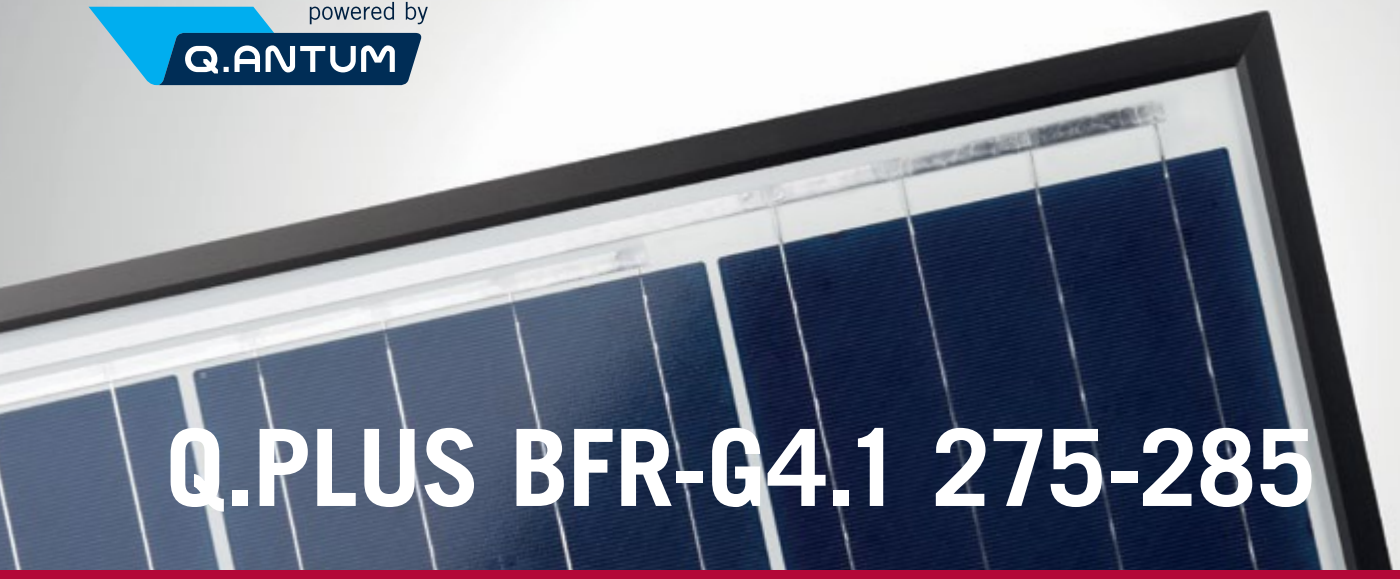
powered by Q.ANTUM



Q.PLUS BFR-G4.1 275-285

POLYCRYSTALLINE SOLAR MODULE

The new high-performance module Q.PLUS BFR-G4.1 is the ideal solution for all applications thanks to its innovative cell technology Q.ANTUM. The world-record cell design was developed to achieve the best performance under real conditions – even with low radiation intensity and on clear, hot summer days.

LOW ELECTRICITY GENERATION COSTS
Higher yield per surface area and lower BOS costs thanks to higher power classes and an efficiency rate of up to 17.4 %.

INNOVATIVE ALL-WEATHER TECHNOLOGY
Optimal yields, whatever the weather with excellent low-light and temperature behavior.

ENDURING HIGH PERFORMANCE
Long-term yield security with Anti-PID Technology[1], Hot-Spot-Protect and Traceable Quality Tra.Q™.

LIGHT-WEIGHT QUALITY FRAME
High-tech aluminum alloy frame, certified for high snow (5400 Pa) and wind loads (4000 Pa) regarding IEC.

MAXIMUM COST REDUCTIONS
Up to 10 % lower logistics costs due to higher module capacity per box.

A RELIABLE INVESTMENT
Inclusive 12-year product warranty and 25-year linear performance guarantee[2].

EUPD RESEARCH TOP BRAND PV MODULES AUSTRALIA 2016

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

VDE Quality Tested
- high reliability
- low degradation
- frequent product surveillance

ID. 40032587

Photon
Q CELLS
Best polycrystalline solar module 2014
Q.PRO-G2 235
174 modules tested

[1] APT test conditions: Cells at -1500 V against grounded, with conductive metal foil covered module surface, 25 °C, 168 h

[2] See data sheet on rear for further information.

