

Powerful performance – high stability.

Bosch Solar Module c-Si P 48

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



BOSCH



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
- ▶ 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:

- ▶ 2-year 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	Cable [l]
12	1334.0	994.0	41.0	16	Spelsberg PV 1410	MC3	2 x 1000
x, y, z, l in mm, ±2 mm; weight in kg ±0.5							

Crystalline solar module	
Performance classes	145 Wp, 150 Wp, 155 Wp, 160 Wp, 165 Wp, 170 Wp, 175 Wp, 180 Wp
Performance sorting	±2.5 Wp
Structure	Glass-foil laminate ▶ Anodized aluminum frame ▶ Junction box (IP 65) with 3 bypass diodes ▶ Weather-resistant back sheet (white)
Cells	48x monocrystalline solar cells in 156 mm x 156 mm format

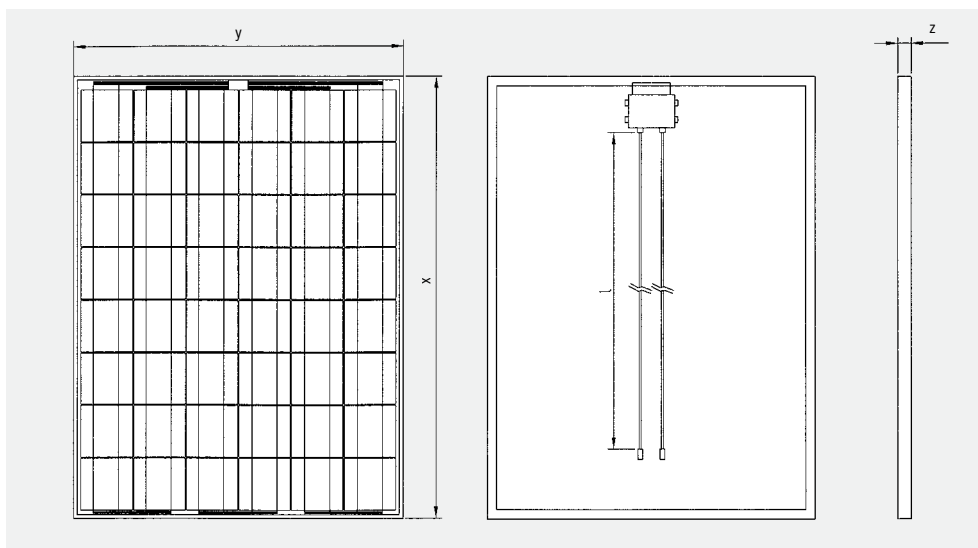
Electrical characteristics for STC*:

Designation	P _{mpp} [W _p]	V _{mpp} [V]	I _{mp} [A]	V _{oc} [V]	I _{sc} [A]	Reverse-current load capacity I _r [A]
P180	180	24.00	7.50	29.80	8.00	16
P175	175	23.90	7.35	29.60	7.95	16
P170	170	23.80	7.15	29.45	7.90	16
P165	165	23.70	7.00	29.30	7.85	16
P160	160	23.60	6.85	29.20	7.80	16
P155	155	23.50	6.60	29.15	7.70	16
P150	150	23.40	6.45	29.10	7.65	16
P145	145	23.30	6.30	28.95	7.60	16
Reduction in module efficiency with decrease in irradiation level from 1000 W/m ² to 200 W/m ² (at 25 °C): -0.57 % (absolute); measuring tolerance P ±3 %						

Electrical characteristics for NOCT*:

Designation	P _{mpp} [W]	V _{mpp} [V]	V _{oc} [V]	I _{sc} [A]
P180	130	21.76	27.59	6.44
P175	126	21.67	27.40	6.40
P170	122	21.58	27.26	6.36
P165	119	21.49	27.12	6.32
P160	115	21.40	27.03	6.28
P155	112	21.31	26.99	6.20
P150	108	21.22	26.94	6.16
P145	104	21.13	26.80	6.12
NOCT: Normal Operation Cell Temperature 46 °C; Irradiation level 800 W/m ² , AM 1.5, temperature 20 °C, wind speed 1 m/s, electrical open circuit operation				

Dimensions:**



Notes on assembly:

- ▶ See installation and operating manual at www.bosch-solarenergy.de/en/products/crystallinepvmodules
- ▶ Horizontal and vertical assembly possible
- ▶ System voltage max. 1000 V

Weak light performance:

Intensity [W/m ²]	V _{mpp} [%]	I _{mp} [%]
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.		

Thermal characteristics:

Operating temperature range	-40 to 85 °C
Temperature coefficient P _{mpp}	-0.43%/K
Temperature coefficient V _{oc}	-0.35%/K
Temperature coefficient I _{sc}	0.03%/K

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

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

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