


## BIFACIAL N-TYPE MONO CRYSTALLINE HALF-CUT MODULE - DOUBLE GLASS

410 / 415 / 420 / 425 / 430 / 435 / 440 Watts


### TOPCon Series

#### Overview


N-type solar cells (TOPCon) are seen as the technology of the future. N-type (TopCon) technology guarantees high performance and low degradation of the PV module, substantially improving the results and the yield in the time. "TOPCon" Series module is the ideal solution for end users who want a Quality PV & reliable product over time and a fast turnaround on their investments.



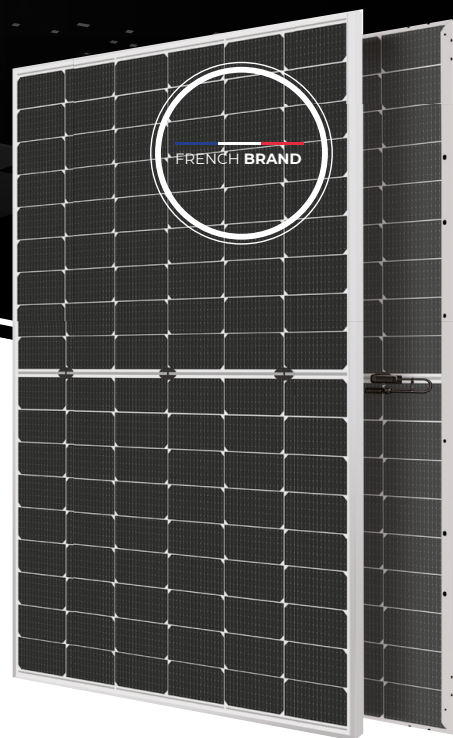
Guaranteed mechanical resistance to severe weather conditions



Positive Tolerance



100 % electroluminescence tested



#### Key benefits



Zero Light Induced Degradation



0% Front Grid Shading Loss



Low LCOE



25 Years Limited Product Warranty



Low Pmax Temperature Coefficient



Higher Light Conversion

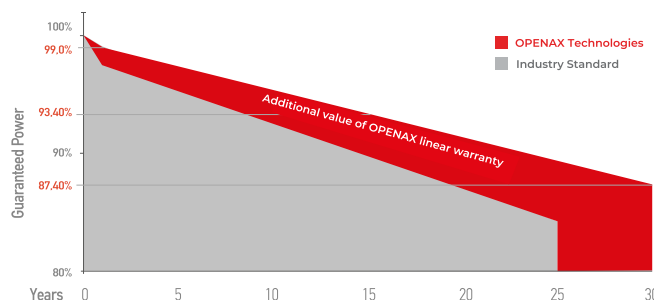
#### Tests, Certifications and Guarantees

<b>Standard tests</b>	IEC 61215, IEC 61730
<b>Factory quality testing</b>	ISO 9001: 2015. ISO 14001: 2015
<b>Certifications</b>	Conformity to CE. PV CYCLE Fire safety Class C according to UL790
<b>Wind and Snow Loads Testing</b>	Module certified to withstand extreme wind [2400 Pascal] and snow loads [5400 Pascal]
<b>Withstanding Hail</b>	Maximum Diameter of 25mm with impact speed of 23m/s
<b>Power Tolerance</b>	Guaranteed +0/+5W [STC condition]

#### Warranties

- ✓ 30-year limited product warranty
- ✓ 15-year manufacturer warranty on 94, 10% of the nominal performance
- ✓ Linear power output guarantee over 30 years

#### Linear performance guarantees



Production 1st year	≥ 99.0%	Power between 2 and 25 years	≤ 0.40%	Power output at 25 years	≥ 87.40%
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# BIFACIAL N-TYPE MONO CRYSTALLINE HALF-CUT MODULE- DOUBLE GLASS

OX-xxx-M10TCBVB108-01(xxx=410-440)

## Electrical performance

POWER CLASS <sup>(1)</sup>		410		415		420		425		430		435		440	
Measurement condition		STC <sup>(2)</sup>	NMOT <sup>(3)</sup>	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT	STC	NMOT
Maximum power	Pmax [Wp]	410	308	415	312	420	316	425	320	430	323	435	327	440	331
Voltage at Pmax	Vmp [V]	31,13	29,06	31,32	29,20	31,51	29,34	31,70	29,50	31,88	29,63	32,07	29,79	32,26	29,95
Current at Pmax	Imp [A]	13,17	10,61	13,25	10,69	13,33	10,76	13,41	10,83	13,49	10,91	13,57	10,98	13,64	11,05
Open Circuit Voltage	Voc [V]	37,73	35,84	37,92	36,02	38,11	36,20	38,30	36,38	38,49	36,56	38,67	36,74	38,85	36,93
Short circuit current	Isc [A]	13,94	11,23	13,99	11,30	14,07	11,36	14,15	11,42	14,23	11,49	14,31	11,55	14,38	11,62
Surface efficiency	Eff [%]	21,00		21,25		21,51		21,77		22,02		22,28		22,54	
Max. Reverse Current	Ir [A]	30													
System voltage max	Vsys [V]	1500V CD (IEC)													

