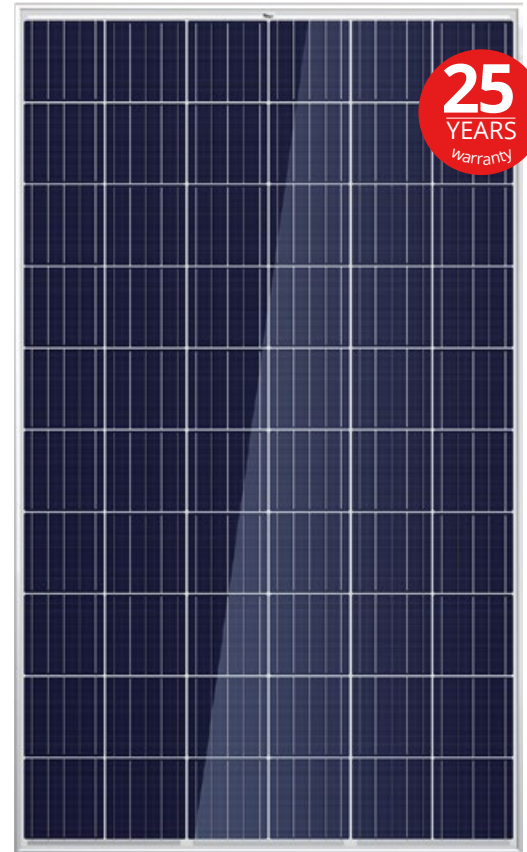


# POLY SOLAR PV MODULES (60 CELLS)

## TN-270P | 275P | 280P

Solar PV Modules with advanced 5BB solar cells provide high-output performance even at low insolation and low NOCT level. The unique manufacturing process ensures unparalleled quality control for every component of the module.

With its low unit cost and long service life this solar panel is a perfect solution for a project of any size.



19.2%

### EXCELLENT CELLS EFFICIENCY

We use only 5BB Grade-A Cells with efficiency up to 19.2% achieved through advanced cell manufacturing technology



Weak Sunlight

### EXCELLENT WEAK LIGHT PERFORMANCE

Solar modules from TN Energy have excellent weak light performance (morning, evening and cloudy days)

+8W

### POSITIVE POWER TOLERANCE

Guarantee from 0 to +8W as power tolerance, you can obtain more power than conventional output



### SAND AND SALT PROTECTION

Reliable quality leads to a better sustainability even in harsh environment like desert or coastline

35mm



Ultrathin

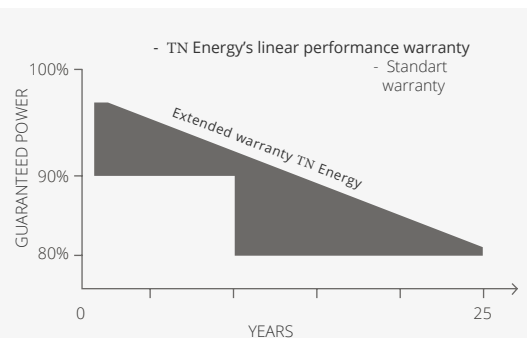
### PANEL THICKNESS

The latest technologies allow us to make thin and light solar modules. Easy installation and transportation



### HIGH WIND AND SNOW RESISTANCE TN

Energy modules withstand snow load of up to 550 kg/m<sup>2</sup> and wind speed of up to 162km/h



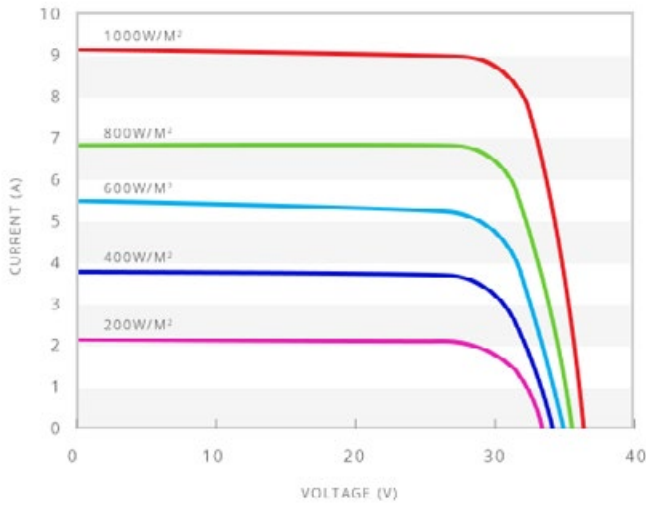
For a period of twenty-five (25) years commencing on the Warranty Start Date, loss of power output of the nominal power output measured at Standard Test Conditions (STC) for the Product(s) shall not exceed:

