Glass-glass module
Eye catcher with highest yields

Thanks to their modern design SOLARWATT glass-glass modules deliver the highest long-term yields. They are robust and resilient, yet just as light as their glass-foil predecessors.

The high-performance PERC solar cells are embedded almost indestructibly in the glass-glass composite and thus optimally protected against all weather effects and mechanical stress. SOLARWATT can therefore offer a 30-year warranty on performance and product quality.

The SOLARWATT FullCoverage insurance is included for 5 years and free of charge. It insures almost all risks and takes effect even if the modules do not produce electricity or deliver less than expected in the event of damage.

Product Quality

- ammonia resistant
- intensive hailstorm resistant
- salt mist resistant
- optional: non-glare
- 100 % plus-sorting
- 100 % PID protected
- LeTID tested
- snow-load warranty

Service

FullCoverage insurance included (up to 1,000 kWp*)

Simple returns policy as per „Delivery terms for SOLARWATT solar modules“

30 Year Product Warranty as per „Warranty conditions for SOLARWATT solar modules“

30 Year Performance Warranty on 87 % of nominal power as per „Warranty conditions for SOLARWATT solar modules“

* country-specific deviations apply
Technical data sheet

Vision 60M style

Dimensions

General data

- Module technology: Glass-glass laminate; aluminum frame, black
- Covering material
  - Encapsulation: Tempered solar glass with anti-reflective finish, 2mm
  - Backing material: Tempered glass, 2mm
- Transparent areas: appr. 9.8 %
- Solar cells: 60 monocrystalline high power PERC solar cells
- Cell dimensions: 157 x 157 mm
- L x W x H / Weight: 1,680 x 990 x 40 mm / appr. 22.8 kg
- Connection technology: Cables 2 x 1.1 m², Stäubli Electrical MC4-connectors
- Bypass diodes: 3
- Max. system voltage: 1,000 V
- IP rating: IP67
- Protection class: II (acc. to IEC 61140)
- Fire class: A (acc. to IEC 61730/UL 790), E (acc. to EN 13501-1), B (acc. to EN13501-5)
- Certified mechanical ratings as per IEC 61215
  - Suction load up to 2,600 Pa (test load 3,600 Pa)
  - Pressure load up to 5,400 Pa (test load 8,100 Pa)
- Recommended stress load as per Installation Instructions
  - Please refer to the specifications in the Installation Instructions and Warranty Conditions.
- Non-glare option*: Reflection characteristics at low irradiation angles and full sunlight (according to BRDF): Lv10°=19.000 cd/m²
  - (*Available on request for locations with high demands on non-glare, prices differ)

Qualifications

- IEC 61215 (incl. LeTID) | IEC 61730 | IEC 61701 | IEC 62804 | IEC 62716 | MCS 005

Electrical data (STC)

STC (Standard Test Conditions): Irradiation intensity 1,000 W/m², spectral distribution AM 1.5, Temperature 25±2 °C, in accordance to EN 60904-3

<table>
<thead>
<tr>
<th>Nominal power P_{max}</th>
<th>300 Wp</th>
<th>305 Wp</th>
<th>310 Wp</th>
<th>315 Wp</th>
<th>320 Wp</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal voltage V_{mp}</td>
<td>32,5 V</td>
<td>32,7 V</td>
<td>32,9 V</td>
<td>33,0 V</td>
<td>33,1 V</td>
</tr>
<tr>
<td>Nominal current I_{mp}</td>
<td>9,32 A</td>
<td>9,42 A</td>
<td>9,52 A</td>
<td>9,62 A</td>
<td>9,75 A</td>
</tr>
<tr>
<td>Open circuit voltage V_{oc}</td>
<td>39,9 V</td>
<td>40,1 V</td>
<td>40,3 V</td>
<td>40,6 V</td>
<td>40,9 V</td>
</tr>
<tr>
<td>Short circuit current I_{sc}</td>
<td>9,88 A</td>
<td>10,00 A</td>
<td>10,12 A</td>
<td>10,22 A</td>
<td>10,32 A</td>
</tr>
<tr>
<td>Module efficiency</td>
<td>18,2 %</td>
<td>18,5 %</td>
<td>18,8 %</td>
<td>19,1 %</td>
<td>19,4 %</td>
</tr>
</tbody>
</table>

Measurement tolerances: P_{max} ±5 %; V_{oc} ±10 %; I_{mp} ±10 %; I_{sc} ±10 %

Reverse-current power rating Ir: 20 A, operating modules with an external power source is only permissible if using a phase fuse with a tripping current of ≤ 20 A.

Electrical data (NMOT and weak light)

NMOT (Nominal Module Operation Temperature): Irradiation intensity 800 W/m², spectral distribution AM 1.5, Temperature 20°C

Weak light conditions: Irradiation intensity 200 W/m², Temperature 25°C, Wind speed 1m/s, load operation

<table>
<thead>
<tr>
<th>Nominal power P_{max,NMOT}</th>
<th>222 W</th>
<th>226 W</th>
<th>230 W</th>
<th>233 W</th>
<th>237 W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal power P_{max @200 W/m²}</td>
<td>60,2 W</td>
<td>60,8 W</td>
<td>61,8 W</td>
<td>62,8 W</td>
<td>63,8 W</td>
</tr>
</tbody>
</table>

Measurement tolerances: P_{max} ±5 %; V_{oc} ±10 %; I_{mp} ±10 %, I_{sc} ±10 %

Reduction of module efficiency when irradiance is reduced from 1000 W/m² to 200 W/m² (at 25 °C): 4 ± 2 % (relative) / −0,6 ± 0,3 % (absolute).

Characteristic lines (Performance Class 320 Wp)

Voltage characteristic line at different temperatures and irradiations

Thermal Features

- Operating temperature range: -40...+85 °C
- Ambient temperature range: -40...+45 °C
- Temperature coefficient P_{max}: -0,39%/K
- Temperature coefficient V_{oc}: -0,31%/K
- Temperature coefficient I_{sc}: 0,05%/K
- NMOT: 44°C