

PRODUCT

Vision 60M construct

Glass-Glass module

Providing shadow and high performance

Solarwatt glass-glass modules are robust and resilient. Thanks to their modern design, they deliver the highest long-term yields.

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.

The National technical approval (Allgemeine bauaufsichtliche Zulassung = AbZ) attests the applicability of the module according to the requirements of the German Federal State Building Orders. The national building regulations of your country must be observed.



PRODUCT QUALITY

- ammonia resistant
- intensive hailstorm resistant
- salt mist resistant
- 100 % plus-sorting
- 100 % PID protected
- National techn. approval (AbZ)



SERVICE

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

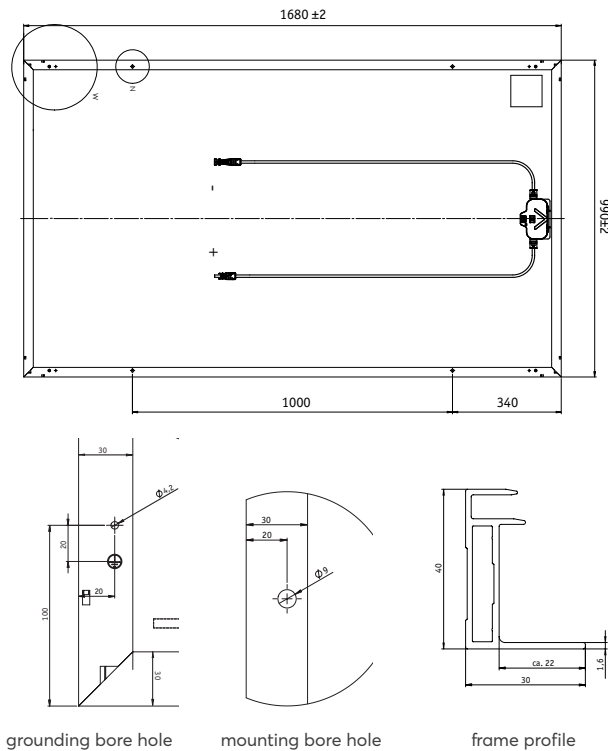
Simple returns policy
as per „Delivery terms for Solarwatt solar modules“

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

30 Year Performance Warranty
as per „Warranty conditions for Solarwatt solar modules“

* country-specific deviations apply

DIMENSIONS



GENERAL DATA

Module technology	Glass-glass laminate, aluminum frame, black
Covering material	Tempered solar glass, anti-reflective finish, 2 mm
Encapsulation Backing material	Solar cells in polymer encapsulation, transparent Tempered float glass, 2 mm
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 ^{±2} x 990 ^{±2} x 40 ^{±0.3} mm / appr. 22,8 kg
Connection technology	Cables 2 x 1,0 m/4 mm ² , Hirschmann HC4-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 _{ROOF} (t1) (acc. to EN 13501-5)
Certified mechanical ratings as per IEC 61215	Suction load up to 2,400 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.
Qualifications	IEC 61215 (incl. LeTID) IEC 61730 IEC 61701 IEC 62804 IEC 62716 AbZ: National technical approval (Z-70.3-199)

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

	310 Wp	315 Wp	320 Wp
Nominal power P _{max}	310 Wp	315 Wp	320 Wp
Nominal voltage V _{mp}	33,0 V	33,3 V	33,7 V
Nominal current I _{mp}	9,45 A	9,50 A	9,58 A
Open circuit voltage V _{oc}	40,9 V	41,1 V	41,2 V
Short circuit current I _{sc}	9,92 A	9,95 A	10,04 A
Module efficiency	18,8 %	19,1 %	19,4 %

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

Reverse-current power rating I_r: 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 Operating 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 1 m/s, load operation

	230 W	234 W	238 W
Nominal power P _{max} @NMOT	230 W	234 W	238 W
Nominal power P _{max} @200 W/m ²	61,8 W	62,8 W	63,8 W

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

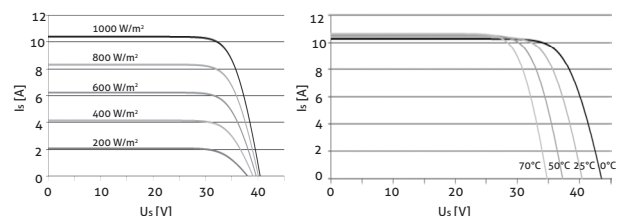
Reduction of module efficiency when irradiance is reduced from 1,000 W/m² to 200 W/m² (at 25 °C): 4 ± 2 % (relative) / -0,6 ± 0,3 % (absolute).

THERMAL FEATURES

Operating temperature range	-40 ... +85 °C
Ambient temperature range	-40 ... +45 °C
Temperature coefficient P _{max}	-0,38 %/K
Temperature coefficient V _{oc}	-0,31 %/K
Temperature coefficient I _{sc}	0,05 %/K
NMOT	44 °C

CHARACTERISTIC LINES (PERFORMANCE CLASS 315 WP)

Voltage characteristic line at different temperatures and irradiances



TRANSPORT AND PACKAGING

Modules per palette	36
Palette dimensions (gross) L x W x H	1,700 x 1,010 x 1,640 mm
Gross weight per palette	859 kg
Palettes per truck	15
Modules per truck	540