

PowerMax[®] 4.0



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 its 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/m². 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.

Continuous performance even under shading situation

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

High environmental sustainability

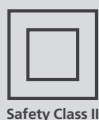
In addition to the general low resource production of CIS modules, all PowerMax[®] modules are free of lead and cadmium and do not need a separate recycling process.

SOLAR MODULES FOR ROOFTOP SYSTEMS
AND SOLAR PARKS

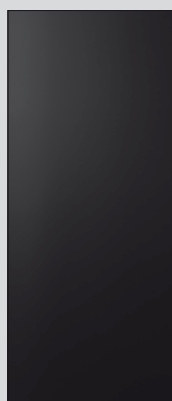
PowerMax® 4.0

MECHANICAL SPECIFICATIONS

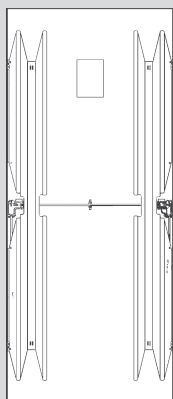
PowerMax®4.0	Value
External dimensions	1,587 x 664 mm ²
Thickness	38 mm
Weight	17 kg
Cell type	CIGS
Frame	none
Front cover	3.2 mm tempered glass
Junction box protection class	IP67
Dimensions of the junction boxes	70 x 64 x 13 mm ³
Cable lengths (⊖ plug ⊕ socket)	180 310 mm
Cable cross section	2.5 mm ²
Connector type	LC4



- Type approval: IEC 61646
- Safety qualification: IEC 61730:2004
- Ammonia corrosion: IEC 62716
- Salt mist corrosion: IEC 61701

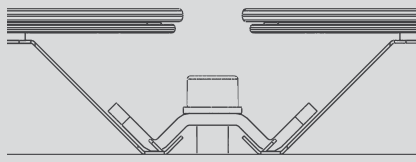


664 mm



Backside of the module with backrail system

1587 mm



Secure mounting with AVANCIS clamps

AVANCIS GmbH
Solarstrasse 3, 04860 Torgau, Germany
Phone +49 (0) 3421 7388-0
info@avancis.de
www.avancis.de

ELECTRICAL SPECIFICATIONS

Data measured under standard test conditions (STC):

PowerMax®4.0	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 temperature (NOCT)** and AM 1.5:

PowerMax®4.0	135	140	145	150
NOCT	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

** NOCT: Module operating temperature at 800 W/m² insolation intensity in the plane of the module, air temperature 20 °C, wind speed 1 m/s and operating at mpp.

Temperature coefficients:

PowerMax®4.0	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 in the module efficiency at a light intensity of 200 W/m² relative to 1000 W/m² at 25 °C module temperature and spectrum AM 1.5 is 6 %. At 500 W/m² the relative improvement in module efficiency is +1 %.

As a result of ongoing research and product improvements, the specifications in this product data sheet are subject to changes without prior publication. This data sheet is not allowed to be used for deriving any rights, and AVANCIS does not accept any liability with regard to and resulting from the use of information contained herein. Installation equipment is not supplied with the product.