AMERESCO ◊ **SOLAR**
Green • Clean • Sustainable

90W Photovoltaic modules
90J

This line of modules is the direct result of over three decades of design, manufacturing and use. Attending to every detail in the design and manufacture of our products, our process controls and testing methods have optimized module life and electrical energy production.

Ameresco Solar's off-grid module line offers the following features and benefits:

► Built to last
From mountaintops to off-shore platforms, on weather stations in the bitter cold of Antarctica and on telephone signal repeaters in the hot Australian outback, the technology has been proven in the harshest environments.

► Accessible junction box for off-grid connections
J-type junction box has accessible terminals for easier module interconnections in off-grid applications, and it allows fitting cable glands for various cross-sections.

► Thick, durable scratch resistant back sheet
The thick back sheet provides extra insulation and increased resistance to protect your module against rough handling. The white polyester material lasts longer and increases energy production.

► High reliability
Cell interconnections and diode placement use well-established industry practice and are field-proven to provide excellent reliability.

ISO 9001

► Quality and certifications
ISO 9001 factory certification ensures that our manufacturing facilities use proven manufacturing and quality control processes.

Certified to IEC 61215 and 61730

Certified to UL1703 and ULC1703
Certified for use in Class 1, Division 2 Hazardous locations

Conforms with European Directive 2006/95/EC

Photographs are intended to portray typical module appearance, actual module appearance may vary.

Electrical characteristics

	[1] STC 1000W/m²	[2] NOCT 800W/m²
Maximum power (P_{max})	90W	65W
Voltage at P_{max} (V_{mpp})	17.9V	15.9V
Current at P_{max} (I_{mpp})	5.03A	4.0A
Short circuit current (I_{sc})	5.21A	4.2A
Open circuit voltage (V_{oc})	22.1V	20.1V
Module efficiency	13.1% / 13.9%	
Tolerance (P_{max})	+10% / -5%	
Nominal voltage	12V	
Efficiency reduction at 200W/m²	<5% reduction (efficiency 13.2%)	
Limiting reverse current	5.58A	
Temperature coefficient of I_{sc}	0.105%/°C	
Temperature coefficient of V_{oc}	-0.360%/°C	
Temperature coefficient of (P_{max})	-0.45%/°C	
[3] NOCT	47±2°C	
Maximum series fuse rating	20A	
Application class (according to IEC 61730:2007)	Class C	
Maximum system voltage	600V (U.S. NEC) / 1000V (IEC 61730:2007)	

1: Values at Standard Test Conditions (STC): 1000W/m² irradiance, AM1.5 solar spectrum and 25°C module temperature
2: Values at 800W/m² irradiance, Nominal Operation Cell Temperature (NOCT) and AM1.5 solar spectrum
3: Nominal Operation Cell Temperature: Module operation temperature at 800W/m² irradiance, 20°C air temperature, 1m/s wind speed

Mechanical characteristics

Solar cells	36 crystalline silicon cells in series
Front cover	High transmission 3.2mm (1/8th in) glass
Encapsulant	EVA
Back cover	White polyester
Frame	Silver anodized aluminum
Diodes	Two Schottky bypass diodes included
Junction box	IP65 with 4 terminal screw connection block; accepts PG 13.5, M20 13mm (½") conduit, or cable fittings accepting 6-12mm diameter cable. Terminals accept 2.5-10mm² (8-14 AWG) wire
Dimensions	1209 x 537 x 50mm / 47.6 x 21.1 x 2in
Weight	7.7kg / 17lbs

All dimensional tolerances within ±1% unless otherwise stated.

Warranty*

► Free from defects in materials and workmanship for 2 years
► 90% min. power output over 12 years
► Optional 25 years available

