

Powerful performance – high stability.

Bosch Solar Module c-Si M 48

EU40123

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
- ▶ Higher specific yields due to positive power sorting

Our certificates – quality stamped in writing

Bosch Solar Energy modules go through strict quality tests during the different stages of production according to international standards.



• Qualified, IEC 61215
• Safety tested, IEC 61730
• Salt corrosion resistance tested
• Ammonia resistance tested
• Periodic inspection



Quality

Salt corrosion resistance tested
Ammonia resistance tested



Product features

Performance sorting $-0/+4.99$ Wp
Temperature coefficient P_{mpp} -0.44% K



Value chain

Crystal – Wafer – Cell – Module



Components

Structured frontglass, MC4,
Bosch Solar Cell M 3BB



Warranty

10 years product and
25 years performance guarantee
(90% up to 10 years, 80% up to 25 years)



Power classes

185 – 200 Wp

Length [x]	Width [y]	Frame height [z]	Weight	Junction box	Plug connector type	Cable [l]
1342.0	990.0	50.0	16	Spelsberg	MC4	-800 +1200
x, y, l in mm, ±2; z in mm, ±0.3; weight in kg ±0.5						

Crystalline solar module	
Performance classes	185 Wp, 190 Wp, 195 Wp, 200 Wp
Performance sorting	-0/+4.99 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
Mechanical load	5400 Pa superimposed load, 2400 Pa suction load, in accordance with IEC 61215 (extended test)

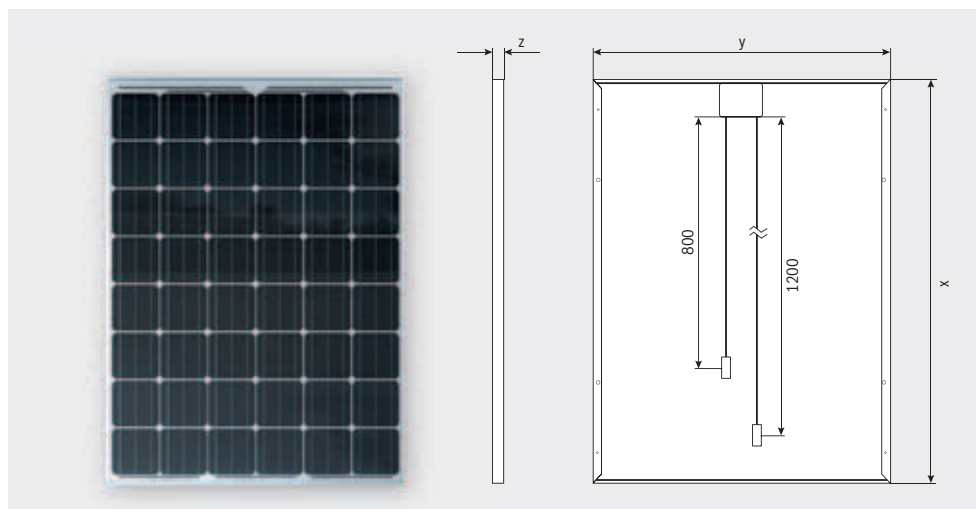
Electrical characteristics for STC¹:

Designation	P _{mpp} [Wp]	V _{mpp} [V]	I _{mp} [A]	V _{oc} [V]	I _{sc} [A]	Reverse-current load capacity I _r [A]
200	200	23.96	8.41	30.25	8.97	25
195	195	23.80	8.30	30.17	8.87	25
190	190	23.49	8.08	30.01	8.68	25
185	185	23.34	7.97	29.93	8.58	25
Reduction in module efficiency with decrease in irradiation level from 1000 W/m ² to 200 W/m ² (at 25 °C): -0.16 % (absolute); measuring tolerance P _{mpp} ±3 %						

Electrical characteristics for NOCT¹:

Designation	P _{mpp} [W]	V _{mpp} [V]	V _{oc} [V]	I _{sc} [A]
200	145	21.61	27.79	7.23
195	142	21.49	27.72	7.15
190	138	21.21	27.57	6.99
185	134	21.07	27.50	6.91
NOCT: Normal Operation Cell Temperature 48.4 °C; Irradiation level 800 W/m ² , AM 1.5, temperature 20 °C, wind speed 1 m/s, electrical open circuit operation				

Dimensions²:



¹ Electrical parameters are typical mean values from historical production data. No guarantee is made for the accuracy of this data for future production batches.

² Drawings are not to scale. For detailed dimensions and tolerances, see above.

Notes on assembly:

- ▶ See installation and operating manual at: www.bosch-solarenergy.com/products
- ▶ Horizontal and vertical assembly possible
- ▶ System voltage max. 1000 V
- ▶ Operating temperature range -40 to 85 °C

Weak light performance:

Intensity [W/m ²]	V _{mpp} [%]	I _{mp} [%]
800	0.0	-20
600	0.0	-40
400	0.0	-60
200	-1.6	-80
100	-4.8	-90

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

Thermal characteristics:

Temperature coefficient	TK [%/K]
P _{mpp}	-0.44
U _{oc}	-0.31
I _{sc}	0.031

Bosch Solar Energy AG

Robert-Bosch-Str. 1
99310 Arnstadt
Germany
Phone: +49 361 2195-0
Fax: +49 361 2195-1133
sales.se@de.bosch.com
www.bosch-solarenergy.com