

**Q.CELLS**  
YIELD SECURITY

- ✓ ANTI PID TECHNOLOGY (APT)
- ✓ ADDITIONAL POWER BOOST (APB)
- ✓ 360° EFFICIENCY (TDE)

## CIGS SOLAR MODULE

# Q.SMART UF 75-95

Generation 1.3 - Efficiency and esthetics have a new name

With up to 13.4 %, our CIGS solar modules of the Q.SMART series are the most efficient thin-film modules on the market. The outstanding low-light behaviour as well as the extra power due to positive sorting and light soaking effect make them ideal for challenging installations. Q.SMART UF is our smart one for building integrated installations, private flat roofs and facades.

### THE NEW Q-CELLS GENERATION

- World's best efficiencies up to 13.4 %:  
**Highest yields per installed area.**
- Anti PID Technology (APT)<sup>1</sup>: **No power loss caused by potential induced degradation.**
- Outstanding diffuse and low-light behaviour for 360° Efficiency (TDE): **High yields even in challenging roof expositions - north, west, south, east.**

### THE PROVEN Q-CELLS VALUES

- Additional Power Boost (APB) with up to 15 % additional output due to positive sorting (+5 / -0W) and light soaking effect: **More power for your money.**
- Frameless Design: **Ideal for roof-parallel installations on flat roofs.**
- Full black surface: **Excellent visual appearance.**
- 25 years linear performance warranty, 10 years product warranty<sup>2</sup>, even for installations < 30 kWp: **Secure investment.**



THE IDEAL  
SOLUTION FOR:



IN-ROOF AND ROOFTOP  
ARRAYS ON RESIDENTIAL  
BUILDINGS



FACADE  
INSTALLATIONS



ROOF-PARALLEL FLAT  
ROOF INSTALLATIONS

<sup>1</sup> APT test conditions: Cells at -600 V relative to frame, wet module surface, 25 °C, 300 h

<sup>2</sup> Performance warranty: min. 100 % of nominal power in the first 3 years; max. 0.7 % degradation per year from year 4; min. 85 % of nominal power after 25 years. Full product and performance warranties are subject to registration, and are in accordance with the valid regional warranty terms.

**Q.CELLS**

MECHANICAL SPECIFICATION		TECHNICAL DRAWING
<b>Length</b>	1190 (+3/-1) mm	
<b>Width</b>	630 (+3/-1) mm	
<b>Height</b>	7.3 mm (+ Junction box, 15 mm)	
<b>Weight</b>	13.2 kg	
<b>Front Cover</b>	4 mm tempered low iron glass	
<b>Back Cover</b>	3 mm float glass	
<b>Frame</b>	None	
<b>Cell Type</b>	CIGS [Cu(In, Ga) Se <sub>2</sub> ]	
<b>Junction box</b>	Protection class IP 65, with 1 bypass diode (3 A) 66 x 54 x 15 mm <sup>3</sup>	
<b>Cable type</b>	Solar cable 2.5 mm <sup>2</sup> ; (+) 855 (+30/-0) mm; (-) 735 (+30/-0) mm	
<b>Connector</b>	MC4	

## ELECTRICAL CHARACTERISTICS

### PERFORMANCE AT STANDARD TEST CONDITIONS (STC: 1000 W/m<sup>2</sup>, 25 °C, AM 1.5 SPECTRUM)<sup>1</sup>

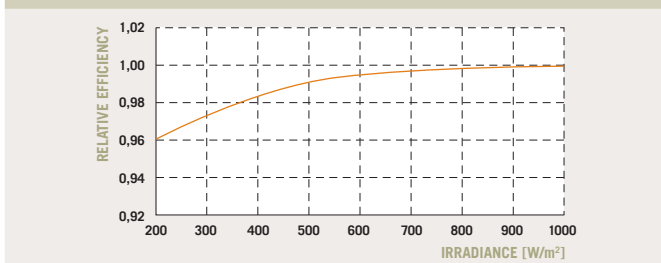
POWER CLASS			75	80	85	90	95
<b>Nominal Power (+5/-0 Wp)</b>	<b>P<sub>MAX</sub></b>	[W]	75.0	80.0	85.0	90.0	95.0
<b>Short Circuit Current</b>	<b>I<sub>SC</sub></b>	[A]	1.66	1.66	1.67	1.67	1.68
<b>Open Circuit Voltage</b>	<b>V<sub>OC</sub></b>	[V]	74.4	74.5	75.2	76.5	78.0
<b>Current at Maximum Power</b>	<b>I<sub>MPP</sub></b>	[A]	1.40	1.42	1.44	1.48	1.53
<b>Voltage at Maximum Power</b>	<b>V<sub>MPP</sub></b>	[V]	53.6	56.4	59.0	60.8	62.1
<b>Nominal Efficiency</b>	<b>η</b>	[%]	≥10.0	≥10.7	≥11.3	≥12.0	≥12.7

