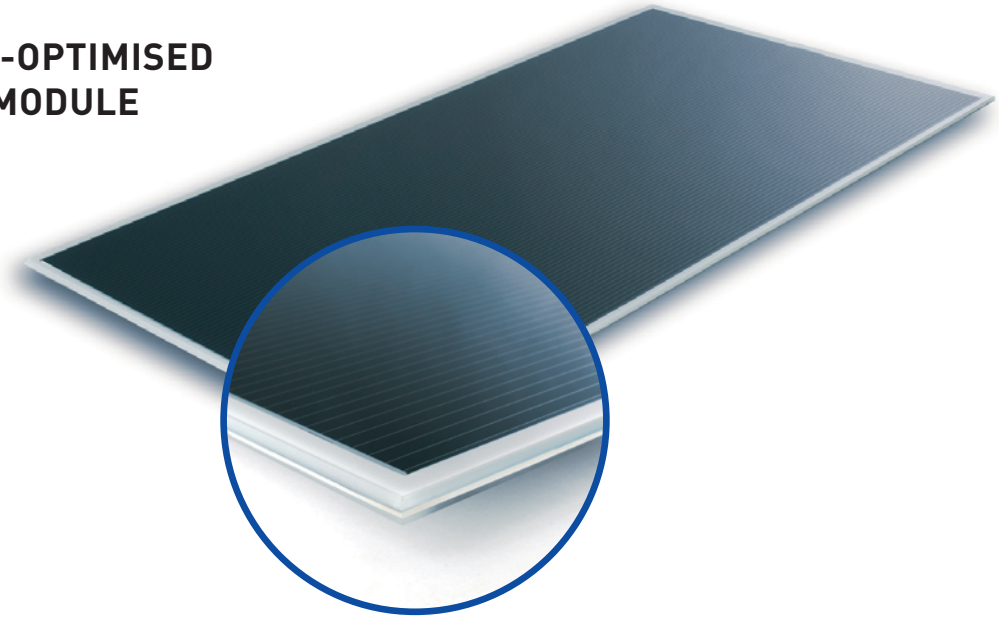
LINION L
LAMINATE MODULE

SOLTECTURE

THE COST-OPTIMISED QUALITY MODULE



High yields
- Thin-film module with maximum efficiency thanks to CIGSe absorbers
- Frameless surface ensures optimal self-cleaning
- Positive output tolerance (+5/-0 W)

Easy installation
- Compact module format enables easy installation by a single installer
- Packed with cardboard sleeves to protect the edges during installation

Robust
- Toughened 3 mm-thick front panel (tempered safety glass)
- Undrilled substrate glass thanks to patented edge contact

Quality made in Germany

Soltecture's production accords with the high quality standards of the semiconductor industry. The company manufactures its CIS-based thin-film solar modules solely in Germany. The uniformly black glass surfaces provide visible proof of the quality and make the modules among the most attractive on the market. As a German quality manufacturer, we have been producing and selling solar modules based on CIS semiconductors since 2005.
We place particular importance on the reliability and long-term stability of our solar modules and subject our products to quality tests that are more stringent than those required by the commonly applied IEC standard 61646. Soltecture grants its end customers an independent product warranty lasting 10 years for all modules and an output warranty lasting 25 years***.

Our laminate modules are particularly suitable for:

- Large-scale commercial and agricultural roofs
- Gently sloping roofs and flat roofs
- Raw modules for further processing to become construction elements in roof and facade systems

About Soltecture GmbH

Based in Berlin, Soltecture is a leading manufacturer of CIS-based thin-film solar modules and a provider of comprehensive system solutions for solar construction. Whether for large commercial roofs or single-family homes, Soltecture offers suitable modules and systems for all kinds of roofs. The company is the exclusive partner of the Helmholtz Centre Berlin, Europe's largest research institute for thin-film photovoltaics. Its shareholders and owners include Intel Capital, Vattenfall Europe and Gaz de France Suez.