THE IDEAL SOLUTION FOR:

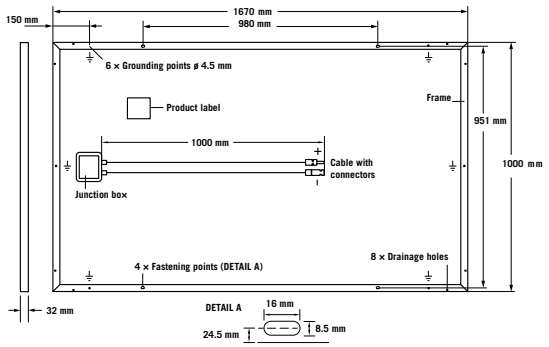
- Rooftop arrays on residential buildings
- Rooftop arrays on commercial / industrial buildings

Engineered in **Germany**

Q CELLS

MECHANICAL SPECIFICATION

Format	1670 mm × 1000 mm × 32 mm (including frame)
Weight	18.8 kg
Front Cover	3.2 mm thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodised aluminium
Cell	6 × 10 Q.ANTUM solar cells
Junction Box	77 mm × 90 mm × 15.8 mm Protection class IP67, with bypass diodes
Cable	4 mm² Solar cable; (+) ≥ 1000 mm, (-) ≥ 1000 mm
Connector	Genuine Multi-Contact MC4, IP68

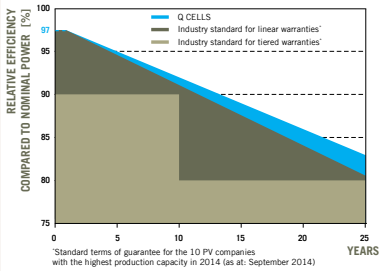


ELECTRICAL CHARACTERISTICS

POWER CLASS				275	280	285
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC[1] (POWER TOLERANCE +5 W / -0 W)						
Minimum	Power at MPP[2]	P_{MPP}	[W]	275	280	285
	Short Circuit Current*	I_{SC}	[A]	9.35	9.41	9.46
	Open Circuit Voltage*	V_{OC}	[V]	38.72	38.97	39.22
	Current at MPP*	I_{MPP}	[A]	8.77	8.84	8.91
	Voltage at MPP*	V_{MPP}	[V]	31.36	31.67	31.99
	Efficiency[2]	η	[%]	≥ 16.5	≥ 16.8	≥ 17.1
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NOC[3]						
Minimum	Power at MPP[2]	P_{MPP}	[W]	203.3	207.0	210.7
	Short Circuit Current*	I_{SC}	[A]	7.54	7.58	7.63
	Open Circuit Voltage*	V_{OC}	[V]	36.13	36.37	36.61
	Current at MPP*	I_{MPP}	[A]	6.87	6.93	6.99
	Voltage at MPP*	V_{MPP}	[V]	29.59	29.87	30.15

[1] 1000 W/m², 25 °C, spectrum AM 1.5 G [2] Measurement tolerances STC ±3 %; NOC ±5 % [3] 800 W/m², NOCT, spectrum AM 1.5 G * typical values, actual values may differ

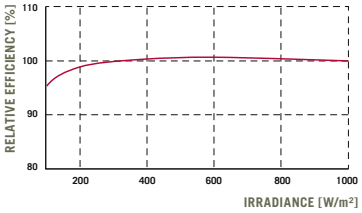
Q CELLS PERFORMANCE WARRANTY



At least 97 % of nominal power during first year. Thereafter max. 0.6 % degradation per year.
At least 92 % of nominal power after 10 years.
At least 83 % of nominal power after 25 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Q CELLS sales organisation of your respective country.

PERFORMANCE AT LOW IRRADIANCE



The typical change in module efficiency at an irradiance of 200 W/m² in relation to 1000 W/m² (both at 25 °C and AM 1.5 G spectrum) is -2.5 % (relative).

TEMPERATURE COEFFICIENTS

Temperature Coefficient of I_{SC}	α	[%/K]	+0.04	Temperature Coefficient of V_{OC}	β	[%/K]	−0.29
Temperature Coefficient of P_{MPP}	γ	[%/K]	−0.40	Normal Operating Cell Temperature	NOCT	[°C]	45

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage	V_{SYS}	[V]	1000	Safety Class		II
Maximum Reverse Current	I_R	[A]	20	Fire Rating		C
Wind/Snow Load (in accordance with IEC 61215)		[Pa]	4000/5400	Permitted Module Temperature On Continuous Duty		−40 °C up to +85 °C

QUALIFICATIONS AND CERTIFICATES

UL 1703; VDE Quality Tested; CE-compliant;
IEC 61215 (Ed.2); IEC 61730 (Ed.1) application class A

PARTNER

NOTE: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product.

Hanwha Q CELLS Australia Pty Ltd
1402, 20 Berry St., North Sydney NSW 2060, Australia | TEL +61 (0) 2 9016 3033 | FAX +61 (0) 2 9016 3032 | EMAIL q-cells-australia@q-cells.com | WEB www.q-cells.com.au

Engineered in **Germany**