

Test Winner Energy Yield '11/12

Made in Germany



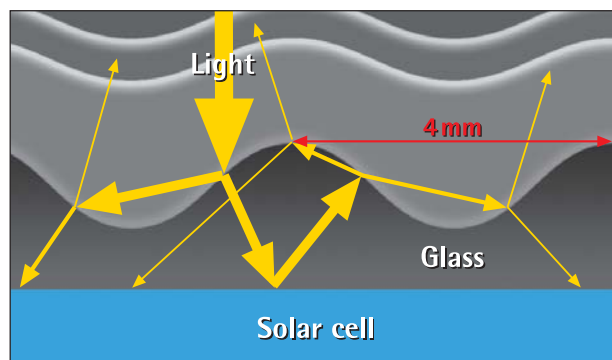
Solar module series alfasolar Pyramid 60P

At alfasolar we have been working on the improvement of solar modules since 1993. During this period we have experienced that the right selection not only of materials but also of the production process is the basis for durable products such as solar modules.

With the "alfasolar Pyramid" solar modules we present you an innovative and exclusive product line with a multitude of benefits: so that it is that much easier for you to decide from the wide range of products available on the market.

- **Higher solar-module efficiency, up to 16.2%**
 - Excellent value for money
- **Higher energy yield**
 - Up to 5% more yield through Pyramid technology
 - Outstanding partial load performance through particularly efficient soldering and selected solar cells
- **Long service life**
 - 4 mm glass and extremely strong aluminium frame in silver or black
 - Secure embedding of sensitive glass edge using UV-resistant silicon
 - Very high degree of crosslinking
 - Very strong 3 layer rear foil in white or black with high insulation-breakdown resistance
- **Matching supplementary components**
 - alfasolar A2 installation stand for high strength, fast assembly and 10-year guarantee
 - Proven Radox and Titanex solar cable
 - Grid inverters from market leaders
- **Best guarantee conditions**
 - 10-year workmanship warranty, 25-year linear performance guarantee*
 - Higher guaranteed power over the time

* see alfasolar's current guarantee conditions
- **Made in Germany**
 - State-of-the-art production line in Hanover, Lower Saxony
 - Experience in manufacturing of solar modules since 2001



- Pyramid-structured glass with self-cleaning effect
- 3.5% more performance from perpendicular irradiance
- 20% more performance from oblique irradiance (80°)

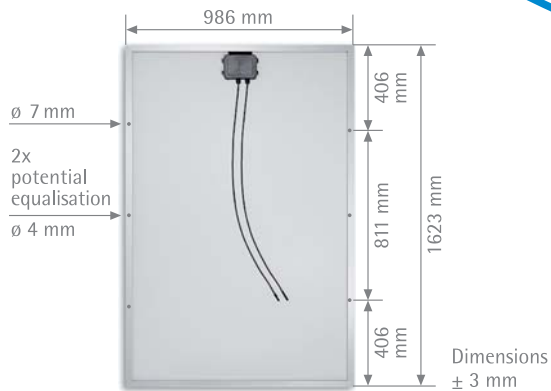
alfasolar modules were always something special. Find out more by reading our flyer "The alfasolar Pyramid solar module series with lasting benefits", which we will send to you on request.

We look forward to hearing from you!

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Very strong and reliable polycrystalline high-performance cells (efficiency up to 18%)



Special pyramid structured glass for even more yield at insolation angles between 40 - 70°



