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# **EnergyPal**

## **Solar Panel Guide Specification Data Sheet**

**Ferrania Solis S.r.l.**

**AM 60 260-300**

**AM 60-295**

Also available on the web at  
[EnergyPal.com/ferrania-solis-s-r-l-solar-panels/am-60-295](http://EnergyPal.com/ferrania-solis-s-r-l-solar-panels/am-60-295)

## Photovoltaic Modules AM 60

### 60 cells – Monocrystalline silicon

Silver Wp: 260 - 265 - 270 - 275 - 280 - 285 - 290 - 295 - 300

Black Wp: 260 - 265 - 270 - 275 - 280 - 285 - 290 - 295 - 300



### Characteristics & Performance

Available in Silver and Black versions

- **Quality and Robustness**
  - High Quality raw materials
  - Advanced production technology
  - Deep quality and process control
- **Resistance to critical environment**
  - Static load at 600 kg/m<sup>2</sup> (6000 Pa)
  - Dynamic load at 300 kg/m<sup>2</sup> - wind 150 km/h
  - Hail with diameter of 25mm and speed of 83 km/h
- **High productivity**
  - Special anti-reflective glass for higher energy yields: up to 4% more
  - Current/power range strictly classified

### Product Warranty

- 10 years warranty on manufacturing defects

### Performance Warranty

- 12 years warranty on 90% of the nominal power
- 25 years warranty on 80% of the nominal power

### Disposal Warranty and Recycling

- COBAT (for Italy)

**cobat**

### System Certifications

Integrated Management System

- Quality - UNI EN ISO 9001:2008
- Environment - UNI EN ISO 14001:2004
- Health & Safety - OHSAS 18001:2007
- Certiquality Certificate of Excellence



### Product Tests and Certifications



Safety Class II

- Conformity and Factory Inspection

- "MADE IN EU" Attestation for Italy

- Type Approval

IEC 61215 - Quality and Robustness

IEC 61730 - 1 / 2 - Safety

- Special Component mechanical test

Mechanical load test for BIPV

- Fire Reaction Class (Class I)

