



### System certifications

- Corporate Quality Management EN ISO 9001:2008
- Environmental Management EN ISO 14001:2004
- Management of Health and Safety at the Workplace BS/OHSAS 18001:2007
- Certificates issued by TÜV Rheinland ID:9105069414

### Product certifications

- IEC 61215:2005
- EN 61730-1/-2:2007
- Class of reaction to fire I (UNI 9177)
- Safety class II
- Factory Inspection
- Production "made in EU"
- EC Directives: EMC 2004/108/EC; 2006/95/EC low Voltage
- Disposal and recycling at end-of-life of modules: adherence to COBAT

### Guarantees

- 10 year warranty against manufacturing defects\*
- 10 year warranty on 90% of the maximum declared power\*
- 25 year warranty on 80% of the maximum declared power\*

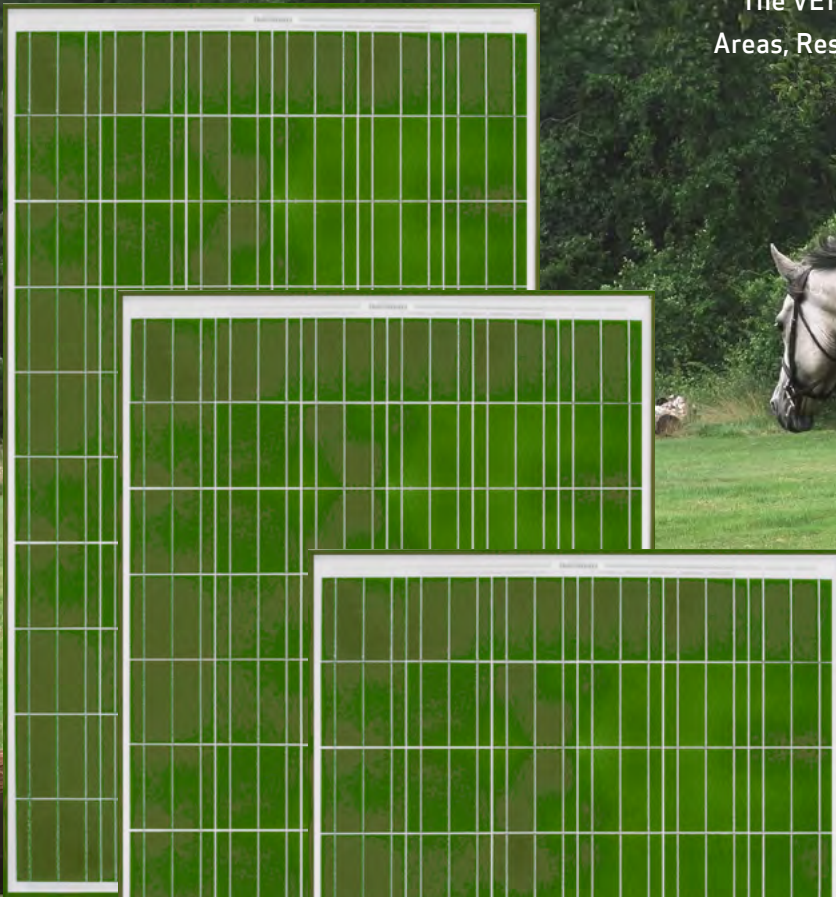
\*If used and installed according to technical and operational instructions. V-energy reserves the right to make changes to product specifications. This data sheet corresponds to the requirements of Standard EN50380. Rel. 4 06/2014

You can put them anywhere.  
Without limits or constraints.

Photovoltaic modules VE160PVFG Fresh Green from V-energy products integrate seamlessly in any environment.

Their technical and aesthetic features ensure overcoming sitting constraints.

The VE160PVFG Fresh Green panels are ideal for Parks, Rural Areas, Residences, Golf, Camping, Cottages and all green areas.



### Specifications

- Use of tempered glass anti-glare with low iron content and high quality for optimum light collection.
- Anodised aluminium frame which provides solidity and sturdiness to withstand constant loads and climatic stresses such as snow and ice with applied pressure max 5,4kN/m<sup>2</sup>
- NOCT = 44,5°C
- Temperature range from -40°C a 85°C
- Mechanical load on surface max 550 kg/m<sup>2</sup>
- Hail impact resistance ø 25mm a 86 km/h

### Measure VE160PVFG Eco Fresh Green

|                   |                               |    |
|-------------------|-------------------------------|----|
| • Length          | 1650                          | mm |
| • Width           | 990                           | mm |
| • Height          | 35                            | mm |
| • Weight          | 18,5                          | kg |
| • Frame           | Anodized or painted aluminium |    |
| • Glass thickness | 3,2                           | mm |

