

165W Photovoltaic module

BP 4165J

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BP Solar has been manufacturing solar wafers, cells and modules for more than 35 years. This experience shows that the best way to optimize module life and electrical energy production is to attend to every detail in the design and manufacture of our products, our process controls and testing methods. BP Solar's latest generation of 72 cell, Monocrystalline J Series solar modules offers the following benefits:



Long lasting, innovative frame design

The aluminum frame has a rounded profile for better handling comfort and is optimized for use with anti-theft bolts to increase security. It can withstand heavy snow loads (5400Pa - 540kg/m²) even in end mounting.



Increased energy production

High transmission ARC glass and enhanced design push the laminate to the front, maximizing the energy production and reducing dirt accumulation and soiling losses.



Accessible junction box for off grid connections

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



Improved reliability and lead free interconnections

IntegraBus™ technology and lead free soldering ensures high quality interconnections while being environmentally responsible. Diodes are laminated in a printed circuit board for cooler operation and greater reliability.

Enhanced warranty offer

BP Solar launches an industry leading warranty offer, with lower degradation rates on our modules manufactured beginning January 1st, 2010. Our internal testing standards that go well beyond international requirements back this innovative offer.

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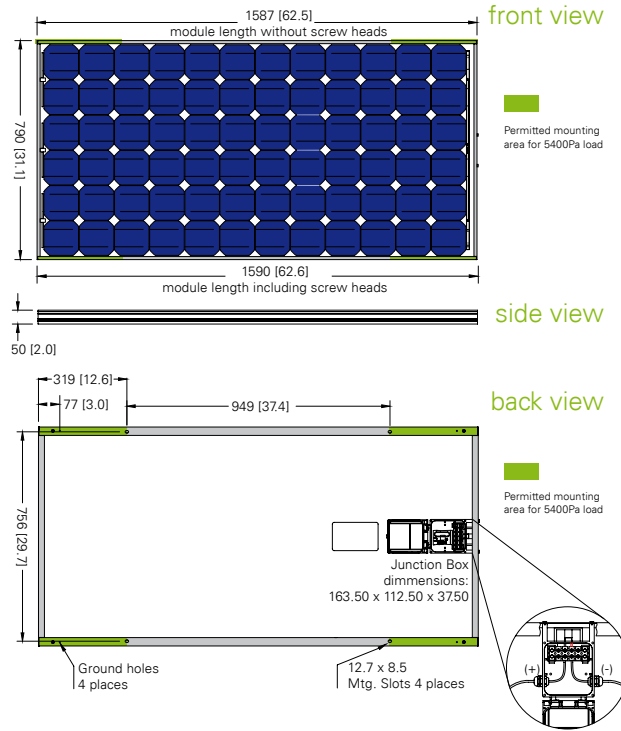


Electrical characteristics

	⁽¹⁾ STC 1000W/m ²	⁽²⁾ NOCT 800W/m ²
Maximum power (P _{max})	165W	118.8W
Voltage at P _{max} (V _{mpp})	34.8V	31.0V
Current at P _{max} (I _{mp})	4.74A	3.79A
Short circuit current (I _{sc})	5.30A	4.29A
Open circuit voltage (V _{oc})	43.6V	39.7V
Module efficiency	13.2%	
Tolerance	±5%	
Nominal voltage	24V	
Efficiency reduction at 200W/m ²	<5% reduction (efficiency 12.5%)	
Limiting reverse current	5.30A	
Temperature coefficient of I _{sc}	(0.065±0.015)%/°C	
Temperature coefficient of V _{oc}	-(0.36±0.05)%/°C	
Temperature coefficient of P _{max}	-(0.5±0.05)%/°C	
⁽³⁾ NOCT	47±2°C	
Maximum series fuse rating	20A	
Application class (according to IEC 61730:2007)	Class A	
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

All solar modules are individually tested prior to shipment; an allowance is made within our factory measurement to account for the typical power degradation (LID effect) which occurs during the first few days of deployment.



Dimensions in mm [in].

Mechanical characteristics

Solar cells	72 monocrystalline 5" silicon cells (125x125mm) in series
Front cover	High transmission 3.2mm glass
Encapsulant	EVA
Back cover	White polyester
Frame	Silver anodized aluminum (Universal II)
Diodes	IntegraBus™ with 3 Schottky diodes
Junction box	IP65 with 4 terminal screw connection block; accepts PG 13.5, M20 13mm conduit, or cable fittings accepting 6-12mm diameter cable. Terminals accept 2.5-10mm ² (8-14 AWG) wire
Dimensions	1587x790x50mm
Weight	15.4kg

All dimensional tolerances within ±0.1% unless otherwise stated.

Warranty

- Free from defects in materials and workmanship for 5 years
- 93% power output over 12 years
- 85% power output over 25 years

Certification

Certified according to the extended version of the IEC 61215:2005 (Crystalline silicon terrestrial photovoltaic modules - Design qualification and type approval)

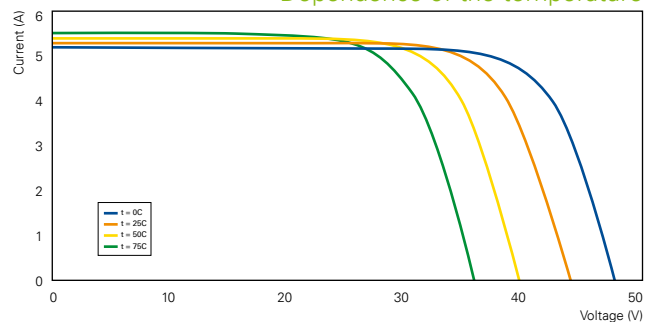
Certified according to IEC 61730-1 and IEC 61730-2. (Photovoltaic module safety qualification, requirements for construction and testing)

Approved by Factory Mutual Research in NEC Class 1, Division 2, Groups C and D hazardous locations

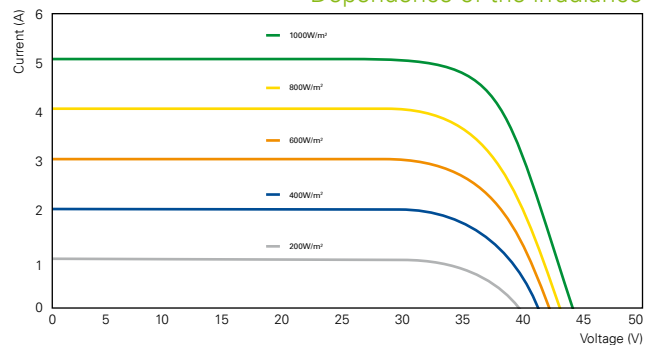
Manufactured in ISO 9001 and ISO 14001 certified factories

Module electrical measurements are calibrated to World radiometric reference via third party international laboratories

Dependence of the temperature



Dependence of the irradiance



Contact:

Your BP Solar partner