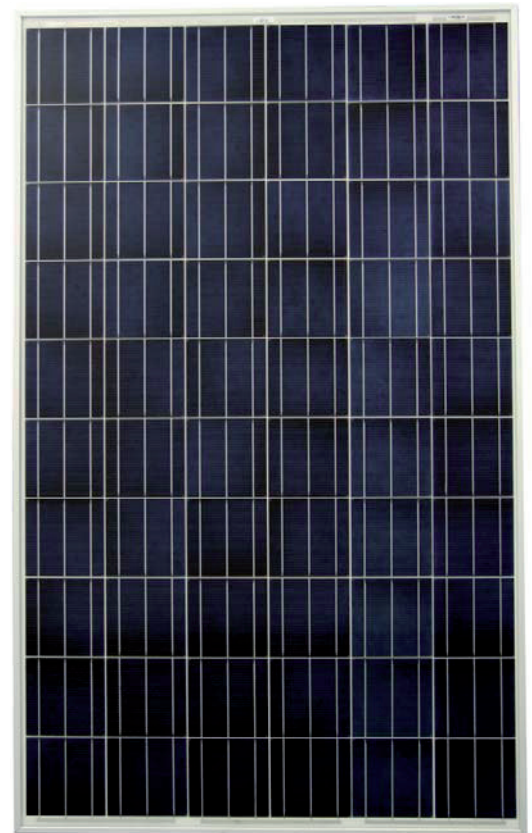


### Properties

- Module made with 60 cells of high-efficiency polycrystalline silicon C6BA, produced in Italy by Helios Technology
- New cells with 3 busbars that allow a considerable increase in the average power output of the module
- Stability of electrical performance over time thanks to using only high quality raw materials and crystalline silicon technology
- Tolerance only positive on the power of the module 0/+5 W, for maximum electrical performance
- Excellent spectral response and excellent performance at low insulation through advanced techniques of production of cells and modules
- Light weight and compact size
- Mounting system for the frame that allows for greater precision and regularity of the distances between the sides and diagonals of the form
- Resistance to snow/wind load by fixing the module either to the long or the short side
- New redesigned Junction Box with cables and connectors for quick connection in every type of configuration
- Frame with holes for optical fiber of the Helios Technology antitheft system



### Quality and reliability

- The process of cell and module production is fully automated with 100% quality control and product traceability
- Use of only certified materials at the highest quality standards
- Electrical tests with reference modules calibrated by the Fraunhofer Institut
- Reliability of the module thanks to 30 years of experience
- Production processes of cells and modules with low environmental impact

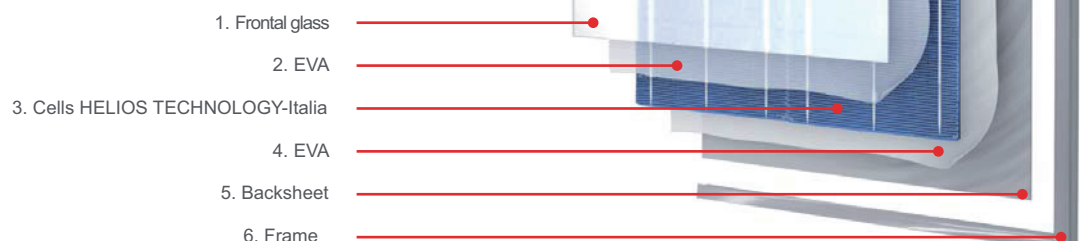


### Certifications and warranties

- CEI EN 61215 (2006) for heavy snow loads - high wind
- CEI EN 61730-1-2 (2007) Insulation Class II up to 1000VDC
- Regular Factory Inspection carried out by TÜV InterCert
- 10 year warranty on materials and workmanship
- Guaranteed minimum power of 90% in 10 years and 80% in 25 years



+ 10% INCENTIVE  
RATE



## Electrical characteristics

		at STC (1000 W/m <sup>2</sup> - AM 1,5 - 25°C)					at NOCT (800 W/m <sup>2</sup> )*				
MODULE		H3A214P	H3A220P	H3A225P	H3A230P	H3A235P	H3A214P	H3A220P	H3A225P	H3A230P	H3A235P
Module power (Pmax)	Wp	214	220	225	230	235	153,3	157,6	161,2	164,8	168,4
Maximum power voltage (Vpmax)	V	28,93	29,14	29,64	30,20	30,72	27,06	27,26	27,73	28,25	28,74
Maximum power current (Ipmx)	A	7,40	7,55	7,59	7,62	7,65	5,67	5,78	5,81	5,83	5,86
Open circuit current (Voc)	V	36,81	36,93	37,15	37,24	37,33	34,43	34,55	34,75	34,84	34,92
Short circuit current (Isc)	A	7,97	8,06	8,14	8,22	8,30	6,41	6,49	6,56	6,62	6,68
Module efficiency	%	13,2	13,5	13,8	14,1	14,4	11,7	12,1	12,3	12,6	12,9
Efficiency of cells	%	14,8	15,1	15,4	15,8	16,1	13,1	13,5	13,8	14,1	14,4
Fill factor	%	73,0	73,9	74,4	75,1	75,8	69,4	70,3	70,7	71,5	72,2
Maximum system voltage	VDC	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Tolerance values for power	W	0/+5	0/+5	0/+5	0/+5	0/+5	-	-	-	-	-

