

## SCHOTT Solar monocrystalline solar modules

The long-established German company SCHOTT Solar is a world leader in the photovoltaic industry and has more than 51 years of experience in the development and production of components for solar applications.

SCHOTT Solar crystalline modules are specifically designed for both roof- and ground-mounted applications. Due to strict internal quality standards, all modules benefit from exceptionally long durability, which results in maximised profitability. The crystalline cells within each module are sorted to particularly narrow performance tolerances, thereby allowing series interconnections with minimal mismatch losses.

**Monocrystalline high efficiency cells >17.5 %:** The exceptional high cell efficiency indicates a high module power. Module efficiencies of up to 14.0 % will be generated.

**High annual energy yield:** The particular high module efficiencies deliver optimum yields for small areas. More power per module ensures high return on investment.

**Positive power tolerance:** The SCHOTT Solar modules hold a positive power tolerance of the nominal rating. This implies a high energy output and stable investment for the coming years.

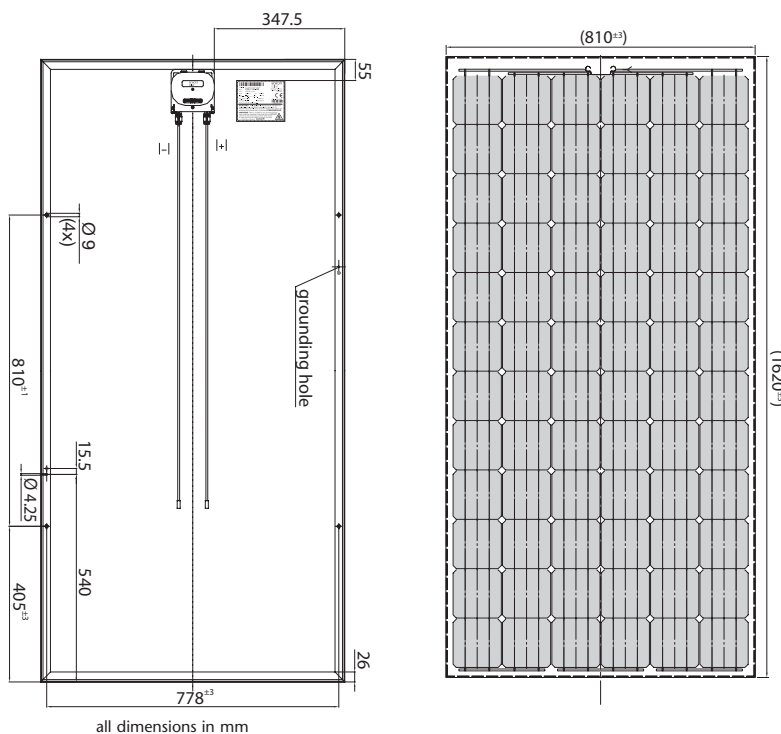
**Elegant design:** The dark mono cells in relation with the black Aluminum frame look esthetically with excellent efficiency. The solid module frame secures superior torsional resistance. Therefore the elegant design reassures also a high degree of security for your investment.

**Thorough SCHOTT quality control with German engineering:** Stringent SCHOTT Solar quality standards mean internal tests twice as long as is required by the IEC. In connection with long-term performance guarantee German engineering offers long-term reliability for the owner of a SCHOTT Solar module.

- Monocrystalline high efficiency cells >17.5 %
- High annual energy yield
- Positive power tolerance
- Elegant design
- Thorough SCHOTT quality control with German engineering



SCHOTT MONO™ 180/185/190



**SCHOTT**  
solar

## Technical Data

### Electrical data

Electrical data refer to Standard Test Conditions (STC):  
Irradiance 1000 W/m<sup>2</sup>, spectrum Air Mass 1.5 and cell temperature 25°C



Module type		SCHOTT MONO™ 180	SCHOTT MONO™ 185	SCHOTT MONO™ 190
Nominal power [Wp]	P <sub>mpp</sub>	≥ 180	≥ 185	≥ 190
Sorting tolerance		-0 %	-0 %	-0 %
Voltage at nominal power [V]	U <sub>mpp</sub>	36.2	36.3	36.4
Current at nominal power [A]	I <sub>mpp</sub>	4.97	5.10	5.22
Open-circuit voltage [V]	U <sub>oc</sub>	44.8	45.0	45.2
Short-circuit current [A]	I <sub>sc</sub>	5.40	5.43	5.46
Module efficiency level (%)	η	13.7	14.1	14.5

Sorting of module performance by flash data report (-0 %, positive tolerance only)  
Rating tolerance for power output is ± 4 % and rating tolerance for all other parameters is ± 10 %.

### Data at normal operating cell temperature (NOCT)

Irradiance 800 W/m<sup>2</sup>, spectrum Air Mass 1.5, windspeed 1 m/s and ambient temperature 20°C (typical data)



Nominal power [Wp]	P <sub>mpp</sub>	130	134	137
Voltage at nominal power [V]	U <sub>mpp</sub>	32.9	32.8	32.9
Open-circuit voltage [V]	U <sub>oc</sub>	39.3	40.2	41.0
Short-circuit current [A]	I <sub>sc</sub>	4.30	4.32	4.35
Temperature [°C]	T <sub>NOCT</sub>	46.0	46.0	46.0

Rating tolerance for power output is ± 4 % and rating tolerance for all other parameters is ± 10 %.

### Data at low irradiation intensity

At a low irradiation intensity of 200 W/m<sup>2</sup> (AM 1.5 and cell temperature of 25°C) 96 % of the STC module efficiency (1000 W/m<sup>2</sup>) will be achieved.



### Temperature coefficients



Power [%/K]	P <sub>mpp</sub>	-0.44
Open-circuit voltage [%/K]	U <sub>oc</sub>	-0.326
Short-circuit current [mA/K]	I <sub>sc</sub>	0.032

### Characteristic data



Solar cells per module	72
Cell type	Monocrystalline, 125 x 125 mm <sup>2</sup> , pseudo-square)
Connection	Junction box IP65 with 3 bypass diodes, solar cable (length: 1 m, diameter: 4 mm <sup>2</sup> ) with Tyco Solarlok Interconnection
Dimensions	
junction box [mm]	110 x 115 x 25
Front panel	low iron solar glass 3.2 mm
Frame material	anodised aluminium

### Dimensions and weight



Dimensions [mm]	1,620 x 810 (tolerance ± 3 mm)
Thickness [mm]	50 (tolerance ± 1 mm)
Weight [kg]	15.5

### Limits



System voltage [V <sub>DC</sub> ]	1000
Maximum reverse current I <sub>R</sub> [A]*	17
Operating module temperature [°C]	-40... +85
Maximum load (to IEC 61215 Ed. 2)	Pressure: 5,400 N/m <sup>2</sup> or 550 kg/m <sup>2</sup>
Application classification (to IEC 61730)	A
Fire classification (to IEC 61730)	C

\* No external voltage in excess of U<sub>oc</sub> shall be applied to the module.

### Permission and certificates



The module complies with the requirements of IEC 61215 ed. 2 and IEC 61730, Electrical Protection Class II and the CE-guidelines.

The **installation manual** contains additional information on installation and operation.

All information complies with the requirements of the standard EN 50380.



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