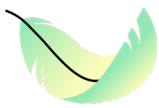


TECHNICAL DATASHEET: HeliSol® 436-2000

HeliSol is an innovative organic solar film with unique features, that enables solar power generation, where conventional photovoltaic solutions cannot be used. The solar film is ultra-light, flexible, ultra-thin and comes with an integrated backside adhesive to be easily applied to various surface materials. HeliSol has the lowest carbon footprint of all solar technologies with less than 10 g CO₂e/kWh, making it a truly green product.



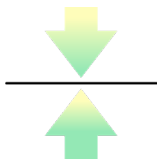
ULTRA-LIGHT

Weight of less than 2 kg/m². Perfect for lightweight buildings with low rooftop load-bearing capacity.



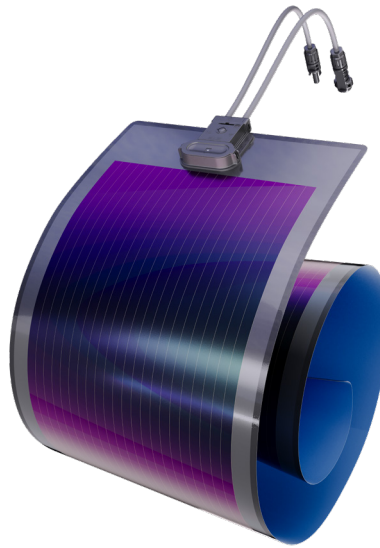
FLEXIBLE

Minimum bending radius of 20 cm. Ideal for all curved or non-straight surfaces



ULTRA-THIN

Thickness of less than 2 mm. Seamless integration into application surface.



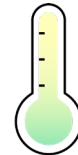
TRULY GREEN

Carbon footprint of less than 10 g CO₂e/kWh. No toxic heavy metals like lead or cadmium, no rare earths, no scarce raw materials.



EASY-TO-INSTALL

Integrated backside adhesive. Simply gluing on various surfaces. No mounting structure. No rooftop penetration.

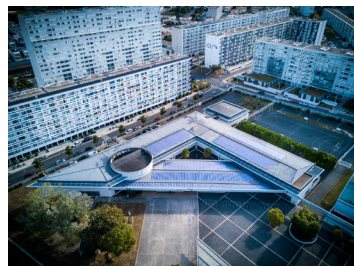


TEMPERATURE INDEPENDENT

No performance loss at high temperatures till >65 °C. +/- 0 temperature coefficient.

GENERAL DATA

| | |
|----------------------|---|
| Configuration | Junction box located on front side of module, integrated backside adhesive on rear side |
| Cell Type | Organic triple-junction solar cells in serial connection |
| Back Sheet | Opaque black film with UV- and weather protection with self-adhesive backside tape, delivered with protection liner |
| Front Sheet | Polymeric film with optimized UV- and weather protection |
| Fixation | Self-adhesive tape sticks durably on glass, metal/steel, concrete, or other materials on request |
| Packaging | 12 rolled modules per box, 8 boxes per pallet, 96 modules per pallet |



ELECTRICAL DATA AT STC

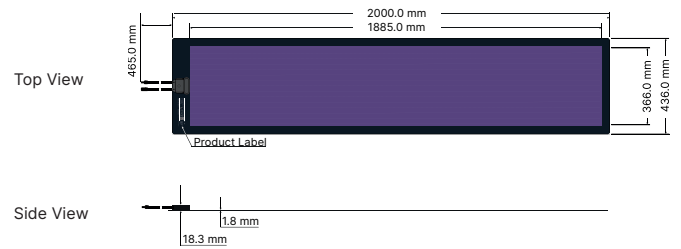
| | HeliaSol 436-2000-50 | HeliaSol 436-2000-55 |
|---|-------------------------|-------------------------|
| Nominal Power | 50 W | 55 W |
| Sorting of P _{MPP} | +5/-0 W | +5/-0 W |
| Aperture Efficiency | 7.2 % | 8.0 % |
| Voltage at P _{MPP} (V _{MPP}) | 42.6 V | 44.1 V |
| Current at P _{MPP} (I _{MPP}) | 1.24 A | 1.31 A |
| Open Circuit Voltage (V _{OC}) | 55.7 V | 55.7 V |
| Short Circuit Current (I _{SC}) | 1.62 A | 1.65 A |
| Overcurrent Protection Rating | 2.1 A | 2.1 A |

