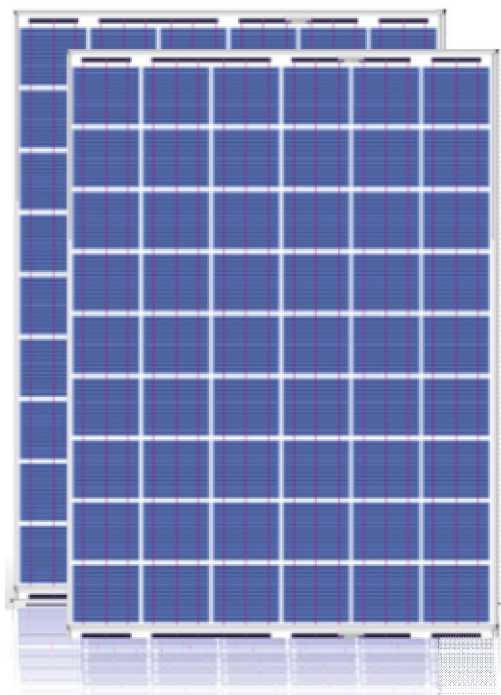




## POLYCRYSTALLINE MODULES VG – P 215-235 W

Tempered glass with high optical transmittance

High efficiency cells with anti-reflective layer

Quick connectors, double insulated flexible cable



- Qualified, IEC 61215
- Heavy Snow Load tested
- Periodic inspection



- Qualified, IEC 61215
- Safety tested, IEC 61730
- Heavy Snow Load tested
- Periodic inspection



### ELECTRICAL CHARACTERISTICS

|                                              | Watts    | 215                 | 220   | 225     | 230   | 235   |
|----------------------------------------------|----------|---------------------|-------|---------|-------|-------|
| Maximum power (P <sub>mpp</sub> )            |          |                     |       |         |       |       |
| Tolerance                                    | %        |                     |       | 0 ~ + 3 |       |       |
| Voltage at maximum power (V <sub>mpp</sub> ) | Volts    | 26.81               | 26.99 | 27.08   | 27.38 | 27.56 |
| Current at maximum power (I <sub>mpp</sub> ) | Amperes  | 8.02                | 8.15  | 8.31    | 8.40  | 8.53  |
| Open circuit voltage (V <sub>oc</sub> )      | Volts    | 33.10               | 33.32 | 33.43   | 33.80 | 34.02 |
| Short circuit current (I <sub>sc</sub> )     | Amperes  | 8.50                | 8.63  | 8.70    | 8.83  | 8.97  |
| Maximum system voltage (V <sub>syst</sub> )  | Volts    | 600 (UL) 1000 (IEC) |       |         |       |       |
| Diodes (By-pass)                             | Quantity | 6                   |       |         |       |       |
| Maximum series fuse                          | Amperes  | 15                  |       |         |       |       |
| Efficiency (η <sub>m</sub> )                 | %        | 14.62               | 14.96 | 15.30   | 15.64 | 15.98 |
| Form Factor                                  | %        | ≥ 73                |       |         |       |       |
| Protection                                   | Grade    | IP - 65             |       |         |       |       |

### MECHANICAL CHARACTERISTICS

|               |           |                                                                     |
|---------------|-----------|---------------------------------------------------------------------|
| Size          | mm        | 1482x992x45                                                         |
| Weight        | Net       | 20 kg                                                               |
| Structure     | Material  | Anodized aluminum AL6063-T5, minim 15 μm                            |
| Cells         | Type      | Polycrystalline                                                     |
|               | Quantity  | 6 x 9 = 54                                                          |
|               | Size      | 156 x 156 mm.                                                       |
| Encapsulation | Materials | 3,2mm Glass/EVA/Cells/EVA/TPT                                       |
| Junction box  | Type      | IP-65 – TÜV-IEC/EN 61215                                            |
|               | Isolation | Versus humidity and inclement weather                               |
| Cables        | Type      | 900 mm, polarized and symmetric in length/section 4 mm <sup>2</sup> |
| Connectors    | Type      | Compatible Type III and Type IV                                     |

CHECK FOR  
AVAILABILITIES



## TEMPERATURE COEFFICIENTS

|                                                                  |              |
|------------------------------------------------------------------|--------------|
| Coefficient of short circuit current $\alpha$ (I <sub>sc</sub> ) | + 0.055 %/°C |
| Coefficient of open circuit voltage $\beta$ (V <sub>oc</sub> )   | - 0.347 %/°C |
| Coefficient of power $\gamma$ (P <sub>mp</sub> )                 | - 0.48 %/°C  |
| Maximum power temperature coefficient (I <sub>mp</sub> )         | + 0.10 %/°C  |
| VoltageT coefficient of maximum power (V <sub>mp</sub> )         | - 0.38 %/°C  |
| NOCT (Nominal Operating Cell Temperature)                        | + 47 ± 2 °C  |

## TOLERANCES

|                                  |                                        |
|----------------------------------|----------------------------------------|
| Working temperature              | - 40 ~ + 85 °C                         |
| Dielectric Isolation Voltage     | 3000 V                                 |
| Wind resistance                  | 60 m/s                                 |
| Mechanical load-bearing capacity | 551 kg./m <sup>2</sup> (5400Pa)<br>IEC |
| Fire resistance                  | Class C                                |

## CHARACTERISTICS OF WORK

The power of solar cells varies in the output of the production process. The different power specifications of these modules reflect this dispersion.

