



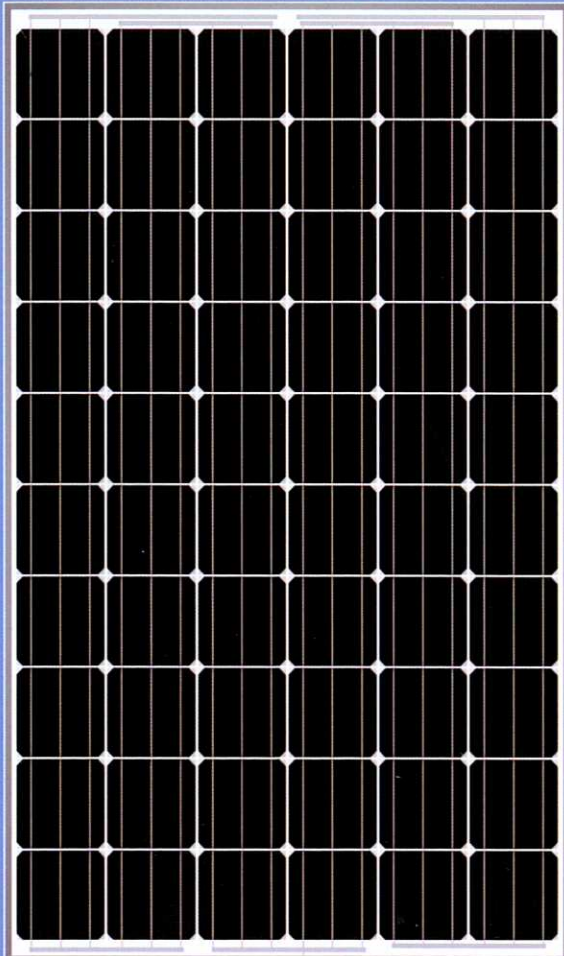
SOLARWATT

Solar Technology That Convinces.

SOLARWATT Glass-Foil Solar Modules

The SOLARWATT M220-60 GET AK Solar Modules developed for power grid connected photovoltaic systems integrate the well-known properties of all SOLARWATT modules such as a high quality, large energy yields and very low power tolerance with an efficient installation and an outstanding cost effectiveness.

SOLARWATT M220-60 GET AK

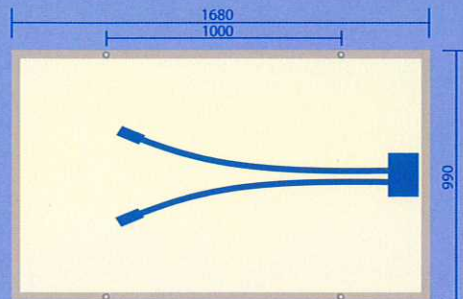


By using high-efficient monocrystalline solar cells of an efficiency up to 16%-17% a high power density will be obtained on roofs.

The modules are equipped with Tyco plug connectors that are touch-safe and protected against inverse polarity.



monocrystalline solar cell
with 16 - 17% efficiency
156 x 156 mm



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Certified acc. to:
DIN EN ISO 9001 and 14001

SOLARWATT Solar modules M220-60 GET AK are noted for:

- Efficient, low-loss energy production
- Certified materials and quality of workmanship
- Module frames with extremely high level of stability and solid connectivity
- 25 years warranty to power output according to SOLARWATT's Limited Warranty Conditions

Subject to change without notice. 2007/06

Specification	M220-60 GET AK						
Nominal Power P_{max} @ STC*	210 W _p	215 W _p	220 W _p	225 W _p	230 W _p	235 W _p	240 W _p
typ. Nominal Voltage U_{mpp} @ STC*	28,2 V	28,4 V	28,6 V	28,8 V	29,1 V	29,3 V	29,5 V
typ. Nominal Current I_{mpp} @ STC*	7,45 A	7,58 A	7,71 A	7,82 A	7,92 A	8,03 A	8,15 A
typ. Open Circuit Voltage U_{oc} @ STC*	35,7 V	35,9 V	36,0 V	36,1 V	36,3 V	36,5 V	36,7 V
typ. Short Circuit Current I_{sc} @ STC*	7,99 A	8,12 A	8,25 A	8,32 A	8,48 A	8,62 A	8,76 A
Off-load voltage rating	35,7 V	35,9 V	36,0 V	36,1 V	36,3 V	36,5 V	36,7 V
NOCT **	45 °C						
typ. Nominal Power P_{max} @ NOCT**	151 W _p	154 W _p	158 W _p	162 W _p	165 W _p	169 W _p	172 W _p
typ. Nominal Voltage U_{mpp} @ NOCT**	24,8 V	25,0 V	25,2 V	25,4 V	25,7 V	25,9 V	26,1 V
typ. Open Circuit Voltage U_{oc} @ NOCT**	32,3 V	32,5 A	32,6 A	32,7 A	32,9 A	33,1 A	33,3 A
typ. Short Circuit Current I_{sc} @ NOCT**	6,43 A	6,53 A	6,64 A	6,70 A	6,82 A	6,94 A	7,05 A
Module efficiency reduction at 200 W/m ² ***	-0,6 %	-0,6 %	-0,6 %	-0,7 %	-0,7 %	-0,7 %	-0,7 %
typ. Temperature Coefficient of P_N	-0,50 %/K						
typ. Temperature Coefficient of U_{oc}	-0,37 %/K						
typ. Temperature Coefficient of I_{sc}	+0,03 %/K						
Max. System Voltage	1000 V						
IP protection level	IP 65						
Reverse current power rating I_R ****	24 A						
Module Technology	Glass-Foil-Laminate with aluminium frame						
Module Design	Cover material: high transparent solar glass (tempered), 4 mm Encapsulation: EVA-Solar Cells -EVA Back material: Tedlar-Polyester-Tedlar, white						
No. and Type of Solar Cells	60 monocrystalline solar cells, 156 x 156 mm						
Cables	Junction box with Tyco Plug connector cables, 1 x 4 mm ² , length: each 1.2 m						
Bypass-Diodes	3 pcs.						
Dimensions (LxWxH)	1680 x 990 x 50 mm						
Weight	24 kg						
Operating Temperature Range	-40 ... +80 °C						
Ambiente Temperature Range	-40 ... +45 °C						
Mechanical ratings	suction pressure of 2400 Pa approved (Wind speed 130 km/h with safety factor 3), load of 5.400 Pa approved						
Qualifications	IEC 61215 Ed. 2, Safety Class II (IEC 61730 in preparation)						
Measuring tolerances	P_{max} @ STC ± 5%, all other electric parameters ± 10%						

This data sheet conforms to DIN EN 50380:2003

* STC: Standard Test Conditions, measurement conditions: Radiation strength 1000 W/m², spectral distribution AM 1.5, temperature 25±2 °C, in accordance with EN 60904-3

** NOCT: Normal Operation Cell Temperature, measurement conditions: Radiation strength 800 W/m², AM 1.5, temperature 20 °C, wind speed 1m/s, electrical open-circuit operation

*** Reduction in the module efficiency with reduction in radiation strength of 1000 W/m², to 200 W/m², temperature 25 °C, in accordance with EN 60904-1

**** Reverse current power rating: Operation of the modules with an external power source is only permitted with a string fuse with a release current of < 3 x I_{sc} @ NOCT**