

# 210, 220 and 230W Photovoltaic modules of Poly 3 Series BP 3210N, BP 3220N, BP 3230N

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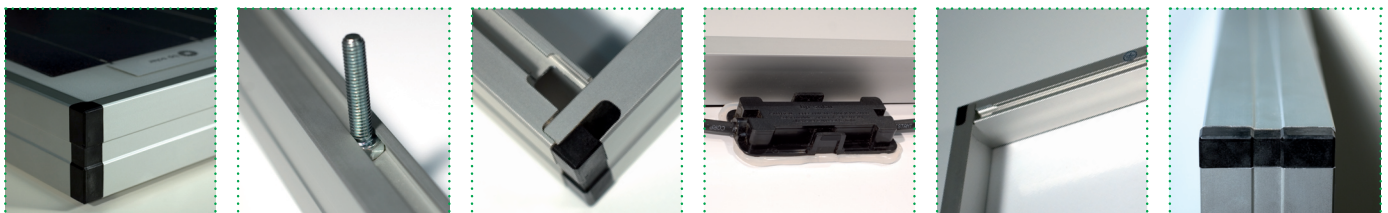


The BP 3210N, BP 3220N and BP 3230N are high performance polycrystalline modules with output powers of 210W, 220W and 230W respectively. With 60 high current cells and anti-reflective glass they generate excellent energy yields for your grid connected system. The BP Solar power classification includes an allowance for the initial energy loss caused by the LID effect so you can have greater confidence in the expected energy yields. This product incorporates our latest technological innovations such as: The Endura frame, developed in conjunction with Porsche Engineering, that exceeds the extended IEC 61215 load test (5400Pa) even in end mount conditions. The shock absorbing corners and the polyester back sheet protect your module against rough handling and the best in class weight per Watt ratio (g/W) makes it easier to handle. All these features make the installation safer whilst reducing installation time and saving costs.

