



Technical data sheet

Eco 60M style

Glass-foil module Best price-performance ratio

With the Eco models, SOLARWATT offers affordable, robust, high-performance solar modules of proven quality. They are durable and high-yielding as well as resistant to weather effects and environmental influences.

The Eco-modules are produced on state-of-the-art production lines and meet the high SOLARWATT quality standards. They will therefore generate solar power well beyond their warranty period.

The modules come with a solid ten-year product guarantee, with FullCoverage insurance even twelve years. FullCoverage insures almost all risks and takes effect if the modules do not produce electricity or deliver less than expected in the event of damage.

Product Quality

- 100 % plus-sorting
- 100 % PID protected



Service

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

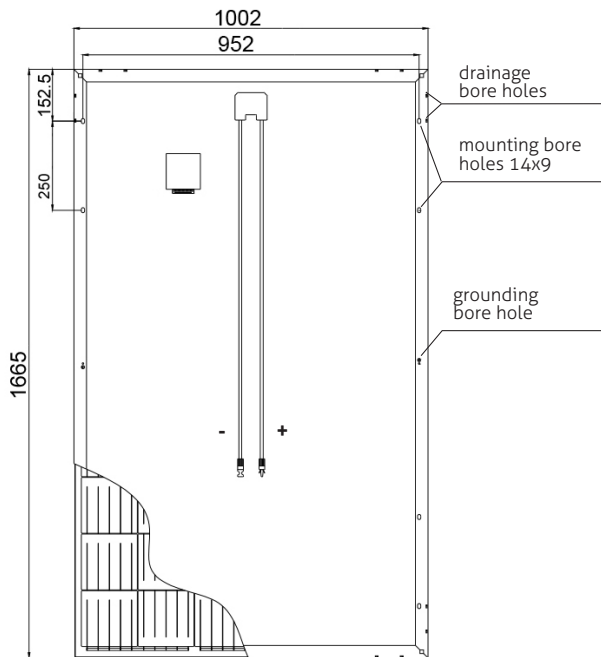
Simple returns policy
as per „Delivery terms for SOLARWATT solar modules“

* country-specific deviations apply

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

25 Year Performance Warranty
on 80 % of nominal power as per „Warranty conditions for SOLARWATT solar modules“

Dimensions



General data

| | |
|--|---|
| Module technology | Glass-foil laminate; aluminum frame, black |
| Covering material | Tempered solar glass with anti-reflective finish, 3,2 mm |
| Encapsulation | EVA-solar cells-EVA |
| Backing material | Multi-layer composite film, black |
| Solar cells | 60 monocrystalline high power PERC solar cells |
| Cell dimensions | 159 x 159 mm |
| L x W x H / Weight | 1,665 ^{±2} x 1,002 ^{±2} x 40 ^{±0,3} mm / appr. 19 kg |
| Connection technology | Cables 2 x 1,0 m/4 mm ² Stäubli Electrical MC4-connectors |
| Bypass diodes | 3 |
| Max. system voltage | 1,000 V |
| IP rating | IP68 |
| Application class | II (acc. to IEC 61140) |
| Fire class | C (acc. to IEC 61730) |
| Certified mechanical ratings as per IEC 61215 | Suction load up to 2,400 Pa (test load 3,600 Pa) Pressure load up to 3,600 Pa (test load 5,400 Pa) |
| Recommended stress load as per Installation Instructions | Please refer to the specifications in the Installation Instructions and Warranty Conditions. |
| Qualifications (in preparation) | IEC 61215 IEC 61730 2 PFG 2387 (PID) IEC 61701 IEC 62716 |

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

| | | | |
|---------------------------------------|---------|---------|---------|
| Nominal power P _{max} | 310 Wp | 315 Wp | 320 Wp |
| Nominal voltage V _{MP} | 33,40 V | 33,61 V | 33,81 V |
| Nominal current I _{MP} | 9,29 A | 9,38 A | 9,47 A |
| Open circuit voltage V _{OC} | 40,62 V | 40,76 V | 40,90 V |
| Short circuit current I _{SC} | 9,85 A | 9,92 A | 9,99 A |
| Module efficiency | 18,58 % | 18,88 % | 19,18 % |

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

Reverse-current power rating I_r: 15 A, operating modules with an external power source is only permissible if using a phase fuse with a tripping current of ≤ 15 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

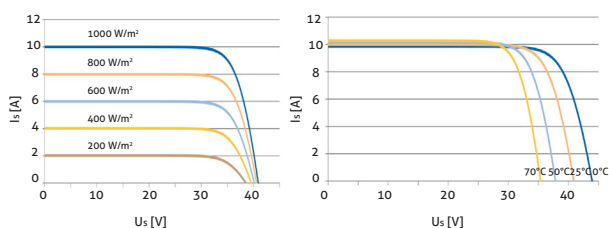
| | | | |
|--|--------|--------|--------|
| Nominal power P _{max@NMOT} | 230 W | 233 W | 237 W |
| Nominal power P _{max@200 W/m²} | 60,3 W | 51,1 W | 62,2 W |

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

Reduction of module efficiency when irradiance is reduced from 1000W/m² to 200W/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 irradiances



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} | -0,30 %/K |
| Temperature coefficient I _{SC} | 0,06 %/K |
| NMOT | 45 °C |