## Behavior in standard test conditions STC\*

| Power class (maximum value) | $P_{max}$ | 225 Wp  | 230 Wp  | 235 Wp  |
|-----------------------------|-----------|---------|---------|---------|
| Efficiency                  | $\eta$    | 13,77 % | 14,08 % | 14,39 % |
| Open-circuit voltage        | $V_{oc}$  | 36,47 V | 36,66 V | 36,83 V |
| Short-circuit current       | $I_{sc}$  | 8,48 A  | 8,51 A  | 8,52 A  |
| Maximum power voltage       | $V_{mp}$  | 29,59 V | 29,62 V | 29,64 V |
| Current at maximum power    | $I_{mp}$  | 7,65 A  | 7,82 A  | 7,99 A  |

\* Note - Under standard conditions: Irradiation 1000 W/mq - Module temperature = 25°C - Air mass AM 1,5  
Measurement tolerance solar simulator class A (- / + 2%) in accordance with IEC 60904-9

## NOCT conditions behavior\*\*

| Power class (maximum value) | $P_{max}$ | 161,8 Wp | 166,7 Wp | 171,3 Wp |
|-----------------------------|-----------|----------|----------|----------|
| Open-circuit voltage        | $V_{oc}$  | 34,28 V  | 34,47 V  | 34,62 V  |
| Short-circuit current       | $I_{sc}$  | 6,77 A   | 6,79 A   | 6,81 A   |
| Maximum power voltage       | $V_{mp}$  | 27,38 V  | 27,42 V  | 27,44 V  |
| Current at maximum power    | $I_{mp}$  | 5,91 A   | 6,08 A   | 6,24 A   |

\*\*Note - Under NOCT conditions: Irradiation 800 W/mq - Module temperature = 44,5°C - Air mass AM 1,5

## Materials used

|                  |                                      |
|------------------|--------------------------------------|
| Cells per module | 60                                   |
| Cell type        | 3BB Polycrystalline                  |
| Cell size        | 156 mm x 156 mm                      |
| Front side       | Anti-glare tempered glass (EN 12150) |

## Thermal characteristics

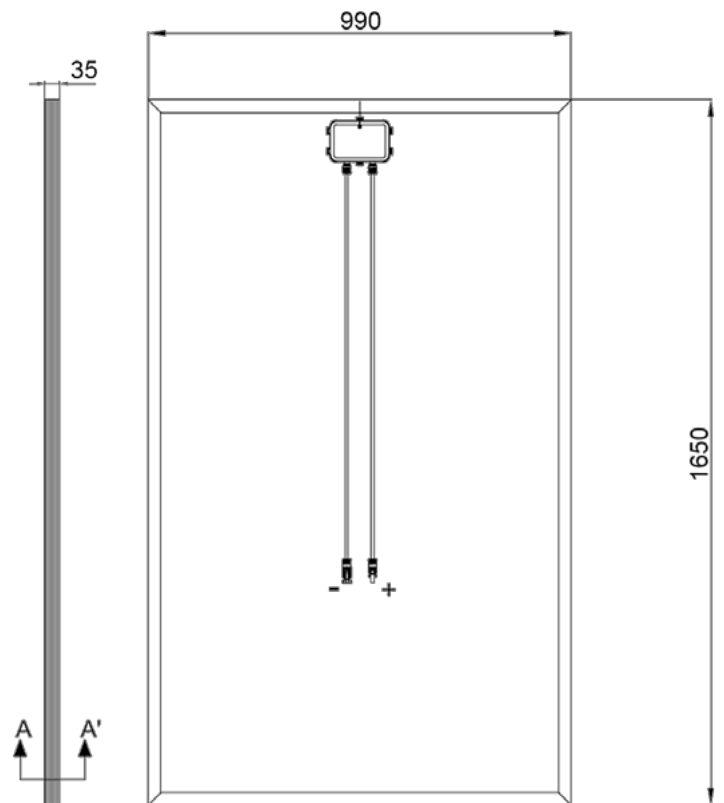
|              |             |
|--------------|-------------|
| NOCT         | 44,5 +/-2°C |
| TC $I_{sc}$  | 3,425 mA/°C |
| TC $U_{oc}$  | -0,138 V/°C |
| TC $P_{mpp}$ | -0,43 %/°C  |

## Parameters for optimal integration into the system

|                                      |                           |
|--------------------------------------|---------------------------|
| Maximum system voltage class II      | 1000 V                    |
| Load capacity of reverse current     | 15 A                      |
| High snow loads (standard IEC 61215) | max 5,4 kN/m <sup>2</sup> |
| Number of bypass diodes              | 3                         |

## More Info

|                             |  |
|-----------------------------|--|
| Sorting tolerance $P_{max}$ | 0/+4,99 W                                |
| Type of protection (IP)     | IP65                                     |
| Connector                   | MC4                                      |
| Cable                       | Solar cable 4mm <sup>2</sup> - Length 1m |



SEZIONE A - A'

