



ÜSeries Polycrystalline Module

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.

•Polycrystalline 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.



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P Series

Polycrystalline Module MSP165AS-18

ELECTRICAL PERFORMANCE

Electrical parameters at Standard Test Conditions (STC)

Module Type	MSPxxxAS-18 (xxx=P _{max})					
Power output	P _{max}		150	155	160	165
Power output tolerances	ΔP _{max}	%	0/+5			
Module efficiency	η _m	%	15.12	15.63	16.13	16.63
Voltage at P _{max}	V _{mpp}	V	18.61	18.77	18.93	19.09
Current at P _{max}	I _{mpp}	A	8.06	8.26	8.45	8.64
Open circuit voltage	V _{oc}	V	22.19	22.38	22.57	22.76
Short circuit current	I _{sc}	A	8.62	8.84	9.04	9.25

STC: 1000W/m² irradiance, 25°C cell temperature, AM1.5g spectrum according to EN 60904-3. Average relative efficiency reduction of 5% at 200W/m² according to EN

THERMAL CHARACTERISTICS

Nominal operating cell temperature	NOCT	°C	45 +/-2
Temperature coefficient of P _{max}	γ	% / °C	-0.47
Temperature coefficient of V _{oc}	β _{Voc}	% / °C	-0.38
Temperature coefficient of I _{sc}	α _{Isc}	% / °C	+0.04

NOCT: open-circuit module operation temperature at 800W/m² irradiance, 20°C ambient temperature, 1m/s wind speed

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

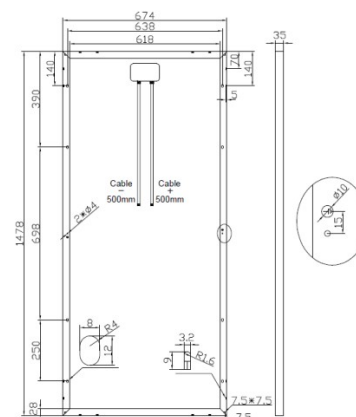
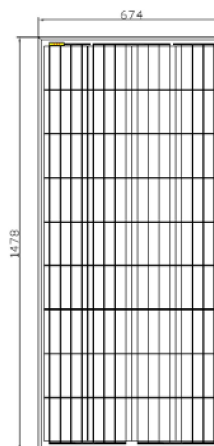
Front Cover (material / thickness)	low-iron tempered glass / 3.2mm
Cell (quantity / material / dimensions)	36/ polycrystalline silicon / 6" x 6"
Encapsulant (material)	EVA
Frame material	Anodized aluminum alloy
Junction box (protection degree)	≥ IP67 with bypass-diode
Cable (length / cross sectional area)	500mm / 4mm ²
Plug connector (type/protection degree)	MC4 / IP67
Fire Safety Classification (IEC 61730)	Class C

Specifications are subject to change without notice.

GENERAL CHARACTERISTIC

Dimensions	1478mm / 674mm / 35mm
Weight	11.6kg

Unit: MM



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