

## General SOLAR EPV 144 S PHOTOVOLTAIC MODULES

### PRODUCT DESCRIPTION

General SOLAR EPV 144 S is a waterproofing photovoltaic non conventional module composed by:

- Underlayer support consists in the waterproofing membrane Phoenix Solar Tech <4> mm;
- Flexible triple-junction photovoltaic module in amorphous silicon.

The photovoltaic module and the membrane Phoenix Solar Tech are industrially connected and are certificated **CEI EN 61646** and **CEI EN 61730**

### FIELD OF USE

General SOLAR PV® after the application of the membrane Phoenix SOLAR APAO - 35°C, can be installed in every kind of roof (both new or existing). General Membrane's system performs function of waterproofing and of thermal resilience of the roof combining to those functions the production of clean energy.

### ADVANTAGES

- Warranty on the minimal power: 10 years / 92%; 20 years / 84%; 25 years / 80%
- Output cables with Multi-Contact connectors on the upper side.
- bypass diodes to allow an higher tolerance to shadow;
- Certification **CEI 61646** obtained from **TÜV**;
- Certification **CEI 61730** up to 1000V obtained from **TÜV**.



Flexible



More Kwh - high performance



High performance with high temperatures



Tolerance to shadow



Light



Walkable for maintenance



Integrated



Fast to install



Without glass



Hailstorm resistant



Waterproofing



No holes on the roof



Ecologic



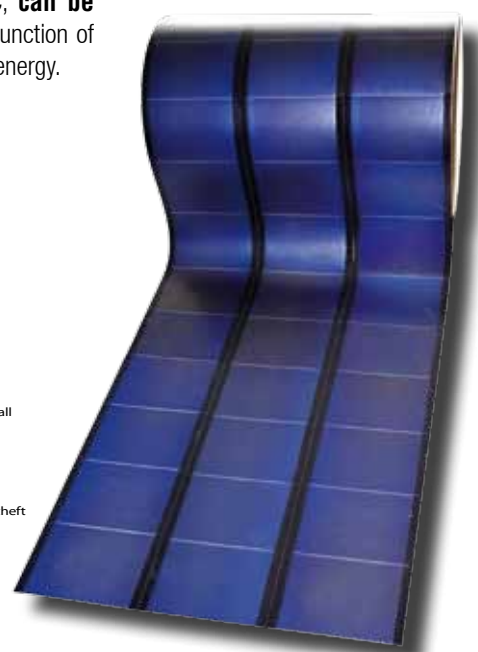
Self-cleaning



No support needed



Safe against theft



### POWER FEATURES

Rated power output: 144 Wp - Production tolerance: ± 5 %

### TECHNICAL DATA

**Dimension:** lenght 5412 mm, width: 373 mm, thickness: 4 mm, 16 mm included output cable on the upper side.

**Weight:** 7,4 kg

**Electrical connection:** 4 mm<sup>2</sup> - lenght 560 mm with Multi-Contact connectors preassembled on the upper side.

**Bypass diodes:** connected in parallel between each solar cell

**Encapsulation:** polimer on the front side highly transparent and UV and weathering resistant ETFE.

**Typology of cell:** 22 triple-junction solar cells in amorphus silicon, 356 mm x 239 mm connected in series.

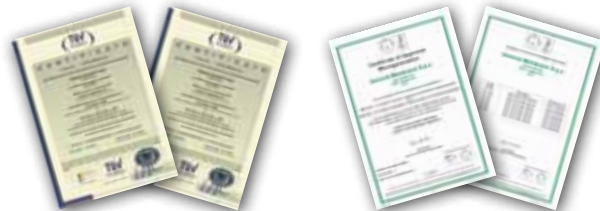
### WARRANTIES AND CERTIFICATIONS

**Manufacturing defects warranty:** 5 years;

**Certification CEI 61646** obtained from TÜV InterCert;

**Certification CEI 61730** up to 1000V obtained from TÜV InterCert;

**Certification MCS PV0045** obtained from BRE GLOBAL.



### STANDARD ELETTRIC CONFIGURATION OF THE LAMINATES

Flexible photovoltaic laminates with output caves preassembled on the upper side with fast connectors Multi-Contact (MC®) 3mm , type MC4.

### APPLICATION PARAMETER

To apply **General SOLAR PV®** look to the Fixing Direction of General SOLAR PV® and to the Technical Specifications of the construction site elaborated by General Membrane. the installation must be valued by General Membrane's technical staff or by a specialized company.