UNI 9177



**EUROTEST**  
Laboratori

euofins | TECH

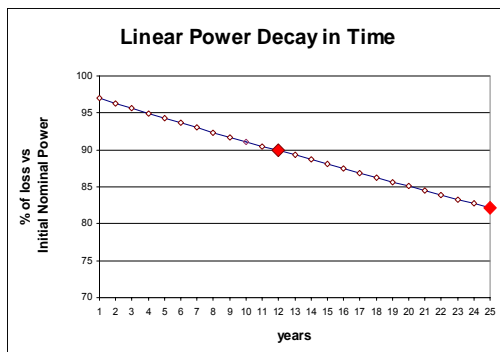


# Photovoltaic Modules AM 60

## Electrical Features

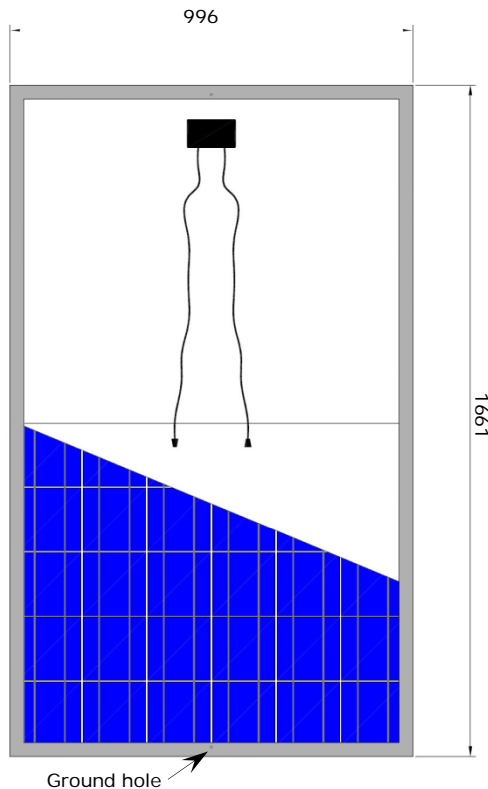
| Type   |                      | AM 60-260    | AM 60-265    | AM 60-270    | AM 60-275    | AM 60-280    | AM 60-285    | AM 60-290    | AM 60-295 | AM 60-300 |
|--|----------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------|-----------|
| <b>Performance at Standard Conditions (STC): Irradiance 1000W/m<sup>2</sup>; Module temperature 25°C; AM 1.5</b> |                      |              |              |              |              |              |              |              |           |           |
| Model  | color                | Silver/Black | Silver/Black | Silver/Black | Silver/Black | Silver/Black | Silver/Black | Silver/Black | Silver    | Silver    |
| Nominal Power  | P <sub>mpp</sub> (W) | 260          | 265          | 270          | 275          | 280          | 285          | 290          | 295       | 300       |
| Maximum Power Voltage  | V <sub>mpp</sub> (V) | 30,23        | 30,31        | 30,38        | 30,45        | 30,52        | 30,60        | 30,69        | 31,80     | 32,01     |
| Maximum Power Current  | I <sub>mpp</sub> (A) | 8,51         | 8,64         | 8,77         | 8,89         | 9,02         | 9,15         | 9,29         | 9,28      | 9,38      |
| Open Circuit Voltage   | V <sub>oc</sub> (V)  | 38,13        | 38,2         | 38,27        | 38,35        | 38,42        | 38,56        | 38,89        | 39,46     | 39,51     |
| Short Circuit Current  | I <sub>sc</sub> (A)  | 9,14         | 9,25         | 9,34         | 9,43         | 9,52         | 9,62         | 9,69         | 9,80      | 9,88      |
| Fill Factor  | %                    | 73,8         | 74,1         | 74,6         | 74,9         | 75,3         | 75,5         | 75,7         | 76,4      | 76,9      |
| Module efficiency  | %                    | 15,50        | 15,78        | 16,06        | 16,31        | 16,59        | 16,87        | 17,18        | 17,70     | 18,00     |
| Power Tolerance  | %                    | 0 / +3%      | 0 / +3%      | 0 / +3%      | 0 / +3%      | 0 / +3%      | 0 / +3%      | 0 / +3%      | 0 / +3%   | 0 / +3%   |
| Working Temperature  | (°C)                 | -40 / 85     | -40 / 85     | -40 / 85     | -40 / 85     | -40 / 85     | -40 / 85     | -40 / 85     | -40 / 85  | -40 / 85  |
| Maximum Voltage  | (V <sub>oc</sub> )   | 1000         | 1000         | 1000         | 1000         | 1000         | 1000         | 1000         | 1000      | 1000      |
| NOCT (Silver)  | (°C)                 | 44 +/- 2     | 44 +/- 2     | 44 +/- 2     | 44 +/- 2     | 44 +/- 2     | 44 +/- 2     | 44 +/- 2     | 44 +/- 2  | 44 +/- 2  |
| NOCT (Black)   | (°C)                 | 45 +/- 2     | 45 +/- 2     | 45 +/- 2     | 45 +/- 2     | 45 +/- 2     | 45 +/- 2     | 45 +/- 2     | 45 +/- 2  | 45 +/- 2  |
| <b>Performance at NOCT: Irradiance 800W/m<sup>2</sup>; Module temperature 43°C Silver/45°C Black; AM 1.5</b>     |                      |              |              |              |              |              |              |              |           |           |
| Maximum Power  | P <sub>max</sub> (W) | 193,7        | 197,1        | 200,2        | 203,6        | 207,1        | 210,9        | 214,8        | 218,3     | 222,1     |
| Maximum Power Voltage  | V <sub>mpp</sub> (V) | 29,27        | 29,34        | 29,41        | 29,47        | 29,55        | 29,64        | 30,32        | 30,71     | 30,91     |
| Maximum Power Current  | I <sub>mpp</sub> (A) | 6,58         | 6,68         | 6,74         | 6,83         | 6,91         | 7,01         | 7,04         | 7,06      | 7,14      |
| Open Circuit Voltage   | V <sub>oc</sub> (V)  | 35,74        | 35,80        | 35,88        | 35,94        | 36,01        | 36,09        | 36,77        | 36,92     | 36,96     |
| Short Circuit Current  | I <sub>sc</sub> (A)  | 7,24         | 7,31         | 7,38         | 7,45         | 7,52         | 7,59         | 7,63         | 7,67      | 7,73      |

All electrical measures ±10% tolerance (but P<sub>mpp</sub> and NOCT)



### Temperature Coefficients

I<sub>sc</sub> (α) = 0,042 % / °C // 4,15 mA / °C  
V<sub>oc</sub> (β) = -0,318 % / °C // -0,126 V / °C  
P<sub>max</sub> (γ) = -0,427 % / °C // -1,281 W / °C



### Design

|                     |  |
|---------------------|--|
| <b>Front</b>        | 3.2 mm tempered glass  |
| <b>Cells</b>        | 60 cells – Monocrystalline Silicon - 156 x 156 mm  |
| <b>Encapsulant</b>  | EVA ( Etylene - Vinyel Acetate co/polymer )  |
| <b>Backsheet</b>    | Polymeric laminate - white backside<br>white sunny side for silver modules<br>black sunny side for black modules |
| <b>Profile</b>      | Anodized Aluminium in silver and black versions  |
| <b>Junction Box</b> | IP 65 - Class II - 3 by-pass diodes  |
| <b>Cables</b>       | 2 unipolar. 4 mm <sup>2</sup> wires - 1 m length   |
| <b>Connectors</b>   | MC4 compatible - rapid clutch  |

### Dimensions

|                          |      |      |
|--------------------------|------|------|
| <b>Length</b>            | (mm) | 1661 |
| <b>Width</b>             | (mm) | 996  |
| <b>Profile Thickness</b> | (mm) | 34   |
| <b>Weight</b>            | (kg) | 17.5 |

### Holes

|                    |                                  |
|--------------------|----------------------------------|
| <b>Ground Hole</b> | 1 hole with identification label |
| <b>Drain Holes</b> | 2 drain holes on each side       |

*Made in Italy*

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