



SOLAR MODULES



NEW GENERATION PHOTOVOLTAIC MODULES - PTL/PV/60

Where a lot of power is required in a small space. Although this feature is most appreciated with bigger modules in grid connect applications the compact size of the PTL/PV/60 comes very handy on a caravan or in mobile power situations. Among the most innovative modules in the market, the PTL/PV/60 is produced using 39 high-efficiency mono crystalline silicon cells having the special dimensions of 165 x 58 mm. PTL SOLAR™ range of high-efficiency modules, the PTL/PV/60 performs an increased current output (10 - 17%) at operating battery voltage when it is installed in battery charging systems and applications. With a proven life span of over 30 years PTL SOLAR™ Modules are designed to operate under most challenging conditions. Every cell and module is tested several times throughout the manufacturing process. Easy and practical interconnections allow any voltage and configuration. The smart anodized aluminium frame design makes the PTL/PV/60 solar module safe and easy to install by anyone.



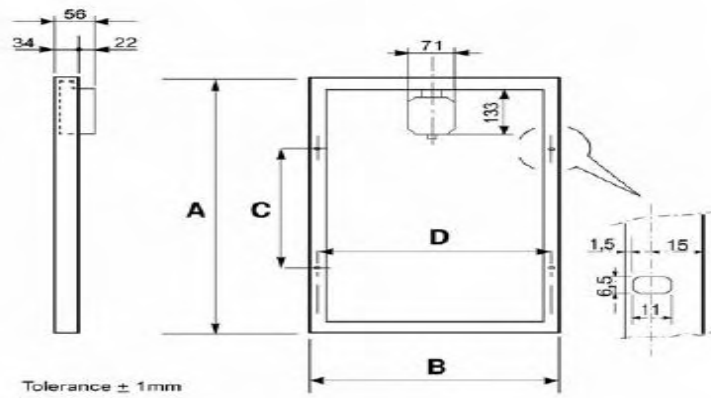
MODULE PTL/PV/40	
Guaranteed power	>80% 25 years
Relative humidity	upto 100%
Dimension	1001 x 500 x 34 mm ± 1 mm
Weight	6 kg
Tolerance of technical data	± 10%

ELECTRICAL SPECIFICATIONS	
Maximum Power (Wp)	60 Watts
Short circuit current (Isc)	3.49 Amps
Open circuit voltage (Voc)	21 Volts
Voltage at maximum power (Vmp)	16.7 Volts
Current at maximum power (Imp)	3.6 Amps
Typical Current at battery operating Voltage	1.27 Amps
NOCT (Nominal operating cell temperature)	43 ± 2°C
Change of Voc with temperature	-90 mV/°C
Wind loading or surface pressure	N/m ² 2400 (200 km/h equiv)
Hailstone impact resistance	28 mm at 23 m/s
Storage and operating temperature	from -40 upto +95°C

MODULE PHYSICAL FEATURES

PTL SOLAR™ modules are made using the most advanced technologies, thanks to the wide experience gained by PTL SOLAR™ 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 PTL SOLAR™ modules. The corner/frame assembly system, devised in 1982, has proven to deliver mechanical strength and perfect electric continuity between the frame.

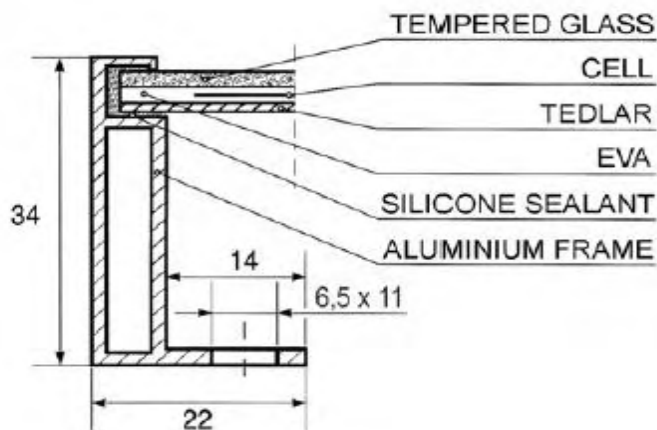
MEASUREMENTS



A	B	C	D
1001 mm	500 mm	400 mm	494 mm

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 transparence to the direct and diffused light, is fixed to the frame by silicone sealant which assures an efficient protection against mechanical and environmental stress.



JUNCTION BOX

A waterproof, high capacity junction box with protection degree IP65 contains the by-pass diode and appropriate connection terminals. It is equipped with one PG9 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 screw drivers.
- 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.

* Dimensions may change subjected to solar cell size.

* Errors expected and possible alterations without prior notice.

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