

# Datasheet FEE-5-12

## 4<sup>th</sup> Generation a-Si solar panel

### Reliable cell technology

Free Energy Europe produces stable and reliable amorphous silicon cells. After initial stabilization during the first two months of outdoor use, the amorphous silicon cell will be stable for decades.

The expected lifetime of the advanced amorphous silicon solar cells is at least 20 years.

### High energy yield

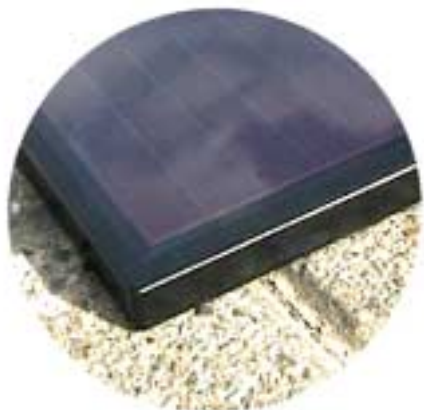
The amorphous silicon solar cells, produced by Free Energy Europe, function better than crystalline silicon solar cells in partial or indirect sunlight. Tests have shown that the annual energy output is approximately 15 % higher per rated Watt-peak power.

### Outdoor performance

The outdoor performance of amorphous silicon solar panels depends primarily on their protection against corrosion.

Our 4<sup>th</sup> generation solar panels use an injected polymer frame, with a very high moisture barrier. This technology has been developed internally and is unique to the Free Energy Europe products.

*This advanced framing technology makes our solar panels reliable for outdoor use.*



## Main panel characteristics

Cell technology	Single junction amorphous silicon
Panel technology	4 <sup>th</sup> generation framing
Encapsulation	Glass-to-glass encapsulation with moulded polymer injection framing.
Expected lifetime	20 years minimum
Operating conditions	-40 °C to +85 °C

## Electrical characteristics - at Standard Test Conditions\*

	<i>Maximum power</i>	<i>Stabilised</i>
<b>Type</b>	<b>FEE-5-12</b>	<b>FEE-5-12</b>
Maximum output power	5 Watt peak	4.0 Watt peak
Maximum current at 16 V	0.29 Ampere	0.25 Ampere
Short circuit current	0.35 Ampere	0.30 Ampere
Open circuit voltage	22.0 Volts	22.0 Volts

\* Data refers to Standard Test Conditions, an approximation of functioning in full sunlight (STC : 1000W/m<sup>2</sup> irradiance, 25 °C cell temperature, spectrum AM1.5). The rated electrical parameters may vary ± 10%.

## Electrical characteristics – at Average Operating Conditions\*

	<i>Stabilised</i>
<b>Type</b>	<b>FEE-5-12</b>
Equivalent yield peak power	4.6 Watt peak

\* Data refers to real annual average irradiation in the Netherlands, normalised on average performance of crystalline silicon technology. Rated electrical parameters may vary ± 10%.

## Temperature coefficients

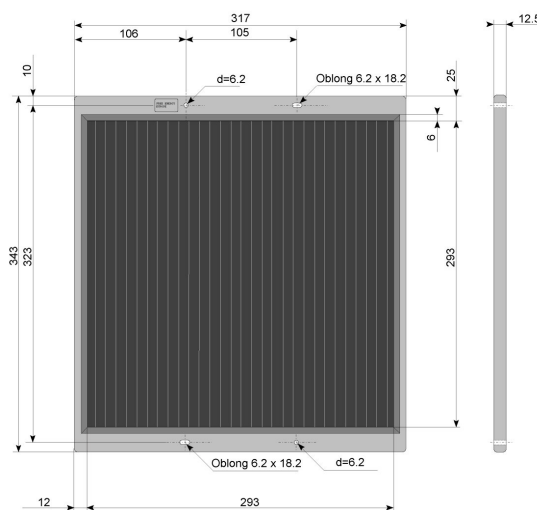
Voltage	- 0.29% / °C
Current	+ 0.08% / °C

## Dimensions

Dimensions	343mm x 317mm
Thickness	12.5 mm
Weight	1.5 kg

## Connections

Cable	1 meter double insulated cable (2 x 0.75 mm <sup>2</sup> )
Polarity	Brown = +, blue = -
Fixing	4 Holes for easy installation (using M6 screws or bolts)



All dimensions in mm