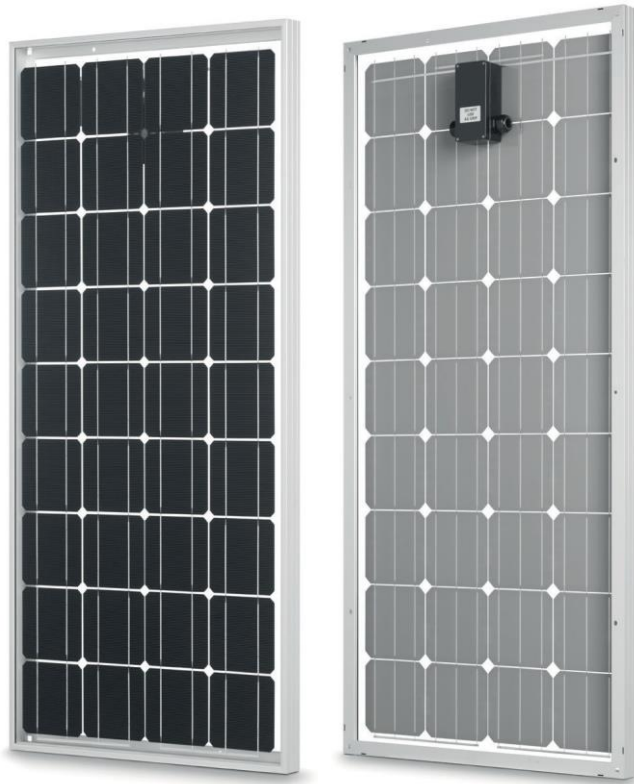




TSM190EX Solar Module

Ensuring safety requirements in your hazardous areas (Zone 1 and Zone 2), while providing high performance and durability, that's what the TSM190EX Solar Modules are built for. The ATEX/IECEx certified solar modules protect your employees and your investment, and prove a highly efficient and solid source of energy for your production process.



ATEX/IECEx certified

For applications in hazardous areas, (i.e. LNG, Oil & Gas installations), we offer explosion proof solar modules. Fully certified according latest ATEX and IECEx guidelines.

Powerful

36 Series-connected high efficiency monocrystalline silicon perc solar cells generate a typical peak power of 190 Watts/9.39A at 20.23 Volts.

Ex-proof

The TSM190EX has been developed with your explosive environment in mind providing maximum protection in the most extreme environmental conditions.

Glass-glass

Tempered glass is used to guarantee safety and strength.

IP66 junction box

The junction box contains diodes in a molded terminal block. With 2 polyamide M25 cable glands for cables with a maximum diameter of 19mm you can connect solar modules in series and/or parallel.

Creating a solid and high performing solar energy system to keep you going ...Always!

Electrical data

TSM190EX		
STC*		
Max. power (P _{mp})	[Wp]	195.7
Min. power	[Wp]	190.0
Voltage at P _{mp}	[V]	20.23
Current at P _{mp}	[A]	9.39
Open circuit voltage	[V]	23.87
Short circuit current	[A]	9.95
Module efficiency	[%]	16
Nominal voltage	[V]	12

* Standard testing conditions (STC): 1,000W/sqm irradiation level, AM 1.5 spectrum at 25°C cell temperature.

Thermal characteristics / temperature coefficient

TSM190EX		
TC P	[%/°C]	-0.39
TC Voc	[%/°C]	-0.3
TC Isc	[%/°C]	0.06

Additional data

TSM190EX	
Max. system voltage	250 Vdc
Junction box	GRP Ex e
Bypass diodes	2
Junction box	IP 66
Operating temperature	-20°C ~ +55°C
Cells	158.75 x 158.75 mm
Frame	Anodized high grade aluminium
Dimensions (L x W x D)	1642 x 724 x 40 mm
Weight	18 kg

ATEX/IECEx certification

ATEX Protection	⊕ II 2 G Ex eb mb IIC T4 Gb
ATEX Certificate	TÜV 12 ATEX 7148 X
IECEx Protection	Ex eb mb IIC T4 Gb
IECEx Certificate	IECEx TUR 12.0012X

Hazardous area certification by TÜV according NEN-EN-IEC 60079-0, 60079-7 and 60079-18 for Zone 1. Solar modules are produced according to IEC 61215/2 and IEC 61730.