

# Sunmodule<sup>®</sup> Plus

## SW 290 MONO (33mm frame)



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



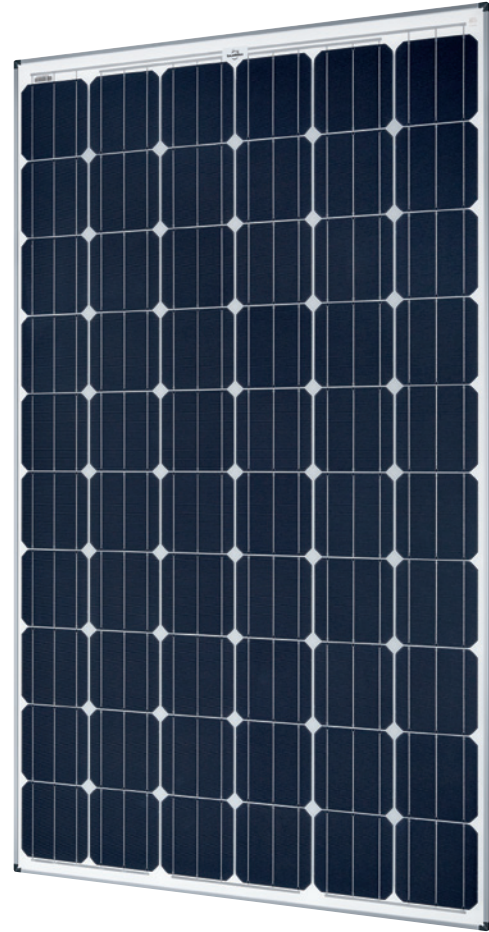
Sunmodule Plus:  
Positive performance tolerance



25-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.

### SolarWorld Plus-Sorting

Plus-Sorting guarantees highest system efficiency. SolarWorld only delivers modules that have greater than or equal to the nameplate rated power.

### 25-year linear performance guarantee and extension of product warranty to 10 years

SolarWorld guarantees a maximum performance digression of 0.7% p.a. in the course of 25 years, a significant added value compared to the two-phase warranties common in the industry, along with our industry-first 10-year product warranty.\*

\*in accordance with the applicable SolarWorld Limited Warranty at purchase.  
[www.solarworld.com/warranty](http://www.solarworld.com/warranty)



- Qualified, IEC 61215
- Safety tested, IEC 61730
- Blowing sand resistance, IEC 60068-2-68
- Ammonia resistance, IEC 62716
- Salt mist corrosion, IEC 61701
- Periodic inspection



- Periodic inspection
- Power controlled



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### PERFORMANCE UNDER STANDARD TEST CONDITIONS (STC)\*

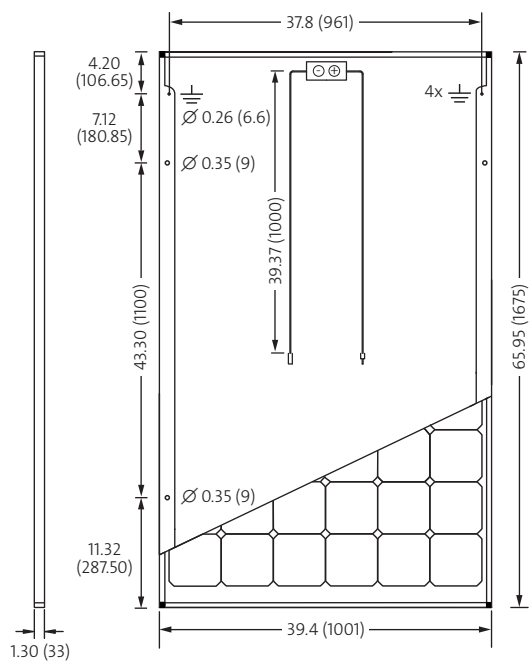
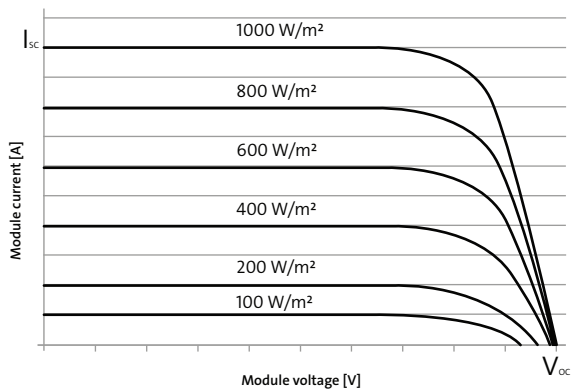
Maximum power	$P_{max}$	290 Wp
Open circuit voltage	$V_{oc}$	39.9 V
Maximum power point voltage	$V_{mpp}$	31.4 V
Short circuit current	$I_{sc}$	9.97 A
Maximum power point current	$I_{mpp}$	9.33 A
Module efficiency	$\eta_m$	17.30 %

\*STC: 1000 W/m<sup>2</sup>, 25°C, AM 1.5

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

### THERMAL CHARACTERISTICS

NOCT	46 °C
TC $I_{sc}$	0.04 %/°C
TC $V_{oc}$	-0.30 %/°C
TC $P_{mpp}$	-0.41 %/°C
Operating temperature	-40°C to 85°C



All units provided are imperial. SI units provided in parentheses.  
SolarWorld AG reserves the right to make specification changes without notice.

### PERFORMANCE AT 800 W/m<sup>2</sup>, NOCT, AM 1.5

Maximum power	$P_{max}$	217.1 Wp
Open circuit voltage	$V_{oc}$	36.6 V
Maximum power point voltage	$V_{mpp}$	28.8 V
Short circuit current	$I_{sc}$	8.06 A
Maximum power point current	$I_{mpp}$	7.54 A

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

### COMPONENT MATERIALS

Cells per module	60
Cell type	Mono crystalline
Cell dimensions	6.17 in x 6.17 in (156.75 x 156.75 mm)
Front	Tempered glass (EN 12150)
Frame	Clear anodized aluminum
Weight	39.7 lbs (18.0 kg)

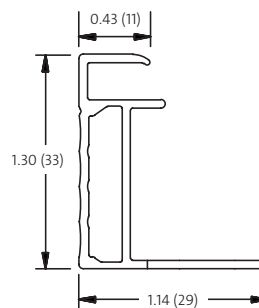
### SYSTEM INTEGRATION PARAMETERS

Maximum system voltage SC II / NEC	1000 V	
Maximum reverse current	25 A	
Number of bypass diodes	3	
Design Loads*	Two rail system	113 psf downward 64 psf upward
Design Loads*	Three rail system	178 psf downward 64 psf upward
Design Loads*	Edge mounting	178 psf downward 41 psf upward

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

### ADDITIONAL DATA

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



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