

Glass-Glass-Module: Vision 36M glass

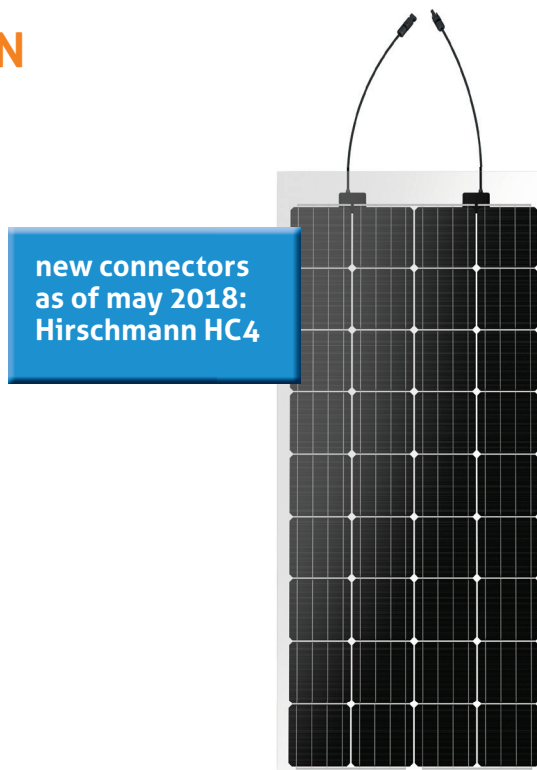
SOLARWATT Solar Modules

THE INNOVATIVE GLASS-GLASS GENERATION VISION 36M GLASS

- 20 % transparency
- National technical approval (AbZ)
- Exceptionally reliable yield rates
- Improved mechanical strength
- 100 % protection against PID
- Increased fire protection
- Monocrystalline high power solar cells
- 165 and 170 Wp (100 % plus sorting)

Product Quality

- long-lasting
- resilient
- high-yield
- innovative
- safe
- resistant against ammonia
- resistant against hail
- resistant against salt mist



SOLARWATT Service



SOLARWATT Full Coverage
included (up to 1000 kWp*)



Product-warranty
as per „Special Warranty Conditions for SOLARWATT Solar Modules“



Simple returns policy
as per „Delivery Terms for SOLARWATT Solar Modules“



Performance-warranty
on 87 % of nominal power as per „Warranty Conditions for SOLARWATT Solar Modules“

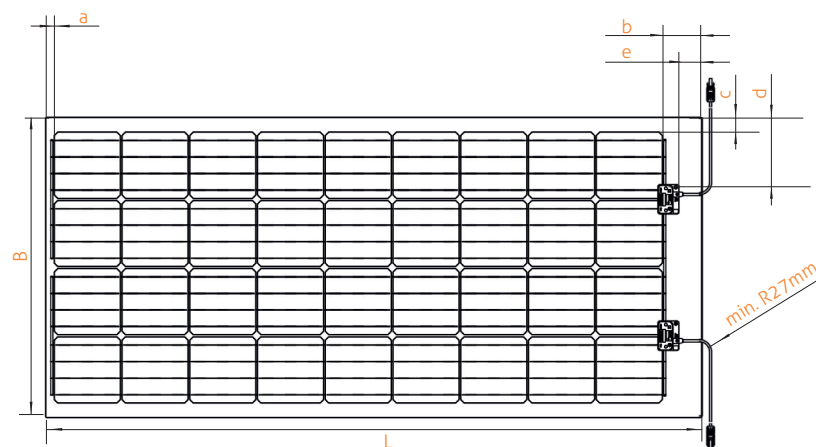


Country of origin
Quality made in Germany

* in Italy up to 50 kWp

Technical Data | Vision 36M glass

DIMENSIONS



	MC4	HC4
L	1550 mm	
B	710 mm	
a	21 mm	
b	93 mm	
c	35,5 mm	
d	159 mm	162 mm
e	54 mm	44 mm

GENERAL DATA

Module technology	glass-glass laminate
Covering material	Partially tempered high transparent float glass with anti-reflective finish, 4 mm
Encapsulation	EVA-solar cells-EVA, transparent
Backing material	Partially tempered float glass, 4 mm
Transparency	20 %
Solar cells	36 monocrystalline high power solar cells
Cell dimensions	156 x 156 mm
L x W x H / Weight	1550 ⁺² x 710 ⁺² x 9 ⁺¹ mm / appr. 25 kg
Connection technology	until 2018/05/01: Cables 2 x 0,4 m/4 mm ² Stäubli Electrical Connectors MC4-connector as of 2018/05/01: Cables 2 x 0,45 m/4 mm ² Hirschmann HC4-connector
Bypass diodes	2
Application class	A (acc. to IEC 61730)
Max. system voltage	1000 V
Mechanical Ratings as per IEC 61215 Ed.2	Suction load up to 2400 Pa Applied load up to 6000 Pa
Qualifications	IEC 61215 Ed.2 IEC 61730 (including Protection Class II) National technical approval (AbZ)

ELECTRICAL DATA (STC)

STC: Standard Test Conditions: Irradiation intensity 1000 W/m², spectral distribution AM 1,5 | Temperature 25±2 °C, in accordance to EN 60904-3

Nominal power P _N	165 Wp	170 Wp
Nominal voltage U _{MPP}	19,2 V	19,3 V
Nominal current I _{MPP}	8,71 A	8,90 A
Open circuit voltage U _{OC}	23,4 V	23,6 V
Short circuit current I _{SC}	9,02 A	9,17 A
Module efficiency	15,2 %	15,7 %

Measurement tolerance in reference to P_{max} ±5%;

Reduction of module efficiency when irradiance is reduced from 1000 W/m² to 200 W/m² (at 25 °C): 4 ± 2 % (relative) / -0,6 ± 0,3 % (absolute).

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.

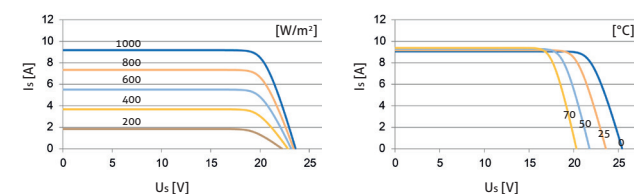
ELECTRICAL DATA (NOCT)

NOCT: Normal Operation Cell Temperature: Irradiation intensity 800 W/m², AM 1,5 | Temperature 20 °C, Wind speed 1m/s, open circuit operation

Nominal power P _N	122 W	125 W
Nominal voltage U _{MPP}	17,7 V	17,8 V
Open circuit voltage U _{OC}	21,9 V	22,1 V
Short circuit current I _{SC}	7,29 A	7,41 A

CHARACTERISTIC LINES (Performance Class 170 Wp)

Voltage characteristic line at different irradiances [W/m²] and temperatures [°C]



THERMAL FEATURES

Operating temperature range	-40 ... +85 °C
Ambient temperature range	-40 ... +45 °C
Temperature coefficient P _N	-0,39%/K
Temperature coefficient U _{OC}	-0,31%/K
Temperature coefficient I _{SC}	0,05%/K
NOCT	45 °C