(1) Measurement tolerances: P<sub>max</sub> ( ± 3% ), I<sub>sc</sub> & V<sub>oc</sub> ( ± 3% ) - Power classification 0/+5W

(2) STC (Standard Test Conditions): Irradiance 1000W/m<sup>2</sup> Cell Temperature 25°C, AM 1.5

(3) NMOT (Nominal Module Operating Temperature): Irradiance 800W/m<sup>2</sup> Ambient Temperature 20°C, AM

## Bi Facial Output (4)

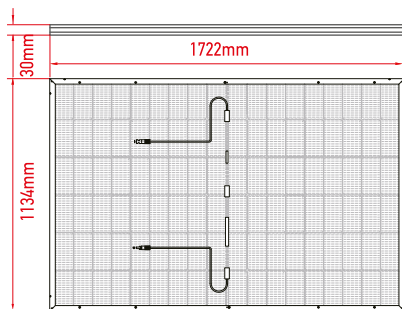
POWER CLASS		410		415		420		425		430		440	
Power with Backside Gain	+5 (%)	P <sub>max</sub> (Wp)	Eff (%)	P <sub>max</sub> (Wp)	Eff (%)	P <sub>max</sub> (Wp)	Eff (%)	P <sub>max</sub> (Wp)	Eff (%)	P <sub>max</sub> (Wp)	Eff (%)	P <sub>max</sub> (Wp)	Eff (%)
	+10 (%)	430,5	22,0%	435,8	22,3%	441,0	22,6%	446,3	22,9%	456,8	23,4%	462,0	23,7%
	+15 (%)	451,0	23,1%	456,5	23,4%	462,0	23,7%	467,5	23,9%	478,5	24,5%	484,0	24,8%
	+20 (%)	471,5	24,1%	477,3	24,4%	483,0	24,7%	488,8	25,0%	500,3	25,6%	506,0	25,9%
	+25 (%)	492,0	25,2%	498,0	25,5%	504,0	25,8%	510,0	26,1%	522,0	26,7%	528,0	27,0%
	+30 (%)	512,5	26,2%	518,8	26,6%	525,0	26,9%	531,3	27,2%	543,8	27,8%	550,0	28,2%
	+30 (%)	533,0	27,3%	539,5	27,6%	546,0	28,0%	552,5	28,3%	565,5	29,0%	572,0	29,3%

(4) Bifaciality Factor > 90% - Back-side power gain depends upon the specific project albedo - Efficiency is according to the module

## Mechanical characteristics

Dimensions	1722mm x 1134 x 30mm
Weight	24.7 Kg
Cells	HJT 182mm x 91mm (2x54 Pcs) - M10
Front panel	2.0mm Tempered and low iron glass + ARC
Rear panel	2.0mm Tempered and low iron glass
Frame	Anodized aluminum alloy
Junction box	IP68 - 3 Bypass Diodes
Connectors	MC4 Compatible
Cables	Cross-section: 4mm <sup>2</sup> - Length: 350mm or can be customized

## Dimensions



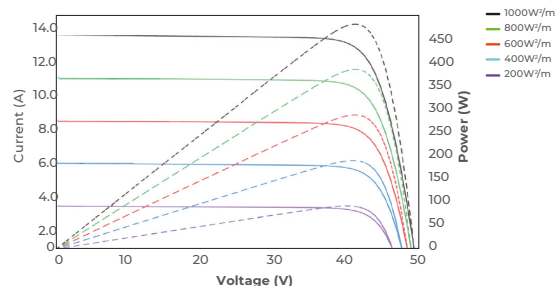
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## I-V curve

Power loss in low-light environments: 200W/m<sup>2</sup> is less than 3%.



## Thermal coefficients

Coeff./ P <sub>max</sub>	-0.290% /°C
Coeff./ V <sub>oc</sub>	-0.250% /°C
Coeff./ I <sub>sc</sub>	+0.045% /°C
Operating temperature	-40~+85 °C
Nominal module operating temperature (NMOT)	42 ± 2 °C

## Packaging configuration

Container	40' (HC)
Pieces per Pallet	37
Pallets per Container	26
Pieces per Container	(37+37)x13=962 pcs