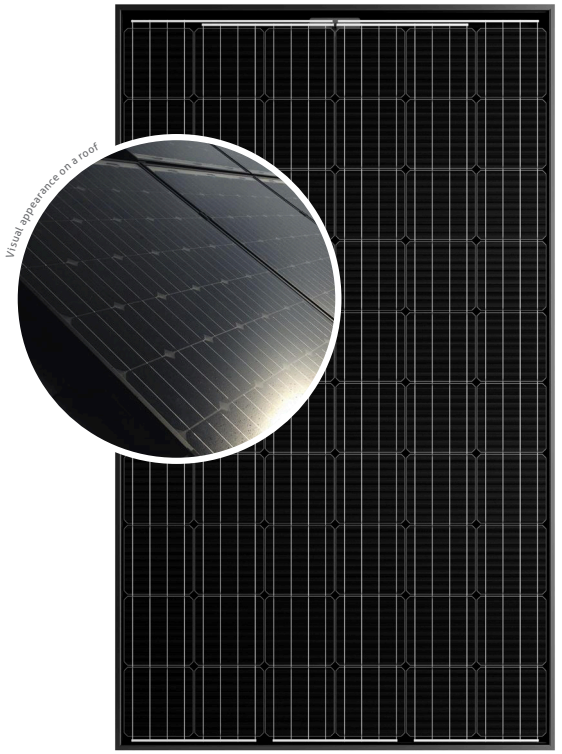
Subject to change | Errors excepted | 2017 SOLARWATT GmbH | AZ-TDB-PMS-0472
This data sheet fulfills the requirements listed in DIN EN 50380:2003 | REV 013 | 08/2017 | EN

SOLARWATT®
power to the people

**Glass-Glass-Module: Vision 60M style** | **SOLARWATT Solar Modules**

# THE INNOVATIVE GLASS-GLASS GENERATION
# VISION 60M STYLE

- Super lightweight thanks to glass just 2 mm thick
- Exceptionally reliable yield rates
- 100 % protection against PID
- Increased fire protection
- Monocrystalline high power solar cells
- 280 Wp – 300 Wp (100 % plus sorting)




## Product Quality

- long-lasting
- resilient
- high-yield
- innovative
- safe
- low-glare
- ammonia resistant
- large hailstone resistant
- salt mist resistant

CERTIFICATE BBA 0054

## SOLARWATT Service

**SOLARWATT Full Coverage**
included (up to 1000 kWp*)

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

**Product-warranty**
30 years
as per „Special Warranty Conditions for SOLARWATT Solar Modules"

**Performance-warranty**
30 years
on 87 % of nominal power as per „Warranty Conditions for SOLARWATT Solar Modules"

**Country of origin**
Made in Germany
Quality made in Germany

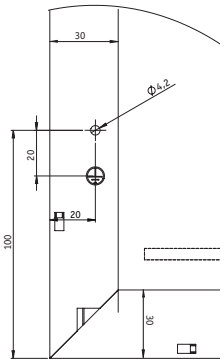
* in Italy up to 50 kWp

SOLARWATT GmbH | Maria-Reiche-Str. 2a | 01109 Dresden | Germany
Tel. +49 351 8895-333 | Fax +49 351 8895-100 | www.solarwatt.com
Certified acc. to DIN EN ISO 9001, 14001, 50001 | BS OHSAS 18001:2007

