

NEW GENERATION PHOTOVOLTAIC MODULE

The **H1540** is one of the highest power-density modules available in the PV market, thanks to Helios Technology's advanced production processes and its high-efficiency I-Max[®] monocrystalline cells. The **H1540** module is very suitable for grid-connected systems such as photovoltaic roofs, but great results will be obtained as well when it is used for systems with batteries, where grid connection is not available or too far from the user.

The **H1540** module is composed of 40 HT 165x165mm high-efficiency I-Max[®] monocrystalline cells and it has been designed by Helios Technology to operate under the toughest environmental conditions. The high power supplied by the **H1540** module gives to the installer the advantage that fewer units need to be lifted up, installed and interconnected, than for smaller modules. This is particularly important for grid-connected applications and big-size systems where are required low installation costs.

Thanks to the I-Max[®] technology developed by Helios Technology for its range of high-efficiency modules, the **H1540** module performs an increased current output (10-17%) at the operating battery voltage when it is installed in stand-alone systems.

Up to now Helios Technology's modules have guaranteed an average lifetime more than 30 years.

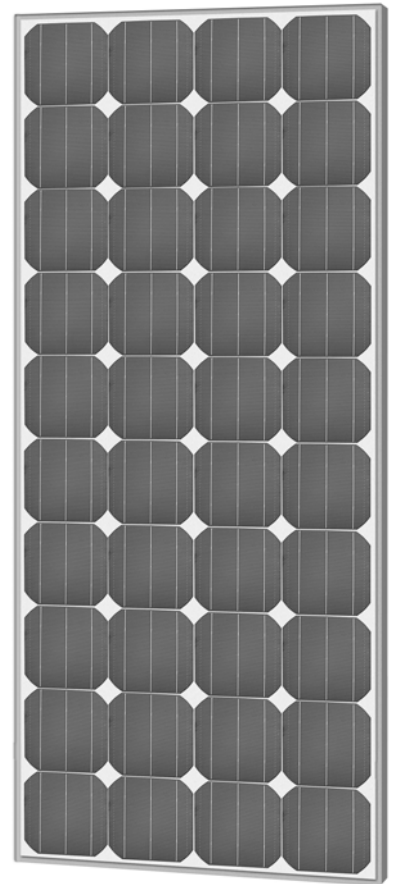
Every cell and module are tested several times throughout the manufacturing process. Easy and practical interconnections allow any voltage and configuration.

A properly-designed anodized aluminium frame makes the **H1540** module safe, easy and quick to install in several situations.

For an easier and faster serial connection the module can be optionally equipped with Multi-Contact[®] connectors.

The **H1540** module complies with the requirements of CEI / IEC 61215 (ESTI certificate PV-MQ-286/03).

The **H1540** module is certified by TÜV as Safety Class II Equipment (Report No:21201479-01B).



H1540 / 140 - 145 - 150W

Guaranteed power $\geq 80\%$ 25 years

Relative humidity up to 100%

Dimensions 1700 x 690 x 34 ± 1 mm

Weight kg 14,0

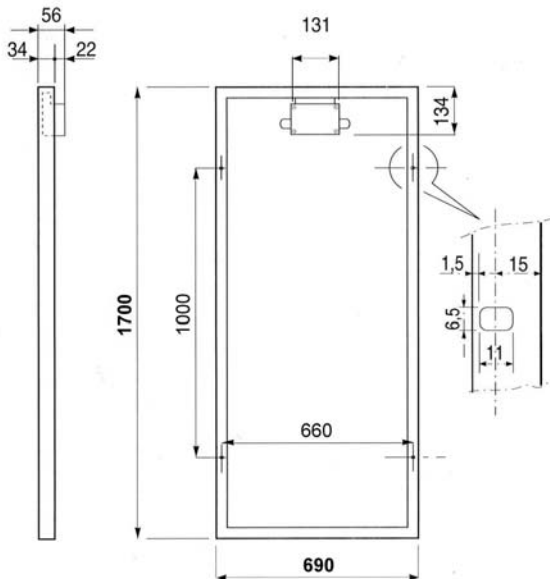
Power Tolerance: $\pm 5\%$



ELECTRICAL SPECIFICATIONS (at 100mW/cm², 25°C, AM 1,5)

