

I3A225-250P is a new generation module that combines electrical and thermal energy production. The photovoltaic module is combined with an aluminum collector that directs the exceeding heat, generated from solar radiation and from the normal operation (Joule effect), to a fluid that flows in the collector.

Properties

This system is particularly suitable for those that want to install a photovoltaic system with high performance and need for thermal energy (sanitary water, domestic heating, etc.). Using a hydraulic connection with a heat exchanger and a water tank, the hybrid system will preheat the water supply to the boiler or to an underfloor heating system; moreover it can heat swimming pools and like.

100% guaranteed

- 30 years linear guarantee on electrical power loss
- 15 years guarantee on materials and manufacturing defects (PV Components)
- 5 years guarantee on thermal components

Characteristics

- 100% Made in Italy
- Electrical performance **stability over time** by using only high quality raw materials and crystalline silicon technology
- **Positive tolerance** only on module power (0/+5 W), to obtain the maximum electrical performance
- Excellent spectral response and low insolation behavior through advanced cells and modules production techniques: IREV and RSH controlled on 100% of production
- **Record resistance for heavy snow loads** - high wind up to 610 kg/m² with 800 mm distance on the long side
- Minimization of mismatch thanks to Rs control on 100% of production

Greater output power

This innovative product allows defrosting of the modules in winter and lowering the operating temperature in summer

Easy installation

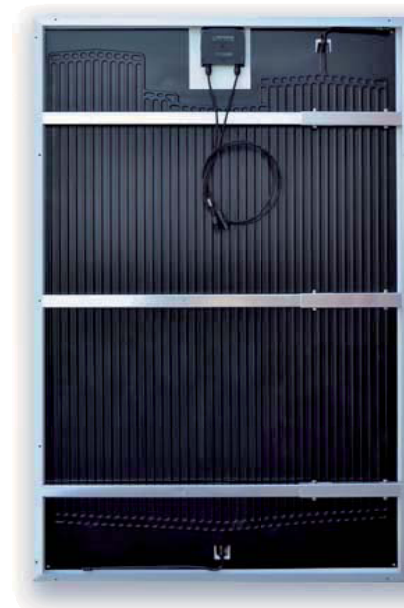
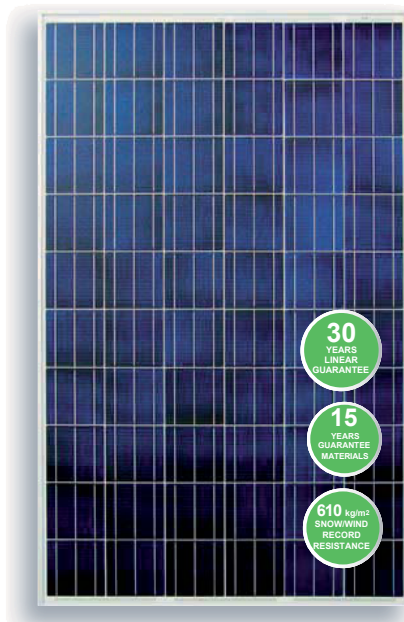
- Reduced weight and overall size
- Frame with holes for Helios Technology's antitheft system optical fiber
- Mounting system of the frame that allows greater precision and regularity of the distances and diagonals
- Junction Box with 120 cm long cables and connectors for quick connection, for every type of configuration

The thermal performances

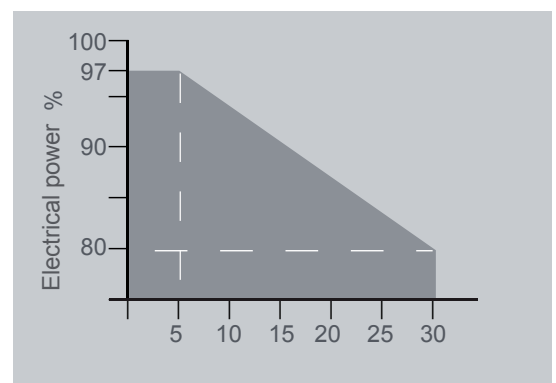
The thermal power provided by the system depends on temperature gradient, room temperature, the conditions of radiation and other factors; it is approximately 500 W_t per module (total area 1,6 m²)

Certifications

- ISO 9001, ISO 14001 and OHSAS18001
- IEC 61730-1-2 safety class II up to 1000VDC
- UNI EN 12975
- IEC 61215 for heavy snow-wind loads



Linear guarantee on power loss



Electrical Characteristics

at STC (1000 W/m ² - AM 1,5 - 25°C)							
MODULE		I3A225P	I3A230P	I3A235P	I3A240P	I3A245P	I3A250P
Module power (P _{max})	Wp	225	230	235	240	245	250
Maximum power voltage (V _{pmax})	V	29,64	30,20	30,72	30,77	31,29	31,29
Maximum power current (I _{pmax})	A	7,59	7,62	7,65	7,80	7,89	7,99
Open circuit voltage (V _{oc})	V	37,15	37,24	37,33	37,50	37,58	37,70
Short circuit current (I _{sc})	A	8,14	8,22	8,30	8,43	8,51	8,59
Module efficiency	%	13,77	14,08	14,39	14,69	15,00	15,30
Fill factor	%	74,4	75,1	75,8	75,9	76,6	77,2
Maximum system voltage	VDC	1000	1000	1000	1000	1000	1000
Power tolerance	W	0/+ 5	0/+ 5	0/+ 5	0/+ 5	0/+ 5	0/+5

