



SPECIFICATION DATA

GRANT 190WP MONOCRYSTALLINE SOLAR MODULE

Features

- ✓ High efficiency mono crystalline cells
- ✓ High conversion efficiency based on innovative technologies
- ✓ Selected EVA, TPT, and other raw materials to ensure long durability
- ✓ 3.2 mm high transmission glass
- ✓ Withstands wind-pressure and snow loads up to 5400Pa (IEC61215)



QUALITY AND WARRANTY

Quality Management Systems **ISO 9001:2000**

Environmental Management System **ISO 14001:2008**

TÜV 61215, TÜV 61730, conformity to **CE, IEC**

UL (under application)

MCS (Certificate No: MCS BBA 0010)

Product Warranty: 5 years

Performance Warranty: Up to 25 years (10 years for power output $\geq 90\%$, 25 years for output $\geq 80\%$)

ELECTRICAL CHARACTERISTICS

| | |
|------------------------------------|---------|
| Power Rating [W] | 190 |
| Tolerance of Power Rating [%] | ± 3 |
| Maximum Power Voltage [V] | 26.5 |
| Maximum Power Current [A] | 7.17 |
| Open-Circuit Voltage [V] | 32.8 |
| Short-Circuit Current I_{sc} [A] | 7.93 |
| Maximum System Voltage [VDC] | 1000 |
| Cell Efficiency η [%] | 14.7 |
| Panel Efficiency η [%] | 12.9 |
| Maximum Series Fuse Rating [A] | 20 |

MECHANICAL CHARACTERISTICS

| | |
|-----------------|---|
| Cell Connection | 54 x mono-crystalline silicon (6x9) |
| Solar cell | 156mmx156mm |
| Dimensions | 1480x992x50 mm |
| Weight | 17.5kg (2 pieces/carton) |
| Frame | Anodised aluminum alloy |
| Junction box | IP65 rated |
| Cable | $\Phi=4\text{mm}^2$ L=900mm TUV certified |

TEMPERATURE COEFFICIENTS

| | |
|---|-----------------------|
| Peak Power Temperature Coefficient ($\%/^{\circ}\text{C}$) | $-(0.47\pm 0.05)$ |
| Short-Circuit Current Temperature Coefficient ($\%/^{\circ}\text{C}$) | (0.045 ± 0.01) |
| Open-Circuit Voltage Temperature Coefficient ($\%/^{\circ}\text{C}$) | -0.34 |
| NOCT-Nominal Operating Cell Temperature ($^{\circ}\text{C}$) | 45 \pm 2 |
| Standard Test Condition: Air Mass 1.5, Irradiation | 1000 W/m ² |
| Cell Temperature | 25 $^{\circ}\text{C}$ |

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