



**INTEGRATION GLASS/GLASS  
PERC48**

PERC 230-245 Wp

**Schweizer**



**Exquisitly designed  
in-roof panel**

Inroof system, BIPV-Typ EN 50583, Category A

2 x 2 mm strong, hardened and scratchresistant solar glass

Protection of cells against microcracks through double glass composite

Easy to install, reliable operation

Rainproof like a tiled roof (SIA 232/1)

Excellent mechanical load values, compressive load up to 5,400 Pa <sup>2</sup>

Hail class HW 3

**Optimized for  
performance**

PID-free PERC high performance solar cells

Antireflective coated solar glass

Low-light optimized

Positively classified -0/+4.99 Wp

Industry-leading NMOT values

**Highest quality  
standards**

Manufactured according to  
DIN EN ISO 9001:2015  
DIN EN ISO 14001:2015  
BS OHSAS 18001:2007

PV-module type approval according to IEC 61215:2016 <sup>3</sup>

PV-module safety qualification according to IEC 61730:2016 <sup>3</sup>

Fire class: hard roofing (B roof T1, Euro class E)

**Guaranteed  
performance <sup>1</sup>**

30 years of linear performance guarantee

20 years product guarantee, optional extension to 30 years

Total Care for the entire system (optional)

<sup>1</sup> For detailed information please consult the CS Wismar GmbH warranty conditions

<sup>2</sup> Tested in laboratory of CS Wismar GmbH

<sup>3</sup> Subject to recertification

# INTEGRATION GLASS/GLASS 230 | 235 | 240 | 245 PERC48

## Performance STC

Under standard Test Conditions STC:  
1000 W/m<sup>2</sup>; spectrum AM 1.5;  
Cell temperature 25°C  
Measurement tolerance STC:  
P<sub>mpp</sub> ±3%; I<sub>sc</sub> ±10%; U<sub>oc</sub> ±10%

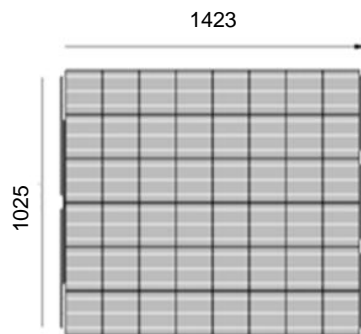
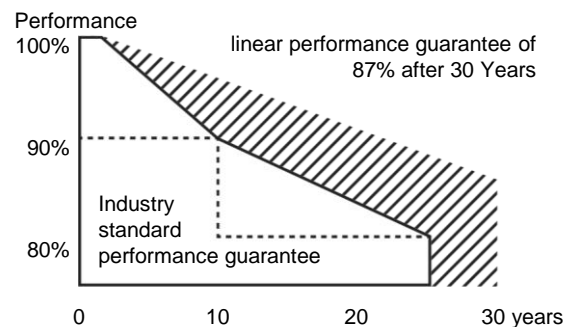
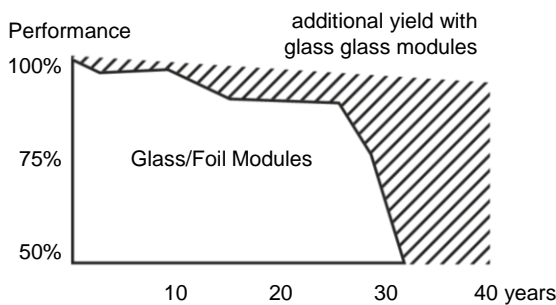
Nominal Power P <sub>mpp</sub> (Wp)	230	235	240	245
Open Circuit Voltage U <sub>oc</sub> (V)	31,06	31,32	31,42	31,52
Voltage U <sub>mpp</sub> (V)	25,81	26,01	26,18	26,32
Short Circuit Current I <sub>sc</sub> (A)	9,46	9,62	9,79	9,96
Current I <sub>mpp</sub> (A)	8,91	9,03	9,17	9,31
Efficiency η (%)	15,8	16,1	16,5	16,8

Reduction of module efficiency at reduction from 1000 W/m<sup>2</sup> to 200 W/m<sup>2</sup>: 3,7% ± 0,2% (relative)

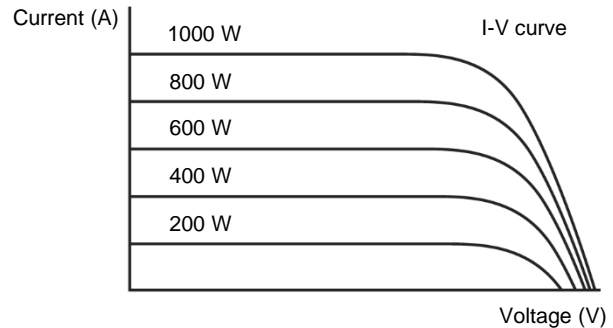
## Performance NMOT

Nominal operating temperature of module  
800 W/m<sup>2</sup>, NMOT, AM 1.5

Nominal Power P <sub>mpp</sub> (Wp)	178	182	186	189
Open Circuit Voltage U <sub>oc</sub> (V)	29,05	29,29	29,38	29,48
Voltage U <sub>mpp</sub> (V)	25,00	25,21	25,36	25,49
Short Circuit Current I <sub>sc</sub> (A)	7,64	7,77	7,91	8,05
Current I <sub>mpp</sub> (A)	7,11	7,21	7,32	7,43



measurements in mm



## Other Technical Specification

Max. system voltage	1000 V
Weight	18.0 ± 0.5 kg
Reverse Current Load I <sub>R</sub>	15 A
Junction box	IP 67 with 3 bypass diodes
Connectors	IP 67, MC4
Fire rating	class C
Operating temperature	-40°C ... +85°C
Design load: snow	1.600 Pa *
Max test load	2.400 Pa
Design load: wind	1.600 Pa *
Max test load	2.400 Pa
Outer dimensions	1423 x 1025 mm
Raster dimensions	1405 x 993 mm

\* safety factor 1.5

## Thermal Properties

TC P <sub>mpp</sub>	-0.39 %/K
TC U <sub>oc</sub>	-0.28 %/K
TC I <sub>sc</sub>	0.040 %/K
NMOT	45 +/- 2 °C

## Material Used

No. of cells	48 cells
Type of cells	mono perc
Front	hardened solar glass
Frame	Solrif frame
Frame height	16 mm
Module height	35 mm