1. For Polycrystalline Products: 2% in the first year, thereafter 0.67% per year, ending with 82% in the 25th year after the Warranty Start Date.
2. For Monocrystalline Products: 3% in the first year, thereafter 0.67% per year, ending with 81% in the 25th year after the Warranty Start Date.

The Warranty Start Date shall be defined as the date of the Bill of Lading date

I-V curves

I-V Curves of PV module TN 270W at different light power

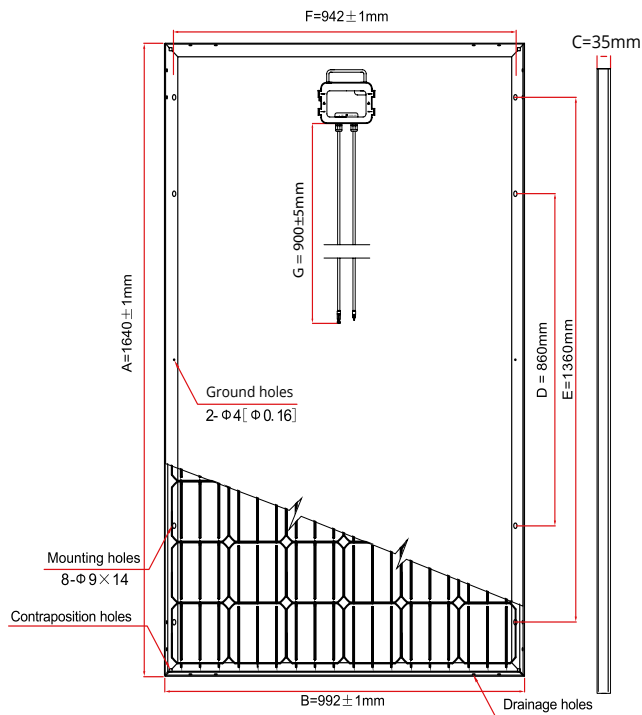


Electrical characteristics

Solar cells:	Poly-crystalline 5BB, 6 inch, 6x10 pcs		
Max Power	270W	275W	280W
Power Tolerance	0 to +8W		
Voltage at Pmax (Vmp)	31.2V	31.4V	31.6V
Current at Pmax (Imp)	8.65A	8.76A	8.86A
Open-Circuit Voltage (Voc)	37.2V	38.0V	38.5V
Short-Circuit Current (Isc)	9.06A	9.18A	9.29A
Module Efficiency	16.6%	16.9%	17.3%
Max-System Voltage (VDC)	1000V(IEC), 600V(UL)		
No. of Bypass Diodes (pcs.)	3		
Max Series Fuse (A)	15A		
Temperature Coefficient of Pmax	-0.41% / °C		
Temperature Coefficient of Voc	-0.33% / °C		
Temperature Coefficient of Isc	0.06% / °C		
Nominal Operating Cell t°C	45 ± 2°C		

\*STC Conditions (1000W/m2; 1.5 AM and 25°C Cell temperature)

Dimensions



Mechanical Characteristics

Cable type, Diameter and Length	Φ =4mm <sup>2</sup> , L=900±5mm
Type of Connector	Compatible type MC4
Dimension AxBxC	1640x992x35mm
Weight	18 kg
Front Glass	Tempered with AR coating
Junction Box (protection degree)	IP67 Rated
Frame	Clear anodized aluminum alloy

Qualification Test Parameters

Dielectric Insulation Voltage	6000VDC max
Operating Temperature	-40°C to +85°C
Max load	5400Pa
Hailstone impact	25mm at 23m/s
Fire safety class	Class C

Packaging Configuration

Container	20'GP	40'HQ
Pieces per pallet	30	30
Pallets per container	14	28
Pieces per container	420	840

**Caution: read safety and installation instructions before using this product**