powered by Q.ANTUM DUO

Q.PEAK DUO XL-G9.3
440-460

ENDURING HIGH PERFORMANCE

EUPD RESEARCH TOP BRAND PV MODULES EUROPE 2020

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

BREAKING THE 20 % EFFICIENCY BARRIER
Q.ANTUM Technology combined with zero gap cell layout boosts module efficiency up to 20.9 % absolute.

LOW ELECTRICITY GENERATION COSTS
Higher yield per surface area, lower BOS costs and up to 30 watts more power per module.

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

EXTREME WEATHER RATING
High-tech aluminium alloy frame, certified for high snow (5400 Pa) and wind loads (2400 Pa).

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

STATE OF THE ART MODULE TECHNOLOGY
Q.ANTUM DUO combines cutting edge cell separation and innovative 12-busbar design with Q.ANTUM Technology.

[1] APT test conditions according to IEC/TS 62804-1:2015, method B (–1500 V, 168 h)
[2] See data sheet on rear for further information.

THE IDEAL SOLUTION FOR:

Rooftop arrays on commercial / industrial buildings

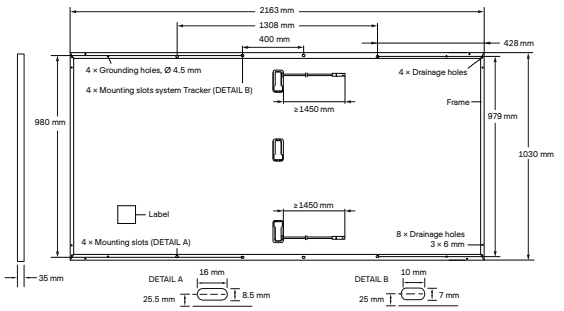
Ground-mounted solar power plants

Engineered in Germany

Q CELLS

MECHANICAL SPECIFICATION

Format	2163 mm × 1030 mm × 35 mm (including frame)
Weight	25.5 kg
Front Cover	3.2 mm thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Anodised aluminium
Cell	6 × 26 monocrystalline Q.ANTUM solar half cells
Junction box	53-101 mm × 32-60 mm × 15-18 mm Protection class IP67, with bypass diodes
Cable	4 mm² Solar cable; (+) ≥1450 mm, (–) ≥1450 mm
Connector	Stäubli MC4-Evo2, Hanwha Q CELLS HQC4; IP68

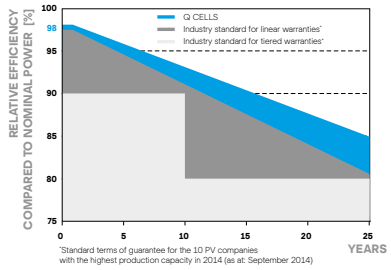


ELECTRICAL CHARACTERISTICS

POWER CLASS				440	445	450	455	460
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC[1] (POWER TOLERANCE +5 W / –0 W)								
Minimum	Power at MPP[1]	P_{MPP}	[W]	440	445	450	455	460
	Short Circuit Current[1]	I_{SC}	[A]	10.59	10.62	10.65	10.67	10.70
	Open Circuit Voltage[1]	V_{OC}	[V]	53.11	53.15	53.18	53.22	53.25
	Current at MPP	I_{MPP}	[A]	10.05	10.10	10.15	10.20	10.25
	Voltage at MPP	V_{MPP}	[V]	43.77	44.06	44.34	44.61	44.89
	Efficiency[1]	η	[%]	≥19.7	≥20.0	≥20.2	≥20.4	≥20.6
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT[2]								
Minimum	Power at MPP	P_{MPP}	[W]	329.5	333.2	337.0	340.7	344.5
	Short Circuit Current	I_{SC}	[A]	8.54	8.56	8.58	8.60	8.62
	Open Circuit Voltage	V_{OC}	[V]	50.08	50.12	50.15	50.18	50.22
	Current at MPP	I_{MPP}	[A]	7.90	7.95	7.99	8.03	8.08
	Voltage at MPP	V_{MPP}	[V]	41.69	41.93	42.17	42.41	42.64

[1]Measurement tolerances P_{MPP} ±3%; I_{SC}; V_{OC} ±5% at STC: 1000 W/m², 25±2°C, AM 1.5 according to IEC 60904-3 • [2]800 W/m², NMOT, spectrum AM 1.5

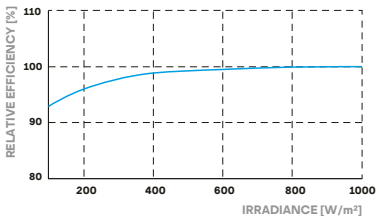
Q CELLS PERFORMANCE WARRANTY



At least 98% of nominal power during first year. Thereafter max. 0.54% degradation per year. At least 93.1% of nominal power up to 10 years. At least 85% of nominal power up to 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



Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000 W/m²).

TEMPERATURE COEFFICIENTS							
Temperature Coefficient of I_{SC}	α	[%/K]	+0.04	Temperature Coefficient of V_{OC}	β	[%/K]	–0.27
Temperature Coefficient of P_{MPP}	γ	[%/K]	–0.35	Nominal Module Operating Temperature	NMOT	[°C]	43±3

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage	V_{SYS}	[V]	1500	PV module classification	Class II
Maximum Reverse Current	I_R	[A]	20	Fire Rating based on ANSI / UL 1703	C / TYPE 1
Max. Design Load, Push / Pull		[Pa]	3600 / 1600	Permitted Module Temperature on Continuous Duty	–40 °C - +85 °C
Max. Test Load, Push / Pull		[Pa]	5400 / 2400		

QUALIFICATIONS AND CERTIFICATES

IEC 61215:2016; IEC 61730:2016;
This data sheet complies with DIN EN 50380.

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PACKAGING INFORMATION

Number of Modules per Pallet	29
Number of Pallets per Trailer (24 t)	24
Number of Pallets per 40' HC-Container (26 t)	22
Pallet Dimensions (L × W × H)	2230 × 1080 × 1196 mm
Pallet Weight	781 kg

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.

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Engineered in Germany

Q CELLS