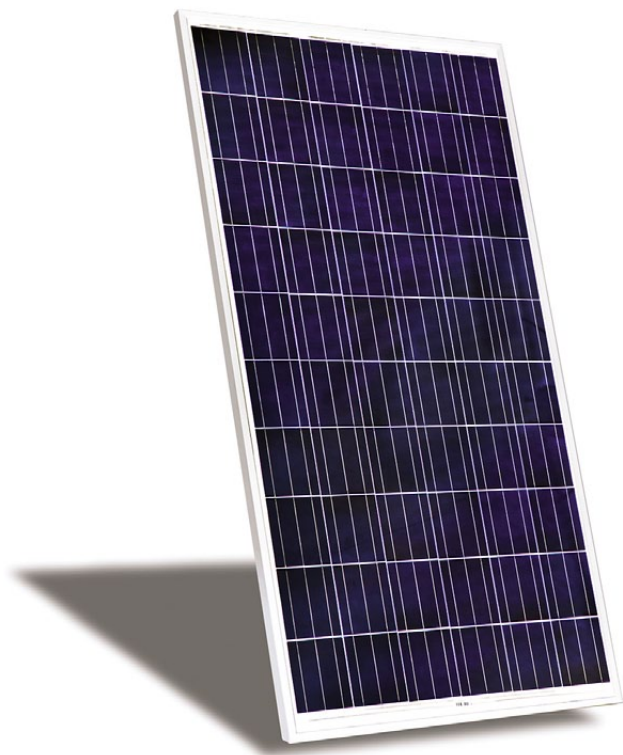


SwedModule ES-P220-245

Polycrystalline Solar Power Modules



SwedModule's on Linköping's public library.
The system is installed by Switchpower.

Top Swedish Quality

Swedish technology you can trust is one of the cornerstones in Eco Supplies philosophy. The SwedModule product range is produced using only high quality raw materials from leading suppliers. The SwedModule is ideal for individual houses or buildings, on facades or rooftops but also for large scale solar power systems.

Design of the SwedModule

The cells are encased in high transmission low-iron tempered glass, multi-layers of ethylene vinyl acetate (EVA) as well as backsheet. This provides the modules with topquality protection against external environmental effects. ES's Solar Power Modules also have bypass diodes to minimise power loss in case of shading and protect against hot spot effect.

Quality Control

During the production process the modules pass through several quality control check points and they are carefully checked and tested prior to delivery. The final test takes place in a solar simulator, where the modules are tested under Standard Test Conditions (STC 1000W/m²). Every modules serial number and its test data are stored in our database.

Flexibility

We have the advantage to have a flexible production facility where we strive to meet our customer's needs. Choose from white, black or transparent tedlar. Silver or black frame or no frame at all. Please contact us for more information and ask for a quotation for a product especially designed for you.

Warranty

ES offer a product guarantee of 10 years and a 25 year performance guarantee for an 80 % power output on all standard products. In order to further guarantee the quality of our products we are certified in accordance with:

- » IEC 61701 (salt mist corrosion test)
- » EN IEC 61730 (safety qualification)
- » EN IEC 61215 (design qualification and type approval)
- » SS-EN ISO 9001:2000 (Quality Management System)
- » SS-EN ISO 14001:2004 (Environmental Management System)



