# 

# PRODUCT



# **SOLARWATT Panel** vision GM 3.0 style

# Glass-Glass module

## Solid quality with high performance

Thanks to their modern design Solarwatt glass-glass modules deliver the highest long-term yields. They are robust and more resilient than their predecessors. Bifacial PERC half-cut-cells enable modules that are optimized for maximum performance.

The 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

- bifacial PERC half-cut-cells
- transparent embedding of the cells
- LeTID tested
- ammonia resistant
- intensive hailstorm resistant
- salt mist resistant
- 100 % plus-sorting
- PID protected
- snow-load warranty
- max. 12,150/ 5,400 Pa



#### Subject to change | Errors excepted

This data sheet fulfills the requirements listed in IEC 61215-1-1 | EN Cradle to Cradle Certified® is a registered trademark of the Cradle to Cradle Products Innovation Institute.

## 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



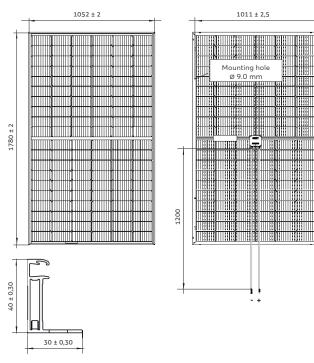
Product Scorecard	
Material Health	Silver
Material Reutilization	Silver
Renewable Energy & Carbon Management	Gold
Water Stewardship	Silver
Social Fairness	Gold
Overall Certification Level	SILVER

**Solarwatt GmbH** | Maria-Reiche-Str. 2a | 01109 Dresden | Germany | T +49-351-8895-555 | F +49-351-8895-100 | solarwatt.com Certified acc. to DIN EN ISO 9001, 14001, 45001, 50001

#### **Technical data sheet** SOLARWATT Panel vision GM 3.0 style



#### DIMENSIONS



Module technology	Glass-glass laminate, aluminum frame, black
Covering material Encapsulation Backing material	Tempered solar glass with anti-reflective finish, 2 mm Solar cells in polymer encapsulation, transparent Tempered glass, 2 mm
Transparent areas	appr. 7.4 %
Solar cells	120 monocrystalline, bifacial, high power PERC-solar cells
Cell dimensions	166 x 83 mm
L x W x H / Weight	1,780 <sup>± 2</sup> x 1,052 <sup>± 2</sup> x 40 <sup>± 0,3</sup> mm / appr. 25 kg
Connection technology	Cables 2 x 1,2 m/ 4 mm² Stäubli Electrical MC4 or MC4-type 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 <sub>ROOF</sub> (t1) (acc. to EN13501-5)
Certified mechanical ra- tings as per IEC 61215	Pressure load up to 8,100 Pa (test load 12,150 Pa) Suction 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 Installa- tion Instructions and Warranty Conditions.
Qualifications	IEC 61215   IEC 61730   LeTID   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  $\pm$  2 °C, in accordance to EN 60904-3

Nominal power P <sub>max</sub>	360 Wp	365 Wp	370 Wp
Nominal voltage V <sub>mp</sub>	34.5 V	35.0 V	35.5 V
Nominal current Imp	10.5 A	10.5 A	10.5 A
Open circuit voltage Voc	41.3 V	41.4 V	41.5 V
Short circuit curren Isc	11.1 A	11.1 A	11.1 A
Module efficiency	19.4 %	19.6 %	19.9 %

Measurement tolerances: P\_max  $\pm 5$  %; Voc  $\pm 10$  %; Isc  $\pm 10$  %, IMP  $\pm 10$  %

Reverse-current power rating I<sub>R</sub>: 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)

**GENERAL DATA** 

1000

NMOT (Nominal Module Operating 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 1 m/s, load operation

Nominal power P <sub>max@NMOT</sub>	269 W	273 W	277 W
Nominal power P <sub>max @200 W/m<sup>2</sup></sub>	70.3 W	71.3 W	72.3 W

Measurement tolerances:  $P_{max}$  ±5 %;  $V_{\text{OC}}$  ±10 %;  $I_{\text{SC}}$  ±10 %,  $I_{\text{MP}}$  ±10 %

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

#### **BIFACIAL SPECIFICATIONS**

Bifacial gain: Possible additional power by backside compared to front side power, depending on the mounting situation.

lsc	Pmax	lsc	Pmax	lsc
11.1 A	365 W	11.1 A	370 W	11.1 A
11.7 A	383 W	11.7 A	389 W	11.7 A
12.2 A	402 W	12.2 A	407 W	12.2 A
12.8 A	420 W	12.8 A	426 W	12.8 A
13.3 A	438 W	13.3 A	444 W	13.3 A
	Isc 11.1 A 11.7 A 12.2 A 12.8 A 13.3 A	11.1 A 365 W   11.7 A 383 W   12.2 A 402 W   12.8 A 420 W	11.1 A 365 W 11.1 A   11.7 A 383 W 11.7 A   12.2 A 402 W 12.2 A   12.8 A 420 W 12.8 A	11.1 A 365 W 11.1 A 370 W   11.7 A 383 W 11.7 A 389 W   12.2 A 402 W 12.2 A 407 W   12.8 A 420 W 12.8 A 426 W

#### THE

THERMAL FEATURES	
Operating temperature range	-40 +85 °C
Ambient temperature range	-40 +45 °C
Temperature coefficient P <sub>max</sub>	-0,34 %/K
Temperature coefficient Voc	-0,27 %/K
Temperature coefficient Isc	0,04 %/K
NMOT	44 °C

#### **TRANSPORT AND PACKAGING**

Modules per pallet	32	
Pallet dimensions (gross) L x W x H	1,800 x 1,070 x 1,550 mm	
Gross weight per pallet	847 kg	
Pallets per truck	14	
Modules per truck	448	