

AVANCIS
ADVANCED SOLAR POWER

PowerMax®

Industry Leading Reliability

AVANCIS is one of the pioneers of CIS technology and has been researching the field as far back as 1981. In addition, AVANCIS has the longest commercial CIS manufacturing experience (since 1998). As a result, AVANCIS is regarded as a technological pioneer in CIS.

EXTREME DURABILITY

- The module has been developed for the highest snow load zones and withstands loads of 113 lb/ft^2.
- The hollow-chamber aluminum frame is extremely resistant to torsion and corrosion.
- The glass is mounted with a highly elastic polymer glue. This means the glass is not exposed to any mechanical point loads.
- The module is laminated in a process similar to automotive windshields. Additional stability is offered by the tempered front glass.
- A butyl seal protects the cells against moisture.
- The anti reflective front glass improves the module efficiency.

AESTHETICS

- Uniform black look.
- The mounting lip hides the mounting clamps and guarantees a nice appearance of the system for you and your neighbors.

STRAIGHTFORWARD INSTALLATION

- The mechanical and electrical design of the module with 104 CIS cells is optimized for low system costs.
- Mounting clamps are provided for use on the module frame lip. Installed clamps are visually hidden in between modules.
- Frames are provided with grounding holes as well as utility holes for wire management.
- To facilitate installation, the junction boxes are equipped with cables and MC4 connectors.

BEST QUALITY

- Production is certified to:
  - Industrial standard ISO 9001:2008
  - Environmental standard ISO 14001:2009
  - Health and safety standard OHSAS 18001:2007
- CE-compliant module is certified to:
  - IEC 61646 Ed.2 and IEC 61730
  - UL 1703 approved
  - Class C fire rating
- Attractive warranty periods:
  - 10-year product warranty.
  - 20-year performance warranty.

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MECHANICAL SPECIFICATIONS

Parameter	Value
External dimensions incl. mounting lip	26-15/16" (684 mm) x 62-13/16" (1,595 mm)
External dimensions excl. mounting lip	26-7/16" (672 mm) x 62-13/16" (1,595 mm)
Thickness	1-3/4" (45 mm)
Weight	43.2 lb (19.6 kg)
Junction box protection class	MC (IP65)
Dimensions of the junction boxes	3-1/8" x 3-1/8" x 15/16" (80 x 80 x 23 mm^3)
Cable lengths (⊖ plug | ⊕ socket)	7-1/2' I 12-3/16" (190 I 310 mm)
Cable cross section	14 AWG (2.5 mm^2)
Connector type	MC4

ELECTRICAL SPECIFICATIONS

Data measured under standard test conditions (STC)*:

Parameter PowerMax®	120
Nominal power P_{nom}	120 W
Tolerance of nominal power Δ P_{nom}	-0/+5%
Module efficiency η **	11.2 %
Aperture efficiency η	12.7 %
Open-circuit voltage V_{oc}	59.7 V
Short-circuit current I_{sc}	3.18 A
Voltage at mpp V_{mpp}	43.1 V
Current at mpp I_{mpp}	2.79 A
Limiting reverse current I_r	5.0 A
Max. system voltage V_{sys}	1,000 V

* Insolation intensity 1,000 W/m^2 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.
** excl. mounting lip.

Data measured at nominal operating cell temperature (NOCT)* and AM 1.5:

Parameter PowerMax®	120
NOCT	39.3 °C
Nominal power P_{nom}	88.9 W
Open-circuit voltage V_{oc}	55.1 V
Short-circuit current I_{sc}	2.50 A
Voltage in mpp V_{mpp}	41.6 V

* Module operating temperature at 800 W/m^2 insolation intensity in the plane of the module, air temperature 20 °C, wind speed 1 m/s and open-circuit condition.

Temperature coefficients:

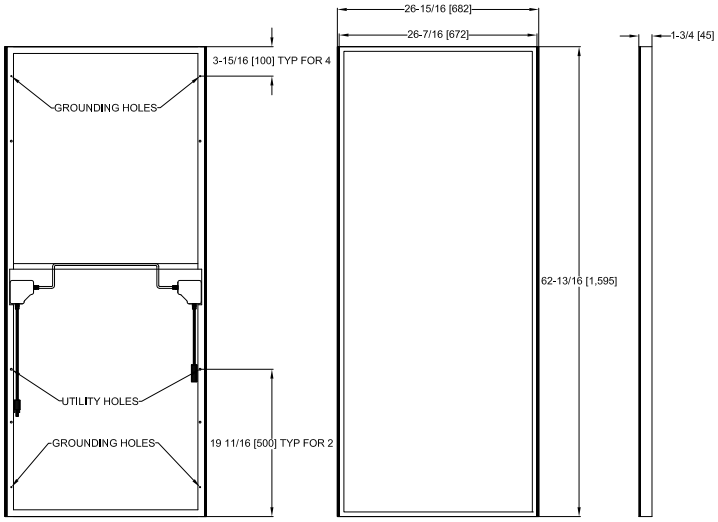
Parameter	Value
Temperature coefficient P_{nom}	-0.5 %/°C
Temperature coefficient V_{oc}	-220 mV/°C
Temperature coefficient I_{sc}	0.1 mA/°C
Temperature coefficient V_{mpp}	-200 mV/°C

Data measured at low light intensity:

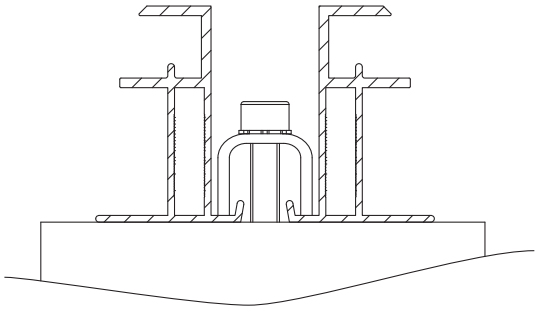
The relative reduction in the module-efficiency at a light intensity of 200 W/m^2 relative to 1,000 W/m^2 at 25 °C module temperature and spectrum AM 1.5 is 9 % for the PowerMax® 120. At 500 W/m^2 the relative improvement in module-efficiency is +0 % for the PowerMax® 120.

DIMENSIONS

Front, rear and side views (from left to right)



Cross section through frames, mounting structure and clamp



SAFETY, INSTALLATION AND OPERATION

For more information about handling, installation and operation of PowerMax® modules, refer to the installation, operating and safety manual for AVANCIS PowerMax® photovoltaic modules.

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Qualified, IEC 61646
Safety tested, IEC 61730
Periodic inspection
UL1703
APPROVED PRODUCT

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