

Item no.	Specifications
	<p><b>SolarWorld Sunmodule Plus SW 285 mono</b></p>
	<p>Crystalline glass-backsheet solar module, framed</p>
	<p>Available power classes: 285 W            Manufactured in: Germany</p>
	<p><b>Structure:</b>            Dimensions: 1675 mm x 1001 mm x 33 mm            Weight: 18.0 kg            Cell type: monocrystalline, solid black appearance            Cells per module: 60            Cell layout: 6 strings of 10 cells each            Cell size: 156 mm x 156 mm            Covering material: highly transparent, tempered, strengthen microstructured solar glass with 3.2 mm thickness            Encapsulation: Solar cell matrix embedded in EVA film            Back material: durable composite backsheet film, white            Frame: Silver-colored aluminum frame with hollow-chamber profile, corners with drainage opening and mounting flange with grounding holes (enables rear screws to prevent slipping)            Junction box: SolarWorld junction box with integrated 3 bypass diodes, IP65, welded contacts, fully encapsulated            Cable: Solar cable with 1000 mm length, 4 mm<sup>2</sup> conductor cross-section            Plugs: H4 UTX touch-proof plug connectors with polarity reversal protection</p>
	<p><b>Permitted ambient conditions/system parameters:</b>            Power sorting: Positive, -0 Wp to +5 Wp over nominal power Pmax            Maximum system voltage: PC II 1000 V / 600 V according to UL 1703            Maximum reverse current: 25 A            Roof load (snow load): 8.5 kN/m<sup>2</sup> (8,500 Pa)            Dynamic load (wind load): 2.4 kN/m<sup>2</sup> (2,400 Pa)            Permitted operating temperature: -40°C to +85°C</p>
	<p><b>Certifications and approvals:</b></p>
	<p><b>Product:</b>            DIN EN / IEC 61215 Ed 2.: Crystalline silicon terrestrial photovoltaic modules - design qualification and type approval            DIN EN 61730 incl. PC II: Photovoltaic (PV) module safety qualification – Part 1: Requirements for construction            UL 1703: Flat-plate photovoltaic modules and panels            MCS 010-1.5: Generic Factory Production Control (FCP) Requirements            MCS 005-2.3: Product Certification Requirements for Solar Photovoltaic Modules            VDE certified safety: Sunmodule Plus in combination with Sunfix plus system and frame technology            IEC 62804: draft 2013-12: Highly resistant to potential-induced degradation = PID            IEC 61701 ed. 2.0: Salt mist corrosion testing of photovoltaic modules (very well suited for use near the coast)            IEC 62716 ed. 1.0: Ammonia resistance (very well suited for use in agricultural operations)            IEC 60068-2-68 Lc2 plus: Blowing Sand Test severity level Lc 2 (very well suited for use in dusty or sandy areas e.g. near deserts)            VKF Nr. 23544: Hail resistance class 4 (HW4)            EN 13 501-1: Fire classification: normal flammability according to reaction-to-fire performance class E            UNI 9177: Fire reaction class 1            DIN V ENV 1187-1: General appraisal certificate from the building authorities in combination with Sundeck (thus considered a hard roof covering)            DIN EN 13 501-5: Classification as BROOF (t1)            DIN EN 13 501-5: Classification as BROOF (t1)</p>

# Tender Text



PV+Test:	Top mark "excellent" in independent product test carried out by Solarpraxis and TUV Rheinland for quality, durability, and performance
Ökotest:	Top mark "excellent" by consumer magazine
<b>Company:</b>	
ISO 9001:	Quality management system
ISO 14001:	Environmental management system
BS OHSAS 18001:	Occupational health and safety management systems
ISO 50001:	Energy management system
Power controlled:	TUV Rheinland inspection mark for guaranteed compliance with stated nominal power of solar modules; verified externally at regular intervals
Green Brand:	Seal of quality for demonstrated environmental sustainability
Deutschlands Kundenchampions:	2015 German Customer Champions label for excellent customer-oriented management
<b>Warranties:</b>	
10-year product warranty	
Linear 25-year performance warranty (the actual power is at least 97% of the nominal power in the first year; no more decline than 0.7% annually beginning in the second year, with power of at least 80.2% guaranteed after 25 years)	
<b>Technical data:</b>	
<b>Data under STC:</b>	
Nominal power Pmax:	285 Wp
Module efficiency:	17.00 %
Cell efficiency:	20.75 %
Open circuit voltage Uoc:	39.7 V
Rated voltage Umpp:	31.3 V
Short circuit current Isc:	9.84 A
Nominal current Impp:	9.20 A
Partial load behavior:	97% (+/- 3%) of the STC efficiency (1000 W/m <sup>2</sup> ) is achieved at 200 W/m <sup>2</sup> .
<b>Temperature coefficients:</b>	
NOCT:	46°C
TC Isc:	0.040%/K
TC Uoc:	-0.30%/K
TC Pmpp:	-0.41%/K