



AFR-85

80-Watt Polycrystalline
Photovoltaic Module

African Energy modules are made by some of the world's most sophisticated module manufacturers and are designed for Africa's off-grid solar charging and water pumping needs. The modules include efficient crystalline cells set in a solid aluminium frame and feature TÜV and IEC certification. With a 25 year warranty, these modules can provide power for several generations - and the quality is assured by African Energy's decade of experience in the solar industry.



ELECTRICAL CHARACTERISTICS

Maximum Power at STC* (Pmax) [Wp]	85
Voltage at Pmax (Vmp) [V]	17.3
Current at Pmax (Imp) [A]	4.93
Open Circuit Voltage (Voc) [V]	21.6
Short Circuit Current (Isc) [A]	5.28
Fuse Rating [A]	10
Maximum System Voltage	IEC: 1000 Vdc/UL: 600 Vdc
Power Tolerance	-5/ +10%

PHYSICAL CHARACTERISTICS

Solar Cells (mm)	Poly - 125 x 125
Number of Cells	36 (4 x 9)
Junction Box Protection Class	Ip65
Connector	MC4 Compatible
Cables (Length [mm] / Section [mm ²])	600/4
Dimensions [mm], [in]	1200 x 553 x 36 47.3 x 21.8 x 14
Weight [kg]/[lbs]	7.5/16.5

THERMAL CHARACTERISTICS

NOCT**	47 +/-2 °C
Temperature Coefficient of Pmax	-0.47% /°C
Temperature Coefficient of Voc	-0.351 %/°C
Temperature Coefficient of Isc	+0.035 %/°C
Operating Temperature	-40 to +85 °C

STC*: Irradiance of 1000W/m², AM1.5 Spectrum and Cell Temperature of 25 °C. NOCT**: Irradiance of 800W/m², ambient temperature 20 °C and wind speed 1 m/s





AFR-130

130-Watt Polycrystalline
Photovoltaic Module

African Energy modules are made by some of the world's most sophisticated module manufacturers and are designed for Africa's off-grid solar charging and water pumping needs. The modules include efficient crystalline cells set in a solid aluminium frame and feature TÜV and IEC certification. With a 25 year warranty, these modules can provide power for several generations - and the quality is assured by African Energy's decade of experience in the solar industry.



ELECTRICAL CHARACTERISTICS

Maximum Power at STC (Pmax) [Wp]	130
Voltage at Pmax (Vmp) [V]	17.2
Current at Pmax (Imp) [A]	7.56
Open Circuit Voltage (Voc) [V]	21.6
Short Circuit Current (Isc) [A]	8.21
Fuse Rating [A]	12
Maximum System Voltage	IEC: 1000 Vdc/UL: 600 Vdc
Power Tolerance	-5/ +10%

PHYSICAL CHARACTERISTICS

Solar Cells (mm)	Poly - 156 x 156
Number of Cells	36 (4 x 9)
Junction Box Protection Class	Ip65
Connector	MC4 Compatible
Cables (Length [mm] / Section [mm ²])	600/4
Dimensions [mm], [in]	1480 x 672 x 36 58.3 x 26.5 x 14
Weight [kg]/[lbs]	10.7/23.6

THERMAL CHARACTERISTICS

NOCT**	47 +/-2 °C
Temperature Coefficient of Pmax	-0.47% /°C
Temperature Coefficient of Voc	-0.351 %/°C
Temperature Coefficient of Isc	+0.035 %/°C
Operating Temperature	-40 to +85 °C

STC*: Irradiance of 1000W/m², AM1.5 Spectrum and Cell Temperature of 25 °C. NOCT**: Irradiance of 800W/m², ambient temperature 20 °C and wind speed 1 m/s





AFR-180

180-Watt Polycrystalline
Photovoltaic Module

African Energy modules are made by some of the world's most sophisticated module manufacturers and are designed for Africa's off-grid solar charging and water pumping needs. The modules include efficient crystalline cells set in a solid aluminium frame and feature TÜV and IEC certification. With a 25 year warranty, these modules can provide power for several generations - and the quality is assured by African Energy's decade of experience in the solar industry.

ELECTRICAL CHARACTERISTICS at STC*

Nominal Output (Pmax) [Wp]		180
Voltage at Pmax (Vmp) [V]		36.2
Current at Pmax (Imp) [A]		4.98
Open Circuit Voltage (Voc) [V]		44.9
Short Circuit Current (Isc) [A]		5.46
Power Tolerance +/- 3% (referenced to the Nominal Output)		
Maximum System Voltage		IEC: 1000 Vdc/UL: 600 Vdc
Cell Efficiency		17.28
Module Efficiency		14.10

ELECTRICAL PERFORMANCE AT NOCT

Nominal Output (Pmax) [w]		130
Voltage at Pmax (Vmp) [v]		32.8
Current at Pmax (Imp) [A]		3.96
Open Circuit Voltage (Voc) [V]		41.3
Short Circuit Current (Isc) [A]		4.42

TEMPERATURE CHARACTERISTICS

NOCT**		45 +/-2 °C
Temperature Coefficient of Pmax		-0.47% /°C
Temperature Coefficient of Voc		-0.34 %/°C
Temperature Coefficient of Isc		+0.06 %/°C
Maximum Series Fuse Rating		20 A
Operating Temperature		from -40 to +85 °C
Storage Temperature		from -40 to +60 °C



MECHANICAL CHARACTERISTICS

Solar Cells	72 (6x12) polycrystalline silicon solar cells 125x125mm
Front Cover	3.2 mm thick, tempered glass / AR coating glass
Back Cover	TPT (Tedlar-PET-Tedlar)/BBF
Encapsulant	EVA (ethylene vinyl acetate)
Frame	Double-layer anodized aluminum alloy
Diodes	6 bypass diodes serviceable
Junction Box	IP65 Rated
Connectors	MC4 or compatible connectors
Cables	Length: 950 mm / Section: 4.0 mm ²
Dimensions	1580 x 808 x 40mm / 62.4x 31.8 x 1.6 in
Weight	15.6 kg / 34.4 lbs
Max. Load	Wind Load: 2400 Pa / Snow Load: 5400 Pa

STC*: Irradiance of 1000W/m², AM1.5 Spectrum and Cell Temperature of 25 °C. NOCT**: Irradiance of 800W/m², ambient temperature 20 °C and wind speed 1 m/s

