220 Watt Photovoltaic Module

BP 3220

The BP 3220 is an advanced polycrystalline 220W solar module that incorporates antireflective coated cells and glass to generate more energy (more kWh per kWp) in your installation.
This module has undergone the most rigorous testing to ensure reliable long term performance and is certified to comply with the latest safety standards (IEC61730 & UL1703).
Six bypass diodes mounted on our IntegraBus™ circuit board and laminated in the module provide effective protection of the solar cells from overheating when shaded and ensure long term reliability.
All interconnections are made using lead free soldering making these modules even friendlier with the environment.

BP 3220 scale 1:14

Performance BP3220

Rated Power	220W
Tolerance	±3%
Module efficiency	13.2%
Nominal voltage	24V
Warranty*	90% power output over 12 years 80% power output over 25 years Free from defects in materials and workmanship for 5 years.

*Refer to BP Solar's Warranty document for terms and conditions.

Configuration

BP 3220N	Clear Universal frame, Wirehold IP67 potted junction box with pre-installed output cables fitted with polarized connectors (Multi-Contact III connectors).

Qualification Test Parameters

Temperature cycling range	-40°C to +85°C for 200 cycles
Damp heat test	85°C and 85% relative humidity for 1000h
Front & rear load test (eg: wind)	2400Pa (equivalent to 245kg/m^2 load distributed)
Front load test (eg: snow and wind)	5400Pa* (equivalent to 550kg/m^2 load distributed)
Hailstone impact test	25mm hail at 23m/s from 1m distance
Impulse voltage test	8000V waveform impulse according to high voltage test techniques IEC 60060-1 standard.
Reverse current overload test	135% of the overcurrent protection rating for two hours

*When mounted in accordance with BP Solar's installation instructions

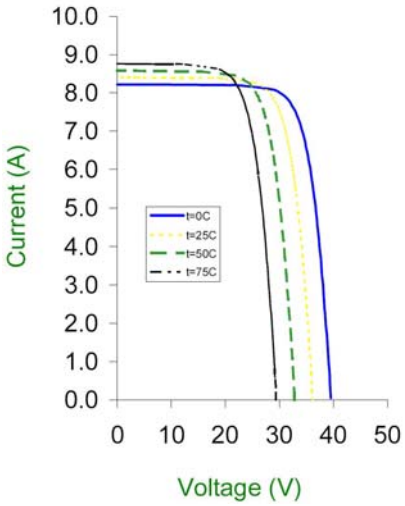
Quality and Safety

- 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.
- Listed by Underwriter's Laboratories for electrical and fire safety (Class C fire rating).
- Module electrical measurements are calibrated to World radiometric reference via third party international laboratories.
- Manufactured in ISO 9001 certified factories.

Efficiency (%)

9-11	11 -12	12-13	13-14	14-15

BP 3220N I-V Curve



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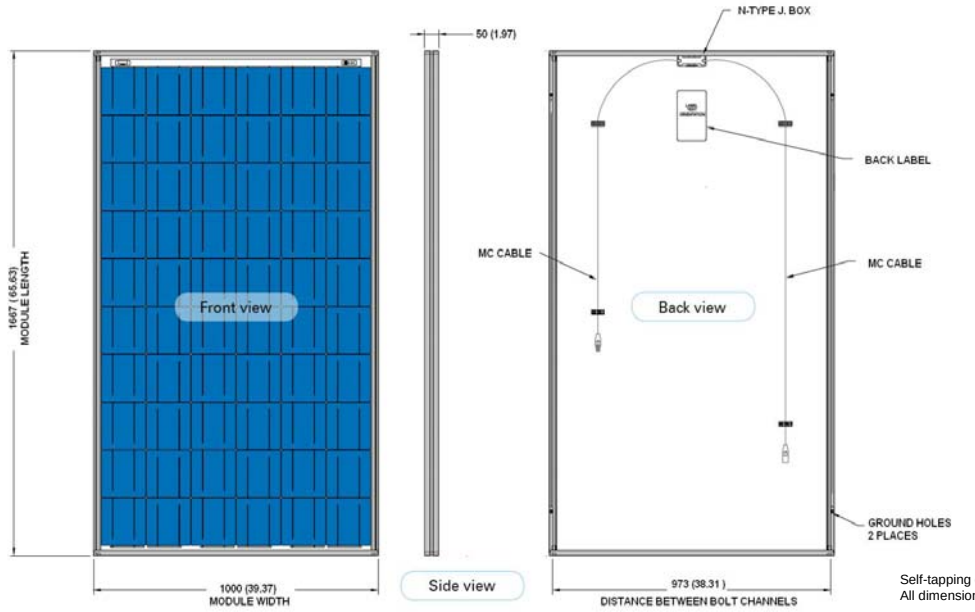
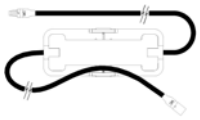
Module Diagram





