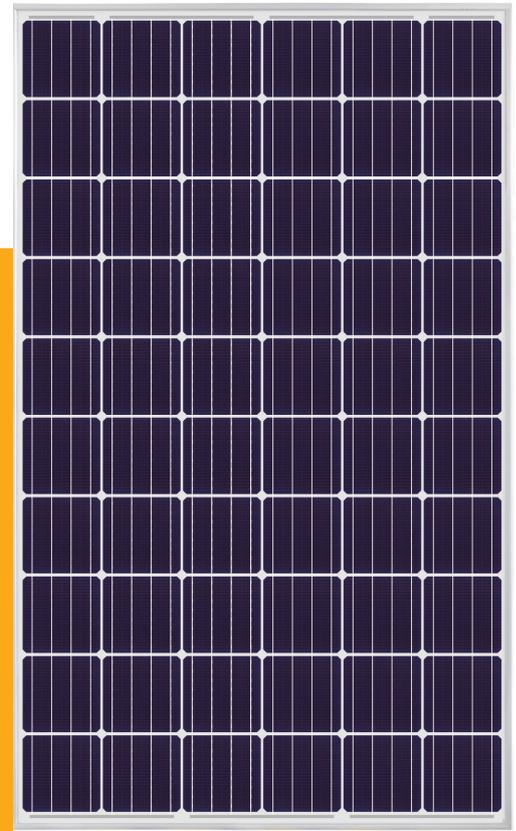




# Monocrystalline photovoltaic module

290 Wp



Positive performance tolerance 0+5 Wp



13 years product warranty



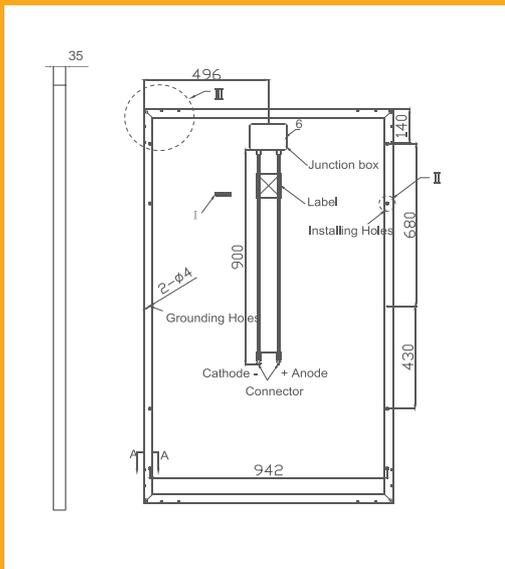
25 years linear performance warranty



Load 5400 Pa



High-performance monocrystalline silicon; 156mm cells; module efficiency up to 17%; 5 busbar technology to increase power output



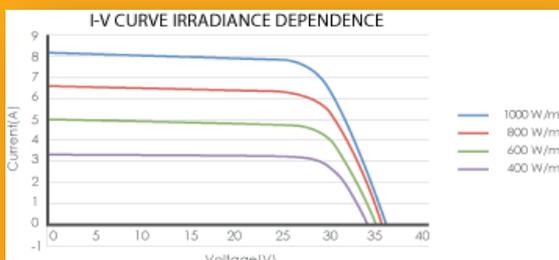
## General informations

WinSolar is always careful in the choice of materials and the search for new technological solutions more innovative. Each module exceeds, through the entire production cycle, over 30 quality controls, from the selection of raw materials, production processes up to the final test operation and classification of the finished product.

The choice of materials, the high level of automation in production processes ensure excellent performance and extreme reliability over time, which is why we guarantee our modules **13 years and 25 years of linear performance warranty: 2,5% maximum performance degradation during the first year and 0,7% p.a. for the next 24 years.**

The JB is produced in order to spare hot spot event to maximize the efficiency of the system. Thanks to the special anti-reflective coating, the glass maximizes the capture of sunlight and therefore implements the productivity of PV module also in low radiation conditions. The glass offers better resistance to dust deposits and requires less maintenance given its hydrophilic. The thickness of 3.22 mm provides resistance to mechanical stress.

**5 busbar solar cell adopts new technology to improve the efficiency of modules , offers a better aesthetic appearance, making it perfect for rooftop installation.**



### Electrical Data

### WNS 290 M60

Maximum Power	$P_{max}$	290 Wp
Nominal Voltage	$V_{mpp}$	32,20 V
Short circuit current	$I_{sc}$	9,60 A
Maximum power point current	$I_{mpp}$	9,31 A
Open circuit voltage	$V_{oc}$	39,8 V
Module efficiency	%	18,48%
Performance Tolerance	$P_{(Wp)}$	0Wp... + 5Wp
Nr of cells		60 pcs
Cells		Monocrystalline

### Limit values

Maximum system voltage SCII	( $V_{dc}$ )	1000 $V_{dc}$
Maximum reverse current	(A)	20 A
NOCT (800 W/m <sup>2</sup> , 20°C, AM 1.5, 1 m/s)	(°C)	+45°C +/-2°C

### Thermal characteristics

Voltage	$V_{oc}$	-0,307% / °C
Current	$I_{sc}$	+0,039% / °C
Output	$P_{mpp}$	-0,423% / °C
Load/dynamic load	Pa	5400 Pa
Number of bypass diodes	N.	3
Operating range	N.	-40°C a +85°C

### Physical Characteristics

Dimensions (L x W x H)	(mm)	1640 x 990 x 35 mm
Weight	(Kg)	18 Kg
Junction Box	Protection degree IP67 - 3 bypass diodes - MC4 connector compatible	
Cables	Conductor section 4 mm <sup>2</sup> , length 1 m (MC4)	

### Irradiance Dependence

	1000 W/m <sup>2</sup>	800 W/m <sup>2</sup>	600 W/m <sup>2</sup>	400 W/m <sup>2</sup>
$I_{sc}$	0 %	-19,6 %	-39,5 %	-59,2 %
$V_{oc}$	0 %	-1,38 %	-3,05 %	-5,9 %

### General data

Frontside	Low-reflection 3,2 mm tempered glass
Frame	35 mm silver anodized aluminium frame
Cells	60 monocrystalline high efficiency cells 156 mm x 156 mm (6")

### Certifications

