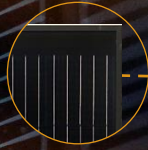




SONNENSTROM
FABRIK



Full Black



Optional: junction box 1500 Volt



Heavy snow load frame



Optional: 30yrs guarantee



Optional: Total-Care Insurance



**EXCELLENT GLASS/GLASS M60
full black**

MONOCRYSTALLINE 320-330 WP



Long lifetime even under extreme conditions

2 x 2 mm strong, hardened and scratch resistant solar glass

Protection of cells against microcracks through double glass composite

Maximum test load 8.100 Pa. ²

Original MC4 plugs and fire resistant cables

Stability optimized for increased requirements due to slipping snow loads (optional)

Extended hail impact tests to 30 mm

Optimized for performance

PID-free monocrystalline 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
DIN EN ISO 45001:2018

PV-module type approval according to IEC 61215:2016 ³

PV-module safety qualification according to IEC 61730:2016 ³

Resistant to ammonia according to IEC 62716:2013

Guaranteed performance ¹

30 years of linear performance guarantee

20 years product guarantee, optional extension to 30 years

Total Care for the entire system (optional)

¹ For detailed information please consult the CS Wismar GmbH warranty conditions

² See backside for detailed test loads

³ Subject to recertification

EXCELLENT GLASS/GLASS 320 | 325 | 330 M60

full black

Performance STC

Under standard Test Conditions STC:
1000 W/m²; spectrum AM 1.5;
Cell temperature 25°C
Measurement tolerance STC:
P_{mpp} ±3%; I_{sc} ±10%; U_{oc} ±10%

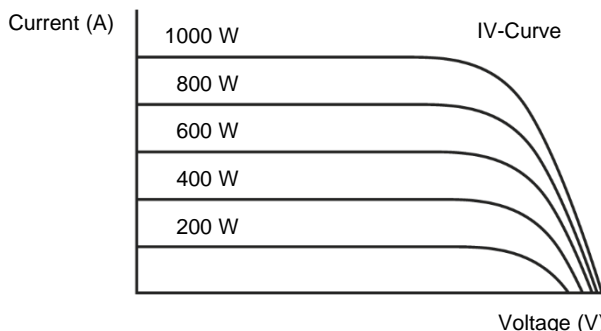
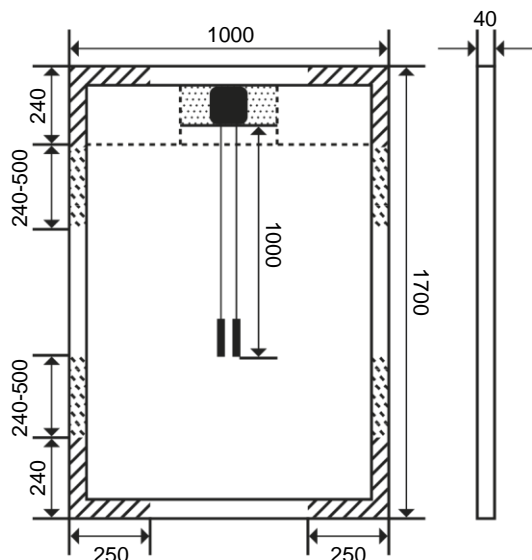
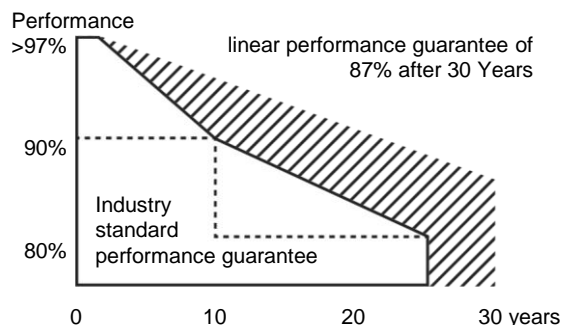
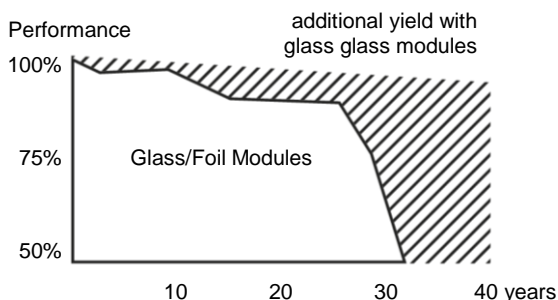
Nominal Power P _{mpp} (Wp)	320	325	330
Open Circuit Voltage U _{oc} (V)	40,22	40,41	40,60
Voltage U _{mpp} (V)	33,61	33,85	34,09
Short Circuit Current I _{sc} (A)	10,20	10,31	10,42
Current I _{mpp} (A)	9,52	9,60	9,68
Efficiency η (%)	18,8	19,1	19,4

Reduction of module efficiency at reduction from 1000 W/m² to 200 W/m²: 3,3% ± 0,5% (relative)

Performance NMOT

Nominal operating temperature of module
800 W/m², NMOT, AM 1.5

Nominal Power P _{mpp} (Wp)	250	254	258
Open Circuit Voltage U _{oc} (V)	37,61	37,79	37,97
Voltage U _{mpp} (V)	32,94	33,17	33,40
Short Circuit Current I _{sc} (A)	8,24	8,33	8,42
Current I _{mpp} (A)	7,60	7,66	7,72



clamping area
 approved up to 2.400 Pa (suction & pressure)
 approved up to 2.400 Pa (suction)/5.400 Pa (pressure)
 no contact between junction box and mounting profile permitted in this area.

measurements in mm

Other Technical Specification

Max. system voltage	1000 V
Weight	ca. 22.0 kg
Reverse Current Load IR	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	5.400 Pa *
Max test load	8.100 Pa
Design load: wind	2.400 Pa *
Max test load	3.600 Pa

* safety factor 1.5

Thermal Properties

TC P _{mpp}	-0.39 %/K
TC U _{oc}	-0.28 %/K
TC I _{sc}	0.040 %/K
NMOT	45 +/- 2 °C

Material Used

No. of cells	60 cells
Type of cells	monocrystalline
Front	hardened solar glass
Frame	anodized aluminium
Frame height	40 mm