MODULE H1540

Maximum Power (Wp)	Watts	140	Watts	145	Watts	150
Short circuit current (Isc)	Amps	9,24	Amps	9,57	Amps	9,90
Open circuit voltage (Voc)	Volts	23,00	Volts	23,00	Volts	23,00
Voltage at maximum power (Vmp)	Volts	17,80	Volts	17,80	Volts	17,80
Current at maximum power (Imp)	Amps	7,86	Amps	8,15	Amps	8,42
Typical Current at battery operating voltage (12,5V)	Amps	8,20	Amps	8,50	Amps	8,80
NOCT (Nominal operating cell temperature)	°C	43 \pm 2	°C	43 \pm 2	°C	43 \pm 2
Change of Voc with temperature (β)	mV/°C	-100	mV/°C	-100	mV/°C	-100
Wind loading or surface pressure	N/m ² 2400 (200 km/h equiv.)		N/m ² 2400 (200 km/h equiv.)		N/m ² 2400 (200 km/h equiv.)	
Hailstone impact resistance	28 mm at 23 m/s		28 mm at 23 m/s		28 mm at 23 m/s	
Storage and operating temperature	°C	from -40 up to +95	°C	from -40 up to +95	°C	from -40 up to +95
Maximum System Voltage (TÜV Safety Class II)	Volts	750	Volts	750	Volts	750



Tolerance ± 1 mm

MODULE PHYSICAL FEATURES

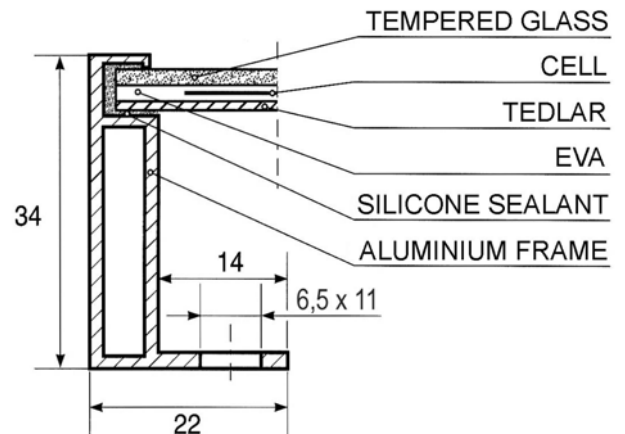
Helios Technology modules are made using the most advanced technologies, thanks to the wide experience gained by Helios Technology in the PV field and the suggestions coming from skilled installers.

The result is a frame with 4 slotted holes, practical and compact, which allows a quick and easy installation of all Helios Technology's modules. The corner/frame assembly system, devised by Helios Technology in 1982, has proven its high efficiency guaranteeing mechanical strength and perfect electric continuity between the frame components. Thanks to this system a better safety in high-voltage systems will be allowed.

MODULE CROSS SECTION

The cells are laminated in permanent way between sheets of ethylene vinyl acetate (EVA), tempered glass and white Tedlar, in order to offer an ideal protection against humidity penetration and salty corrosion. The tempered glass whose main characteristic is the high transparency to the direct and diffused light, is fixed to the frame by silicone sealant which assures an efficient protection against mechanical and environmental stress.

The high insulation between the cells and the frame reduces the risks of current leakages which are often the main cause of power losses in high-voltage PV installations.



JUNCTION BOX

A waterproof, high capacity junction box with protection degree IP65 contains four by-pass diodes and appropriate connection terminals. It is equipped with two M16 cable glands for easy interconnections. The junction box is made always keeping in mind the requirements of the installers. As a matter of fact:

1. All the screws can be easily tightened using flat or star screwdrivers.
2. The covers are fitted with self-retaining screws and hooked to the junction box, for easy handling and maintenance.
3. All the connections are soldered for very long durability and reliability.
4. Connection terminals and by-pass diodes are mounted on a PC board for easy replacement in case of damage by lightning.