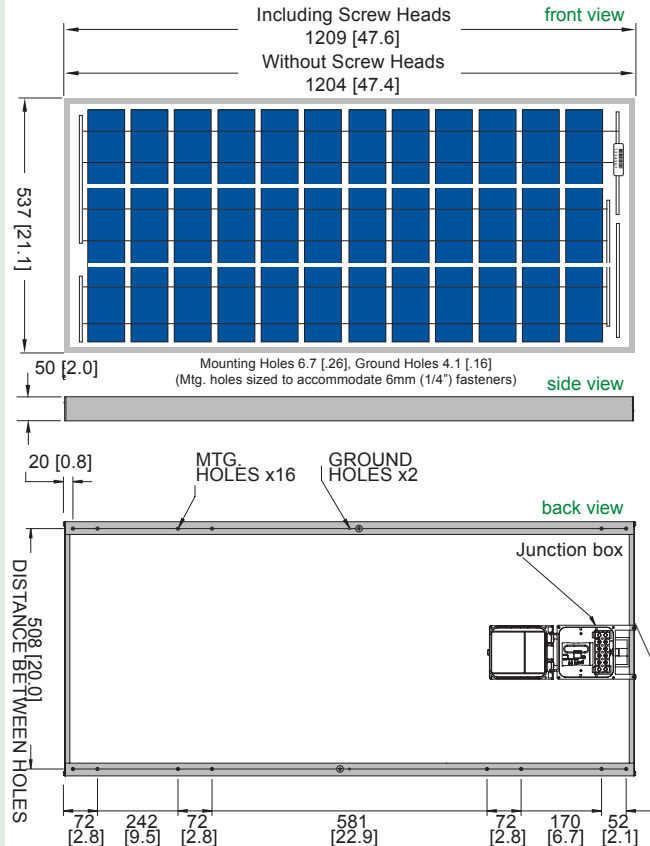* Refer to limited warranty certificate for terms and conditions.

Certification

Certified according to the extended version of the IEC 61215 (ed.2), EN 61215:2005-08 (Crystalline silicon terrestrial photovoltaic modules - Design qualification and type approval).
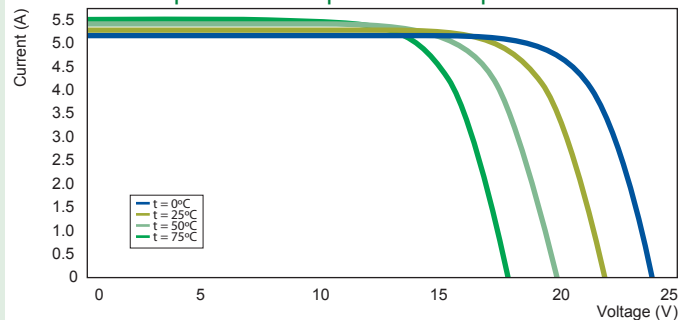
Certified according to IEC 61730-1 and IEC 61730-2 (ed.1), EN 61730-1:2007-05 and EN 61730-2:2007-05. (Photovoltaic module safety qualification, requirements for construction and testing).

Listed to UL 1703 & ULC ORD-C1703 Standard for Safety by Intertek ETL. Class C Fire Rating.
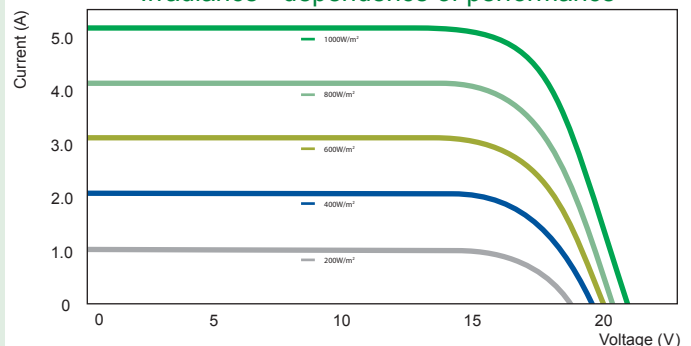
Approved by Intertek ETL according to FM 3611, Dec 2004, and according to CAN/CSA C22.2 No. 213-M1987, 1st Edition, Reaffirmed 2004, for use in a Class I, Division 2, Group A, B, C, D Hazardous (Classified) Location.

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Including Screw Heads 1209 [47.6]
Without Screw Heads 1204 [47.4]
537 [21.1]
50 [2.0]
front view
side view

Mounting Holes 6.7 [.26], Ground Holes 4.1 [.16]
(Mtg. holes sized to accommodate 6mm (1/4") fasteners)

20 [0.8]
MTG. HOLES x16
GROUND HOLES x2
back view
Junction box
508 [20.0] DISTANCE BETWEEN HOLES
Junction Box dimensions: 163.50 x 112.50 x 37.50 [6.4 x 4.4 x 1.5]

72 [2.8]   242 [9.5]   72 [2.8]   581 [22.9]   72 [2.8]   170 [6.7]   52 [2.1]

Temperature - dependence of performance

t = 0°C
t = 25°C
t = 50°C
t = 75°C

Current (A) / Voltage (V)

Irradiance - dependence of performance

1000W/m²
800W/m²
600W/m²
400W/m²
200W/m²

Current (A) / Voltage (V)

For more information, call 855-43-SOLAR or visit www.amerescosolar.com.