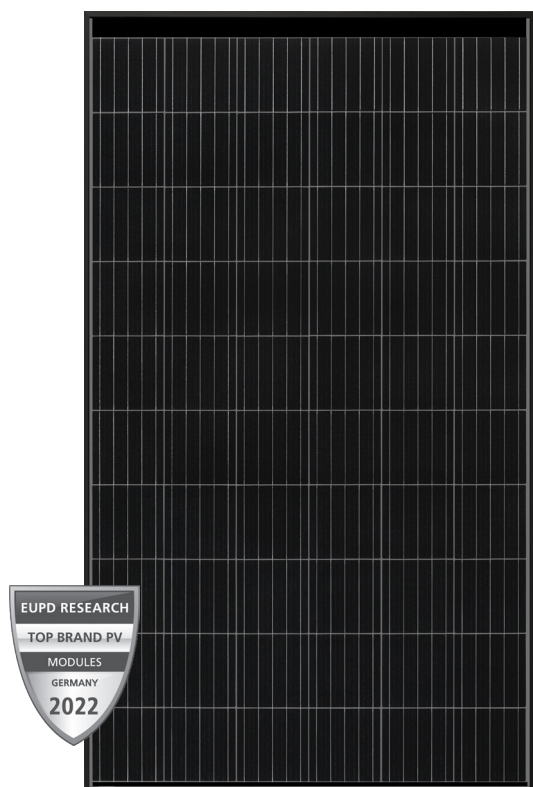## PRODUCT

Vision 60M style (black edition) 320-325 Wp

Glass-glass module

Black design for excellent appearance

The Vision 60M style black edition is characterized by the uniform black appearance of this glass-glass solar panel. With its covered cell connectors at the ends, this panel appears completely black. Combined with a black frame and transparent tempered solar glass, this solar panel visually blends into the roof - making it an excellent choice for pitched roofs.

Thanks to years of experience, the use of best components and a fully automated production process, Solarwatt's glass modules deliver the highest yields for decades. Our commitment to quality results in robust and highly resilient solar modules.

CE ☐

PRODUCT QUALITY

- covered cell connectors
- 100 % plus-sorting
- ammonia resistant
- intensive hailstorm resistant

SERVICE

30 Years Product Warranty
as per „Warranty conditions for Solarwatt solar modules
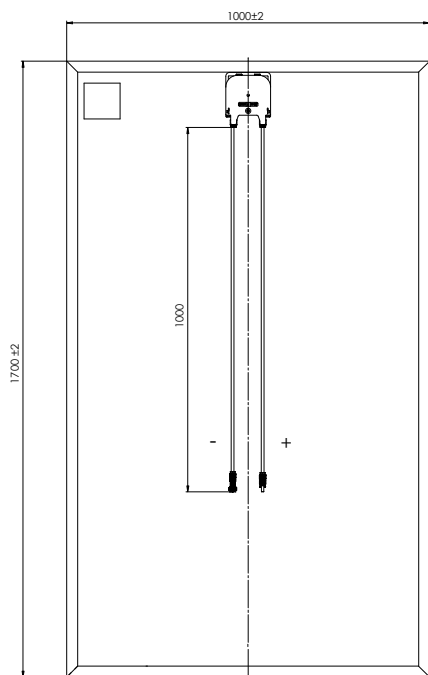
30 Years Performance Warranty
on 87 % of nominal power as per „Warranty conditions for Solarwatt solar modules"

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

Subject to change | Errors excepted
This data sheet fulfills the requirements listed in IEC 61215-1-1 | EN

DIMENSIONS

dimensions in mm

GENERAL DATA

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	ca. 5.0 %
Solar cells	60 monocrystalline high power PERC-solar cells
Cell dimensions	159 x 159 mm
L x W x H / Weight	$1,700^{\pm 2}$ x $1,000^{\pm 2}$ x $35^{\pm 0,3}$ mm / appr. $22.0^{\pm 0,5}$ kg
Connection technology	Cables 2 x 1.0 m / 4 mm² 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/UL 790)
Certified mechanical ratings as per IEC 61215	Pressure load up to 5,400 Pa (test load 8,100 Pa) Suction load up to 2,400 Pa (test load 3,600 Pa)
Recommended stress load as per Installation Instructions	Please refer to the specifications in the Installation Instructions and Warranty Conditions.
Qualifications	IEC 61215 I IEC 61730

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}	320 Wp	325 Wp
Nominal voltage V_{mp}	33.6 V	33.9 V
Nominal current I_{mp}	9.52 A	9.60 A
Open circuit voltage V_{oc}	40.2 V	40.4 V
Short circuit current I_{sc}	10.20 A	10.31 A
Module efficiency	18.8 %	19.1 %

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 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 operationg

Nominal power $P_{max @NMOT}$	250 W	254 W

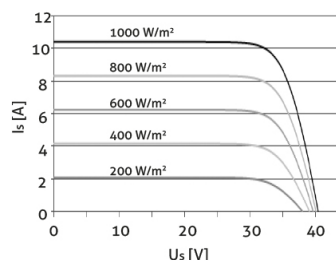Measurement tolerances: P_{max} ±5 %; V_{OC} ±10 %; I_{SC} ±10 %, I_{MP} ±10 %.

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}	-0.39 %/K
Temperature coefficient V_{oc}	-0.28 %/K
Temperature coefficient I_{sc}	0.04 %/K
NMOT	45 °C

CHARACTERISTIC LINES (PERFORMANCE CLASS 325 WP)

Voltage characteristic line at different temperatures and irradiations

TRANSPORT AND PACKAGING

Modules per pallet	30
Pallet dimensions (packing size)	1,750 x 1,050 x 1,300 mm
Gross weight per pallet	ca. 695 kg (max.)
Pallets per truck	15 / 30
Modules per truck	450 / 900