

# Sunmodule<sup>®</sup> Bisun protect 290



Data sheet



## HIGH QUALITY ENGINEERING BY SOLARWORLD

More than 40 years of technology expertise, ongoing innovation and continuous optimization create the foundation for the performance of SolarWorld's high-quality modules. We guarantee our customers the highest quality during all steps of production. Our modules are extremely flexible when it comes to their application and provide optimal solutions for installation and non-stop performance – worldwide.

- » Up to 25% more yield thanks to the use of the latest, high efficient bifacial cell technology. The bifacial cells are active on both the front and back, making them capable of converting light from all directions into power.
- » The use of glass on the front and back of the module allows for optimal protection against mechanical loads and environmental factors.
- » Extremely tough and stable, despite its light weight-able to handle loads up to 8.5 kN/m<sup>2</sup>.
- » Tested in extreme weather conditions – hail impact tested and resistant to salt spray, frost, ammonia, dust and sand.
- » Proven guarantee against hotspots and PID- free to IEC 62804-1.
- » Highly-efficient cells (bifacial mono-PERC) for the highest possible yields.
- » Complete system components such as mounting systems, connector cables and inverters can be delivered directly to you.
- » Patented corner design with integrated drainage for optimized self-cleaning.
- » High-transmissive front glass and anti-reflective coating.
- » Long-term safety and guaranteed top performance – At least 97% of nominal power in the first year – 30-year linear performance warranty 20-year product warranty.



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## PERFORMANCE UNDER OPTIMIZED CONDITIONS

		6%	10%	20%	25%
<b>Energy boost</b>					
<b>Maximum power</b>	$P_{max}$	306 Wp	316 Wp	343 Wp	355 Wp
<b>Open circuit voltage</b>	$U_{oc}$	39.80 V	39.80 V	39.80 V	39.80 V
<b>Maximum power point voltage</b>	$U_{mpp}$	31.60 V	31.50 V	31.30 V	31.20 V
<b>Short circuit current</b>	$I_{sc}$	10.22 A	10.61 A	11.57 A	12.06 A
<b>Maximum power point current</b>	$I_{mpp}$	9.67 A	10.04 A	10.95 A	11.40 A
<b>Module efficiency</b>	$\eta_m$	18.24 %	18.87 %	20.43 %	21.20 %

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

<b>Maximum power</b>	$P_{max}$	290 Wp
<b>Open circuit voltage</b>	$U_{oc}$	39.8 V
<b>Maximum power point voltage</b>	$U_{mpp}$	32.2 V
<b>Short circuit current</b>	$I_{sc}$	9.65 A
<b>Maximum power point current</b>	$I_{mpp}$	9.12 A
<b>Module efficiency</b>	$\eta_m$	17.30 %

Measuring tolerance ( $P_{max}$ ) +/- 2 %

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

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

<b>Maximum power</b>	$P_{max}$	219.5 Wp
<b>Open circuit voltage</b>	$U_{oc}$	36.8 V
<b>Maximum power point voltage</b>	$U_{mpp}$	29.8 V
<b>Short circuit current</b>	$I_{sc}$	7.90 A
<b>Maximum power point current</b>	$I_{mpp}$	7.37 A
<b>Module efficiency</b>	$\eta_m$	13.09 %

Minor reduction in efficiency under partial load conditions at 25°C: at 200 W/m<sup>2</sup>, 97% (+/-3%) of the STC efficiency (1000 W/m<sup>2</sup>) is achieved.

## PARAMETERS FOR OPTIMAL SYSTEM INTEGRATION

<b>Power sorting</b>	-0 Wp / +10 Wp
<b>Maximum system voltage IEC/ NEC</b>	1000 V / 1000 V
<b>Maximum reverse current</b>	25 A
<b>Number of bypass diodes</b>	3
<b>Operating range</b>	-40°C - +85°C
<b>Maximum Design Loads (Two rail system)*</b>	+5,4 kN/m <sup>2</sup> / -3,1 kN/m <sup>2</sup>
<b>Maximum Design Loads (Three rail system)*</b>	+8,5 kN/m <sup>2</sup> / -3,1 kN/m <sup>2</sup>

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



## COMPONENT MATERIALS

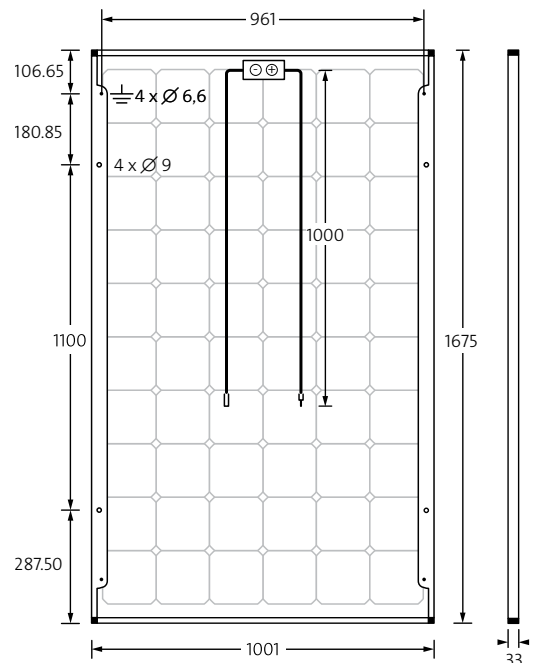
<b>Cells per module</b>	60
<b>Cell type</b>	bifacial mono-PERC
<b>Cell dimensions</b>	156 mm x 156 mm
<b>Front</b>	Heat strengthened glass (EN 1863-1)
<b>Back</b>	Heat strengthened glass (EN 1863-1) white reflection grid
<b>Frame</b>	Black anodized aluminum
<b>J-Box</b>	IP65
<b>Connector</b>	Amphenol H4 UTX

## DIMENSIONS / WEIGHT

<b>Length</b>	1675 mm
<b>Width</b>	1001 mm
<b>Height</b>	33 mm
<b>Weight</b>	21.5 kg

## THERMAL CHARACTERISTICS

<b>NOCT</b>	46 °C
<b>TK <math>I_{sc}</math></b>	0.060 %/K
<b>TK <math>U_{oc}</math></b>	-0.29 %/K
<b>TK <math>P_{mpp}</math></b>	-0.40 %/K



## ORDERING INFORMATION

Order number	Description
82000590	Sunmodule Bisun protect 290

## CERTIFICATES AND WARRANTIES

<b>Certificates</b>	IEC 61730	IEC 61215	UL 1703
	IEC 62716	IEC 60068-2-68	IEC 61701
<b>Warranties</b>	Product Warranty	20 years	
	Linear Performance Guarantee	30 years	