

## SL2 CIGS THIN-FILM MODULE

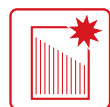
Generation 2.2 | 125-145 Wp

IDEAL FOR  
UTILITY PROJECTS



### Higher yield

- Positive sorting (+5 W)
- Low temperature coefficient:  $-0.32\%/K$



### Outstanding aesthetics

- Uniform black surface
- Ideal for visually sophisticated PV solutions



### Easy to clean

- Frameless design means these modules are less susceptible to dirt



### Quality controlled

- 100% inspected via electroluminescence test
- Longer, stricter tests than required under IEC 61646



### Tests and certification

- Certification: ISO 9001:2008, ISO 14001:2009, ISO 50001:2011, BS OHSAS 18001:2007, IEC 61646/61730, MCS, UL 1703 (CSA)

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10-year product warranty

25-year performance warranty

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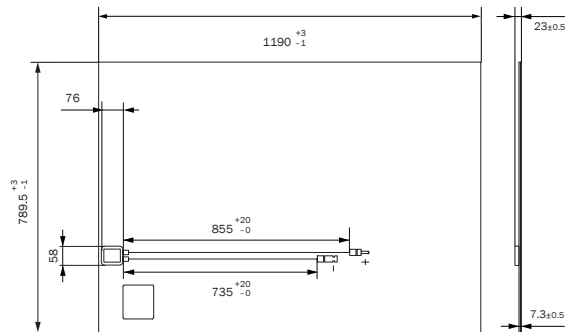
UTICA<sup>TM</sup>

[www.utica.sg](http://www.utica.sg)

## MECHANICAL SPECIFICATIONS

Length	1190 (+3/-1) mm
Width	789.5 (+3/-1) mm
Height	7.3 mm (+ junction box, 15.5 mm)
Weight	16.5 kg
Front cover	4 mm tempered low iron glass with AR coating
Back cover	3 mm float glass
Frame	None
Cell type	ClGS [Cu (In, Ga) Se <sub>2</sub> ]
Junction box	Protection class IP 67, with 1 bypass diode; 76 mm x 58 mm x 15.5 mm
Cable type	Solar cable 2.5 mm <sup>2</sup> ; (+) 855 (+20/-0) mm; (-) 735 (+20/-0) mm
Connector	Renhe 05-6

## TECHNICAL DRAWING



All values in mm.

## ELECTRICAL CHARACTERISTICS

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

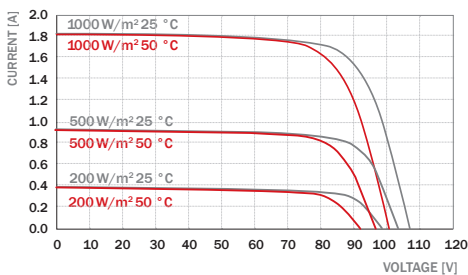
POWER CLASS (+5/-0 W)	[W]	125	130	135	140	145
Minimum Power	P <sub>MPP</sub> [W]	125.0	130.0	135.0	140.0	145.0
Short Circuit Current	I <sub>SC</sub> [A]	1.73	1.75	1.77	1.79	1.81
Open Circuit Voltage	V <sub>OC</sub> [V]	103.4	104.5	105.6	106.7	107.8
Current at P <sub>MPP</sub>	I <sub>MPP</sub> [A]	1.50	1.54	1.58	1.62	1.66
Voltage at P <sub>MPP</sub>	V <sub>MPP</sub> [V]	83.4	84.5	85.5	86.5	87.4
Module efficiency	[%]	≥ 13.3	≥ 13.8	≥ 14.4	≥ 14.9	≥ 15.4

PERFORMANCE AT NOMINAL MODULE OPERATING TEMPERATURE (800 W/m<sup>2</sup>, NMOT, AM 1.5 G SPECTRUM)<sup>1</sup>

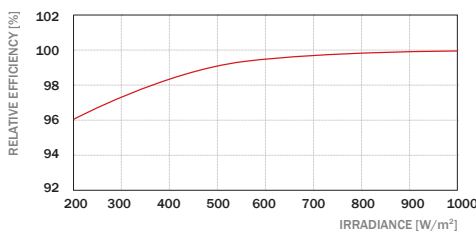
POWER CLASS (+5/-0 W)	[W]	125	130	135	140	145
Minimum Power	P <sub>MPP</sub> [W]	94.2	97.9	101.6	105.4	109.3
Short Circuit Current	I <sub>SC</sub> [A]	1.39	1.40	1.42	1.44	1.45
Open Circuit Voltage	V <sub>OC</sub> [V]	97.8	98.9	100.1	101.2	102.3
Current at P <sub>MPP</sub>	I <sub>MPP</sub> [A]	1.20	1.23	1.26	1.29	1.32
Voltage at P <sub>MPP</sub>	V <sub>MPP</sub> [V]	78.5	79.6	80.6	81.7	82.8

<sup>1</sup> Measurement accuracy P<sub>MPP</sub>: ± 5%; tolerance I<sub>SC</sub>, V<sub>OC</sub>, I<sub>MPP</sub>, V<sub>MPP</sub>: ± 10%. All STC measurements are based on a pre-treatment of modules with 20 kWh/m<sup>2</sup> of light soaking (20 hours at 1000 W/m<sup>2</sup> and MPP) followed by a cool down to 25 °C.

## I-V CURVES AT VARIOUS TEMPERATURES AND IRRADIANCE LEVELS



## PERFORMANCE AT LOW IRRADIANCE



The typical relative change in module efficiency (with respect to 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 G spectrum) is -4.0 % rel.

## TEMPERATURE COEFFICIENTS AT 1000 W/m<sup>2</sup>

P <sub>MPP</sub> γ [%/K] - 0.32	I <sub>SC</sub> α [%/K] + 0.01	V <sub>OC</sub> β [%/K] - 0.27
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## NMOT

Nominal Module Operating Temperature [ °C ] 42

## PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V <sub>sys</sub>	[V]	1000 (IEC) / 600 (UL 1703)	Safety Class	II
Maximum Reverse Current I <sub>r</sub>	[A]	4	Fire Rating	C
Positive design load (IEC 61215-2)	[Pa]	Up to 1600*	Permitted operating module temperature	-40 °C to +85 °C
Negative design load (IEC 61215-2)	[Pa]	Up to 1600*		(-40 °F to +185 °F)

\*tested with a safety factor γ<sub>m</sub> of 1.5

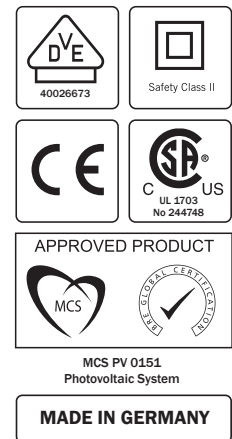
## PACKAGING INFORMATION

Measurements including pallet	L 1,313 mm × W 1,131 mm × H 1,016 mm
Approx. gross weight (full box)	770 kg
Maximum no. of stacked boxes for storage	2 on 1 (batch of 3)
Modules per box	44
Max. lorry loading (24 Tons)	30, maximum allowed weight (2 × 8 + 2 × 7)
Max. 40-feet container load (24 Tons)	30, maximum allowed weight (2 × 8 + 2 × 7)

## QUALIFICATIONS AND CERTIFICATES

IEC 61646 (Ed. 2),  
IEC 61730 (Ed.1) application  
class A, UL 1703 (CSA)

The production site is certified  
according to ISO 9001 for Quality  
Management.



**NOTE!**  
See the Installation and Operating  
Manual or contact the technical  
service for further information on  
approved installation and use of  
this product.

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