Measurement uncertainty +/- 2%

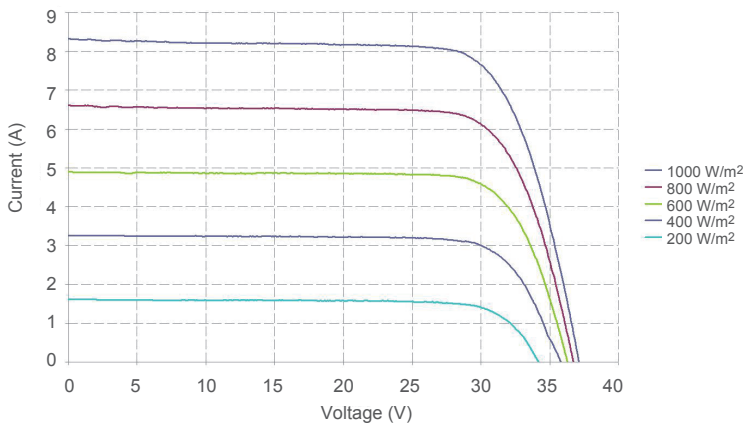
Physical characteristics

MODULE	WITH FRAME
Length	1650 ± 1 mm
Width	990 ± 1 mm
Thickness	38 mm
Front Glass	Low Fe content glass 3,2 mm thick
Encapsulant	EVA (Ethylene-Vinyl Acetate)
Backsheet	Polyester based multi-layer
Frame	Anodized Al 6060 T5 - 15 µm
Junction box	Compel [®] , IP65, with 3 by-pass diodes
Connection cables section	1,2 m with two Tycoc [®] or Compel [®] connectors, 4 mm ²
Thermal collector	Aluminium, designed by Helios Technology 1595 x 935 x 1,5 mm

Photovoltaic - thermal system main components

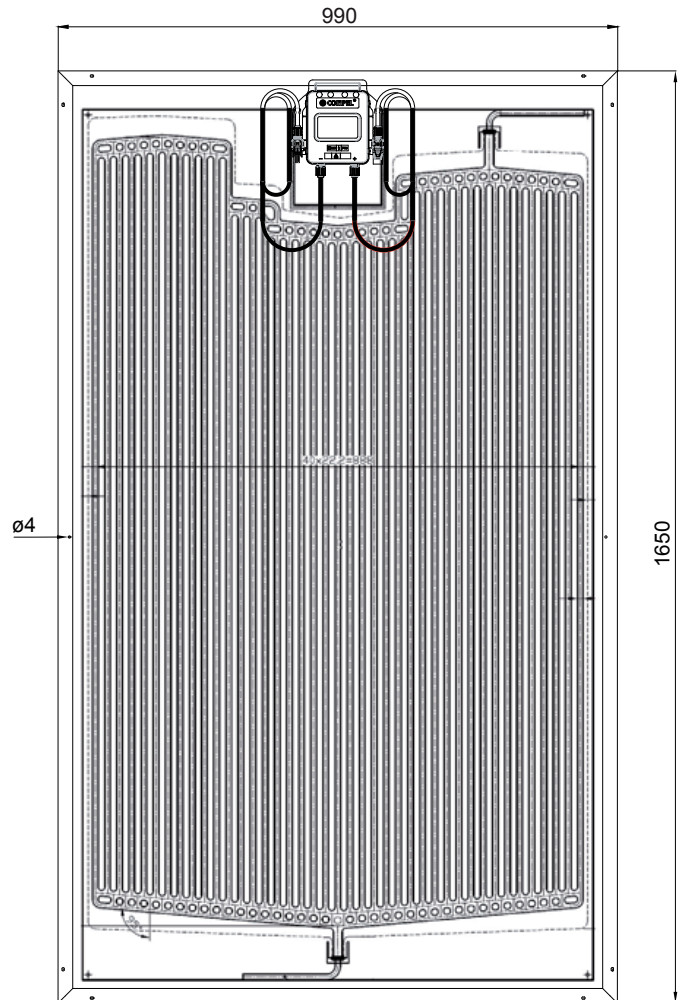
- I3A225-250P hybrid module;
- tank for the hot water produced by the system;
- the hydraulic circuit: it transfers the heat from the module to the tank and from this one to the users (inside collectors flows a never-freezing fluid);
- an electrical circuit, which includes a pump for water and a temperature control unit, normally used in solar thermal field.

I3A240P electrical characteristics at different irradiances



Thermal Characteristics

MODULE I3A225-250P		
Power (P _t)	W _t	500
Internal thermal convector fluid volume (v)	ml	1500
Pressure (p)	bar	2
Coolant		water and glycole mixture (30% Antifrogen SOL VP1981 70% water)
Circuit type on module		self draining
Layout		Helios Technology
In/out pipe	mm	12
Power loss	mbar	< 30 per collector
T max	°C	70
Max system pressure	bar	10
Suggested capacity	l/h	75/235
Δt in/out	°C	2



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

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