LINION L
LAMINATE MODULE

SOLTECTURE

Module		LINION 75 L	LINION 80 L	LINION 85 L	LINION 90 L
Electrical characteristics at 1000 W/m²; 25 °C; AM1.5					
Rated power P_{max}		75.0 W	80.0 W	85.0 W	90.0 W
Tolerance (P_{max})		+5/-0 W	+5/-0 W	+5/-0 W	+5/-0 W
Module efficiency		9.2%	9.8%	10.5%	11.1%
Rated voltage* U_{mpp}		50.5 V	52.2 V	53.8 V	55.4 V
Rated current* I_{mpp}		1.48 A	1.53 A	1.58 A	1.63 A
Open circuit voltage* U_{oc}		67.0 V	67.1 V	68.5 V	70.4 V
Short circuit current* I_{sc}		1.68 A	1.72 A	1.74 A	1.79 A
Maximum system voltage	IEC 61730	1000 V	1000 V	1000 V	1000 V
	UL 1703	600 V	600 V	600 V	600 V
Reverse current rating		3.5 A	3.5 A	3.5 A	3.5 A
Max. no. of modules connected in series per string; +10% tol., 1000 V, -10 °C [IEC] (600 V, 14 °F [UL])		12 (UL: 7)	12 (UL: 7)	11 (UL: 7)	11 (UL: 6)
Maximum no. of modules in parallel**		Individual strings connected to a blocking diode in (+) and 3 A fuse in (-).			
Electrical characteristics at 800 W/m²; NOCT; AM1.5					
Power* P_{max}		54.4 W	57.3 W	61.1 W	65.0 W
Voltage* U_{mpp}		45.9 V	46.8 V	48.5 V	50.0 V
Current* I_{mpp}		1.19 A	1.22 A	1.26 A	1.30 A
Open circuit voltage* U_{oc}		59.9 V	59.9 V	61.3 V	63.1 V
Short circuit current* I_{sc}		1.35 A	1.38 A	1.39 A	1.43 A
Electrical characteristics at 200 W/m²; 25 °C; AM1.5					
Maximum absolute reduction of efficiency		1.0%	1.0%	1.0%	1.0%

Notes
* Tolerance of the electrical parameters ± 10%
** Limited: See explanation in the Electrical Configuration section in the installation instructions for Soltecture PV modules.
*** See Soltecture GmbH's independent manufacturer warranty for Linion PV modules (last revised October 2011). The modules are certified for use in the following countries: EU countries, Switzerland, Norway, Turkey, Liechtenstein, Israel, Lebanon, Croatia, Bosnia and Herzegovina, Serbia. (09/2010)
**** Observe installation instructions for Soltecture PV modules.
www.soltecture.com/download-centre

The modules are not suitable for mobile or maritime applications. Please note that if the Linion PV modules are stored in dark spaces for long periods, they must then be exposed to sufficient solar radiation to attain their rated output. **Please refer to our user information at www.soltecture.com/download-centre. As we continually optimize our solar modules, related data pertinent to these changes will be cited in the technical data sheet.** All information applies exclusively to modules produced during the most recent product revision.

For technical questions, please contact us at: service@soltecture.de

APPROVED PRODUCT

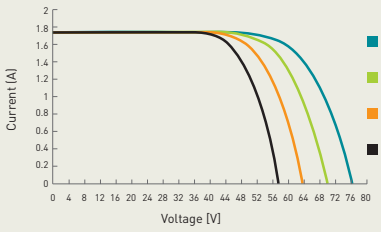
Certified as „Manufactured in the EU"

- Qualified, IEC 61646
- Safety tested, IEC 61730
- ANSI/UL 1703 listed
- Periodic Inspection

