

powered by

**Q.ANTUM DUO Z**

# Q.PEAK DUO ML-G10.a

## 395-415

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, Anti PID Technology<sup>1</sup>, 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 12-year product warranty and 25-year linear performance warranty<sup>2</sup>.

<sup>1</sup> APT test conditions according to IEC/TS 62804-1:2015, method A (-1500V, 96h)

<sup>2</sup> See data sheet on rear for further information.

### THE IDEAL SOLUTION FOR:



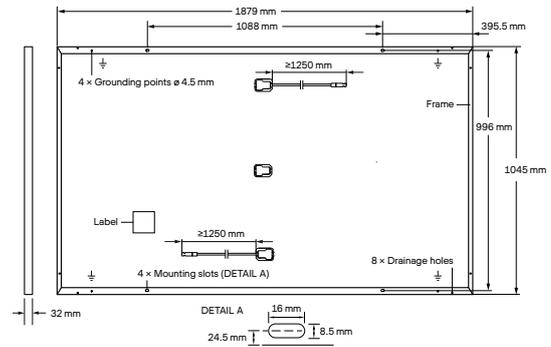
Rooftop arrays on residential buildings

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<br>Protection class IP67, with bypass diodes |
| Cable        | 4 mm <sup>2</sup> Solar cable; (+) ≥ 1250 mm, (-) ≥ 1250 mm                  |
| Connector    | Stäubli MC4, Hanwha Q CELLS HQC4; IP68                                       |

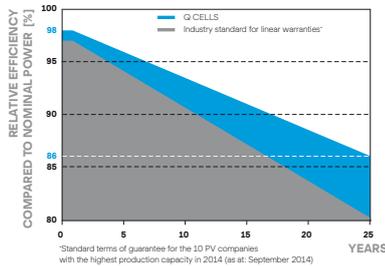


## ELECTRICAL CHARACTERISTICS

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

<sup>1</sup>Measurement tolerances  $P_{MPP} \pm 3\%$ ;  $I_{SC}$ ;  $V_{OC} \pm 5\%$  at STC: 1000 W/m<sup>2</sup>, 25 ± 2°C, AM 1.5 according to IEC 60904-3 • <sup>2</sup>800 W/m<sup>2</sup>, NMOT, spectrum AM 1.5

### Q CELLS PERFORMANCE WARRANTY

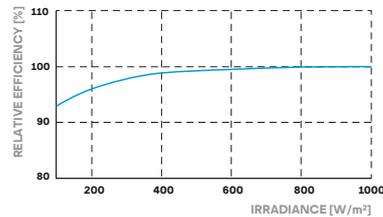


At least 98% of nominal power during first year. Thereafter max. 0.5% degradation per year. At least 93.5% of nominal power up to 10 years. At least 86% of nominal power up to 25 years.

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

<sup>1</sup>Standard 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/m<sup>2</sup>).

### TEMPERATURE COEFFICIENTS

|                                      |                |       |                                      |               |        |
|--------------------------------------|----------------|-------|--------------------------------------|---------------|--------|
| Temperature Coefficient of $I_{SC}$  | $\alpha$ [%/K] | +0.04 | Temperature Coefficient of $V_{OC}$  | $\beta$ [%/K] | -0.27  |
| Temperature Coefficient of $P_{MPP}$ | $\gamma$ [%/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.



## PACKAGING INFORMATION

|                      |        |        |        |       |            |            |            |
|----------------------|--------|--------|--------|-------|------------|------------|------------|
| Horizontal packaging | 1940mm | 1100mm | 1220mm | 751kg | 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.

### Hanwha Q CELLS GmbH

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