

Helios Technology, thanks to its over-thirty-years experience, presents the new H3A225-250P series that provides the highest level of efficiency, quality and reliability.

The cells and modules production are subjected to stringent quality controls to obtain a product that makes the investment in photovoltaics safe and profitable.

### Properties

- Module made with 60 high-efficiency polycrystalline cells with 3 bus bars
- Italian production from wafer to module
- Positive tolerance only on module power (0/+5 W), to obtain the maximum electrical performance
- **15 years guarantee on materials and manufacturing defects**
- **30 years linear guarantee on power loss**
- **Record resistance for heavy snow loads - high wind up to 610 kg/m<sup>2</sup> with 800 mm distance on the long side**
- Module fixing possible both on the long and the short side with several distances
- Junction Box with 120 cm long cables and connectors for quick connection, for every type of configuration
- Electrical performance stability over time by using only high quality raw materials and crystalline silicon technology
- Excellent spectral response and low insolation behavior through advanced cells and modules production techniques: I<sub>REV</sub> and R<sub>SH</sub> controlled on 100% of production
- Minimization of mismatch thanks to R<sub>s</sub> control on 100% of production
- Reduced weight and overall size
- Frame with holes for Helios Technology's antitheft system optical fiber
- Mounting system of the frame that allows greater precision and regularity of the distances and diagonals

### Quality and reliability

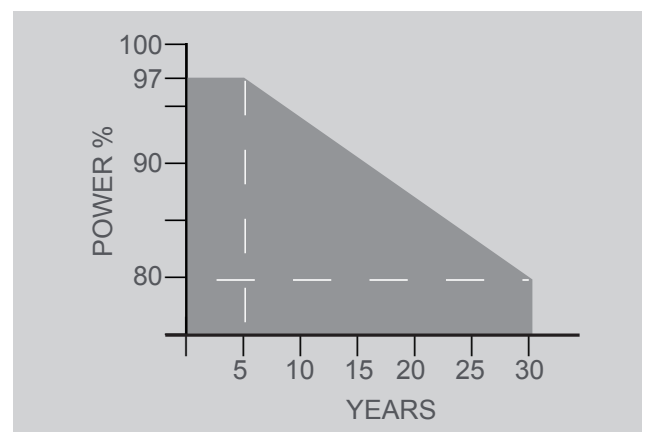
- The process of cell and module production is fully automated with 100% quality control and product traceability
- Use of only certified materials at the highest quality standards
- Electrical tests with reference modules calibrated by the Fraunhofer Institut and regular calibration of the solar simulator
- Reliability of the module thanks to 30+ years of experience proved by ENEA and other independent institutes reports on outdoor tests more than 25 years long
- Accelerated aging tests in climatic chambers positively passed, with over 3000 h in damp heat (3 times more that standard ones)
- Production processes of cells and modules with low environmental impact, thanks to patented I.W.T. system

### Certifications

- IEC 61215 for heavy snow - high wind loads
- IEC 61730-1-2 safety class II up to 1000VDC
- Regular Factory Inspection carried out by TÜV InterCert



### Linear guarantee on power loss



Since 1981



## Electrical characteristics

MODULE		at STC (1000 W/m <sup>2</sup> - AM 1,5 - 25°C)						at NOCT (800 W/m <sup>2</sup> )*					
		H3A225P	H3A230P	H3A235P	H3A240P	H3A245P	H3A250P	H3A225P	H3A230P	H3A235P	H3A240P	H3A245P	H3A250P
Module power (Pmax)	Wp	225	230	235	240	245	250	165,2	168,9	172,6	176,3	179,9	183,6
Maximum power voltage (Vpmax)	V	29,64	30,20	30,72	30,77	31,06	31,29	26,68	27,17	27,65	27,69	27,95	28,16
Maximum power current (Ipmax)	A	7,59	7,62	7,65	7,80	7,89	7,99	6,19	6,22	6,24	6,36	6,44	6,52
Open circuit voltage (Voc)	V	37,15	37,24	37,33	37,50	37,58	37,70	34,15	34,24	34,33	34,50	34,58	34,70
Short circuit current (Isc)	A	8,14	8,22	8,30	8,43	8,51	8,59	6,64	6,71	6,77	6,88	6,94	7,01
Module efficiency	%	13,77	14,08	14,39	14,69	15,00	15,30	12,64	12,93	13,21	13,49	13,77	14,05
Fill factor	%	74,4	75,1	75,8	75,9	76,6	77,2	72,8	73,5	74,2	74,3	74,9	75,5
Maximum system voltage	VDC	1000	1000	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	0/+5	-	-	-	-	-	-

