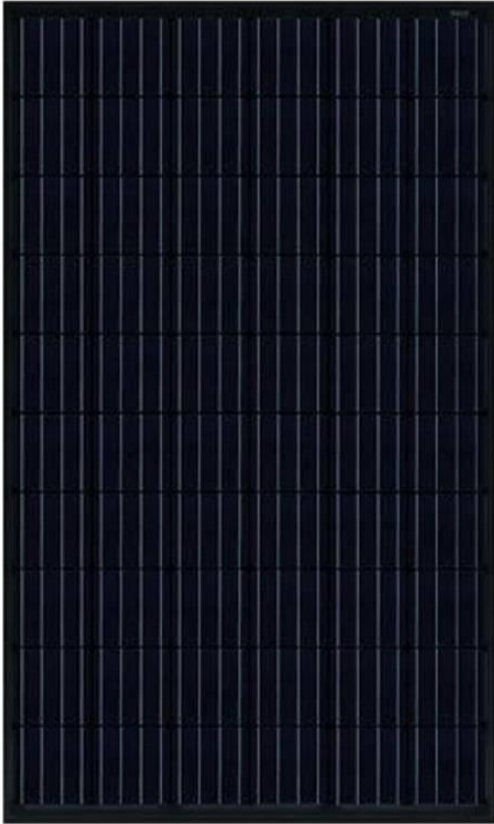




## M Series

### Monocrystalline Solar Module

#### MSMDxxxM3-60



#### ABOUT MÜNCHEN ENERGIEPRODUKTE

München Energieprodukte is one of the most innovation, reliability, quality and value focused companies in the entire sector, thanks to its focus on solar modules and technology ranging from roof systems to full-scale power plants. With markets in Germany, Japan, China, Australia and the Americas, München Energieprodukte is truly a global provider in the field of solar power.

Whether you're picking solar modules for your residential / commercial roof system or power plant, you know you can rely on the München Energieprodukte brand. Customers who choose München Energieprodukte know we will deliver maximum performance with the highest quality product at the best value.

#### PERFORMANCE

Tight positive power tolerance of  $-0\%/W$  to  $+5\%/W$  ensures you receive modules at or above nameplate power and contributes to minimizing module mismatch losses leading to improved system yield.

Monocrystalline silicon solar cells with low-iron tempered high transmission and textured glass deliver a module efficiency of up to 20.0%, maximizing the kWh output of your system per unit area.

#### QUALITY & RELIABILITY

Tested for harsh environments

(salt mist and ammonia corrosion testing: IEC 61701, DIN 50916:1985 T2)

Modules independently tested to ensure conformance with certification and regulatory standards.

#### WARRANTIES

12 year limited product warranty

25 year limited power output warranty

Please refer to our Warranty Terms and Conditions

12  
year  
product  
warranty

25  
year  
power output  
warranty



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# M Series

## Monocrystalline Solar Module MSMDxxxM3-60

### ELECTRICAL PERFORMANCE

Electrical parameters at Standard Test Conditions (STC)

Module Type	MSMDxxxM3-60 (xxx=P <sub>max</sub> )						
Power output	P <sub>max</sub>	W	315	320	325	330	335
Power output tolerances	ΔP <sub>max</sub>	%	0 / +3				
Module efficiency	η <sub>m</sub>	%	18.88	19.18	19.48	19.78	20.08
Voltage at P <sub>max</sub>	V <sub>mpp</sub>	V	33.2	33.4	33.6	33.8	34.0
Current at P <sub>max</sub>	I <sub>mp</sub>	A	9.49	9.59	9.68	9.77	9.87
Open circuit voltage	V <sub>OC</sub>	V	40.7	40.9	41.1	41.3	41.5
Short circuit current	I <sub>SC</sub>	A	10.04	10.15	10.20	10.31	10.36

STC: 1000W/m<sup>2</sup> irradiance, 25°C cell temperature, AM1.5g spectrum according to EN 60904-3.  
Average relative efficiency reduction of 5% at 200W/m<sup>2</sup> according to EN 60904-1.

### THERMAL CHARACTERISTICS

Nominal operating cell temperature	NOCT	°C	45 +/-2
Temperature coefficient of P <sub>max</sub>	γ	% / °C	0.445
Temperature coefficient of V <sub>OC</sub>	β <sub>VOC</sub>	% / °C	-0.334
Temperature coefficient of I <sub>SC</sub>	α <sub>I<sub>SC</sub></sub>	% / °C	+0.05

NOCT: open-circuit module operation temperature at 800W/m<sup>2</sup> irradiance, 20°C ambient temperature, 1m/s wind

### OPERATING CONDITIONS

Max. System Voltage	1000VDC
Max. series fuse rating	15A
Limiting reverse current	15A
Operating temperature range	-40°C to 85°C
Max. static load, front (e.g., snow and wind)	5400Pa
Max. static load, back (e.g., wind)	2400Pa
Max. hailstone impact (diameter/velocity)	25mm / 23m/s

### MECHANICAL CHARACTERISTICS

Front Cover (material / thickness)	low-iron tempered glass / 3.2mm
Cell (quantity)	60
Encapsulant (material)	EVA
Frame material	anodized aluminum alloy
Junction box (protection degree)	≥ IP67 with 3 bypass-diode
Cable (length / cross sectional area)	1000mm / 4mm <sup>2</sup>
Plug connector (type/protection degree)	MC4 / IP67
Fire Safety Classification (IEC 61730)	Class C

Specifications are subject to change without notice.



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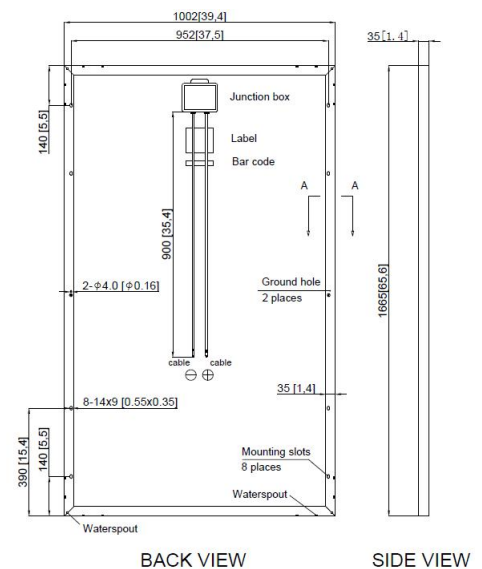


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Web: www.gllink.nl

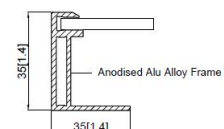
### GENERAL CHARACTERISTIC

Dimensions	1665mm / 1002mm / 35mm
Weight	19kg

Unit: MM



A—A  
7:1



unit: mm [inch]