Technical Data Sheet

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General Solar Model PV – 136

Axter's General Solar PV combines a high performance roof waterproofing system with thin film (amorphous) photovoltaic cells embedded in the surface for use on both flat and sloping roofs on new or remedial projects.

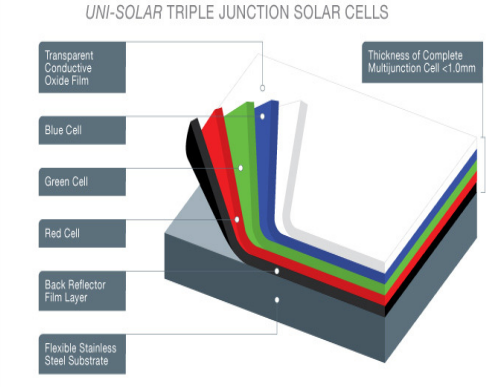
System benefits

- Photovoltaic cells fully integrated into the structure of the building.
- Lightweight ≤ 7.7 kg/m^2.
- Optimal waterproofing system; easy to install, no roof penetrations.
- Elevated energy production even at high working temperature and low radiation (diffused light)
- Bypass diodes for shadow tolerance.
- Power Output Warranty 85% at 25 years (of min. power).
- UL Listed to 600 VDC.
- Meets IEC 61646 and IEC 61730 requirements.
- BRE MCS certified.

Photovoltaic

General Solar PV combines Uni-Solar laminate technology comprising unique triple-junction amorphous silicon solar cells, where the blue, green and red light of the sun is absorbed in different layers of the cell, securely bonded to the top of a reinforced specially blended polymer modified roof waterproofing membrane. The technology results in excellent performance in low and diffuse light conditions. The PV – 136 module is constructed with two 68 Wp Uni-Solar laminate strips, each strip comprises 11 separate cells with bypass diodes connected across every solar cell.

Rated Power Output (P_{max}) 136 W_p ±5 %



Waterproofing

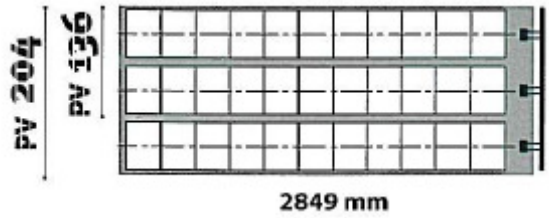
General Solar is a two layer high performance roof waterproofing system specially manufactured with high quality polymeric modifiers giving excellent resistance to ageing and heat absorption associated with solar gain. The system is adhered to the roof using conventional techniques taking due account of dimensional stability and wind uplift. General Solar PV can be laid over most types of thermal insulation. Full specification for use is available from Axter.

Characteristics (General Solar PV)

Photovoltaic laminate with potted terminal housing assembly with output cables and quick-connect terminals on top, factory bonded to a 4 mm thick reinforced polymer modified self-adhesive bituminous membrane.

Construction

Length 2849 mm, width 800, height 7 mm (plus 8mm terminal housing assembly) – area 2.28 m^2



Output cables: 4 mm^2 cable with weatherproof DC-rated quick connect terminals 560 mm long.

Encapsulation: Durable ETFE high light-transmissive polymer.

Cell type: 11 triple junction amorphous silicon solar cells 356 mm x 239 mm connected in series.

Electrical specifications

1 short strip 2849 mm – 11 solar cells.

	STC	NOCT
Max power (P_{max})	68 W	53 W
Voltage at P_{max} (V_{mp})	16.5 V	15.4 V
Current at P_{max} (I_{mp})	4.1 A	3.42 A
Short-circuit Current (I_{sc})	5.1 A	4.1 A
Open-circuit voltage (V_{oc})	23.1 V	21.1 V
Maximum Series Fuse Rating	8A	-
NOCT	-	46℃
Temperature coefficient At AM 1.5, 1000 $W/^{m2}$ irradiance		
I_{sc}	5.1 mA/K (0.10%/℃)	
V_{oc}	-88 mV/K (-0.38%/℃)	
P_{max}	-143 mW/K (-0.21%/℃)	
Imp	4.1 mA/K (-0.21%/℃)	
V_{mp}	-51 mV/K (-0.31%/℃)	

STC: Standard test conditions 1000 $W/^{m2}$, AM 1.5, 25 ° cell temperature
NOCT: Nominal Operating cell temperature 800 $W/^{m2}$, AM 1.5, 1 m/sec wind

New modules available - General SOLAR PV 288 with increased output power.

Application criteria

Installed as part of the Phoenix Solar double layer waterproofing system.
Installation temperature 10℃ to 40℃.
Maximum roof temperature 85℃.
Slope 3° < 60° (additional mechanical fixings may be necessary on steep slopes).

Note
1. During the first 8 – 10 weeks operation power output may be higher by 15%, operating voltage higher by 11% and operating current higher by 4% than specified ratings.
2. Electrical specifications are based on STC measurements
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.
4. Specifications are subject to change without notice.