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# **EnergyPal**

## **Solar Panel Guide Specification Data Sheet**

**CS Wismar GmbH**

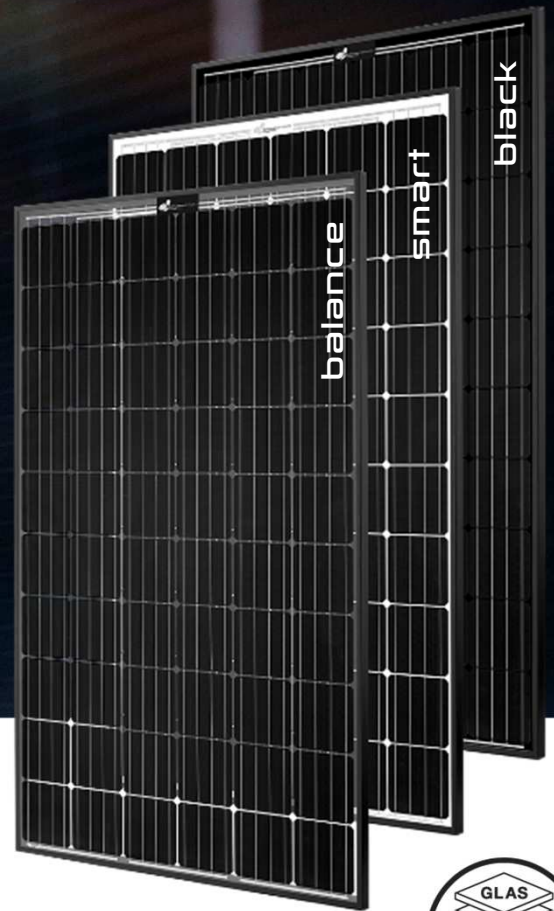
**Excellent Glass/Glass 320-330 M60 balance | sma...  
330**

Also available on the web at  
[EnergyPal.com/cs-wismar-gmbh-solar-panels/330](http://EnergyPal.com/cs-wismar-gmbh-solar-panels/330)



SONNENSTROM  
FABRIK

Optional  
snow load module edition  
1500 volts module edition  
optional in transparent, white, full black  
Total Care for the entire system  
Extended product guarantee



EXCELLENT GLASS/GLASS M60  
balance | smart | black

MONOCRYSTALLINE 320-330 WP

#### Long lifetime even under extreme conditions

2 x 2 mm strong, hardened and scratchresistant solar glass

Protection of cells against microcracks through double glass composite

Maximum test load 8.100 Pascal <sup>2</sup>

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  
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>

#### 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> See backside for detailed test loads

<sup>3</sup> Subject to recertification

# EXCELLENT GLASS/GLASS 320 | 325 | 330 M60

balance | smart | black

## 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%

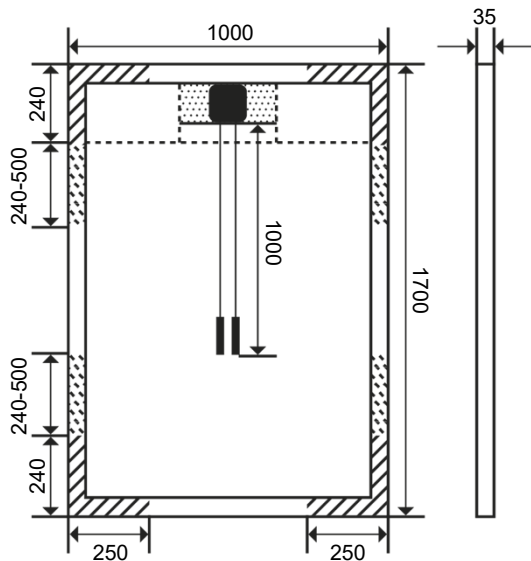
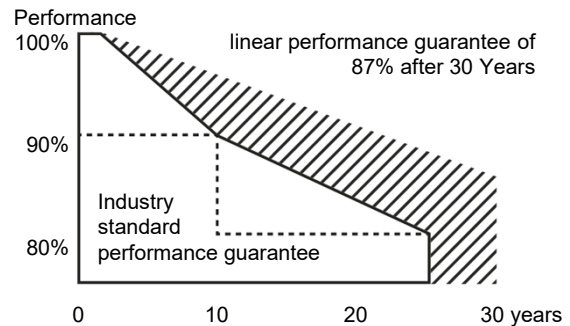
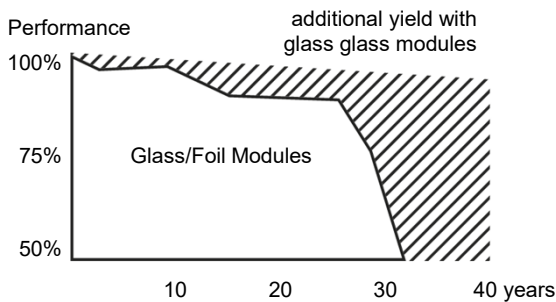
Nominal Power P <sub>mpp</sub> (Wp)	320	325	330
Open Circuit Voltage U <sub>oc</sub> (V)	40,22	40,41	40,60
Voltage U <sub>mpp</sub> (V)	33,61	33,85	34,09
Short Circuit Current I <sub>sc</sub> (A)	10,20	10,31	10,42
Current I <sub>mpp</sub> (A)	9,52	9,60	9,68
Efficiency η (%)	18,8	19,1	19,4

Reduction of module efficiency at reduction from 1000 W/m<sup>2</sup> to 200 W/m<sup>2</sup>: 3,3% ± 0,5% (relative)

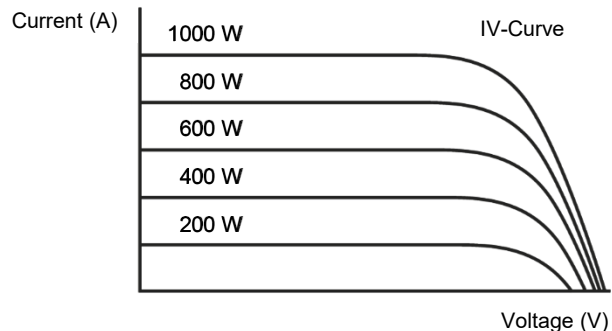
## Performance NMOT

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

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



measurements in mm



**clamping area**  
 approved up to 2.400 Pa  
 no contact between junction box and mounting profile permitted in this area.  
 approved up to 5.400 Pa

## Other Technical Specification

Max. system voltage	1000 V
Weight	22.0 ± 0.5 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 <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	60 cells
Type of cells	monocrystalline
Front	hardened solar glass
Frame	anodized aluminium
Frame height	35 mm