Cells during the early months of light exposure, may experience a degradation photonics could decrease the value of the maximum power the module up to 3 %.

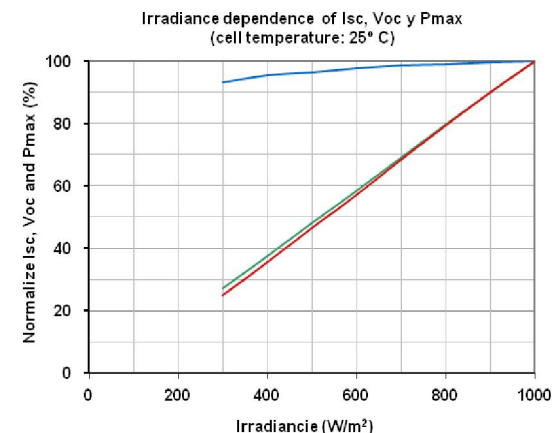
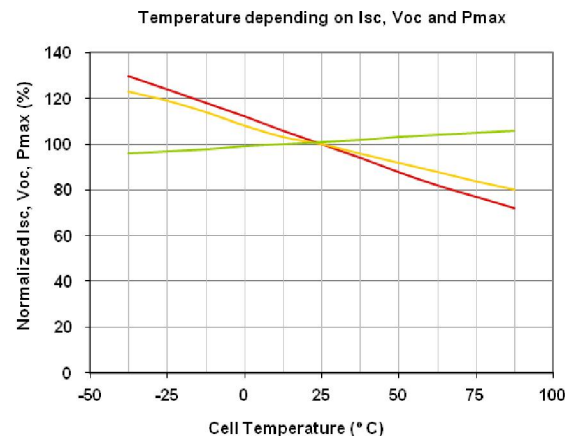
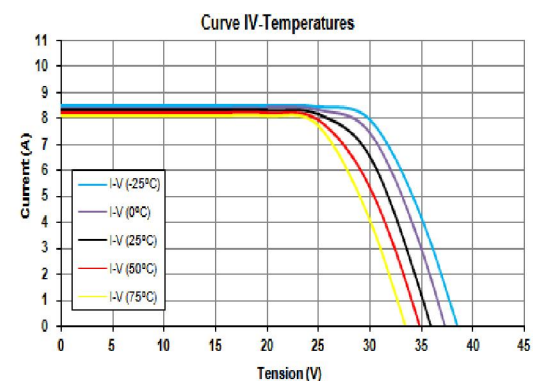
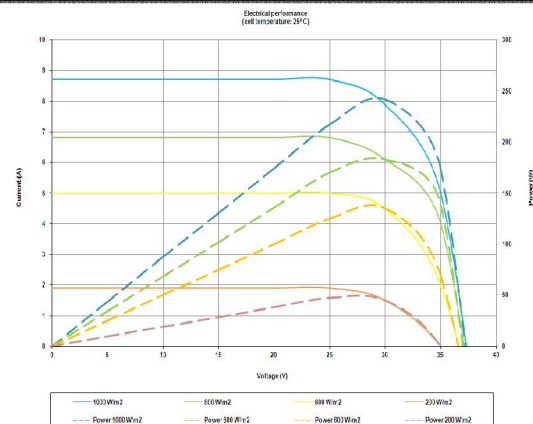
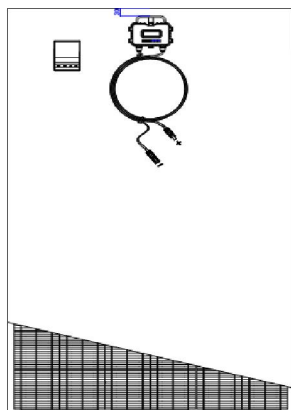
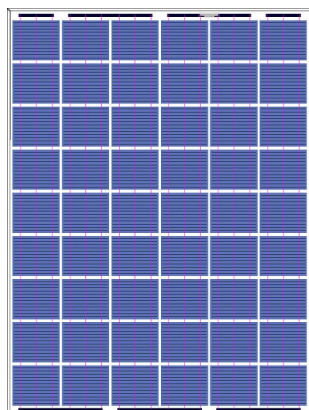
The cells, in normal operating conditions, reach a temperature above the standard measurement conditions of the laboratory. The NOCT is a quantitative measure of the increase. NOCT measurement is performed under the following conditions: radiation of 0.8 kW/m<sup>2</sup>, temperature 20° C and wind speed of 1 m/s.

The electrical data reflect typical values of the modules and laminates as measured at the output terminals at the end of the manufacturing process.

## WARRANTIES

Manufacturing defects - 12 years

Performance - 90 % at 12 years; 80 % at 25 years.



### Spain

Calle Almendralejos 25  
2814 Madrid  
Tel./Fax: (+34) 91623245  
Mobile: (+34) 646180927

### Italy

Via Della Poesia 5  
547030 (FC)  
Tel./Fax: (+39) 5411793069  
Mobile: (+34) 3474533429

### Bulgaria

D. Manov street  
1408 Sofia  
Mobile: (+359) 886 497607