



SONNENSTROM FABRIK



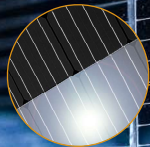
Optional:
Black



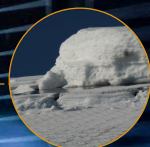
Optional:
Full Black



Optional: junction
box 1500 Volt



Optional: Low
Reflection



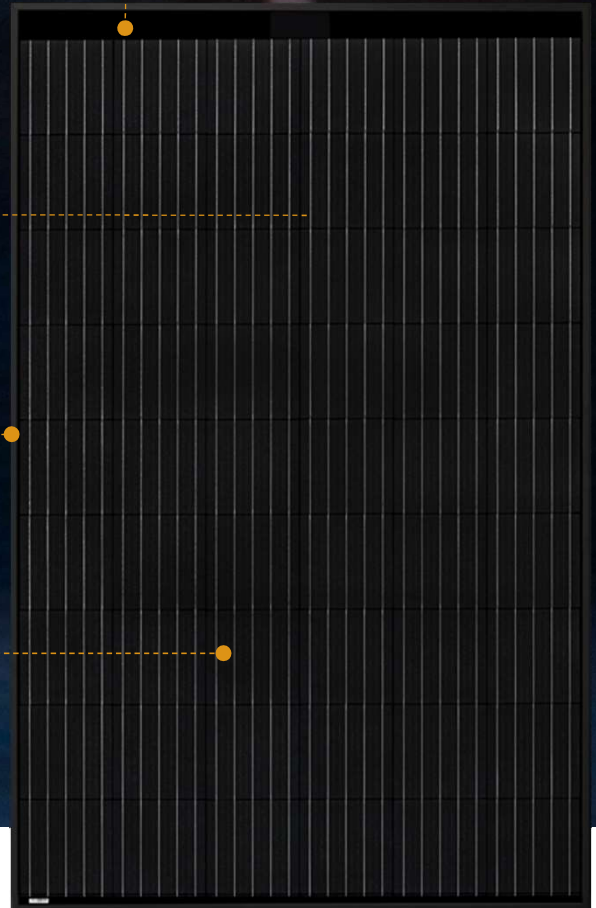
Optional: Heavy
snow load frame



Optional: 25 yrs
guarantee



Optional: Total-
Care Insurance



EXCELLENT M54 black | full black

MONOCRYSTALLINE 285-295 WP

Long lifetime even under extreme conditions

Extended clamping areas and upside down installation possible

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)

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

Guaranteed performance ¹

26 years of linear performance guarantee

12 years product guarantee, optional extension to 25 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 285 | 290 | 295 M54 black | 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%

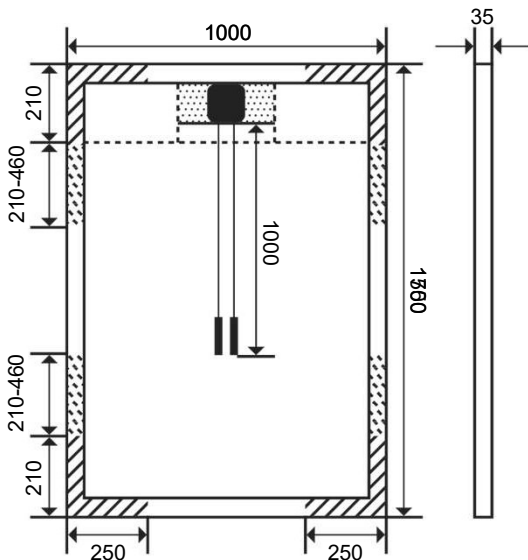
Nominal Power P _{mpp} (Wp)	285	290	295
Open Circuit Voltage U _{oc} (V)	36,32	36,37	36,42
Voltage U _{mpp} (V)	30,07	30,31	30,54
Short Circuit Current I _{sc} (A)	10,06	10,17	10,28
Current I _{mpp} (A)	9,48	9,57	9,66
Efficiency η (%)	18,4	18,7	19,0

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

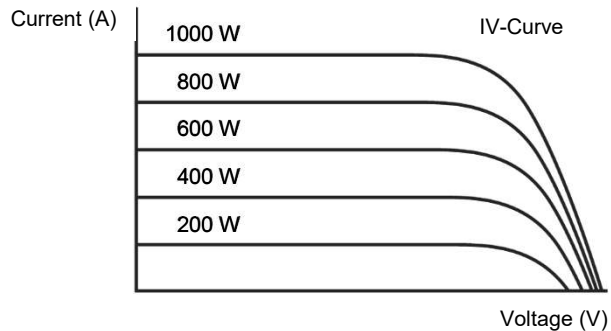
Performance NMOT

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

Nominal Power P _{mpp} (Wp)	222	226	230
Open Circuit Voltage U _{oc} (V)	33,97	34,01	34,06
Voltage U _{mpp} (V)	29,37	29,58	29,77
Short Circuit Current I _{sc} (A)	8,13	8,22	8,31
Current I _{mpp} (A)	7,57	7,64	7,71



measurements in mm



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.

Other Technical Specification

Max. system voltage	1000 V
Weight	ca. 18 kg
Reverse Current Load I _R	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	54 cells
Type of cells	monocrystalline
Front	hardened solar glass
Frame	anodized aluminium
Frame height	35 mm

