

### Endurance™ 230 thru 260 • 60-cell Solar Panels

#### Features



- Superior module efficiency based on international benchmarks
- Positive power tolerance 0 / +5W
- PID free modules with long term reliability
- Glass with anti reflective coating
- Improves light transmission
- Salt mist, Ammonia, blowing sand and hail resistant
- Sustain heavy wind & snow loads
- IP67 rated MC4 compatible connectors
- Excellent performance in low light



25

Years  
Output  
Warranty

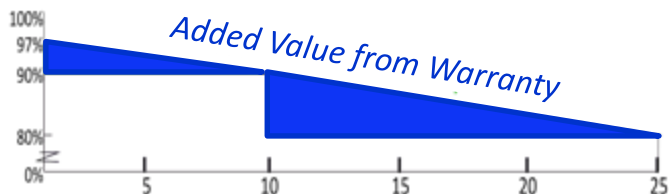
- 10 years Limited Product Warranty  
25 years Limited Power Output Warranty:
- Minimum 90% at end of 10 years
  - Minimum 80% at the end of 25 years



More Than

**250MW**

Module Manufacturing Capacity



Over 20 in house tests

- DH: Damp heat test
- TC: Thermal cycling test
- HF: Humidity freeze test

#### CERTIFICATIONS



ISO 9001:2008 | ISO 14001:2004 | OHSAS 18001:2007

Waaree Energy Ltd is India's top solar PV module manufacturer headquartered in Mumbai. Black & Veatch performed an independent assessment and found Waaree solar panels are bankable by US and International standards. The company vision is to provide high quality and cost-effective solar across global markets -paving the way for a more sustainable energy future, thereby improving quality of human life.

### Electrical Characteristics

Model	NS-230	NS-235	NS-240	NS-245	NS-250	NS-255	NS-260
Nominal Maximum Power, Pm (W)*	230	235	240	245	250	255	260
Power Tolerance	0/+5 W						
Open Circuit Voltage, Voc (V)*	36.8	36.9	37	37.1	37.2	37.3	37.4
Short Circuit Current, Isc (A)*	8.33	8.49	8.65	8.81	8.96	9.12	9.27
Voltage at Maximum Power, Vmp (V)*	30.4	30.5	30.6	30.7	30.8	30.9	31
Current at Maximum Power, Im0 (A)*	7.57	7.71	7.85	7.99	8.12	8.2	8.39
Maximum Voltage (V)	1000 (IEC)						
Module Efficiency (%)*	14.17	14.47	14.78	15.09	15.4	15.71	16.01
Maximum Series Fuse Rating (A)	15						
Limiting Reverse Current (A)	15						
*Under Standard Test Conditions (STC) of 1000 W/m <sup>2</sup> , AM 1.5 spectrum and 25°C temperature							

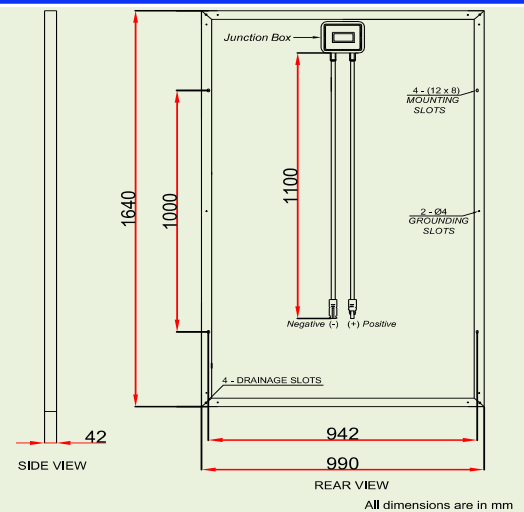
### Mechanical Characteristics

Length x Width x Thickness (L x W x T) - mm	1640 x 990 x 42
Mounting Holes Pitch (Y) - mm	1000
Mounting Holes Pitch (X) - mm	942
Weight (kg)	18.5
Solar Cells per Module (Units)/Arrangement	60 / (10 x 6)
Solar Cell Type / Length x Width (mm)	Multi crystalline Silicon / 156 x 156 (6" x 6")
Front Cover (Material/Thickness)	Tempered & Low Iron Glass / 3.2 mm
Encapsulant	Ethylene Vinyl Acetate (EVA)
Frame Material	Anodized Aluminum Alloy
Junction Box (Protection degree / Type)	IP65 rated / Waterproof PPO enclosure with bypass diodes
No. of bypass diodes	3 or 6
Connector (Protection degree / Type)	IP67 rated / MC4 compatible
Cable (Length / Cross Sectional area)	1100 mm / 4 mm <sup>2</sup>
Packaging	24 + 24 + 5 (2 pallets + 1 box)
Mechanical load	7500 Pa
Fire safety class	C
Safety application class	A
Safety class	II

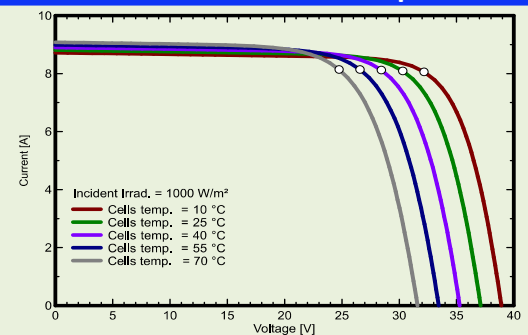
### Thermal Characteristics

Temperature coefficient of Current (Isc), a (%/°C)	0.0681
Temperature coefficient of Current (Voc), b (%/°C)	-0.2941
Temperature coefficient of Current (Pm), n (%/°C)	-0.3845
NOCT (°C)	46±2
Operating temperature range (°C)	-40 to 85

### Design Specifications



### I-V Curve Variation with Temperature



### I-V Curve Variation with Irradiance

