



M10 N-type Series 415-430W

108-Cells TOPcon Half-Cut Dual Glass Solar Module

M
SMBB
SMBB Half-Cut
Cell Technology


Reliable · Durable
· Sustainable

Quality Guarantee

15-Year Warranty for Materials and Processing
30-Year Warranty for Extra Linear Power Output



10-30% Additional Power Generation

30 years lifespan brings 10-30% additional power generation comparing with conventional P-type module

ZERO LID (Light Induced Degradation)

N-type solar cell has no LID naturally which can increase power generation

Better Weak Illumination Response

Higher power output even under low-light environments like on cloudy or foggy days

Better Temperature Coefficient

Higher power generation under working conditions, thanks to passivating contact cell technology

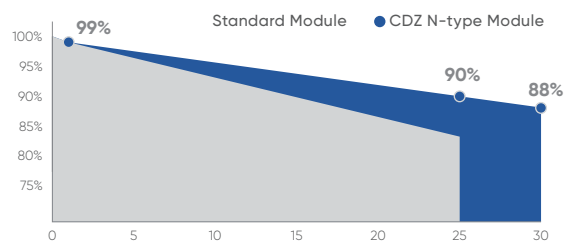
Complete System and Product Certifications

IEC 61215, IEC 61730

ISO 9001: 2015: ISO Quality Management System

ISO 14001: 2015: ISO Environment Management System

ISO 45001: 2018: Occupational Health and Safety



* Please refer to CDZ standard warranty for details



M10 N-type Series

415-430W

Electrical data at STC

Rated power P _{mpp} [Wp]	415.00	420.00	425.00	430.00
Rated current I _{mpp} [A]	13.28	13.36	13.44	13.52
Rated voltage V _{mpp} [V]	31.27	31.46	31.65	31.84
Short-circuit current I _{sc} [A]	14.01	14.09	14.18	14.26
Open-circuit voltage U _{oc} [V]	37.86	38.09	38.32	38.55
Efficiency at STC up to	21.2 %	21.5 %	21.7%	22%

Electrical data at NOCT

Power at P _{mpp} [Wp]	312.08	315.84	319.60	323.36
Rated current I _{mpp} [A]	10.72	10.78	10.85	10.91
Rated voltage V _{mpp} [V]	29.11	29.30	29.46	29.64
Short-circuit current I _{sc} [A]	11.31	11.37	11.45	11.51
Open-circuit voltage U _{oc} [V]	34.96	35.18	35.40	35.63

Specification as per STC (Standard test conditions): irradiance 1000 W/m² | module temperature 25°C | Air Mass = 1.5
 NOCT (nominal operating cell temperature): irradiance 800 W/m² | wind speed 1 m/sec | ambient temperature 20°C | cell operating temperature 45 +/-2°C | Air Mass = 1.5

Bifacial Gain* (e.g. 420 Wp)

Backside power gain [Wp]	5%	10%	15%	20%	30%
Rated power P _{mpp} [Wp]	441.00	462.00	483.00	504.00	525.00
Rated current I _{mpp} [A]	14.00	14.66	15.33	15.99	16.66
Rated voltage V _{mpp} [V]	31.51	31.51	31.51	31.52	31.52
Short-circuit current I _{sc} [A]	14.77	15.48	16.18	16.88	17.59
Open-circuit voltage U _{oc} [V]	38.15	38.15	38.15	38.16	38.16

*depending on the reflection of the underlying surface

Limiting values

Max. system voltage max. return current	1500 V 25 A
Safety class Fire safety class	II C (according to IEC 61730)
Operating Temperature	-40 up to 85°C
Max. tested pressure load-/tensile ²	5400 Pa / 2400 Pa

Temperature coefficient

Temperature coefficient [U] [I] [P]	-0.25 % /°C 0.045 % /°C -0.3 % /°C
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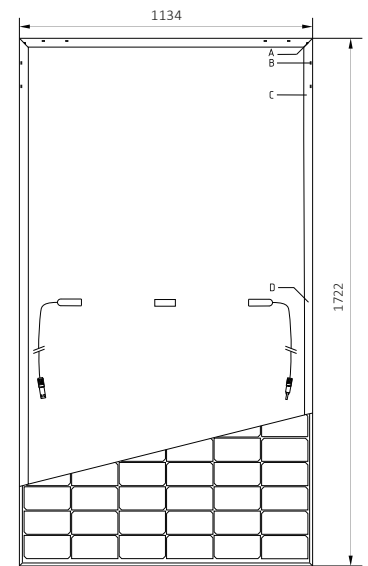
Specifications

Cells (matrix) Dimenstions Type	108 (6 x 18) 182 mm x 91 mm N-Type TOPCon
Module dimensions (L x W x H) Weight	1722 mm x 1134 mm x 30 mm 24 kg
Front side glass	High transparency solar glass 2.0mm
Back side glass	High transparency solar glass 2.0mm
Frame	Stable, anodised aluminium frame
Embedding material	POE/EVA
Junction Box Diodes	At least IP67 3 Schottky Diodes
Cable	Symmetrical cable lengths > 350mm, 4 mm ² solar cable
Connectors	MC4 or equivalent with IP67
Hail test (max. hailstorm)	Ø45 mm impact velocity 23m/s ± 83 km/h

The specifications and average values can vary slightly. Relevant is the corresponding data of the individual measurement. Specifications are subject to change without notice. Measurement tolerance depending on equipment: rated power +/- 3%, other values +/- 10%. All information given in this data sheet corresponds to DIN EN 50380. A potential light-induced degradation of the power after commissioning is not considered here. Further information in the installation manuals.

- The specific warranty conditions are given under our website.
- Horizontal mounted, for details please check mounting instruction
- Tolerance L/W = +/- 3 mm. H +/-2mm, the dimensions given in the order confirmation will be decisive
- Location and dimensios of holes on request

Back - /Frontview ³

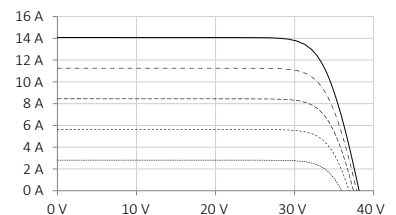


Drilled holes ⁴

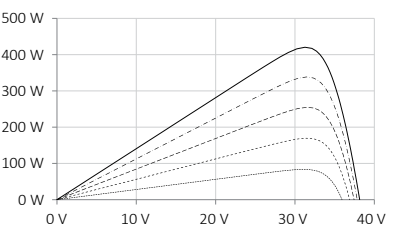
- A: 4 x drainage
- B: 16 x ventilation
- C: 8 x mounting
- D: 2 x earthing

Electrical characteristics

UI - diagram e.g. 420 Wp



UP - diagram e.g. 420 Wp



..... 200 W/m²
 --- 400 W/m²
 - - - 600 W/m²
 - - - - 800 W/m²
 — 1000 W/m²