



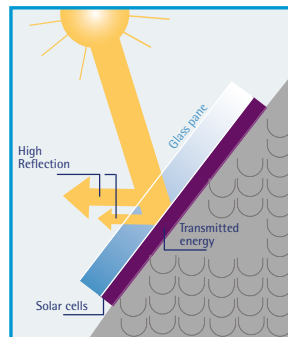
Made in Germany

Solar module series alfasolar AR 60P

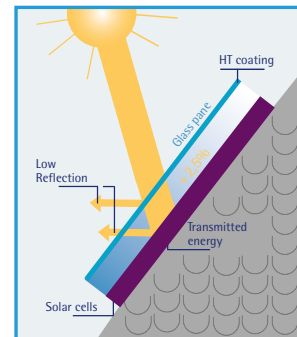
At alfasolar we have been working on the improvement of solar modules since 1993. During this period we have experienced that the right selection not only of materials but also of the production process is the basis for durable products such as solar modules.

For the "alfasolar AR" solar modules we use a special high-transparent (HT) and low-iron antireflective (AR) solar glass. The glass produced in Germany is characterized by a brilliant surface and combines high quality with high efficiency. We offer you the best price-performance ratio.

- **Higher solar-module efficiency, up to 16.2 %**
 - Excellent value for money
 - Only positive tolerances
- **Higher energy yield**
 - Premium-performance due to revolutionary solar glass
 - Unique homogeneous AR-coating
 - More yield (up to 5 % in open land)
 - Minimal temperature dependency of the performance
- **Long service life**
 - Brilliant glass surface and high strength
 - Extremely strong aluminium frame
 - Secure embedding of sensitive glass edge using UV-resistant silicone
 - Very strong 3 layer rear foil with high insulation-breakdown resistance
 - Reverse current maximum 18 A
 - PID-free
- **Easy handling**
 - Low weight combined with smallest possible dimensions
 - Economical, safe and recyclable packaging
- **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



uncoated glass



HT coated glass

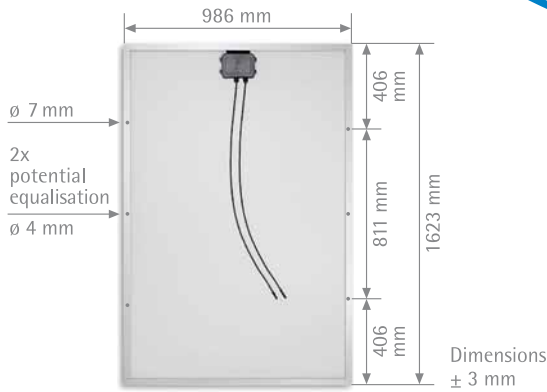
Benefits of the AR-coating

- Extremely robust and durable due to sputtering process
- Very high energy transmission
- Outstanding partial load performance

We look forward to hearing from you!

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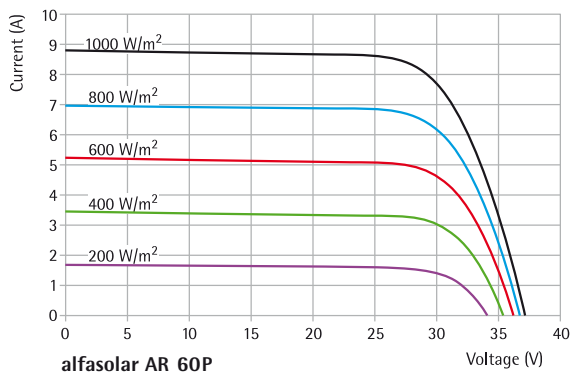


Very strong and reliable polycrystalline high-performance cells (efficiency up to 18 %)



High-quality, service-friendly connector box

I-U curve at different irradiation



Physical data

Dimensions / weight	1623 x 986 x 35 mm / 17,6 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 $P_{Flash} \geq P_{max}$	-0 / +5 Wp
Application category / fire class (according to IEC 61730)	A / C

* see alfasolar's instruction manual

Thermal data

$\alpha [I_{sc}]$	+2.3 mA/°C	$\gamma [P_{mpp}]$	-0.4 %/°C
$\beta [U_{oc}]$	-116.0 mV/°C	NOCT	42 ± 2 °C

Electrical data

	alfasolar AR 60P		
Power output P_{max} at STC (W _p)	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, 95% +/-0.5% of the STC efficiency is achieved. Metering precision of maximal power output is +/-4%.

Electrical data

(800 W/m ² , NOCT, AM 1.5)	alfasolar AR 60P		
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



Resistant to ammonia and salt mist - proven in independent tests