



## SOLIBRO SL2 CIGS THIN-FILM MODULE

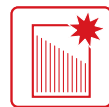
Generation 2.3 | 115-125 Wp

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 61215



### Warranty

- 10-year product warranty
- 25-year performance warranty

### About Solibro GmbH

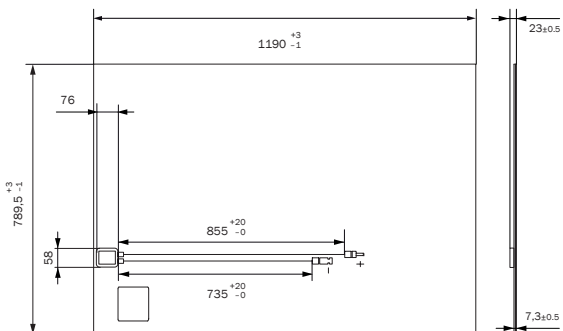
Solibro GmbH is one of the world's leading manufacturers of CIGS thin-film modules, with a production capacity of 145 MW. Solibro has headquarters in Thalheim, Germany and a research site in Uppsala, Sweden, both of which work to develop trailblazing solutions for the company's CIGS products. Solibro supplies products that are sustainable and cost-effective, with extraordinary aesthetics and top quality "Made in Germany".

[www.solibro-solar.com](http://www.solibro-solar.com)

## 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	Ingress protection: IP67, with 1 bypass diode (8 A); 76 mm x 58 mm x 15.5 mm
Cable type	PV1-F Solar cable 2.5 mm <sup>2</sup> ; Material: copper, weather-resistant from -40 °C up to +90 °C (+) 855 (+20/-0) mm; (-) 735 (+20/-0) mm
Connector	Renhe 05-6 certified according UL6703

## 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>

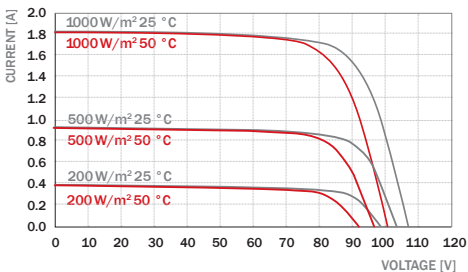
POWER CLASS (+5/-0 W)	[W]	115	120	125
Minimum Power	P <sub>MPP</sub>	115.0	120.0	125.0
Short Circuit Current	I <sub>SC</sub>	1.69	1.71	1.73
Open Circuit Voltage	V <sub>OC</sub>	101.2	102.3	103.4
Current at P <sub>MPP</sub>	I <sub>MPP</sub>	1.42	1.46	1.50
Voltage at P <sub>MPP</sub>	V <sub>MPP</sub>	81.0	82.2	83.4
Module efficiency	[%]	≥ 12.2	≥ 12.8	≥ 13.3

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

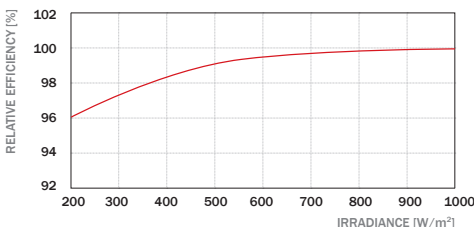
POWER CLASS (+5/-0 W)	[W]	115	120	125
Minimum Power	P <sub>MPP</sub>	86.9	90.5	94.2
Short Circuit Current	I <sub>SC</sub>	1.36	1.37	1.39
Open Circuit Voltage	V <sub>OC</sub>	96.1	97.2	97.8
Current at P <sub>MPP</sub>	I <sub>MPP</sub>	1.13	1.16	1.20
Voltage at P <sub>MPP</sub>	V <sub>MPP</sub>	76.9	78.0	78.5

<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)	Protection Class	II
Maximum Reverse Current I <sub>r</sub>	[A]	3	Fire Rating	C
Positive design load (IEC 61215-2)	[Pa]	Up to 1600*	Permitted operating module temperature	-40 °C to +85 °C (-40 °F to +185 °F)
Negative design load (IEC 61215-2)	[Pa]	Up to 1600*		

\*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

### MODULE CERTIFICATES AND TESTS

IEC 61215 (Ed. 1:2016)  
IEC 61730 (Ed. 2:2016)  
IEC 61701:2011:  
Salt Mist Corrosion  
IEC 62716:2013:  
Ammonia Corrosion  
IEC 60068-2-68:1994:  
Dust and Sand Resistance  
UL 1703 (CSA)  
CQC

### QUALITY AND EHS CERTIFICATES

ISO 9001:2008  
ISO 14001:2009  
ISO 50001:2011  
BS OHSAS 18001:2007



## SOLIBRO GMBH

OT Thalheim, Sonnenallee 32-36  
06766 Bitterfeld-Wolfen, Germany

EMAIL sales@solibro-solar.com  
WEB www.solibro-solar.com

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