SOLIBRO

SOLIBRO SL2 CIGS THIN-FILM MODULE

Generation 2.2 | 125-145 Wp

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)

10-year product warranty
25-year performance warranty

About Solibro GmbH

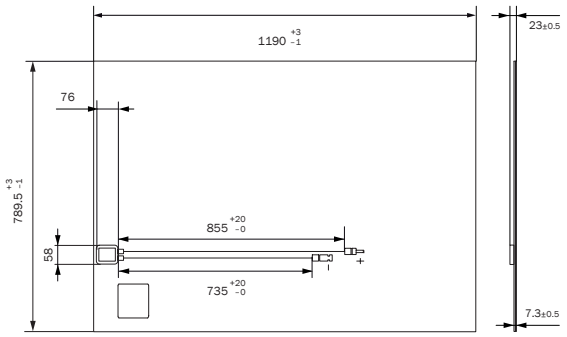
Solibro GmbH is one of the world's leading manufacturers of CIGS thin-film modules, with a production capacity of 145 MW. Solibro has headquarters in Thalheim, Germany and a research site in Uppsala, Sweden, both of which work to develop trailblazing solutions for the company's CIGS products. Solibro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

www.solibro-solar.com

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	CIGS [Cu (In, Ga) Se_2]
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 mm²; (+) 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/m², 25 °C, AM 1.5 G SPECTRUM)[1]

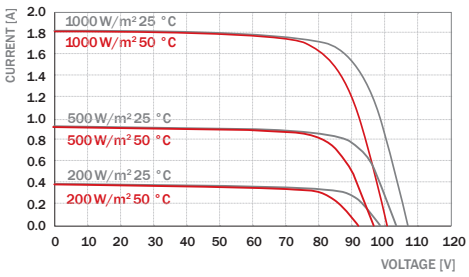
POWER CLASS (+5/-0 W)		[W]	125	130	135	140	145
Minimum Power	P_{MPP}	[W]	125.0	130.0	135.0	140.0	145.0
Short Circuit Current	I_{SC}	[A]	1.73	1.75	1.77	1.79	1.81
Open Circuit Voltage	V_{OC}	[V]	103.4	104.5	105.6	106.7	107.8
Current at P_{MPP}	I_{MPP}	[A]	1.50	1.54	1.58	1.62	1.66
Voltage at P_{MPP}	V_{MPP}	[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/m², NMOT, AM 1.5 G SPECTRUM)[1]

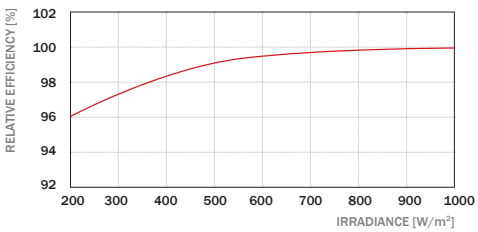
POWER CLASS (+5/-0 W)		[W]	125	130	135	140	145
Minimum Power	P_{MPP}	[W]	94.2	97.9	101.6	105.4	109.3
Short Circuit Current	I_{SC}	[A]	1.39	1.40	1.42	1.44	1.45
Open Circuit Voltage	V_{OC}	[V]	97.8	98.9	100.1	101.2	102.3
Current at P_{MPP}	I_{MPP}	[A]	1.20	1.23	1.26	1.29	1.32
Voltage at P_{MPP}	V_{MPP}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

[1] Measurement accuracy P_{MPP}: ± 5%; tolerance I_{SC}, V_{OC}, I_{MPP} V_{MPP}: ± 10%. All STC measurements are based on a pre-treatment of modules with 20 kWh/m² of light soaking (20 hours at 1000 W/m² 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/m² in relation to 1000 W/m² (both at 25 °C and AM 1.5 G spectrum) is -4.0 % rel.

TEMPERATURE COEFFICIENTS AT 1000 W/m²

P_{MPP} **γ** [%/K] −0.32	I_{SC} **α** [%/K] + 0.01	U_{OC} **β** [%/K] − 0.27

NMOT

Nominal Module Operating Temperature [°C]	42

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V_{SYS}	[V]	1000 (IEC) / 600 (UL 1703)	**Safety Class**	II
Maximum Reverse Current I_R	[A]	4	**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_m 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.

40026673 · Safety Class II · UL 1703 No 244748

APPROVED PRODUCT

MCS PV 0151 Photovoltaic System

MADE IN GERMANY

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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