STC: Irradiance 1000 W/m², Module Temperature 25 °C, AM1.5 spectrum. Measurement tolerance of P_{MPP}, I_{SC} and V_{OC} does not exceed ±10%.
Nominal power is the minimum amount of power at STC and it is not equal to V_{MPP} * I_{MPP} in the electrical data table

MECHANICAL SPECIFICATIONS

| | |
|---------------------|--|
| Module Width | 436 mm |
| Module Length | 2000 mm |
| Module Thickness | 1.8 mm (solar film) 18 mm (solar film plus junction box) |
| Min. Bending Radius | 20 cm (unidirectional curved surfaces only) |
| Module Weight | 1.6 kg |
| Load Rating | Design load: ± 1600 Pa Test load: ± 2400 Pa Safety factor: 1.5 |

TECHNICAL DRAWING



THERMAL CHARACTERISTICS

| | |
|--|---|
| Operating Temperatures | -40 ... +85 °C |
| Temperature Coefficient P _{MPP} | +0.00 %/°C, from 25°C up to 65 °C -0.11 %/°C, from 65°C to 85 °C |
| Temperature Coefficient I _{SC} | +0.07 %/°C |
| Temperature Coefficient V _{OC} | -0.20 %/°C |

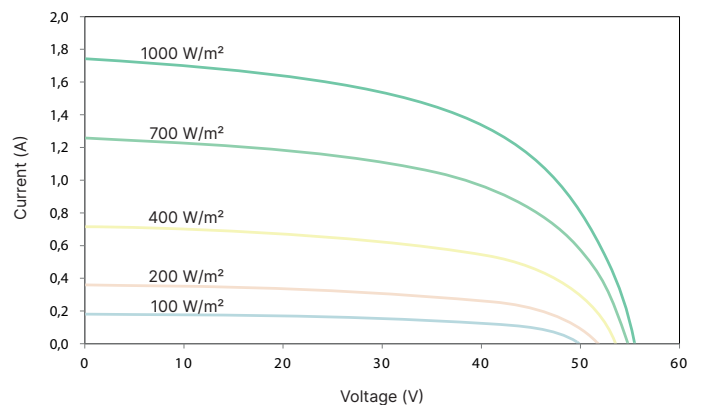
INSTALLATION

| | |
|-------------------------|---|
| Installation Conditions | Dry and clean conditions, temperature above 8 °C |
| Max. Altitude | 2000 m |
| Mounting Surface | Flat or bent in one axis (radius ≥ 20 cm) Slope min. 1° and max. 90° |

SYSTEM INTEGRATION

| | |
|-------------------------|--|
| Max. System Voltage | 1000 V |
| Bypass Diodes | 1 per module |
| Electrical Connection | TE Connectivity PV4-S connector 46 cm cable length |
| Class | II (IEC 61140) |
| Junction Box | IP 67 |
| Inverter Recommendation | Compatibility with most commercially available inverters |

I-V CURVES



STANDARDS AND NORMS

| | |
|---------------------|---|
| PV Standards | IEC 61730 compliant |
| Fire Classification | EN 13501-01 class E in combination with metal, concrete or polymeric waterproofing sheet with Fire class E acc. EN 13501-1 or higher. See the User Guide for more details. Fire tests were performed at the Fire laboratory of MPA Dresden GmbH. |
| Compliances | CE conform; WEEE compliant |
| Warranty | According to Terms & Conditions |

DISCLAIMER

The information included in this datasheet is subject to change without notice and is provided for informational purposes only. Please contact Heliatek about the availability of modules in the shown power classes.

