



MODULE SERIES MW 190 - 210 - 72C

MODULE TYPES

MW190, MW195, MW200, MW205, MW210



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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 MW190 - 210 72c V02-13*

PRODUCT FEATURES

MONOWATT Modules with 72 cells offer 5 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. 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.

- + 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

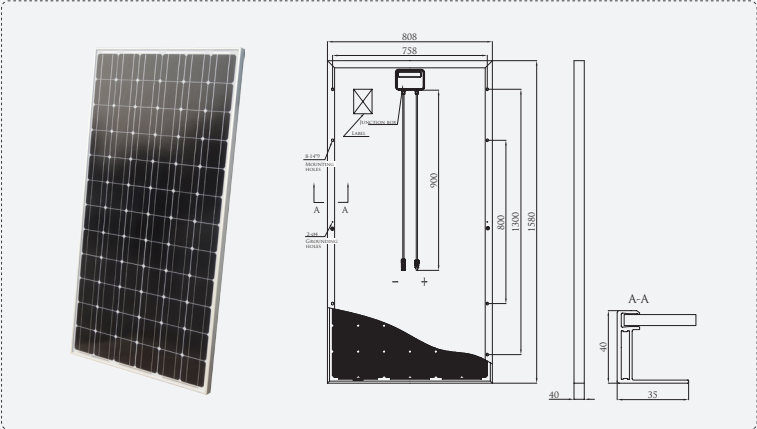
QUALIFICATIONS & CERTIFICATES

Ongoing quality controll 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 MW 190 - 210 - 72C



MECHANICAL DATA & MEASURES

Cable type, Diameter, Length	4mm ² , TÜV certified, 900 mm
Connector type	RADOX® SOLAR or Typ IV compatible
Dimension (mm)	1580 x 808 x 40 (45 extrem)
Weight	15,5
Drainage Holes in Frame	12
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	72, Mono-Crystalline Silicon (6 x 12)
Cell Size (mm)	125 x 125
Max. Series fuse (A)	15
Module variants	Indus, extrem , Shadow Black (190-205W)

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

Module type	MW190	MW195	MW200	MW205	MW210
Rated output P _{MPP} (W)	190 Wp	195 Wp	200 Wp	205 Wp	210 Wp
Max-Power Voltage V _m (V)	36,4 / 32,7 V	36,93 / 33,15 V	37,3 / 33,5 V	37,66 / 33,5 V	38,14 / 33,68 V
Max-Power Current I _{MPP} (A)	5,29 / 4,4 A	5,35 / 4,45 A	5,43 / 4,52 A	5,51 / 4,63 A	5,57 / 4,72 A
Open circuit Voltage V _{OC} (V)	45,2 / 41,28 V	45,3 / 41,37 V	45,7 / 41,73 V	46,1 / 42,1 V	46,6 / 42,55 V
Short circuit voltage I _{SC} (A)	5,6 / 4,77 A	5,65 / 4,81 A	5,72 / 4,87 A	5,79 / 4,93 A	5,86 / 4,99 A
Cell Efficiency (%)	17,00%	18,23%	18,70%	18,90%	19,4%
Module efficiency %	14,88%	15,27%	15,66%	16,10%	16,45%

CURRENT-VOLTAGE CURVE (I-V-CURVE)

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

THERMAL CHARACTERISTICS

Pm Temperature Coefficient (%/K)	-0,4454
Isc Temperature Coefficient (%/K)	0,0499
Voc Temperature Coefficient (%/K)	-0,3336