### PERFORMANCE AT NORMAL OPERATING CELL TEMPERATURE (NOCT: 800 W/m<sup>2</sup>, 51 ± 2 °C, AM 1.5 SPECTRUM)

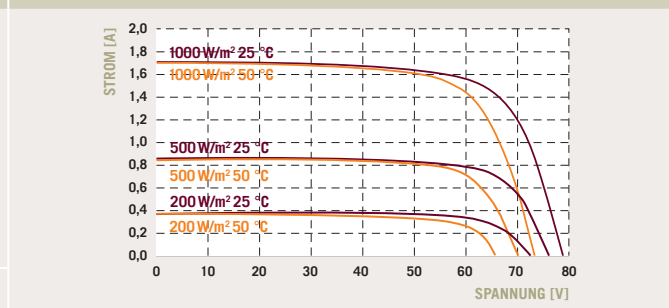
POWER CLASS			75	80	85	90	95
<b>Nominal Power</b>	<b>P<sub>MAX</sub></b>	[W]	54.2	57.8	61.4	65.1	68.7
<b>Short Circuit Current</b>	<b>I<sub>SC</sub></b>	[A]	1.33	1.33	1.33	1.33	1.34
<b>Open Circuit Voltage</b>	<b>V<sub>OC</sub></b>	[V]	67.7	67.8	68.4	69.6	71.0
<b>Current at Maximum Power</b>	<b>I<sub>MPP</sub></b>	[A]	1.11	1.13	1.14	1.18	1.22
<b>Voltage at Maximum Power</b>	<b>V<sub>MPP</sub></b>	[V]	48.6	51.2	53.5	55.2	56.3

<sup>1</sup> Measurement accuracy: ±10 %. All STC measurements based on pre-treatment of modules with 1 hour light soak (1000 W/m<sup>2</sup> [1 kWh/m<sup>2</sup>], in open circuit) followed by cool down to 25 °C. For the system conception, please take into account the typical relative V<sub>OC</sub> and V<sub>MPP</sub> power increase of 2.5 % after 215 kWh/m<sup>2</sup> light soaking. This power boost is not included in the nominal values of this data sheet.

### PERFORMANCE AT LOW IRRADIANCE CHARACTERISTICS AT DIFFERENT TEMPERATURES AND IRRADIANCES



The typical relative change in module efficiency (at nominal power) at an irradiance of 200 W/m<sup>2</sup> in relation to 1000 W/m<sup>2</sup> (both at 25 °C and AM 1.5 spectrum) is -4.0 % rel.



### TEMPERATURE COEFFICIENTS (AT 1000 W/m<sup>2</sup>, AM 1.5 SPECTRUM)

<b>Temperature Coefficient of I<sub>SC</sub></b>	<b>α</b>	[%/K]	+ 0.00 ± 0.04	<b>Temperature Coefficient of V<sub>OC</sub></b>	<b>β</b>	[%/K]	- 0.29 ± 0.04
<b>Temperature Coefficient of P<sub>MAX</sub></b>	<b>γ</b>	[%/K]	- 0.38 ± 0.04				

### PROPERTIES FOR SYSTEM DESIGN

<b>Maximum System Voltage V<sub>sys</sub></b>	[V]	1000 (IEC) / 600 (UL 1703)	<b>Safety Class</b>	II
<b>Maximum Reverse Current I<sub>r</sub></b>	[A]	5.1	<b>Fire Rating</b>	C
<b>Wind/Snow Load</b>	[Pa]	2400	<b>Permitted module temperature on continuous duty</b>	-40 °C up to +85 °C

### QUALIFICATIONS AND CERTIFICATES PARTNER

IEC 61646 (Ed. 2), IEC 61730 (Ed. 1) Application Class A, UL 1703  
The production site is certified according to ISO 9001 for Quality Management.



Content of this data sheet according to DIN EN 50380.

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