



Technical data sheet

# Vision 60M style

## 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
- snow-load warranty



## Service

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

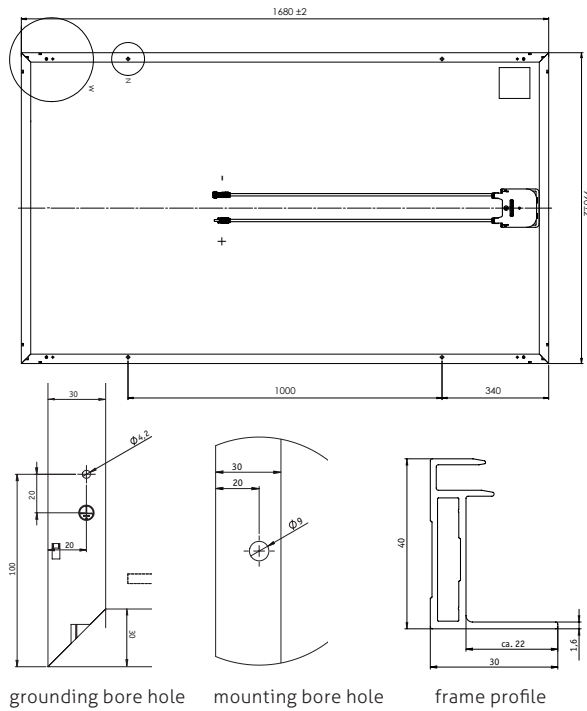
**Simple returns policy**  
as per „Delivery terms for SOLARWATT solar modules“

\* country-specific deviations apply

**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“

### Dimensions



### General data

Module technology	Glass-glass laminate; aluminum frame, black
Covering material	Tempered solar glass with anti-reflective finish, 2 mm
Encapsulation	EVA-solar cells-EVA, transparent
Backing material	Tempered 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 <sup>±2</sup> x 990 <sup>±2</sup> x 40 <sup>±0,3</sup> mm / appr. 22,8 kg
Connection technology	Cables 2 x 1,0 m/4 mm <sup>2</sup> 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	C (acc. to IEC 61730), E (acc. to EN 13501)
Certified mechanical ratings as per IEC 61215 <sup>*</sup>	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   IEC 61730   IEC 61701   IEC 62804

Non-glare option\*: Reflection characteristics at low irradiation angles and full sunlight (according to BRDF):  $Lv10^\circ=19.000 \text{ cd/m}^2$

(\*Available on request for locations with high demands on non-glare, prices differ)

### Electrical data (STC)

STC (Standard Test Conditions): Irradiation intensity 1,000 W/m<sup>2</sup>, spectral distribution AM 1,5 | Temperature 25±2 °C, in accordance to EN 60904-3

	300 Wp	305 Wp	310 Wp	315 Wp	320 Wp
Nominal power $P_{max}$	300 Wp	305 Wp	310 Wp	315 Wp	320 Wp
Nominal voltage $V_{MP}$	32,5 V	32,7 V	32,9 V	33,0 V	33,1 V
Nominal current $I_{MP}$	9,32 A	9,42 A	9,52 A	9,62 A	9,75 A
Open circuit voltage $V_{OC}$	39,9 V	40,1 V	40,3 V	40,4 V	40,5 V
Short circuit current $I_{SC}$	9,88 A	10,00 A	10,12 A	10,22 A	10,32 A
Module efficiency	18,2 %	18,5 %	18,8 %	19,1 %	19,4 %

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

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  $\leq 20$  A.

### Electrical data (NMOT and weak light)

NMOT (Nominal Module Operation Temperature): Irradiation intensity 800 W/m<sup>2</sup>, spectral distribution AM 1,5, Temperature 20 °C

Weak light conditions: Irradiation intensity 200 W/m<sup>2</sup>, Temperature 25 °C, Wind speed 1m/s, load operation

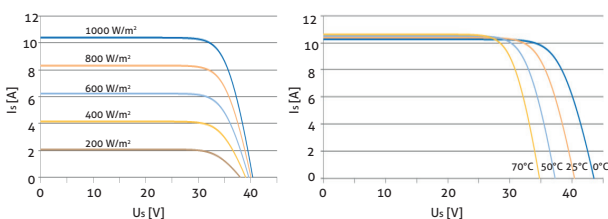
	222 W	226 W	230 W	233 W	237 W
Nominal power $P_{max @NMOT}$	222 W	226 W	230 W	233 W	237 W
Nominal power $P_{max @200 \text{ W/m}^2}$	60,2 W	60,8 W	61,8 W	62,8 W	63,8 W

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

Reduction of module efficiency when irradiance is reduced from 1000 W/m<sup>2</sup> to 200 W/m<sup>2</sup> (at 25 °C):  $4 \pm 2 \%$  (relative) /  $-0,6 \pm 0,3 \%$  (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 $V_{OC}$	-0,31 %/K
Temperature coefficient $I_{SC}$	0,05 %/K
NMOT	44 °C