

# Sunmodule<sup>+</sup>™

## SW 230 poly

Version 2.0 and 2.5 Frame



### WORLD CLASS QUALITY

Fully-automated production lines and seamless monitoring of the process and material supply ensure high standards worldwide.



### SOLARWORLD PLUS SORTING

Plus-sorting guarantees the highest system efficiency. Only modules that achieve the designated nominal performance or greater in performance tests are dispatched.



### 25-YEAR LINEAR PERFORMANCE GUARANTEE\*

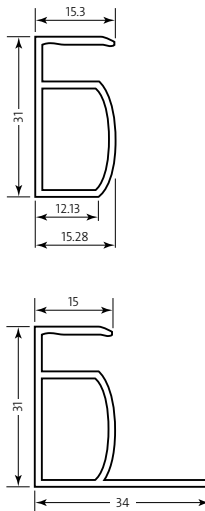
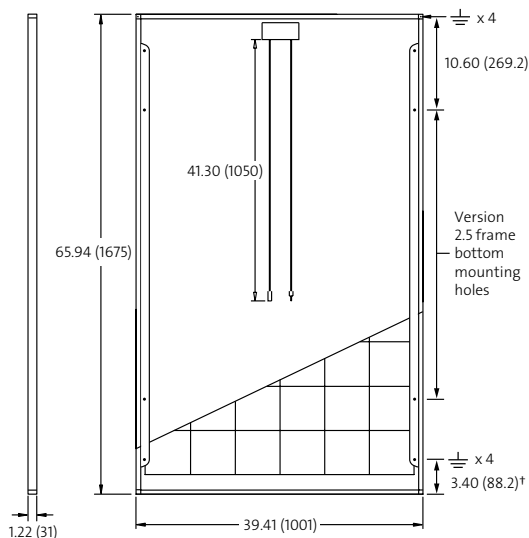
SolarWorld guarantees a maximum degeneration in performance of 0.7% per year for more than 25 years – a clear additional benefit compared with the conventional two-step industry guarantees. In addition there is a product workmanship warranty that covers 5 years.



## PHYSICAL CHARACTERISTICS

Cells per module	60
Cell type	Poly crystalline
Cell dimensions	6.14 in x 6.14 in (156 mm x 156 mm)
Front	Tempered glass (EN 12150)

Frame	Clear anodized aluminum
Weight	46.7 lbs (21.2 kg)
UL Maximum Test Load**	50 psf (2.4kN/m <sup>2</sup> )
IEC Maximum Snow Test Load**	113 psf (5.4kN/m <sup>2</sup> )



### VERSION 2.0 FRAME

- Compatible with “Top-Down” mounting methods
- $\perp$  Grounding Locations: 4 corners of the frame

### VERSION 2.5 FRAME

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

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

\*\* Please apply the appropriate factors of safety according to the test standard and local building code requirements when designing a PV system.

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

		SW 230
Maximum power	$P_{max}$	230 Wp
Open circuit voltage	$V_{OC}$	36.9 V
Maximum power point voltage	$V_{MPP}$	29.8 V
Short circuit current	$I_{SC}$	8.25 A
Maximum power point current	$I_{MPP}$	7.72 A

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

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

		SW 230
Maximum power	$P_{max}$	164.4 Wp
Open circuit voltage	$V_{OC}$	33.4 V
Maximum power point voltage	$V_{MPP}$	26.7 V
Short circuit current	$I_{SC}$	6.82 A
Maximum power point current	$I_{MPP}$	6.15 A

Minor reduction in efficiency under partial load conditions at 25°C: at 200 W/m<sup>2</sup>, 95% (+/-3%) of the STC efficiency (1000 W/m<sup>2</sup>) is achieved.

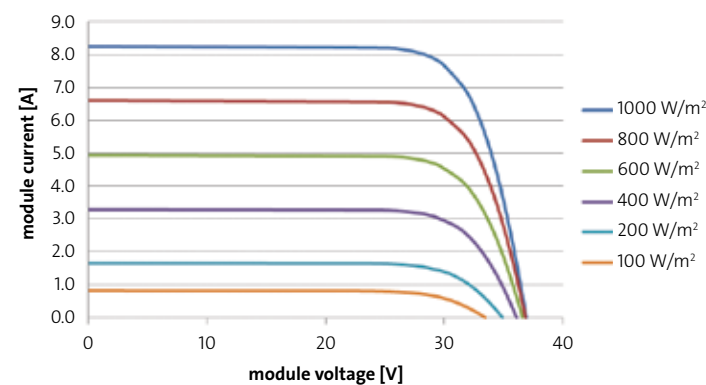
### THERMAL CHARACTERISTICS

NOCT	46° C
TC $I_{sc}$	0.034 %/K
TC $V_{oc}$	-0.34 %
TC $P_{mpp}$	-0.48%
Operating range	-40°C to 90°C

### SYSTEM INTEGRATION PARAMETERS

Maximum system voltage SC II	1000 V
Maximum system voltage USA NEC	600 V
Maximum series fuse rating	16 A
Number of bypass diodes	3

### I-V CURVE AT 25°C CELL TEMPERATURE



### ADDITIONAL DATA

Measuring tolerance <sup>3)</sup>	+/- 3%
SolarWorld Plus-Sorting <sup>1)</sup>	$P_{Flash} \geq P_{max}$
Junction box	IP65
Connector	MC4
Module efficiency	13.72%
Fire rating (UL 790)	Class C

### GROUNDING

We recommend using the following components:

#### FRAME 2.0/2.5 (CORNERS)

Item	Manufacturer/Description	Tightening torque
Grounding lug	ILsco GBL-4DBT	35 lbf-in, 4-6 AWG str 25 lbf-in, 8 AWG str 20 lbf-in, 10-14 AWG sol/str
Socket head cap screw	#10-24, 5/8", SS 18-8	62 lbf-in (7.0 Nm)

#### FRAME 2.5 (FLANGE)

Item	Manufacturer/Description
Grounding lug	ILsco GBL-4DBT
Bolt	#10-32, SS
Serrated Washer	#10, SS
Washer	ID 13/64", OD 7/16"
Nut	#10-32, SS

Any PV grounding method and components listed to meet NEC grounding requirements are also acceptable.

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- Qualified, IEC 61215
- Safety tested, IEC 61730
- Periodic Inspection

1) The output identified by SolarWorld ( $P_{flash}$ ) is always higher than the nominal output ( $P_{max}$ ) of the module.  $P_{flash}$  is the power rating flashed at a SolarWorld manufacturing facility.

2) Depending on the market.

3) Measuring tolerance is used in conjunction with the SolarWorld Limited Warranty. SolarWorld AG reserves the right to make specification changes without notice.