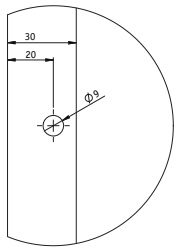
# Technical Data | **Vision 60M style**

SOLARWATT® power to the people

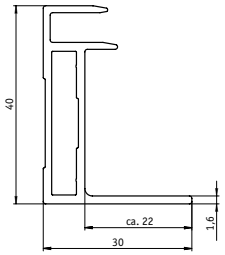
## DIMENSIONS



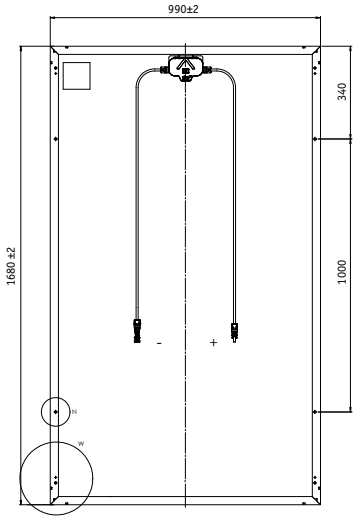
Detail view - grounding bore hole



Detail view - mounting bore hole



Frame profile




## GENERAL DATA

| | |
|---|---|
| Module technology | Glass-glass laminate; aluminum frame, black |
| Covering material<br>Encapsulation<br>Backing material | Tempered solar glass with anti-reflective finish, 2 mm<br>EVA-solar cells-EVA, transparent<br>Tempered solar glass, 2 mm |
| Solar cells | 60 monocrystalline high power solar cells |
| Cell dimensions | 156 x 156 mm |
| L x W x H / Weight | $1680^{\pm 2}$ x $990^{\pm 2}$ x $40^{\pm 0,3}$ mm / appr. 22,8 kg |
| Connection technology | Cables 2 x 1,0 m/4 mm², Hirschmann HC4-connector |
| Bypass diodes | 3 |
| Application class | A (acc. to IEC 61730) |
| Max. system voltage | 1000 V |
| Mechanical Ratings<br>as per IEC 61215 Ed.2 | Suction load up to 2400 Pa<br>Applied load up to 5400 Pa |
| Approved stress load<br>as per SOLARWATT<br>Installation Instructions | Applied load up to 3500 Pa (when installed crosswise[1])<br>Test condition: sliding load of 5400 Pa (conditions take into account safety factors for snow overhang and ice load per Eurocode 1.)<br>1) Please refer to the specifications in the installation instructions. |
| Qualifications | IEC 61215 Ed.2 \| IEC 61730 (including Protection Class II) |

## ELECTRICAL DATA (STC)

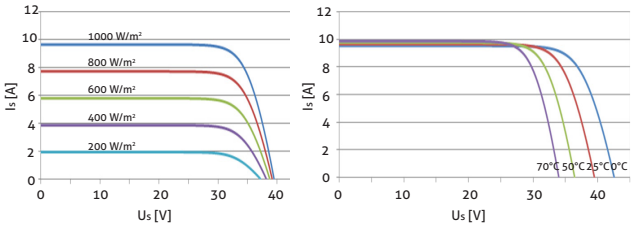
STC: Standard Test Conditions: Irradiation intensity 1000 W/m², spectral distribution AM 1,5 | Temperature 25±2 °C, in accordance to EN 60904-3

| | | | | | |
|---|---|---|---|---|---|
| Nominal power $P_N$ | 280 Wp | 285 Wp | 290 Wp | 295 Wp | 300 Wp |
| Nominal voltage $U_{MPP}$ | 31,7 V | 31,9 V | 32,1 V | 32,3 V | 32,5 V |
| Nominal current $I_{MPP}$ | 8,92 A | 9,02 A | 9,12 A | 9,22 A | 9,32 A |
| Open circuit voltage $U_{OC}$ | 39,1 V | 39,3 V | 39,5 V | 39,7 V | 39,9 V |
| Short circuit current $I_{SC}$ | 9,40 A | 9,52 A | 9,64 A | 9,76 A | 9,88 A |
| Module efficiency | 17,0 % | 17,3 % | 17,6 % | 17,9 % | 18,2 % |

Measurement tolerance in reference to Pmax ±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.

## CHARACTERISTIC LINES (Performance Class 290 Wp)

Voltage characteristic line at different temperatures and irradiations




## 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 $P_N$ | 207 W | 210 W | 214 W | 218 W | 221 W |
| Nominal voltage $U_{MPP}$ | 29,3 V | 29,5 V | 29,7 V | 29,8 V | 30,0 V |
| Open circuit voltage $U_{OC}$ | 36,7 V | 36,9 V | 37,1 V | 37,2 V | 37,4 V |
| Short circuit current $I_{SC}$ | 7,60 A | 7,69 A | 7,79 A | 7,89 A | 7,98 A |

## 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 |