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The electrical parameters are typical values from historical production data. Measuring tolerance ± 3%.
Technical changes in the course of product development, mistakes and errors reserved. Data sheet SWISSWATT extrem V02-13

SWISSWATT eXtrem

REINFORCEMENT FOR ALPINE APPLICATIONS

MODULE TYPE

For all MONOWATT & POLYWATT module series

PRODUCT FEATURES

All power classes of our MONOWATT & POLYWATT modules can be produced for use in snowy, alpine areas with a special reinforcement.

This reinforcement increases the mechanical strength to 10 000 Pa. Altitudes with extremely high irradiation up to 2,000 kWh / kWp, where previously grid-connected photovoltaic systems or stand-alone solutions were not applicable, can now be equipped with SWISSWATT extrem modules.

Higher snow loads threaten the module integrity. Possible damages, such as glass or frame fractures, increase the maintenance costs and reduce the lifespan of the modules.

SWISSWATT extrem design and construction guarantee the highly efficient and reliable long term output of each and every module and ensure industry leading sustainable performance - even under extreme conditions.

+ Extreme enforcement for loads up to 10,000 Pa
+ Extreme yield by high irradiation and low ambient temperature
+ Rugged frame design for insulation and high wind load
+ Automatic clean-room production for a sustained high yield
+ ... all other advantages of our module series

WARRANTIES & ASSURANCES

Industry leading guaranty on material and manufacturing: 10 years

Output assurance: up to 12 years: 90 %, up to 25 years: 80%

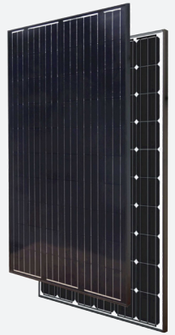
Please refer to our warranty conditions

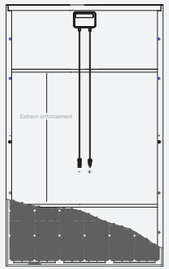
QUALIFICATIONS & CERTIFICATES

Ongoing quality controll and performance testing executed by independent testing laboratories grant the maximal benefit of your environmentally friendly energy production.

IEC 61215.2 / IEC 61730 / safety class II

TECHNICAL DATA MODULE SERIES MONO-, POLYWATT EXTREM





MECHANICAL DATA & MEASURES

Cable type, Diameter, Length	4mm2, TÜV certified, 900 mm
Connector type	RADOX® SOLAR or Typ IV compatible
Dimension (mm)	1.195 - 1956 x 541 - 1.069 x 45
Weight	8 - 26 kg
Drainage Holes in Frame	10 - 12
Glass, Type, Thickness	High Transmission, Low Iron, 3,2 mm Tempered Glass
Junction box	IP 65 Typ IV or IP67 RADOX® SOLAR
Bypass-Diodes	3 - 4

ABSOLUTE RATINGS

Dielectric Insulation Voltage (V)	3000 V
Operating Temperature (°C)	-40 ~ +85
Storage Temperature (°C)	-40 ~ +85
Mechanical Load	10.000 Pa

RANGE OF APPLICATION MODULE SERIES MONO-, POLYWATT EXTREM*

Roof type, inclination	gable, shed < 30°		gable, shed 30-35°		gable, shed > 35°		butterfly < 10°		butterfly 10°-20°		butterfly 20°-30°	
Object altitude meter AMSL; necessary load	**AMSL**	**PA****	**AMSL**	**PA**	**AMSL**	**PA**	**AMSL**	**PA**	**AMSL**	**PA**	**AMSL**	**PA**
The snow load is determined by climate, topography, location and form of the building. The wind effect, the insulation and the roof texture was not considered. Snow loads calculated according to SIA 261. (actions on structures)	1.350	5.080	1.450	5.230	1.600	5.132	1.200	5.239	1.100	5.277	950	4.953
	1.400	5.440	1.500	5.577	1.700	5.764	1.250	5.650	1.150	5.722	1.000	5.424
	1.500	6.197	1.600	6.306	1.800	6.434	1.350	6.522	1.250	6.673	1.100	6.439
	1.600	7.007	1.700	7.082	1.900	7.142	1.450	7.461	1.350	7.703	1.200	7.550
	1.700	7.869	1.800	7.905	2.000	7.888	1.550	8.467	1.450	8.812	1.300	8.758
	1.800	8.784	1.900	8.775	2.100	8.672	1.650	9.540	1..550	10.001	1.400	10.064
	1.900	9.750	2.000	9.491	2.200	9.495	1.700	10.102	1.600	10.624		
	2.000	10.252	2.100	10.656	2.300	10.356						

SWISSWATT Mono-, Polywatt | SWISSWATT Extrem | SWISSWATT Extrem & *special measures*****

* As a rule, for photovoltaic systems as well as flat roofs to be set at least 0.5 kN / m², in extreme cases snow loads 20 times higher is possible. Calculation according to SIA 261. Unhindered slipping is assumed in the aforementioned values. Snow guards increase the snow load on the lower row of modules.

** The pressure that a force of one Newton exerted on an area of one square meter (N / m² = PA) is measured in pascal. The values given are a first rough estimate without guarantee.

*** Special measures such as reinforcing the structures can increase the mechanical strength even further.

ELECTRICAL DATA & MEASURES MODULE SERIES MONO-, POLYWATT EXTREM (OVERVIRW)

Modultyp	MW190-MW210	MW255 - MW280	MW245 - MW260 S	MW290 - MW310 S	PW185 - PW210	PW230 - PW250	PW275 - PW300
							
Nennleistung P MPP (W)	190 - 210 Wp	255 - 280 Wp	245 - 260 Wp	290 - 310 Wp	185 - 210 Wp	230 - 250 Wp	275 - 300 Wp
Zellentyp, Grösse	Mono, 125 x 125	Mono, 125 x 125	Mono, 156 x 156	Mono 156 x 156	Poly, 156 x 156	Poly, 156 x 156	Poly, 156 x 156
Anzahl Zellen, Gewicht	72, 15,5 kg	96, 25 kg	60, 20 kg	72, 24 kg	54, 17 kg	60, 22,5 kg	72, 26 kg
Masse	1580 x 808 x 45	1580 x 1069 x 45	1655 x 992 x 45	1956 x 992 x 45	1482 x 992 x 45	1655 x 992 x 45	1956 x 992 x 45
Zellen Effizienz (%)	17,00% - 19,40%	17,80% - 19,50%	17,20% - 19,10%	17,60% - 18,90%	14,10% - 16,00%	15,75% - 17,20%	15,70% - 17,40%
Modul Effizienz (%)	14,88% - 16,45%	15,10% - 16,60%	14,60% - 16,10%	14,90% - 15,90%	12,60% - 14,30%	14,00% - 15,20%	14,20% - 15,40%