

# SOLARWATT M220-60 GET LK black

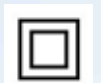
## GLASS-FOIL-SOLAR MODULE



SOLARWATT modules supply the highest yield through optimally matched materials and sorting in tight performance classes. Tested source material, the most careful processing and the strictest test procedures guarantee the longevity of the modules. SOLARWATT modules are exclusively manufactured in Germany.

The solar module SOLARWATT M220-60 GET LK black for grid-connected plants connects SOLARWATT's familiar high quality with efficient installation and an outstanding cost-performance ratio.

- » monocrystalline solar cells with an efficiency of up to 18%
- » insulated and against reverse polarity protected connectors
- » positive classification range (-0 Wp to + 5 Wp)
- » Max. system voltage 1000 V
- » cells and used materials are tested disengaged on the basis of test routines
- » quality test during all manufacturing steps
- » 5 years warranty acc. to Special Warranty Conditions



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### CERTIFIED ACC. TO:

DIN EN ISO 9001 und 14001

## [ NOMENCLATURE OF NAMES OF SOLARWATT MODULES ]

**M**

### TYPE OF CELLS

**A**=amorphous silicon  
**M**=monocrystalline silicon  
**P**=polycrystalline silicon

**220**

### BENCHMARK FOR MODULE PERFORMANCE

Nominal Power and performance class are specified in the data sheet

-

**60**

### NO. OF CELLS

**GET**

### LAYER KONSTRUKTION

**E**=EVA  
**G**=Glass  
**K**=Synthetics  
**T**=Tedlar-composite film

**L**

### FRAME

**A**=Aluminium  
**E**=Stainless Steel  
**L**=Laminate  
(without frame)

**K**

### CONNECTION

**B**=Ribbon  
**D**=Box  
**K**=Cable

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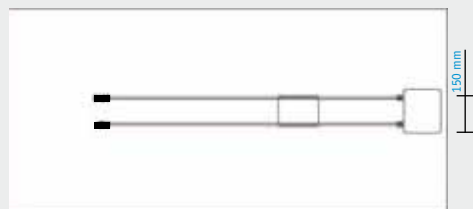
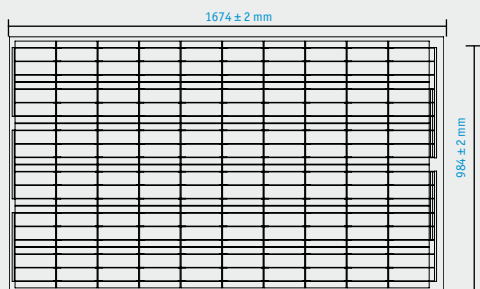
## TECHNICAL DATA

SOLARWATT APPOINTED DEALER:



Subject to change without notice.

### DIMENSIONS



### GENERAL DATA

<b>Module Technology</b>	Glass-Foil-Laminate
<b>Cover material</b>	High transparent solar glass (tempered), 4 mm
<b>Encapsulation</b>	EVA-Solar Cells-EVA
<b>Back material</b>	Tedlar-Polyester-Tedlar, black
<b>No. and Type of Cells</b>	60 monocrystalline solar cells
<b>Dimensions of Cells</b>	156 x 156 mm
<b>Cables</b>	Junction box with tyco plug connector cables 2 x 1,00 m/4 mm <sup>2</sup>
<b>Bypass-Diodes</b>	3 pcs.
<b>Application Class</b>	Class A at IEC 61730
<b>Dimensions (LxWxH)</b>	1674 x 984 x 5 mm
<b>Weight</b>	20 kg
<b>Max. System Voltage</b>	1000V
<b>IP Protection Level</b>	IP 65
<b>Mechanical Ratings</b>	Suction pressure of 2400 Pa approved (Wind speed 130 km/h with safety factor 3) Load of 2400 Pa approved
<b>Qualifications</b>	IEC 61215 Ed.2, IEC 61730 (incl. Safety Class II)

### ELECTRICAL DATA (STC)

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

Specification	SOLARWATT M220-60 GET LK black							
<b>Nominal Power P<sub>N</sub></b>	215 Wp	220 Wp	225 Wp	230 Wp	235 Wp	240 Wp	245 Wp	
<b>Nominal Voltage U<sub>mpp</sub></b>	28,4 V	28,6 V	28,8 V	29,1 V	29,3 V	29,5 V	29,8 V	
<b>Nominal Current I<sub>mpp</sub></b>	7,58 A	7,71 A	7,82 A	7,92 A	8,03 A	8,15 A	8,22 A	
<b>Open Circuit Voltage U<sub>OC</sub></b>	35,9 V	36,0 V	36,1 V	36,3 V	36,5 V	36,7 V	36,8 V	
<b>Short Circuit Current I<sub>SC</sub></b>	8,12 A	8,25 A	8,32 A	8,48 A	8,62 A	8,76 A	8,90 A	
<b>I<sub>R</sub>*</b>	20 A							

Measuring tolerances P<sub>max</sub> ±5%;\* 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 < 2 x I<sub>SC</sub> @ NOCT.Reduction in the module efficiency with reduction in radiation strength of 1000 W/m<sup>2</sup> to 200 W/m<sup>2</sup> (25°C): 4<sup>±2</sup>% (relative) / -0,6<sup>±0,3</sup>% (absolute).

### ELECTRICAL DATA (NOCT)

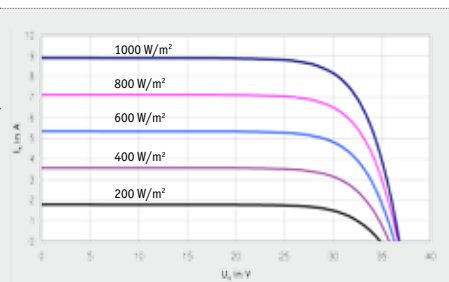
NOCT: Normal Operation Cell Temperature, measurement conditions: Radiation strength 800 W/m<sup>2</sup>, AM 1.5, temperature 20 °C, wind speed 1m/s, electrical open-circuit operation

Specification	SOLARWATT M220-60 GET LK black							
<b>Nominal Power P<sub>N</sub></b>	155 W	158 W	162 W	166 W	169 W	173 W	176 W	
<b>Nominal Voltage U<sub>mpp</sub></b>	25,7 V	25,9 V	26,1 V	26,4 V	26,6 V	26,8 V	27,1 V	
<b>Open Circuit Voltage U<sub>OC</sub></b>	33,2 V	33,3 V	33,4 V	33,6 V	33,8 V	34,0 V	34,1 V	
<b>Short Circuit Current I<sub>SC</sub></b>	6,53 A	6,64 A	6,70 A	6,82 A	6,94 A	7,05 A	7,16 A	

### CHARACT. LINE

Voltage charact. line with different irradiations

performance class 245 Wp



### THERMAL FEATURES

<b>Operating Temperature Range</b>	-40 ... +80 °C
<b>Ambiente Temperature Range</b>	-40 ... +45 °C
<b>Temperature Coefficient of P<sub>N</sub></b>	-0,50%/K
<b>Temperature Coefficient of U<sub>OC</sub></b>	-0,37%/K
<b>Temperature Coefficient of I<sub>SC</sub></b>	0,03%/K
<b>NOCT</b>	45 °C