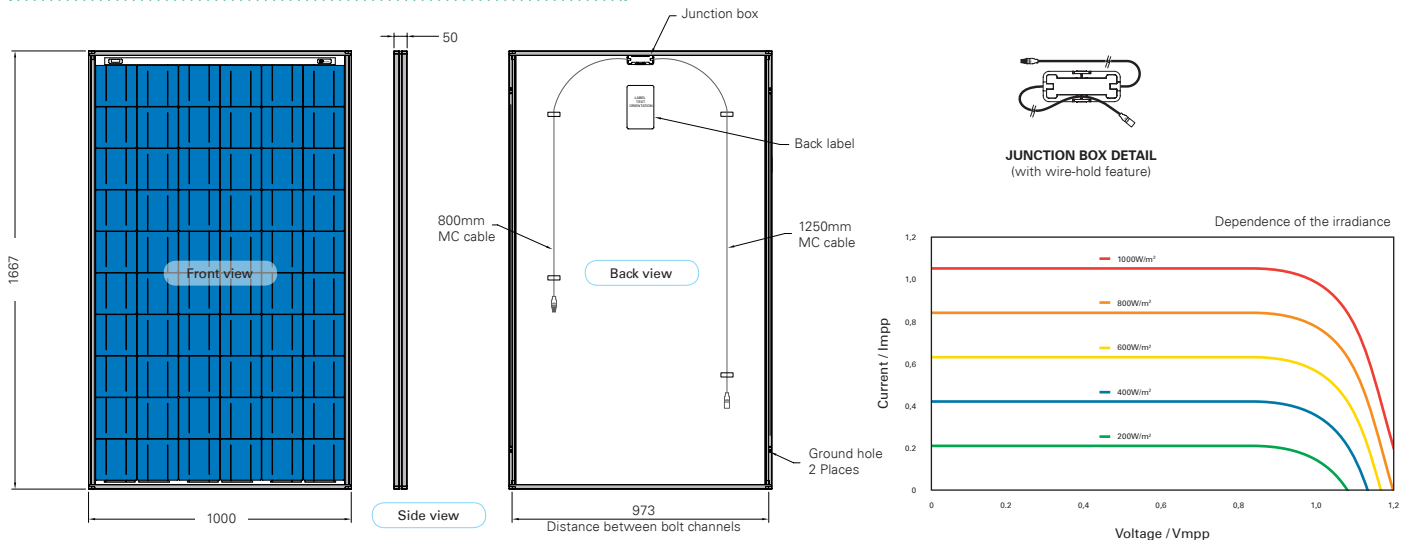
## Generation Endura

- High strength tubular frame with robust corners developed in conjunction with Porsche Engineering.
- Fast and flexible mounting from both the front (clamps, end channels) & back (M8 bolt using the special groove) - whilst still supporting a 5400Pa load.
- Square drainage holes for better drainage of condensed water and robust, protective (hand friendly) corner pieces.
- Potted junction box with redundant electrical connections, safe plug and sockets.
- Thick, durable scratch resistant back sheet.
- Round profiles for highest stability and better handling.
- IntegraBus™ with embedded Schottky bypass diodes for improved heat management.

Scale 1:12



### Module diagram



### Electrical characteristics

	BP 3210N	BP 3220N	BP 3230N
Tolerance		±3%	
Module efficiency	12.6%	13.2%	13.8%
Efficiency reduction @ 200W/m <sup>2</sup>	< 5% reduction		
	12%	12.5%	13.1%
Values @ 1000W/m <sup>2</sup> (STC*)			
Maximum Power (P <sub>max</sub> )	210W	220W	230W
Voltage at P <sub>max</sub> (V <sub>mpp</sub> )	28.9V	29.0V	29.2V
Current at P <sub>max</sub> (I <sub>mpp</sub> )	7.3A	7.6A	7.9A
Short circuit current (I <sub>sc</sub> )	8.2A	8.4A	8.7A
Open circuit voltage (V <sub>oc</sub> )	36.1V	36.2V	36.4V
Values @ 800W/m <sup>2</sup> (NOCT**)			
Maximum Power (P <sub>max</sub> )	151.2W	158.4W	165.6W
Voltage at P <sub>max</sub> (V <sub>mpp</sub> )	25.7V	25.8V	26.0V
Current at P <sub>max</sub> (I <sub>mpp</sub> )	5.8A	6.1A	6.3A
Short circuit current (I <sub>sc</sub> )	6.6A	6.8A	7.0A
Open circuit voltage (V <sub>oc</sub> )	32.9V	32.9V	33.1V
Limiting reverse current	8.2A	8.4A	8.7A
Temperature coefficient of I <sub>sc</sub>	(0.065±0.015)%/K		
Temperature coefficient of V <sub>oc</sub>	-(0.36±0.05)%/K		
Temperature coefficient of P <sub>max</sub>	-(0.5±0.05)%/K		
NOCT**	47±2°C		
Maximum series fuse rating	20A		
Application class (according to IEC 61730:2007)	Class A (1000V)		

\*STC: Standard test conditions - irradiance of 1000W/m<sup>2</sup> at an AM1.5G solar spectrum and a temperature of 25°C.  
 \*\*NOCT: Nominal Operation Cell Temperature: Sun 800W/m<sup>2</sup>; Air 20°C; wind speed 1m/s.

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.

This data sheet complies with the requirements of EN 50380.  
 This publication summarises product warranty and specifications which are subject to change without notice.

### Mechanical characteristics

Solar Cells	60 polycrystalline silicon cells (156mm x 156mm) in series
Front cover	High transmission 3.2mm ARC glass
Encapsulant	EVA
Back cover	White polyester
Frame	Silver anodised aluminium
Diodes	Integrabus™ with 6 Schottky diodes
Junction Box	Potted (IP 67); certified to meet UL1703 flammability test Dimensions (mm) 39.60 x 100.60 x 13.20
Output cables	3.3mm <sup>2</sup> cable with weatherproof Multi-Contact III connectors Asymmetrical cable lengths 1250mm (-) and 800mm (+)
Dimensions (mm)	1667±3 x 1000±3 x 50
Weight (kg)	19.4

### Warranty

- Free from defects in materials and workmanship for 5 years
- 90% power output over 12 years
- 80% 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)
- Listed by Underwriters Laboratories for electrical and fire safety (Class C fire rating)
- Module electrical measurements are calibrated to World radiometric reference via thirdparty international laboratories
- Manufactured in ISO 9001 certified factories

### Contact:

Your BP Solar distributor