**RANGE - General SOLAR EPV 144 S**

The waterproofing photovoltaic modules General SOLAR PV® are available in the standard versions with different measures and power.



**General SOLAR EPV 144 S**

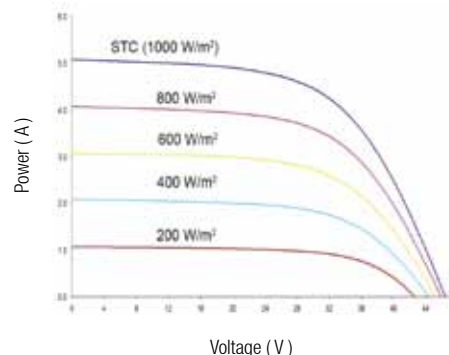
**144 Wp per module**  
**1 long stripe**  
 measures: 5412 x 373 x 7 mm  
 area: 2,19 mq

All the datas in mm. Tolerances: lenght: ± 5 mm, width: ± 3 mm

**FEATURES V-I**

Characteristic V-I curve with different levels of radiation, AM1.5 and cell temperature of 25 °C

**THE ELECTRICAL SPECIFICATIONS HERE REPORTED REFER TO THE SINGLE STRIPE OF 144 Wp - General SOLAR EPV 144 S**



**ELECTRICAL SPECIFICATIONS**

**STC**

(Standard test conditions)	
(1000 W/m², AM1.5, cells temperatures 25 °C)	
<b>Maximal rated power (P<sub>max</sub>)</b>	144 Wp
<b>Voltage with P<sub>max</sub> (V<sub>mp</sub>)</b>	33 V
<b>Power with P<sub>max</sub> (I<sub>mp</sub>)</b>	4,36 A
<b>Short-circuit power (I<sub>sc</sub>)</b>	5,3 A
<b>Open circuit voltage (V<sub>oc</sub>)</b>	46,2 V
<b>Maximum Series Fuse Rating</b>	10 A

**NOCT**

(Nominal Operating Cell Temperature)	
(800 W/m², AM1.5, wind 1 m/sec.)	
<b>Maximal rated power (P<sub>max</sub>)</b>	111 Wp
<b>Voltage with P<sub>max</sub> (V<sub>mp</sub>)</b>	30,8 V
<b>Power with P<sub>max</sub> (I<sub>mp</sub>)</b>	3,6 A
<b>Short-circuit power (I<sub>sc</sub>)</b>	4,3 A
<b>Open circuit voltage (V<sub>oc</sub>)</b>	42 V
<b>NOCT</b>	46°C

**TEMPERATURE COEFFICIENT**

(with AM1.5, radiation power 1000 W/m²)	
<b>Temperature coefficient (TC) of I<sub>sc</sub></b>	0.001/°K (0.10%/°C)
<b>Temperature coefficient (TC) of V<sub>oc</sub></b>	-0.0038/°K (-0.38%/°C)
<b>Temperature coefficient (TC) of P<sub>max</sub></b>	-0.0021/°K (-0.21%/°C)
<b>Temperature coefficient (TC) of I<sub>mp</sub></b>	0.001/°K (0.10%/°C)
<b>Temperature coefficient (TC) of V<sub>mp</sub></b>	-0.0031/°K (-0.31%/°C)

y = y<sub>reference</sub> • [1 + TC • (T - T<sub>reference</sub>)]

**NOTES:**

1. During the first 8-10 weeks of operation, electrical output exceeds specified ratings. Power output may be higher by 15%, operating voltage may be higher by 11% and operating current may be higher by 4%.
2. Electrical specifications are based on measurements performed at standard test conditions of 1000 W/m2 irradiance, Air Mass 1.5, and cell temperature of 25 °C after stabilization.
3. Actual performance may vary up to 10% from rated power due to low temperature operation, spectral and other related effects. Maximum system open-circuit voltage not to exceed 600 VDC per UL, 1000 VDC per TÜV Rheinland.
4. Specifications subject to change without notice.

The datas on the technical data sheet are medium and indicative datas related to the current production and they can be updated in any moment without notice by General Membrane SpA. The technical information that GENERAL MEMBRANE SpA gives represent its best technical knowledge on the characteristics and the proper use of the product. Considering the different field of use and the possible combination of specific elements and situation that are not depending by General Membrane, the company doesn't have any responsibility for results. It's the buyer responsibility to determine the suitability of the product for the intended application.

