

# Powerful performance – high stability.

## Bosch Solar Module c-Si P 60

**High-quality – high-performance – reliable.**  
Solar modules from Bosch Solar Energy.



**BOSCH**



**NEW: positive power sorting starting July 1<sup>st</sup> 2010**

**Our crystalline solar modules offer impressive features including:**

- ▶ Excellent quality assured through use of the best European-standard components
- ▶ Excellent processing and long-term stability right along the value-added chain
- ▶ Higher specific yields due to positive power sorting
- ▶ Professional customer service with unbureaucratic order and complaint processing carried out by designated contact persons
- ▶ Simple, safe installation thanks to standardized clamp mechanisms

**Warranty conditions:**

- ▶ 10 years product warranty
- ▶ 25-year performance guarantee (90% up to 10 years, 80% up to 25 years)
- ▶ Product certification to IEC 61215 (ed. 2)
- ▶ Protection class II / IEC 61730
- ▶ CE conformity

Manufacturer	Length [x]	Width [y]	Height [z]	Weight	Junction box	Plug connector type	Cable [l]	Front glass surface
11	1659.5	988.0	40.0	22	Tyco	Tyco Solarlok	2 x 1000	Structured

x, y, z, l in mm, ±2 mm; weight in kg ±0.5

**Notes on assembly:**

- ▶ See installation and operating manual at [www.bosch-solarenergy.de/en/products/crystallinepvmmodules](http://www.bosch-solarenergy.de/en/products/crystallinepvmmodules)
- ▶ Horizontal and vertical assembly possible
- ▶ System voltage max. 1 000 V

Crystalline solar module	
Performance classes	205 Wp, 210 Wp, 215 Wp, 220 Wp, 225 Wp
Performance sorting	±2.5 Wp (-0/+4.99 Wp NEW starting July 1 <sup>st</sup> 2010)
Structure	<b>Glass-foil laminate</b> ▶ Anodized aluminum frame ▶ Junction box (IP 65) with 3 bypass diodes ▶ Weather-resistant back sheet (white)
Cells	60x polycrystalline solar cells in 156 mm x 156 mm format

**Weak light performance:**

Intensity [W/m <sup>2</sup> ]	V <sub>mpp</sub> [%]	I <sub>mpp</sub> [%]
800	0.0	-20
600	-0.9	-40
400	-2.1	-60
200	-5.1	-80
100	-8.7	-90

The electrical data applies for 25 °C and AM 1.5.

**Electrical characteristics for STC\*:**

Designation	P <sub>mpp</sub> [Wp]	V <sub>mpp</sub> [V]	I <sub>mpp</sub> [A]	V <sub>oc</sub> [V]	I <sub>sc</sub> [A]	Reverse-current load capacity [A]
P225	225	29,10	7,80	36,70	8,40	16
P220	220	28,90	7,60	36,50	8,30	16
P215	215	28,70	7,50	36,30	8,20	16
P210	210	28,50	7,40	36,10	8,00	16
P205	205	28,40	7,30	36,00	7,80	16

Reduction in module efficiency with decrease in irradiation level from 1000 W/m<sup>2</sup> to 200 W/m<sup>2</sup> (at 25 °C): -0.59% (absolute); measuring tolerance P ±3%:

**Thermal characteristics:**

Operating temperature range	-40 to 85 °C
Temperature coefficient P <sub>mpp</sub>	-0.43%/K
Temperature coefficient V <sub>oc</sub>	-0.35%/K
Temperature coefficient I <sub>sc</sub>	0.03%/K

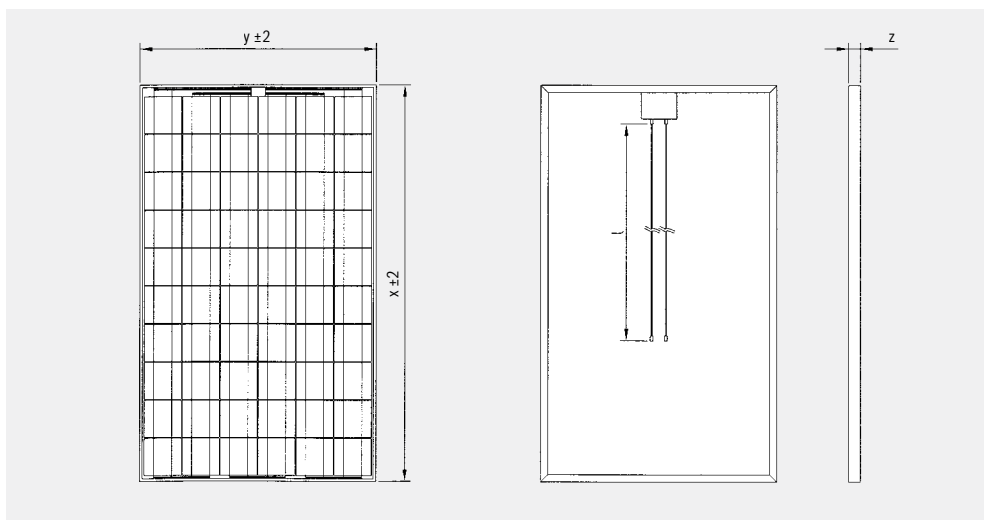
**Electrical characteristics for NOCT\*:**

Designation	P <sub>mpp</sub> [W]	V <sub>mpp</sub> [V]	V <sub>oc</sub> [V]	I <sub>sc</sub> [A]
P225	162	26,90	34,44	6,53
P220	158	26,53	34,32	6,36
P215	155	26,42	34,12	6,27
P210	151	26,42	34,03	6,20
P205	148	26,29	33,79	6,12

NOCT: Normal Operation Cell Temperature 46 °C: Irradiation level 800 W/m<sup>2</sup>, AM 1.5, temperature 20 °C, wind speed 1 m/s, electrical open circuit operation

\* Electrical parameters are typical mean values from historical production data. Bosch Solar Energy AG assumes no liability for the accuracy of this data for future production batches.

**Dimensions\*\*:**



\*\* Drawings are not to scale. For detailed dimensions and tolerances, above.

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