Thermal behavior		
Working temperature (NOCT)		49 °C (120 °F)
Power temperature coefficient T_c (P_{max})		-0.50%/K
Voltage temperature coefficient T_c (U_{oc})		-0.35%/K
Current temperature coefficient T_c (I_{sc})		+0.01%/K
Operating conditions		
Temperature range		-40 °C to +85 °C (-40 °F to 185 °F)
Maximum mechanical load****	IEC 61730	2400 Pa; 245 kg/m²
	UL 1703	1600 Pa; 33 lb/ft²
Maximum torsion		1.2°
IP code (to IEC 60529)		IP65
Protection class (to IEC 61140)		II
Application class (to IEC 61730)		A
Fire rating (to IEC 61730)		C

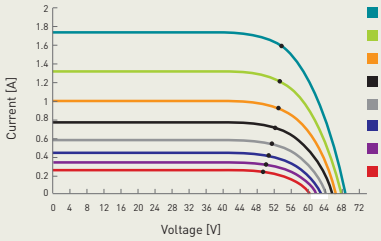
Dimensions	
Height / Width	1250 mm / 650 mm (49.2 in. / 25.6 in.)
Thickness	7 mm (0.28 in.)
Thickness with junction box	23 mm (0.91 in.)
Weight	12.6 kg (27.8 lb)
Additional data	
Maximum string fuse	3 A (e.g. Socomec 60PV0003)
Included bypass diode	1 x Diotec BY550-1000
Connection cable	2 x 1000 mm (39.4 in.) / 4 mm² (AWG 11)
Plug connector	Y-SOL 4
Cell type	CIGSe thin-film
Front glass	3 mm (0.12 in.) tempered safety glass
Rear glass	3 mm (0.12 in.) float glass
Encapsulation	EVA

Example characteristic curves at various temperatures – **Linion 80 module type**

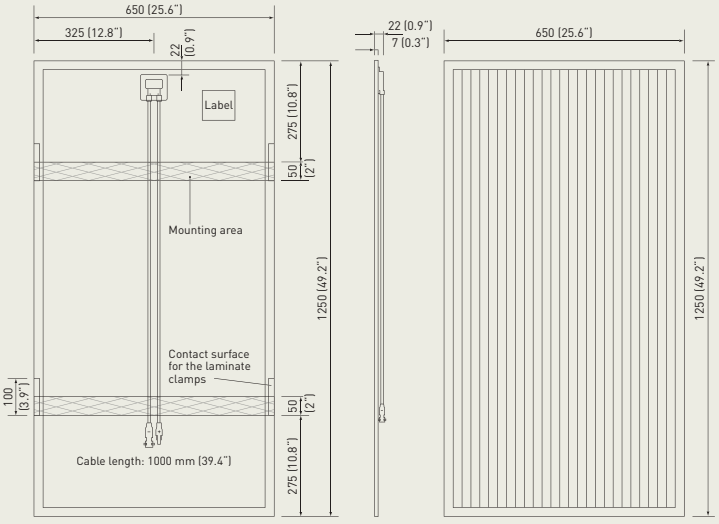


Temp [°C (°F)]	U_{mpp} [V]	I_{mpp} [A]	P_{max} [Wp]
75 [167]	41.4	1.48	61.3
50 [122]	47.2	1.49	70.3
25 [77]	53.1	1.51	80.2
0 [35]	58.9	1.52	89.5

Example characteristic curves at various irradiances – **Linion 80 module type**



E [W/m²]	U_{mpp} [V]	I_{mpp} [A]
1000	53.8	1.59
760	53.5	1.22
581	53.1	0.93
445	52.4	0.71
340	51.5	0.54
261	50.8	0.41
200	50.1	0.32
152	49.5	0.24



Soltecture GmbH
Groß-Berliner Damm 149
D-12487 Berlin

Tel.: +49 (0)30 46 77 77 – 0
Fax: +49 (0)30 46 77 77 – 400

info@soltecture.de
www.soltecture.com

Your Soltecture Partner: