

Sunmodule[®] Protect SW 270 MONO BLACK



TUV Power controlled:
Lowest measuring tolerance in industry



Every component is tested to meet
3 times IEC requirements



Designed to withstand heavy
accumulations of snow and ice



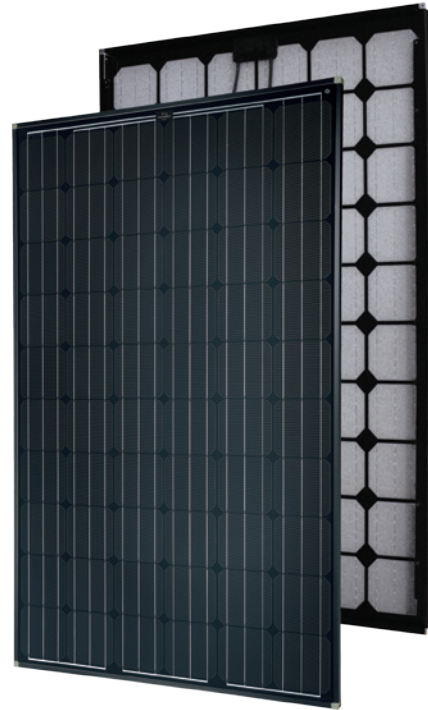
Sunmodule Protect:
Positive performance tolerance



30-year linear performance warranty
and 10-year product warranty



Glass with anti-reflective coating



World-class quality

Fully-automated production lines and seamless monitoring of the process and material ensure the quality that the company sets as its benchmark for its sites worldwide.

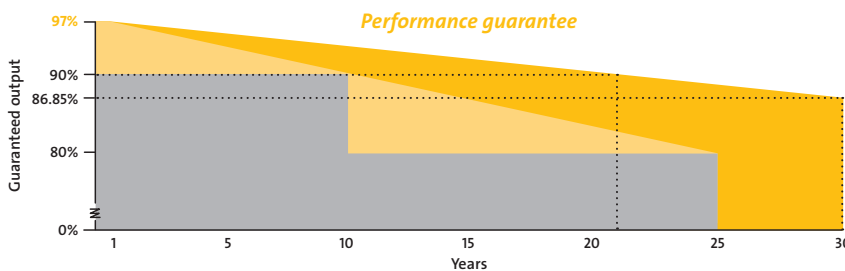
Innovative glass technologies make extremely weather-resistant and robust solar modules possible. The Sunmodule Protect offers higher mechanical resilience and a longer service life, and still weighs the same as the Sunmodule Plus.

The positive power tolerance guarantees utmost system efficiency. Only modules achieving or exceeding the designated nominal power in performance tests are dispatched. The power tolerance ranges between -0 Wp and +5 Wp.

SolarWorld is setting new standards with the ground-breaking 30-year linear performance guarantee: a maximum degradation of just 0.35% p.a. provides guaranteed module performance of 90% after 21 years, and 86.85% after 30 years.*

30-year linear performance guarantee

- Linear performance guarantee for SolarWorld Sunmodule Protect
- Linear performance guarantee for SolarWorld Sunmodule Plus
- Competitor's tiered performance guarantee



*in accordance with the applicable SolarWorld Limited Warranty at purchase.
www.solarworld.com/warranty

solarworld.com



- Qualified, IEC 61215
- Safety tested, IEC 61730
- Periodic Inspection
- Blowing sand resistant



- Ammonia resistance tested
- Periodic Inspection
- Power Controlled



PERFORMANCE TESTED
SALT MIST RESISTANT
PHOTOVOLTAIC PRODUCT



Sunmodule® Protect SW 270 MONO BLACK



PERFORMANCE UNDER STANDARD TEST CONDITIONS (STC)*

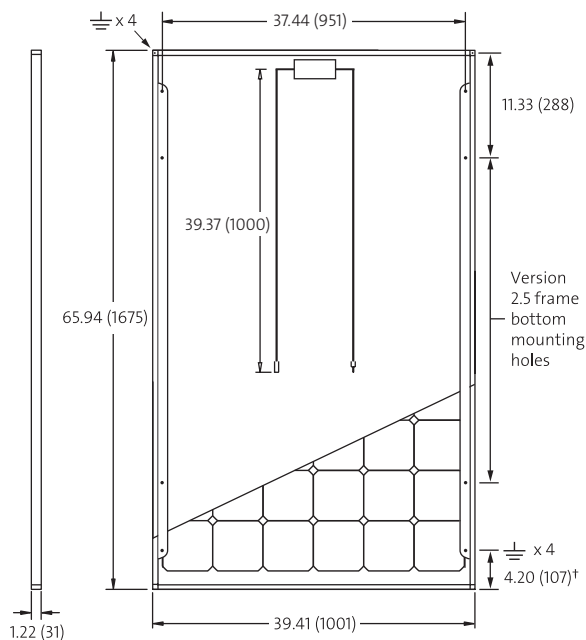
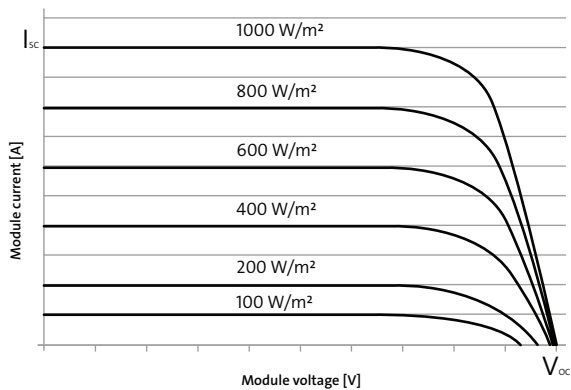
Maximum power	P_{max}	270 Wp
Open circuit voltage	V_{oc}	39.2 V
Maximum power point voltage	V_{mpp}	30.9 V
Short circuit current	I_{sc}	9.44 A
Maximum power point current	I_{mpp}	8.81 A
Module efficiency	η_m	16.10 %

*STC: 1000 W/m², 25°C, AM 1.5

1) Measuring tolerance (P_{max}) traceable to TUV Rheinland: +/- 2% (TUV Power Controlled).

THERMAL CHARACTERISTICS

NOCT	48 °C
TC I_{sc}	0.04 %/°C
TC V_{oc}	-0.31 %/°C
TC P_{mpp}	-0.43 %/°C
Operating temperature	-40°C to 85°C



PERFORMANCE AT 800 W/m², NOCT, AM 1.5

Maximum power	P_{max}	199.4 Wp
Open circuit voltage	V_{oc}	35.5 V
Maximum power point voltage	V_{mpp}	28.0 V
Short circuit current	I_{sc}	7.63 A
Maximum power point current	I_{mpp}	7.12 A

Minor reduction in efficiency under partial load conditions at 25°C: at 200 W/m², 100% (+/-2%) of the STC efficiency (1000 W/m²) is achieved.

COMPONENT MATERIALS

Cells per module	60
Cell type	Mono crystalline
Cell dimensions	6.14 in x 6.14 in (156 mm x 156 mm)
Front	Heat treated (EN 61215)
Frame	Black anodized aluminum
Weight	46.7 lbs (21.2 kg)

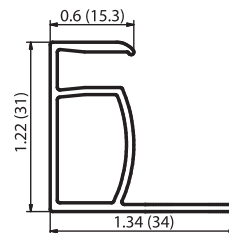
SYSTEM INTEGRATION PARAMETERS

Maximum system voltage SC II / NEC	1000 V	
Maximum reverse current	16 A	
Number of bypass diodes	3	
Design Loads*	Two rail system	113 psf downward 64 psf upward
Design Loads*	Three rail system	170 psf downward 71 psf upward
Design Loads*	Edge mounting	30 psf downward 30 psf upward

* Please refer to the Sunmodule installation instructions for the details associated with these load cases.

ADDITIONAL DATA

Power sorting ¹	-0 Wp / +5 Wp
J-Box	IP65
Module leads	PV wire per UL4703 with H4 connectors
Module type (UL 1703)	3
Glass	Low iron tempered with ARC



VERSION 2.5 FRAME

- Compatible with both "Top-Down" and "Bottom" mounting methods
- Grounding Locations:
 - 4 corners of the frame
 - 4 locations along the length of the module in the extended flange†