\* NOCT (800 W/m<sup>2</sup>; T.amb = 20°C; Cell T = 44°C; Wind vel. = 1 m/s, AM 1,5)  
Uncertainty of measurement +/-2%

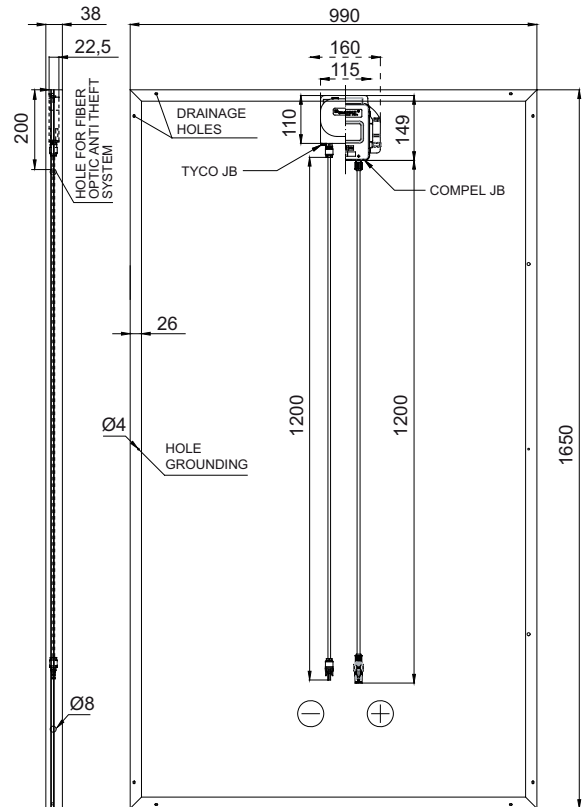
## Operating Characteristics

Temperature coefficient of Isc (α)	+0,10% / °C
Temperature coefficient of Voc (β)	-0,34% / °C
Temperature coefficient of Pmax (γ)	-0,46% / °C
NOCT (Nominal Operating Cell Temperature)	44°C
Operating temperature	from -40°C to +85°C
Maximum surface load capacity	550 kg/m <sup>2</sup>
Fixing centre certified on short side	from 500 to 750 mm
Fixing centre certified on long side	from 800 to 941 mm
Impact resistance to hail	ø 25 mm at 83 km/h

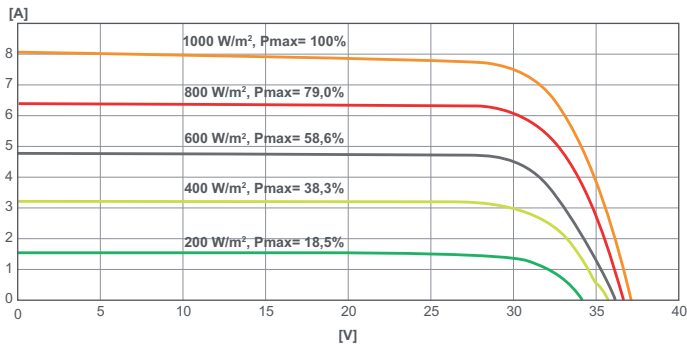
## Physical Characteristics

WITH MODULE	WITH FRAME
Length	1650 ± 1 mm
Width	990 ± 1 mm
Thickness	38 mm
Weight	18,7 kg
Front glass	Glass low Fe 3,2 mm
Encapsulant	EVA (Ethylene-Vinyl Acetate)
Backsheet	Multilayer polyester-based
Frame	Anodized Al 6060 T5 - 15 µm
Junction Box	Tyco® or Compel®, IP65, with 3 by-pass diodes
Connecting cables, section	1,2 m two connectors Tyco® or Compel®, 4 mm <sup>2</sup>

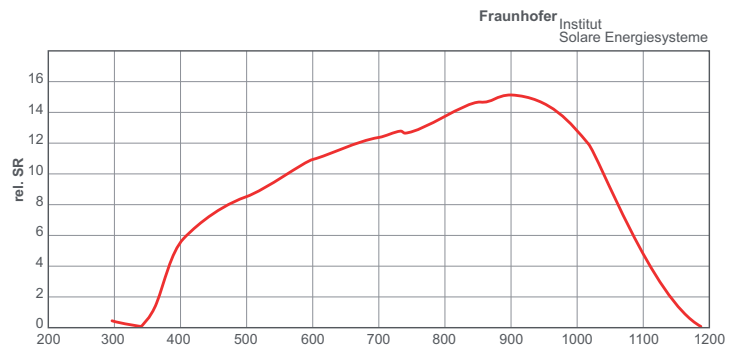
C6BA CELLS	
Technology	Polycrystalline silicon with 3-busbars
Size	156x156 mm
Quantity	60 (6x10)



## H3A220P Electrical characteristics at different irradiances



## H3A220P Spectral response



Helios Technology S.p.A.

Via Postumia, 9/B  
35010 Carmignano  
di Brenta (PD) - Italy

Tel. +39.049.9430288  
Fax +39.049.9430323  
info@heliotechnology.com  
www.heliotechnology.com