N TYPE JUNCTION BOX
(with wire-hold feature)

JUNCTION BOX DETAIL

Self-tapping grounding screw, included with each module.
All dimensions in millimetres, figures in brackets in inches.

Electrical Characteristics

	1000W/m² (STC[1])	**800W/m² (NOCT[2])**
Maximum Power (P_{max})	220W	158.4W
Voltage at MPP (V_{mpp})	29.0V	25.8V
Current at MPP (I_{mpp})	7.6A	6.1A
Short circuit current (I_{sc})	8.4A	6.8A
Open circuit voltage (V_{oc})	36.2V	32.9V

Efficiency at 1000W/m²	13.2%
Efficiency reduction at 200W/m²	< 5% reduction (efficiency 12.5%)
Limiting reverse current	8.4A
Temperature coefficient of I_{sc}	(0.065±0.015)%/K
Temperature coefficient of V_{oc}	-(0.36±0.05)%/K
Temperature coefficient of P	-(0.5±0.05)%/K
NOCT[3]	47± 2°C
Maximum series fuse rating	20A
Application class (According to IEC 61730:2007)	Class A Installation
Maximum system voltage (N-Type junction box)	1000V (IEC 61730) 600V (UL)

[1]STC: Standard test conditions - irradiance of 1000W/m² at an AM1.5G solar spectrum and a temperature of 25°C
[2] 800W/m², NOCT, AM 1.5G solar spectrum
[3]NOCT: Nominal Operation Cell Temperature Sun 800W/m²; Air 20°C; wind speed 1m/s

Mechanical Characteristics

Solar cells	60 polycrystalline cells (156mm x 156mm) connected in series
Front Cover	High transmission 3.2mm tempered anti reflective coated glass
Encapsulant	EVA
Back Cover	White polyester
Frame	Silver anodised aluminium.
Diodes	IntegraBus™ technology includes 6 Schottky bypass diodes - one for every 10 cells - on a printed circuit board
Junction Box Dimensions	N-Type: 39.60 x 100.60 x 13.20 (mm) / 1.56 x 3.96 x 0.52 (inch) Certified to meet UL1703 flammability test
Output Cables (N-Type)	3.3mm² cable with weatherproof MC III connectors. Asymmetrical cable lengths 1250mm/49.21inch (-) and 800mm/31.50inch (+)
Dimensions	1667±3 x 1000±3 x 50 (mm) 65.63±0.12 x 39.37±0.12 x 1.97 (inch)
Weight	19.4kg / 42.77pounds

All dimensional tolerances within ±1% unless otherwise stated

Contact:

www.bpsolar.com

This data sheet complies with the requirements of EN 50380
This publication summarises product warranty and specifications which are subject to change without notice
All solar modules are individually tested prior to shipment; an allowance is made within our factory measureme to account for the typical power degradation (LID effect) which occurs during the first few days of deployment.