

Photovoltaic Modules AP 60

60 cells – Multicrystalline silicon

Silver Wp: 250 - 255 - 260 - 265 - 270 - 275

Black Wp: 250 - 255 - 260 - 265 - 270

Output Power exceeds nominal value



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/m² (6000 Pa)
 - Dynamic load at 300 kg/m² - 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



- **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)**

- **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

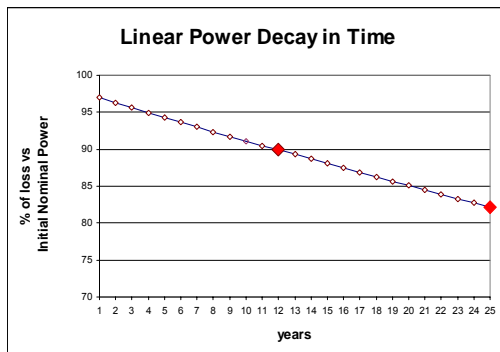


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Electrical Features

Type		AP 60-250	AP 60-255	AP 60-260	AP 60-265	AP 60-270	AP 60-275
Performance at Standard Conditions (STC): Irradiance 1000W/m²; Module temperature 25°C; AM 1.5							
Model	Color	Silver/Black	Silver/Black	Silver/Black	Silver/Black	Silver/Black	Silver
Nominal Power	P _{mpp} (W)	250	255	260	265	270	275
Maximum Power Voltage	V _{mpp} (V)	29.81	30.19	30.57	30.94	31.32	31.69
Maximum Power Current	I _{mpp} (A)	8.46	8.51	8.55	8.60	8.65	8.70
Open Circuit Voltage	V _{oc} (V)	37.45	37.85	38.26	38.66	39.06	39.46
Short Circuit Current	I _{sc} (A)	9.00	9.04	9.08	9.11	9.15	9.19
Fill Factor	%	74.8	75.0	75.3	75.5	75.8	76.0
Module efficiency	%	15.06	15.36	15.66	15.96	16.26	16.56
Power Tolerance	%	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
Maximum Voltage	(V _{oc})	1000	1000	1000	1000	1000	1000
NOCT (Silver)	(°C)	43 +/- 2	43 +/- 2	43 +/- 2	43 +/- 2	43 +/- 2	43 +/- 2
NOCT (Black)	(°C)	44 +/- 2	44 +/- 2	44 +/- 2	44 +/- 2	44 +/- 2	\
Performance at NOCT: Irradiance 800W/m²; Module temperature 43°C Silver/45°C Black; AM 1.5							
Maximum Power	P _{max} (W)	184.8	188.2	191.6	195.0	198.5	201.9
Maximum Power Voltage	V _{mpp} (V)	28.71	29.07	29.43	29.80	30.16	30.52
Maximum Power Current	I _{mpp} (A)	6.40	6.44	6.47	6.51	6.55	6.58
Open Circuit Voltage	V _{oc} (V)	35.28	35.66	36.04	36.41	36.79	37.17
Short Circuit Current	I _{sc} (A)	7.01	7.04	7.07	7.10	7.13	7.16

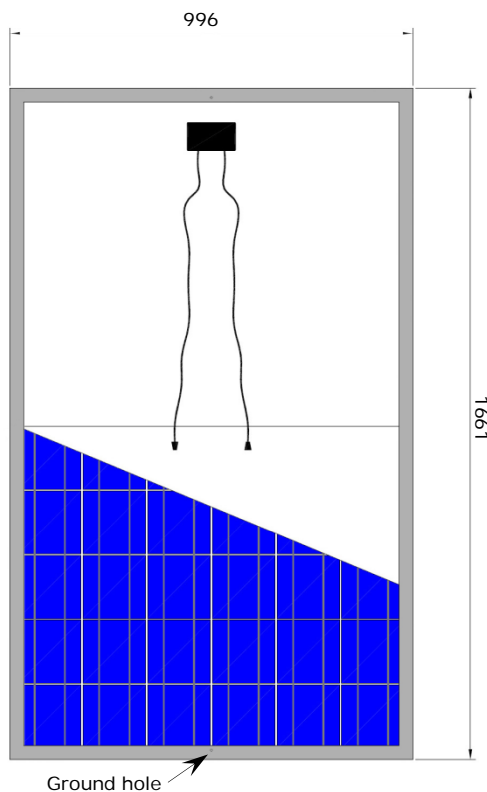
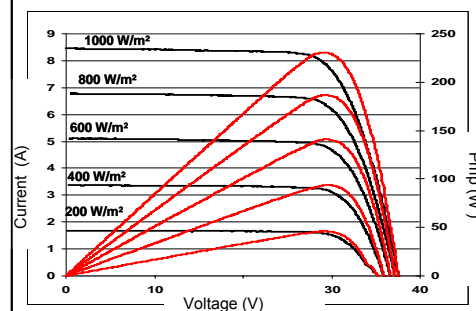
All electrical measures ±10% tolerance (but P_{mpp} and NOCT)



Temperature Coefficients

of I_{sc} (α) = 0.06 % / °C // 5.429 mA / °C
of V_{oc} (β) = -0.31 % / °C // -0.116 V / °C
of P_{max} (γ) = -0.43% / °C // 0.969 W / °C

Electrical features at different irradiance



Design

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

Dimensions

Lenght	(mm)	1661
Width	(mm)	996
Profile Thickness	(mm)	34
Weight	(kg)	17.5

Holes

Ground Hole	1 hole with identification label
Drain Holes	2 drain holes on each side

Made in Italy

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