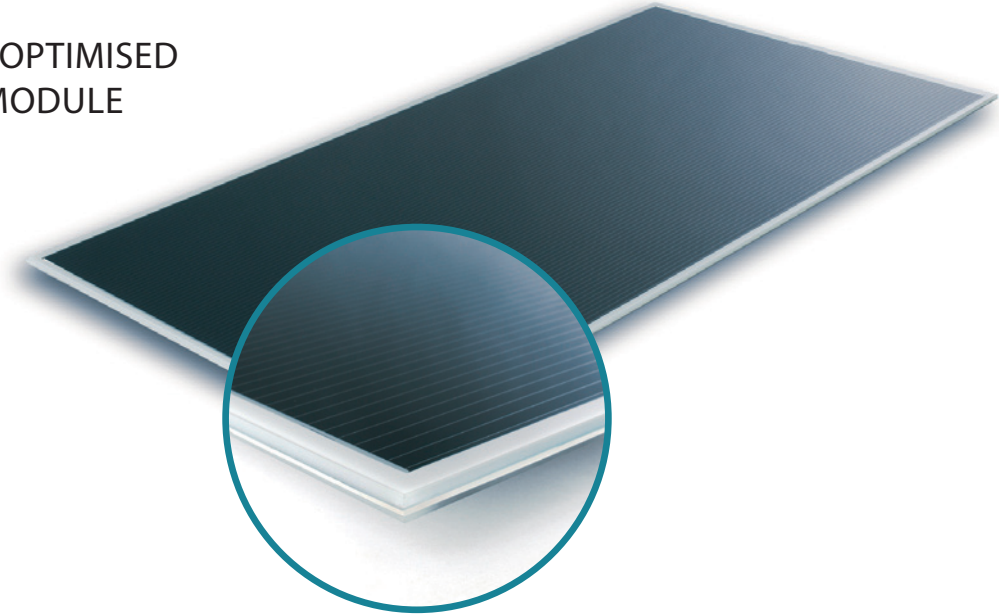


THE COST-OPTIMISED QUALITY MODULE



- | | |
|--------------------------|--|
| High yields | <ul style="list-style-type: none"> · Thin-film module with maximum efficiency thanks to CIGSe absorbers · Frameless surface ensures optimal self-cleaning · Positive output tolerance (+5/-0 W) |
| Easy installation | <ul style="list-style-type: none"> · Compact module format enables easy installation by a single installer · Packed with cardboard sleeves to protect the edges during installation |
| Robust | <ul style="list-style-type: none"> · 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

| 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 |
| | UL 1703 | 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% tolerance; 1000 V [IEC]; -10 °C) | 12 | 12 | 11 | 11 |
| 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.

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.

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.



Certified as „Manufactured in the EU“

- Qualified, IEC 61646
- Safety tested, IEC 61730
- Periodic Inspection

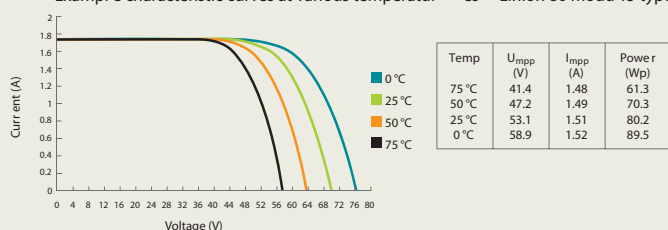
| Thermal behavior | | |
|---|--|----------|
| Working temperature (NOCT) | | 49 °C |
| Power temperature coefficient T _c (P _{max}) | | -0.50%/K |
| Voltage temperature coefficient T _c (U _{oc}) | | -0.35%/K |
| Current temperature coefficient T _c (I _{sc}) | | +0.01%/K |

| Dimensions | | |
|-----------------------------|--|------------------|
| Height / Width | | 1250 mm / 650 mm |
| Thickness | | 7 mm |
| Thickness with junction box | | 23 mm |
| Weight | | 12.6 kg |

| Operating conditions | | |
|------------------------------------|-----------|--------------------------------|
| Temperature range | | -40 °C to +85 °C |
| Maximum mechanical load**** | IEC 61730 | 2400 Pa; 245 kg/m ² |
| | UL 1703 | 1600 Pa; 33 lb/ft ² |
| Maximum torsion | | 1.2° |
| IP code (to DIN EN 60529) | | IP65 |
| Protection class (to DIN EN 61140) | | II |
| Application class (to IEC 61730) | | A |
| Fire rating (to IEC 61730) | | C |

| Additional data | | |
|-------------------------|--|-----------------------------|
| Recommended string fuse | | 3 A (e.g. Socomec 60PV0003) |
| Included bypass diode | | 1 x Diotec BY550-1000 |
| Connection cable | | (+) 1000 mm; (-) 1000 mm |
| Plug connector | | Y-SOL 4 |
| Cell type | | CIGSe thin-film |
| Front glass | | 3 mm tempered safety glass |
| Rear glass | | 3 mm float glass |
| Encapsulation | | EVA |

Example characteristic curves at various temperatures – Linion 80 module type



Example characteristic curves at various irradiances – Linion 80 module type