High-quality, service-friendly connector box

Physical data

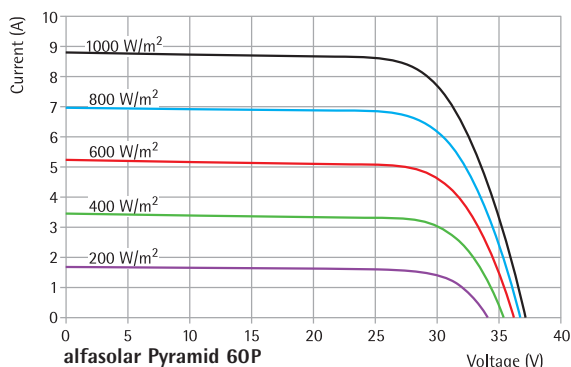
| | |
|-----------------------|---|
| Dimensions/weight | 1623 x 986 x 35 mm/20.4 kg |
| Cell type | 60 polycrystalline solar cells 156 x 156 mm |
| Connector box | IP 65 with H+S-Twistlock-connectors 2 x 1.0 m Radox cable 1 x 4 mm ² W x H x D = 141 x 101 x 28 mm |
| Bypass diodes | 3 x 12 A/1000 V |
| Vertical hole spacing | 811 mm/hole size M 6 |

Limiting values/Qualifications

| | |
|--|-------------------------------|
| Permissible module temperature range | -40 to +85 °C |
| Maximum permissible system voltage | 1000 V |
| Surface pressure/suction | 5400/ 2400 N/m ² * |
| Maximum reverse current | 18 A |
| Humidity at 85 °C | 85 % relative |
| Positive sorting P _{Flash} ≥ P _{max} | -0/+5 Wp |
| Application category/fire class (according to IEC 61730) | A/C |

* see alfasolar's instruction manual

V-I curve at different irradiation



Thermal data

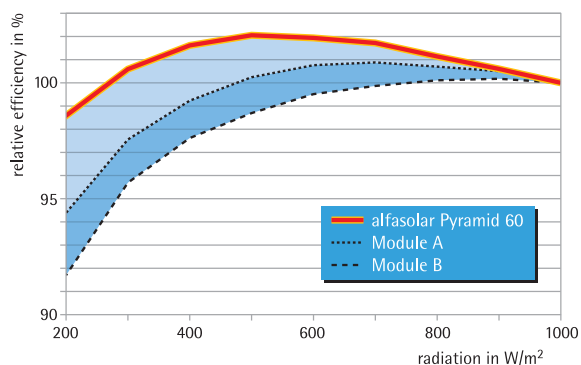
| | | | |
|-----------------------|--------------|------------------------|-----------|
| α [I_{sc}] | +2.3 mA/°C | γ [P_{mpp}] | -0.4%/°C |
| β [U_{oc}] | -116.0 mV/°C | NOCT | 42 ± 2 °C |

Electrical data

| Power output P _{max} at STC (W _p) | alfasolar Pyramid 60P | | |
|--|-----------------------|--------|--------|
| | 250 | 255 | 260 |
| Short-circuit current I _{sc} (A) | 8.75 | 8.81 | 8.87 |
| Open-circuit voltage U _{oc} (V) | 37.73 | 37.96 | 38.19 |
| Current in MPP I _{mpp} (A) | 8.22 | 8.32 | 8.42 |
| Voltage in MPP U _{mpp} (V) | 30.45 | 30.70 | 30.95 |
| Bulk factor (%) | 75.82 | 76.38 | 76.93 |
| Power output (W/m ²) | 156.22 | 159.35 | 162.47 |

Outstanding partial-load performance; at low irradiance level of 200 W/m², 98% +/-0.5% of the STC efficiency is achieved. Metering precision of maximal power output is +/-4%.

Excellent partial-load performance



Electrical data

| (800 W/m ² , NOCT, AM 1.5) | alfasolar Pyramid 60P | | |
|---|-----------------------|--------|--------|
| | 250 | 255 | 260 |
| Maximal power output P _{max} (W _p) | 190.76 | 194.75 | 198.77 |
| Short-circuit current I _{sc} (A) | 7.03 | 7.07 | 7.12 |
| Open-circuit voltage U _{oc} (V) | 35.75 | 35.98 | 36.21 |
| Current in MPP I _{mpp} (A) | 6.61 | 6.69 | 6.77 |
| Voltage in MPP U _{mpp} (V) | 28.86 | 29.11 | 29.36 |

