



MODULE SERIES PW 230 - 245 - SB - 60C SHADOWBLACK

MODULE TYPES

PW 230 SB, PW 235 SB, PW 240 SB, PW 245 SB



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*The electrical parameters are typical values from historical production data. Measuring tolerance $\pm 3\%$.
Technical changes in the course of product development, mistakes and errors reserved. Data sheet PW230 - 245S 60c Shadow Black V02-13*

PRODUCT FEATURES

POLYWATT Modules SHADOW BLACK with 60 cells offer 4 performance classes designed for roof - or ground mounting. The modules are best suitable for small, medium and large scale solar systems for on- or off-grid operations. For All who like it BLACK: With black powdered frame and black backsheet. SWISSWATT technology, design and construction guarantee the highly efficient and reliable long term output of each and every module. Our automatic production and our latest flash tower technology guarantee a documented performance above industry standard.

- + 72 monokristalline solarcells
- + Industry leading power tolerance 0 - + 3 %
- + Unique frame design for insolation and weather exposure
- + Automatic clean-room production for sustainable returns
- + Frame mounting concept for long- and short side mounting
- + High transmission low iron tempered glass
- + Enhanced strength and impact resistance
- + Advanced EVA component encapsulation, multilayer backsheet technology

WARRANTIES & ASSURANCES

Industry leading guaranty on material and manufacturing: 10 years

Output assurance: up to 12 years: 90 %, up to 25 years: 80%

Please refer to our warranty conditions

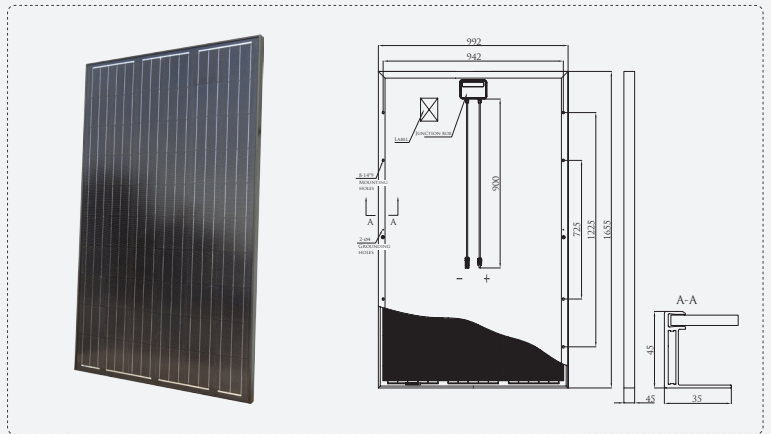
QUALIFICATIONS & CERTIFICATES

Ongoing quality control and performance testing executed by independent testing laboratories grant the maximal benefit of your environmentally friendly energy production.

IEC 61215.2 / IEC 61730 / safety class II



TECHNICAL DATA MODULE SERIES PW 230 - 245 - SB - 60C



MECHANICAL DATA & MEASURES

Cable type, Diameter, Length	4mm ² , TÜV certified, 900 mm
Connector type	RADOX® SOLAR or Typ IV compatible
Dimension (mm)	1655 x 992 x 45
Weight	22,5
Drainage Holes in Frame	10
Glass, Type, Thickness	High Transmission, Low Iron, 3,2 mm Tempered Glass
Junction box	IP 65 Typ IV or IP67 RADOX® SOLAR
Bypass-Diodes	3

ABSOLUTE RATINGS

Dielectric Insulation Voltage (V)	3000 V
Operating Temperature (°C)	-40 ~ +85
Storage Temperature (°C)	-40 ~ +85
Mechanical Load	5400 Pa up to 10000 Pa extrem

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Max-System Voltage (VDC)	600V(UL) / 1000V(IEC)
Number, type and arrangement of cells	60, Poly-Crystalline Silicon (6 x 10)
Cell Size (mm)	156 x 156
Max. Series fuse (A)	15
Module variants	POLYWATT (230-250W), Indus, extrem

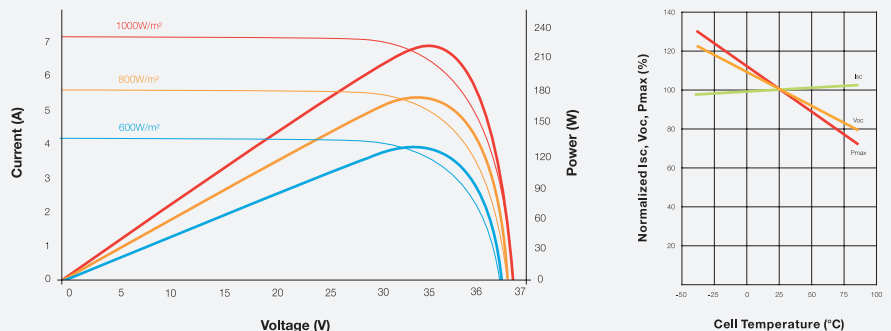
ELECTRICAL DATA AT STC / NOCT (47 ± 2°C)

Module type	PW230SB	PW235SB	PW240SB	PW245SB
Rated output P _{MPP} (W)	230 Wp	235 Wp	240 Wp	245 Wp
Max-Power Voltage V _m (V)	30,2 / 27,54 V	30,3 / 27,63 V	30,5 / 27,81 V	30,7 / 27,99 V
Max-Power Current I _{MPP} (A)	7,62 / 6,32 A	7,76 / 6,44 A	7,87 / 6,54 A	7,98 / 6,63 A
Open circuit Voltage V _{OC} (V)	36,9 / 33,52 V	37,4 / 33,98 V	37,7 / 34,25 V	38,0 / 34,52 V
Short circuit voltage I _{SC} (A)	8,31 / 7,12 A	8,42 / 7,21 A	8,42 / 7,21 A	8,48 / 7,27 A
Cell Efficiency (%)	15,75%	16,10%	16,30%	17,00%
Module efficiency %	14,00%	14,30%	14,60%	14,90%

CURRENT-VOLTAGE CURVE (I-V-CURVE)

I-V Curve

The current in relation to the voltage, illustrates the cell performance at different irradiances and temperatures. (AM1.5; 25°C)



THERMAL CHARACTERISTICS

Pm Temperature Coefficient (%/K)	-0,4418
Isc Temperature Coefficient (%/K)	0,0877
Voc Temperature Coefficient (%/K)	-0,3522