SOLAR MODULE

Sunways Solar Module SM 215M

With their dimensions, Sunways Solar Modules SM 215M are especially well-suited for efficient installation of large-area photovoltaic systems that are gentle to resources. The high-performance combination of monocrystalline solar cells and innovative 3-busbar technology results in an up to 5 percent higher output.

Product benefits

- **OutputPlus+**
  The actual output is greater than the rated output (0 to 5 W)
- **SolidPlus+**
  4 mm safety solar glass, maximum light transmission, robust aluminium frame for stability and durability
- **High module efficiency**
  High-performance 3-busbar technology – made in Germany
- **High yields**
  High efficiencies and minimised module mismatch through precise sorting of cells and modules
- **Guaranteed quality**
  Five years of product guarantee on quality made in Germany
- **Guaranteed output**
  Min. 90% over 12 years, 80% over 25 years according to the current warranty conditions

Product features

Category:	monocrystalline
Module size: (L x W x D)	1680 mm x 990 mm x 50 mm
Area:	1.66 m²
Weight:	24 kg
Output classes:	240 / 235 / 230 Wp
Cells:	60 Sunways Solar Cells, mono, 3 Busbars
Cell format:	156 x 156 mm, pseudo-square

Design

Front:	ESG solar glass 4 mm, highly transparent
Encapsulation:	EVA - Solar Cells - EVA
Back:	PLF-polyester laminated film
Frame:	Aluminium, bright anodised
Junction box:	Tyco Solarlok with 3 bypass diodes
Connectors and cables:	Tyco Solarlok, 2 x 1.0 m, cable cross-section 4 mm²

Information and Sales
Sunways AG · Photovoltaic Technology · Macairestraße 3-5
D-78467 Konstanz · Telephon +49 (0)7531 996 77-0
Fax +49 (0)7531 996 77-444 · E-Mail info@sunways.de
www.sunways.de

sunways
Photovoltaic Technology

Technical Data SM 215M

Article No.	SM240MT1A	SM235MT1A	SM230MT1A
Output classes	**240**	**235**	**230**
Electrical data at STC [1]			
Rated output P_{MPP} (W)	240	235	230
Voltage U_{MPP} (V)	29.6	29.3	29.0
Current I_{MPP} (A)	8.11	8.03	7.94
Open-circuit voltage V_{OC} (V)	37.1	36.9	36.6
Short-circuit current I_{SC} (A)	8.65	8.60	8.55
Reverse current capacity (A) [2]	17.3	17.2	17.1

1) STC- Standard Test Conditions: Air mass AM. 1.5 – Irradiance 1000 W/ m² – Cell temperature 25°C; Measuring tolerance +/-5%
2) Reverse current capacity: Operation of modules with fed-in external current only admissible employing string fuse < 2 x Isc (STC)

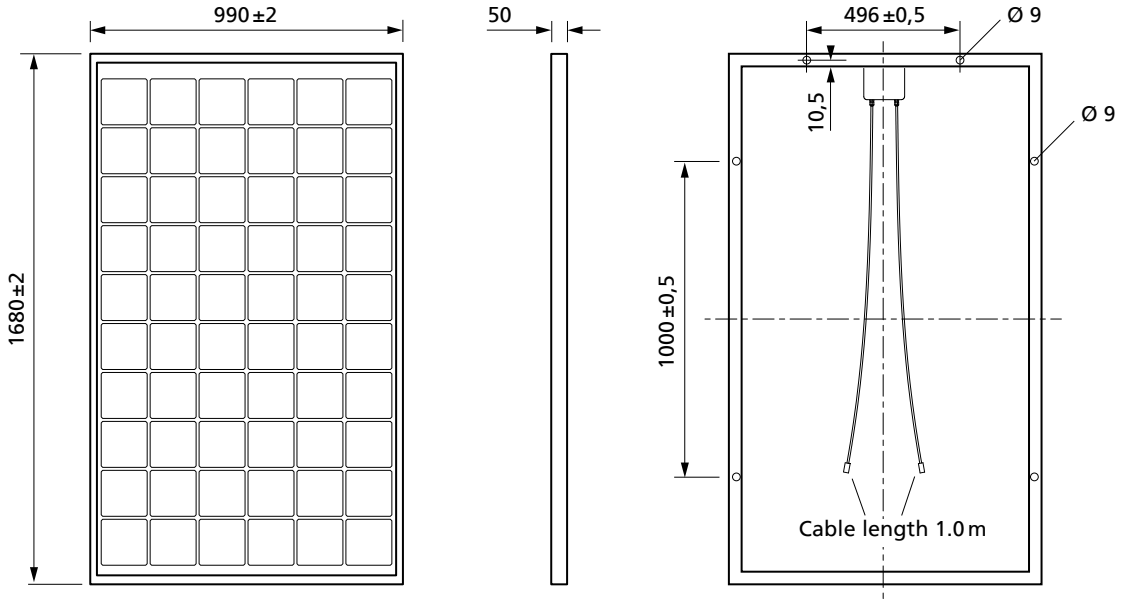
Electrical data at NOCT [3]			
Rated output P_{MPP} (W)	174	170	167
Voltage U_{MPP} (V)	27.9	27.6	27.3
Current I_{MPP} (A)	6.67	6.60	6.53
Open-circuit voltage V_{OC} (V)	35.0	34.8	34.5
Short-circuit current I_{SC} (A)	7.11	7.07	7.03
Efficiency reduction at 200 W/m² (%) [4]	0.7	0.7	0.7

3) The NOCT values are typical values. NOCT: Nominal operating cell temperature (45°C); Measuring tolerance +/-5%
Typical cell temperature with: Irradiance 800 W/mm² – Ambient temperature 20°C – Wind speed 1m/s
4) Efficiency reduction for irradiance reduction from 1000 W/m² to 200 W/m², ambient temperature 25 °C, EN60904-1 comp.

Other electrical parameters	
Maximum system voltage (V)	1000
Temperature coefficient P_{MPP} (% / K)	-0.48
Temperature coefficient I_{SC} (% / K)	0.01
Temperature coefficient U_{OC} (% / K)	-0.37

Application	
Permissible module temperature	-40°C ... +85°C
Snow sload	5,400 Pa corresponds to 550 kg/m², i.e. snow load zone 3
Wind load	130 km/h (800 Pa), factor 3 for wind gusts
Hail test	Ice balls: Ø 25 mm, speed: 23 m/s
Application class	A
Installation / operation	Follow the installation and operating manual.
Qualifications and Certificates	IEC 61215 Ed.2, IEC 61730, CE, Protection class II ⧈ Internal quality checks: at least twice the load specified in IEC Standard

Dimensional drawings



Datasheet compliant with EU standard EN 50380. Subject to technical changes, version 03/2010
This data sheet is also valid for Art.No. SM215Wxxx. This module is also available in B-quality.