

## Photovoltaic Modules AP 60 Low Power 60 cells – Multicrystalline silicon – 34mm frames

Silver Wp: 210 - 215 - 220 - 225 - 230 - 235 – 240 - 245

*Output Power exceeds nominal value*



**Made in EU**

### Characteristics & Performance

Available in Silver version

- **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



**EUROTEST**  
Laboratori

- **Salt Mist Fog Resistance Test-IEC 61701:2011**  
Resistance in seaside areas
- **Ammonia Resistance Test-IEC 62716:2013**  
Resistance in farms
- **Special Component mechanical test**  
Mechanical load test for BIPV
- **PID Free (Potential Induced Degradation)**



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- **Ageing Resistance Test**  
2000h Heat-Dump Test (85°C/85%R.H.)  
40 years ageing in average environmental conditions



- **Fire Reaction Class (Class I)**  
UNI 9177

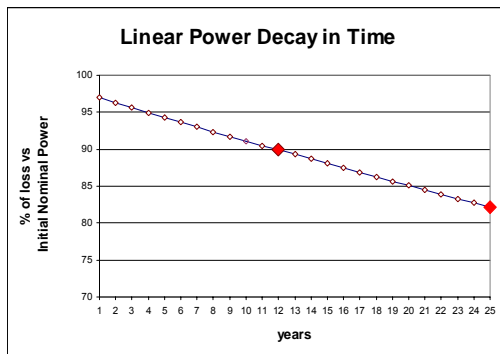


# Photovoltaic Modules AP 60 Low Power

## Electrical Features

Type		AP 60-210	AP 60-215	AP 60-220	AP 60-225	AP 60-230	AP 60-235	AP 60-240	AP 60-245
<b>Performance at Standard Conditions (STC): Irradiance 1000W/m<sup>2</sup>; Module temperature 25°C; AM 1.5</b>									
Model	Color	Silver	Silver	Silver	Silver	Silver	Silver	Silver	Silver
Nominal Power	P <sub>mpp</sub> (W)	210	215	220	225	230	235	240	245
Maximum Power Voltage	V <sub>mpp</sub> (V)	27.00	27.00	27.71	28.26	28.74	29.00	29.06	29.44
Maximum Power Current	I <sub>mpp</sub> (A)	186.67	7.96	7.94	7.96	8.00	8.10	8.36	8.41
Open Circuit Voltage	V <sub>oc</sub> (V)	35.1	35.40	35.80	36.20	36.54	37.15	36.64	37.05
Short Circuit Current	I <sub>sc</sub> (A)	8.36	8.44	8.52	8.60	8.62	8.70	8.93	8.97
Fill Factor	%	71.57	71.96	72.13	72.27	73.02	72.71	74.30	74.50
Module efficiency	%	12.65	12.95	13.26	13.56	13.86	14.16	14.46	14.76
Power Tolerance	%	0 / +5%	0 / +5%	0 / +5%	0 / +5%	0 / +5%	0 / +5%	0 / +5%	0 / +5%
Working Temperature	(°C)	-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
NOCT (Silver)	(°C)	43 +/- 2	43 +/- 2	43 +/- 2	43 +/- 2	43 +/- 2	43 +/- 2	43 +/- 2	43 +/- 2
<b>Performance at NOCT: Irradiance 800W/m<sup>2</sup>; Module temperature 43°C; AM 1.5</b>									
Maximum Power	P <sub>max</sub> (W)	152.1	158	162.6	166.5	170.1	174.9	178.1	181.4
Maximum Power Voltage	V <sub>mpp</sub> (V)	25.35	25.50	26.01	26.74	27.30	28.21	27.98	28.35
Maximum Power Current	I <sub>mpp</sub> (A)	6.11	6.15	6.18	6.19	6.20	6.25	6.33	6.36
Open Circuit Voltage	V <sub>oc</sub> (V)	33.12	33.50	33.90	34.45	34.68	35.20	34.52	34.90
Short Circuit Current	I <sub>sc</sub> (A)	6.56	6.61	6.66	6.70	6.77	6.75	6.96	6.98

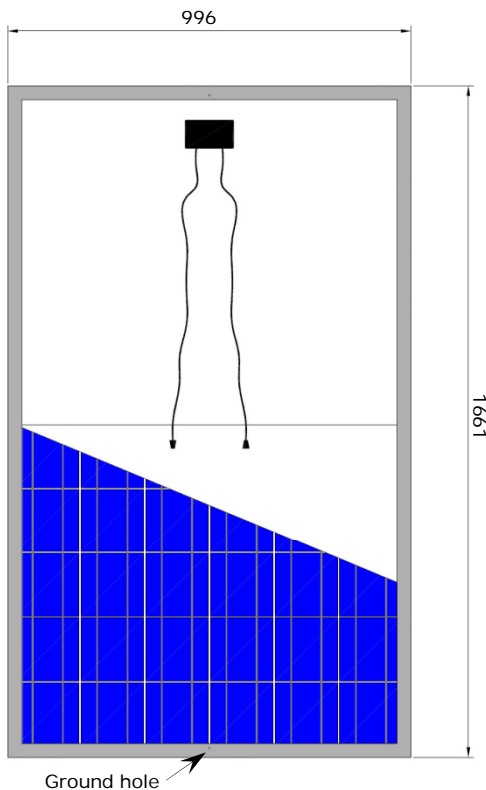
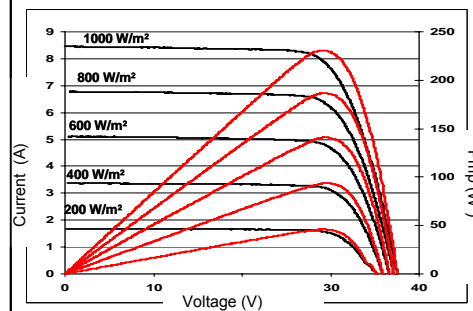
All electrical measures ±10% tolerance (but P<sub>mpp</sub> and NOCT)



### Temperature Coefficients

of I<sub>sc</sub> (α) = 0.06 % / °C // 5.429 mA / °C  
of V<sub>oc</sub> (β) = -0.31 % / °C // -0.116 V / °C  
of P<sub>max</sub> (γ) = -0.43% / °C // 0.969 W / °C

### Electrical features at different irradiance



### Design

<b>Front</b>	3.2 mm tempered glass
<b>Cells</b>	60 cells – Multicrystalline Silicon - 156 x 156 mm
<b>Encapsulant</b>	EVA ( Etylene - Vinyle Acetate co/polymer )
<b>Backsheet</b>	Polymeric laminate - white backside - white sunny side
<b>Profile</b>	Anodized Aluminium
<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 lenght
<b>Connectors</b>	MC4 compatible - rapid clutch

### Dimensions

<b>Lenght</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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