

powered by

Q.ANTUM DUO Z

Q.PEAK DUO ML-G10+ 390-415

ENDURING HIGH
PERFORMANCE



BREAKING THE 21% EFFICIENCY BARRIER

Q.ANTUM DUO Z Technology with zero gap cell layout boosts module efficiency up to 21.4%.



THE MOST THOROUGH TESTING PROGRAMME IN THE INDUSTRY

Q CELLS is the first solar module manufacturer to pass the most comprehensive quality programme in the industry: The new "Quality Controlled PV" of the independent certification institute TÜV Rheinland.



INNOVATIVE ALL-WEATHER TECHNOLOGY

Optimal yields, whatever the weather with excellent low-light and temperature behaviour.



ENDURING HIGH PERFORMANCE

Long-term yield security with Anti LID Technology, Hot-Spot Protect and Traceable Quality Tra.Q™.



EXTREME WEATHER RATING

High-tech aluminium alloy frame, certified for high snow (5400Pa) and wind loads (4000Pa).



A RELIABLE INVESTMENT

Inclusive 25-year product warranty and 25-year linear performance warranty¹.

¹ See data sheet on rear for further information.

THE IDEAL SOLUTION FOR:



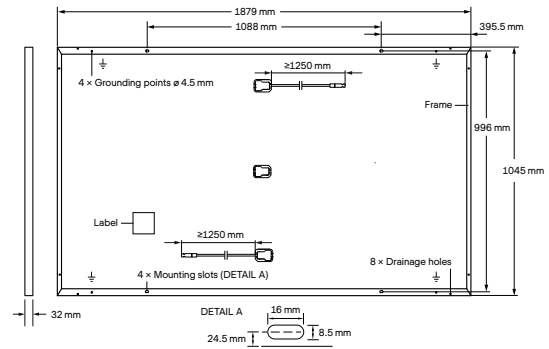
Rooftop arrays on
residential buildings

Engineered in Germany

Q CELLS

MECHANICAL SPECIFICATION

| | |
|--------------|------------------------------------------------------------------------------|
| Format | 1879 mm × 1045 mm × 32 mm (including frame) |
| Weight | 22.0 kg |
| Front Cover | 3.2 mm thermally pre-stressed glass with anti-reflection technology |
| Back Cover | Composite film |
| Frame | Black anodised aluminium |
| Cell | 6 × 22 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 mm ² Solar cable; (+) ≥ 1250 mm, (-) ≥ 1250 mm |
| Connector | Stäubli MC4; IP68 |

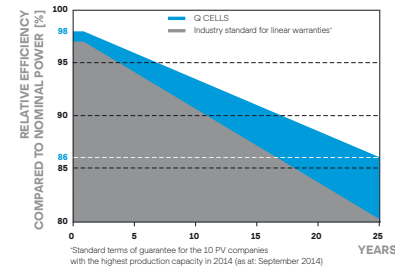


ELECTRICAL CHARACTERISTICS

| POWER CLASS | | 390 | 395 | 400 | 405 | 410 | 415 | |
|-------------------------------------------------------------------------------------------------|------------------------------------|---------------|--------|--------|--------|--------|--------|--------|
| MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC ¹ (POWER TOLERANCE +5 W / -0 W) | | | | | | | | |
| Minimum | Power at MPP ¹ | P_{MPP} [W] | 390 | 395 | 400 | 405 | 410 | 415 |
| | Short Circuit Current ¹ | I_{SC} [A] | 11.10 | 11.13 | 11.16 | 11.19 | 11.22 | 11.26 |
| | Open Circuit Voltage ¹ | V_{OC} [V] | 44.99 | 45.03 | 45.06 | 45.09 | 45.13 | 45.16 |
| | Current at MPP | I_{MPP} [A] | 10.53 | 10.58 | 10.64 | 10.70 | 10.76 | 10.82 |
| | Voltage at MPP | V_{MPP} [V] | 37.05 | 37.32 | 37.59 | 37.85 | 38.11 | 38.37 |
| | Efficiency ¹ | η [%] | ≥ 19.9 | ≥ 20.1 | ≥ 20.4 | ≥ 20.6 | ≥ 20.9 | ≥ 21.1 |
| MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT ² | | | | | | | | |
| Minimum | Power at MPP | P_{MPP} [W] | 292.6 | 296.4 | 300.1 | 303.9 | 307.6 | 311.4 |
| | Short Circuit Current | I_{SC} [A] | 8.95 | 8.97 | 8.99 | 9.02 | 9.04 | 9.07 |
| | Open Circuit Voltage | V_{OC} [V] | 42.43 | 42.46 | 42.49 | 42.52 | 42.56 | 42.59 |
| | Current at MPP | I_{MPP} [A] | 8.28 | 8.33 | 8.38 | 8.43 | 8.48 | 8.53 |
| | Voltage at MPP | V_{MPP} [V] | 35.35 | 35.59 | 35.82 | 36.04 | 36.27 | 36.49 |

¹Measurement tolerances $P_{MPP} \pm 3\%$; I_{SC} ; $V_{OC} \pm 5\%$ at STC: 1000 W/m², 25 ± 2°C, AM 1.5 according to IEC 60904-3 • 2800 W/m², NMOT, spectrum AM 1.5

Q CELLS PERFORMANCE WARRANTY

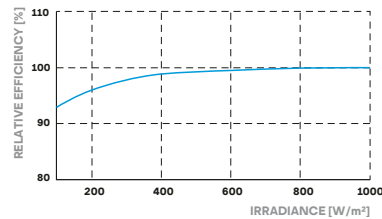


At least 98% of nominal power during first year. Thereafter max. 0.5% degradation per year. At least 93.5% of nominal power up to 10 years. At least 86% of nominal power up to 25 years.

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

¹Standard terms of guarantee for the 10 PV companies with the highest production capacity in 2014 (as at September 2014)

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] | -0.34 | Nominal Module Operating Temperature | NMOT [°C] | 43 ± 3 |

PROPERTIES FOR SYSTEM DESIGN

| | | | | |
|-------------------------------|---------------|-------------|-------------------------------------------------|---------------|
| Maximum System Voltage | V_{SYS} [V] | 1000 | PV module classification | Class II |
| Maximum Reverse Current | I_R [A] | 20 | Fire Rating based on ANSI / UL 61730 | C / TYPE 2 |
| Max. Design Load, Push / Pull | [Pa] | 3600 / 2660 | Permitted Module Temperature on Continuous Duty | -40°C - +85°C |
| Max. Test Load, Push / Pull | [Pa] | 5400 / 4000 | | |

QUALIFICATIONS AND CERTIFICATES

Quality Controlled PV - TÜV Rheinland;
IEC 61215:2016; IEC 61730:2016.
This data sheet complies with DIN EN 50380.
QCPV Certification ongoing.
Certification holder:
Hanwha Q CELLS GmbH



PACKAGING INFORMATION

| | | | | | | | |
|----------------------|---------|---------|---------|--------|------------|------------|------------|
| Horizontal packaging | 1940 mm | 1100 mm | 1220 mm | 751 kg | 28 pallets | 24 pallets | 32 modules |
|----------------------|---------|---------|---------|--------|------------|------------|------------|

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.

Made in Korea

Hanwha Q CELLS Australia Pty Ltd

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Engineered in Germany