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

## Operating characteristics

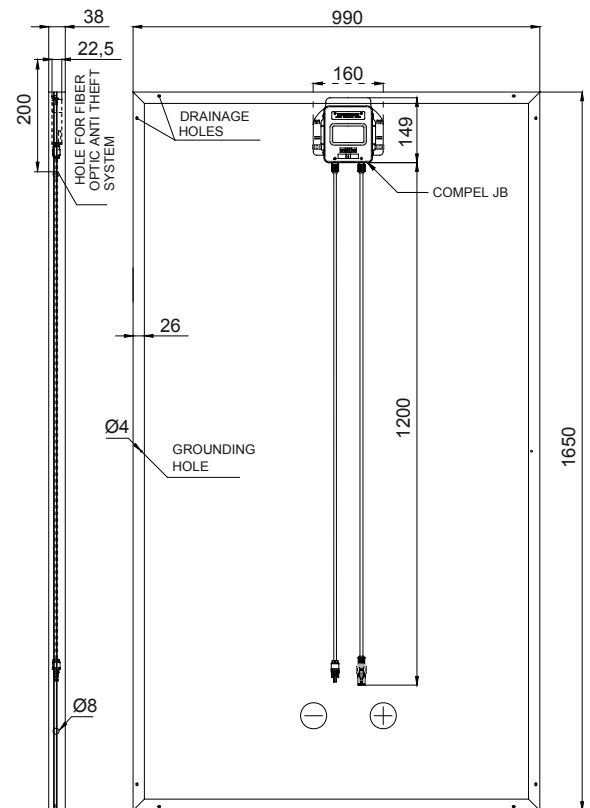
Temperature coefficient of Isc (α)	+0,10% / °C
Temperature coefficient of Voc (β)	-0,125 V / °C
Temperature coefficient of Pmax (γ)	-0,41 % / °C
NOCT (Nominal Operating Cell Temperature)	40°C
Operating temperature	from -40°C to +85°C
Maximum surface load	610 kg/m <sup>2</sup>
Fixing centre certified 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

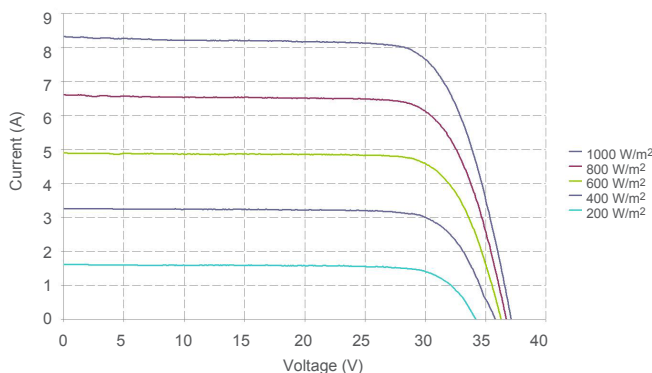
Length	1650 ± 1 mm
Width	990 ± 1 mm
Thickness	38 mm
Weight	18,7 kg
Front glass	Low Fe 3,2 mm thick glass
Encapsulant	EVA (Ethylene-Vinyl Acetate)
Backsheet	Multilayer polyester-based
Frame	Anodized Al 6060 T5 - 15 µm
Junction Box	Compel® IP65, with 3 by-pass diodes
Connecting cables, section	1,2 m with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

### CELLS

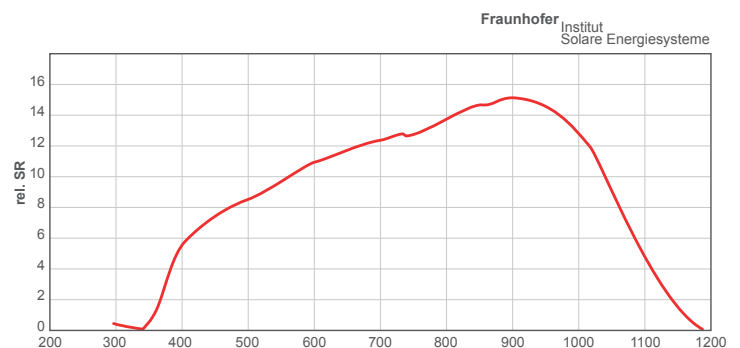
Technology	Polycrystalline silicon with 3-busbars
Size	156 x 156 mm
Quantity	60 (6x10)



## H3A240P electrical characteristics at different irradiances



## H3A240P spectral response



Helios Technology S.p.A. - Subject to direction and coordination of AION Renewables S.p.A.

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