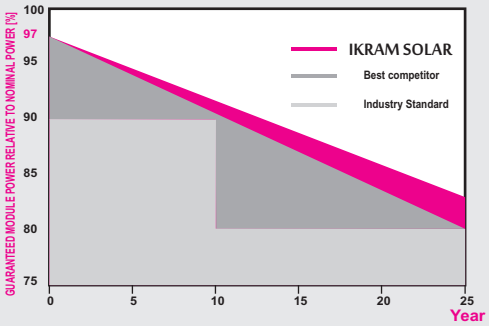
PERFORMANCE AT NORMAL OPERATING CELL TEMPERATURE (NOCT: 800 W/m², 45 ± 3 °C. AM 1.5 G SPECTRUM)[2]

NOMINAL POWER (+5 W/-0 W)		[W]	250	255
Average Power	P_{MPP}	[W]	186	189.7
Short Circuit Current	I_{SC}	[A]	7.03	7.18
Open Circuit Voltage	V_{OC}	[V]	34.9	35.22
Current at P_{MPP}	I_{MPP}	[A]	6.44	6.56
Voltage at P_{MPP}	V_{MPP}	[V]	28.89	28.92

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

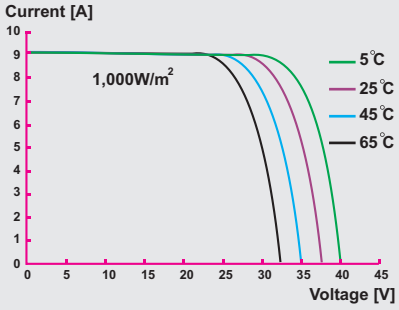
[2] Measurement tolerances NOCT: ±5% (P_{MPP}); ±10% (I_{SC},V_{OC},I_{MPP} ,V_{MPP})

IKRAM SOLAR PERFORMANCE WARRANTY

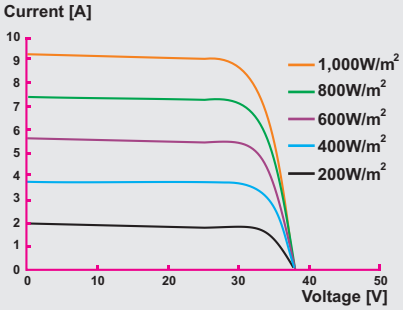


1. At least 97 % of nominal power during first year. Thereafter max. 0.6 % degradation per year.
2. At least 92 % of nominal power after 10 years.
3. At least 83 % of nominal power after 25 years.
4. All data within measurement tolerances. Full warranties in accordance with the warranty terms of the 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}	α	[%/K]	+0.04
Temperature Coefficient of V_{OC}	β	[%/K]	-0.30
Temperature Coefficient of P_{MPP}	γ	[%/K]	-0.42

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V_{SYS}	[Y]	1000
Maximum Reverse Current I_R	[A]	20
Wind/Snow Load (In Accordance with IEC 61215)	[Pa]	5400
Safety Class	II	
Fire Rating	C	
Permitted module temperature on continous duty		-40 °C to +85 °C

CERTIFICATION

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

SOLAR PANEL RANGE

150Watt	IS150P-36C
225Watt	IS225P-54C
250Watt	IS250P-60C
280Watt	IS280P-66C
300Watt	IS300P-72C

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