PowerMax®

High energy yield

The energy yield of PowerMax® in terms of kWh generated per installed kWp is one of the highest among all photovoltaic technologies.

Excellent efficiency

The CIS technology has the maximum efficiency of all thin-film technologies and maximizes the installed power generation capacity (kWp) per square meter.

Best quality

Our solar modules are manufactured in Germany by using the latest generation of fully integrated process equipment certified according to all relevant industry standards.

Sophisticated design

The uniform black appearance with it's pinstripe look is pure aesthetics. PowerMax® is one of the most elegant solar modules on the market.

For extreme loads and all weather conditions

The module is designed for high snow load zones and withstands loads of at least 551 kg/m^2. Due to their spectral sensitivity, PowerMax® modules generate electricity during sunrise and sunset, cloudy skies and fog.

Easy installation

The aesthetic fastening is done via hidden mounting clamps. The module size and the form factor minimize the installation costs.

Continuos performance even under shading situation

The special cell design and the integrated bypass diode ensure that the PV system still work's even if one of the modules is shaded.

High environmental sustainability

In addition to the ressource-saving production, all PowerMax® modules are free of lead and cadmium and do not need a separate recycling process.

SOLAR MODULES FOR ROOFTOP SYSTEMS AND SOLAR PARKS

ENGLISH

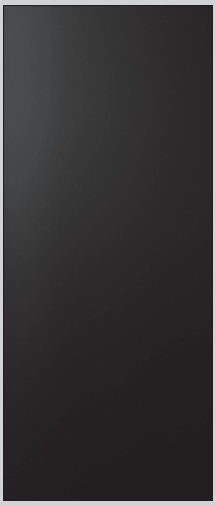
AVANCIS CNBM

PowerMax®

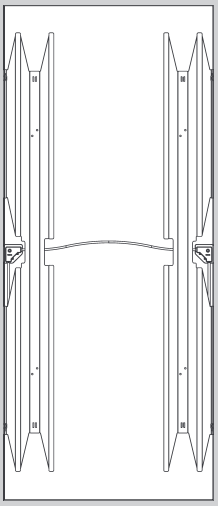
Valid for product variant 4.4

MECHANICAL SPECIFICATIONS

PowerMax®	Value
External dimensions	1,587 × 664 mm²
Thickness	38 mm
Weight	17 kg
Cell type	CIGS
Frame	none
Front cover	3.2 mm tempered glass
Design load (safety factor 1.5)	upward 1600 Pa | downward 3400 Pa
Junction box protection class	IP67
Dimensions of the junction boxes	60 × 60 × 11.5 mm³
Cable lengths (⊖ plug | ⊕ socket)	200 | 320 mm
Cable cross section	2.5 mm² minimal bending radius: 6x outer diameter
Connector type	H4
Fire Rating	Class C (ANSI/UL 790:2004)



664 mm



Rear side of module for in-joint mounting

IEC 61215
IEC 61730
Regular Production Surveillance
TÜVRheinland CERTIFIED
www.tuv.com
ID 1111218736

- Design qualification and type approval: IEC 61215:2016
- Safety qualification: IEC 61730:2016
- Safety standard: UL 61730 (Pending)
- Salt mist corrosion: IEC 61701 (Pending)

ELECTRICAL SPECIFICATIONS

Data measured under standard test conditions (STC):

PowerMax®	135	140	145	150
Nominal power P_{nom}*	135 W	140 W	145 W	150 W
Sorting	-0/+5 W			
Module efficiency η	12.8 %	13.3 %	13.8 %	14.2 %
Aperture efficiency η	14.2 %	14.7 %	15.2 %	15.7 %
Open-circuit voltage V_{OC}*	78.9 V	79.5 V	80.1 V	80.7 V
Short-circuit current I_{SC}*	2.57 A	2.58 A	2.59 A	2.59 A
Voltage at mpp V_{mpp}*	59.7 V	60.8 V	61.9 V	63.0 V
Current at mpp I_{mpp}*	2.26 A	2.30 A	2.34 A	2.38 A
Max. over-current protection I_R	4.0 A			
Max. system voltage V_{sys}	1000 V			

Insolation intensity 1000 W/m² in the plane of the module, module temperature 25 °C and a spectral distribution of the sunlight according to the atmospheric mass (AM) 1.5.

* Tolerance of manufacturing: -5 %/+10 %.

Data measured at nominal module operating temperature (NMOT)** and AM 1.5:

PowerMax®	135	140	145	150
NMOT	40 °C			
Nominal power P_{nom}	101 W	105 W	109 W	113 W
Open-circuit voltage V_{OC}	75 V	76 V	76 V	77 V
Short-circuit current I_{SC}	2.06 A	2.06 A	2.07 A	2.07 A
Voltage at mpp V_{mpp}	56 V	57 V	58 V	59 V

** NMOT: Module operating temperature at light intensity of 800W/m² on the module area, air temperature 20°C, wind speed 1m/s and operating at mpp.

Temperature coefficients:

PowerMax®	Value
Temperature coefficient P_{nom}	-0.39 %/°C
Temperature coefficient V_{OC}	-230 mV/°C
Temperature coefficient I_{SC}	0 mA/°C

Data measured at low light intensity:

The relative reduction of the module efficiency at a light intensity of 200 W/m² is 6%, compared to 1000 W/m² at 25° C module temperature and spectrum AM 1.5. At 500 W/m², the relative increase of module efficiency is +1%.

Standard packaging:

Packaging information	
Measurements including pallet	L 1,650mm × B 800mm × H 1,000mm
Approx. gross weight (full box)	374 kg
Modules per box	20
Maximum no. of stacked boxes	1 on 1 (batch of 2)
Max. truck loading (24t)	48 (3×8+3×8)
Max. 40ft container load (24t)	28 (1×14+1×14)

Variation of packaging sizes on individual request.

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