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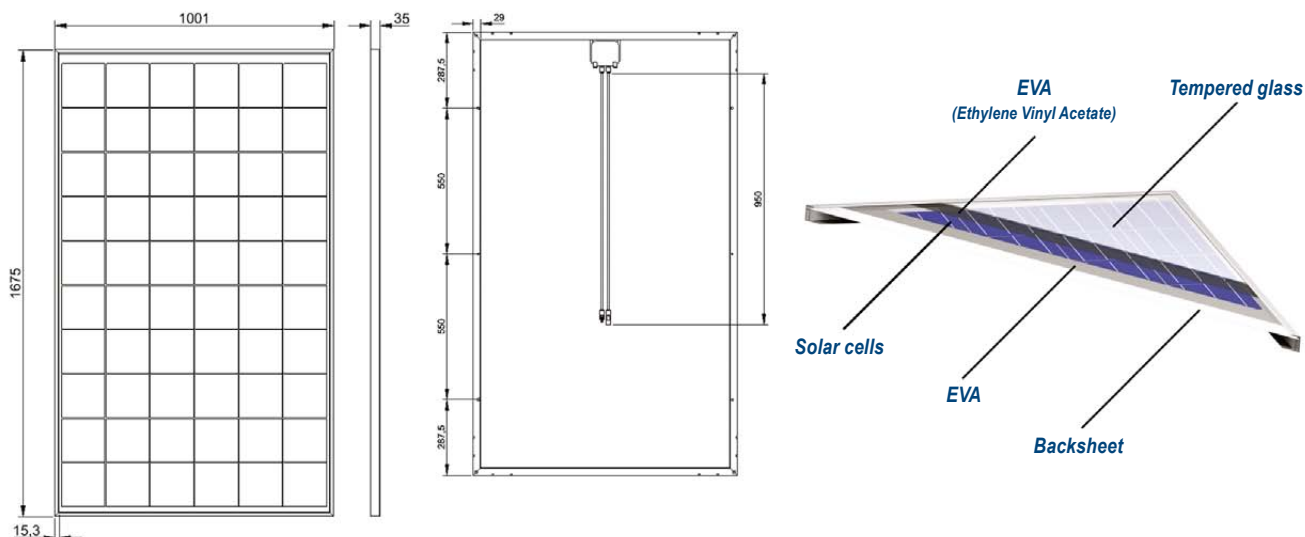


SwedModule ES-P220-245

Polycrystalline Solar Power Modules



Construction front to back



Power specifications

Poly performance under standard test conditions: 1000 W/m², 25°C, 1.5AM

Designation	ES-P220	ES-P225	ES-P230	ES-P235	ES-P240	ES-P245
Average max. power (Pmax)	220	225	230	235	240	245
Open circuit voltage (Voc)	36,40	36,57	36,74	36,91	37,08	37,28
Max. power voltage (Vmpp)	29,0	29,33	29,61	29,92	30,23	30,59
Short circuit current (Isc)	7,99	8,11	8,22	8,31	8,43	8,54
Max. power current (Impp)	7,44	7,54	7,63	7,72	7,79	7,87
Cell efficiency (%)	16,2	16,6	16,8	17,2	17,6	18,0

Tolerance of max. power (±1 %). All other values with a tolerance of ±3 %

Poly performance at 800W/m², NOCT, AM1,5

Designation	ES-P220	ES-P225	ES-P230	ES-P235	ES-P240	ES-P245
Average max. power (Pmax)	157	161	164	168	172	175
Open circuit voltage (Voc)	32,83	32,99	33,14	33,29	33,45	33,63
Max. power voltage (Vmpp)	26,16	26,46	26,71	26,99	27,27	27,59
Short circuit current (Isc)	6,47	6,57	6,66	6,73	6,83	6,92
Max. power current (Impp)	6,03	6,11	6,18	6,25	6,31	6,37
Cell efficiency (%)	16,2	16,6	16,8	17,2	17,6	18,0

Minor reduction in efficiency under partial load conditions at 25°C: at 200W/m², 95% (± 3 %) of the STC efficiency (1000 W/m²) is achieved.

Thermal characteristics

NOCT	46°C
TC Isc	0.034 %/K
TC Voc	-0.34 %/K
Max power drop	-0.45 %/K

System integration parameters

Maximum system voltage:	SC II 1000 VDC
Maximum reverse current:	Do not apply external voltages larger than VOC to the module

Physical specifications

Cell type	Polycrystalline
Cell dimension (+/- 0,5mm)	156mm x 156mm
Cells per module	60
Module weight	22 kg
Module size (+/- 1mm) (L x H x W)	1675 mm x 1001 mm x 35 mm
Frame	Anodized aluminium

Eco Supplies Solar AB reserves the right to make specification changes without prior notice. Please contact your nearest stockist/ distributor or visit our website to obtain the latest specification sheet.

