

Tier1

BloombergNEF



CLEAN
ENERGY
COUNCIL



ISO 9001
ISO 45001

ISO 14001
OHSAS 18001

SA 8000



M10 TOPCON MONO-FACIAL

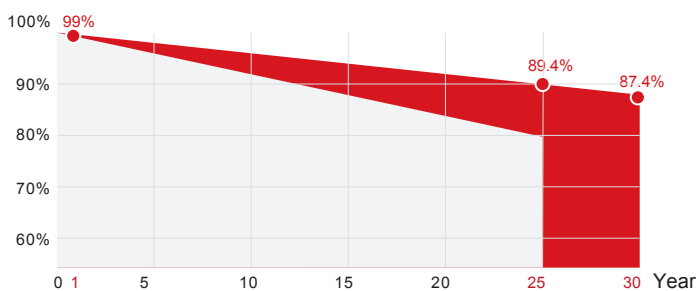
SPxxx-N120M10

455~490W

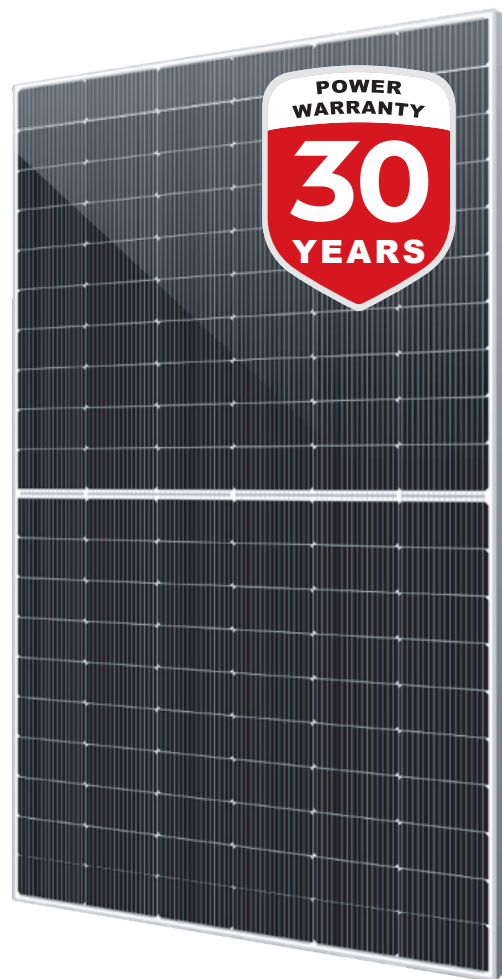
- Silver frame
- Black frame
- Full black

15 Yr quality guarantee | 30 Yr power warranty

 SUNPRO TOPCon module (Additional value from 30-year warranty)
 Common module



*SUNPRO Standard tiered warranty



WARRANTY & GUARANTEE

Linear output power guarantee
25 years: 89.4% power output
30 years: 87.4% power output



WITHSTAND STRONG

Snow load 5400Pa
Wind load 2400Pa



PID RESISTANCE

Power positive tolerance
0~+5W.
The attenuation probability of
PID phenomenon is
minimized through battery
production technology
optimization and material control



R&D AND PRODUCTION

Advanced production line.
The leading solar cell
cutting process and multi
busbar design with
SUNPRO Technology.



HIGH EFFICIENCY

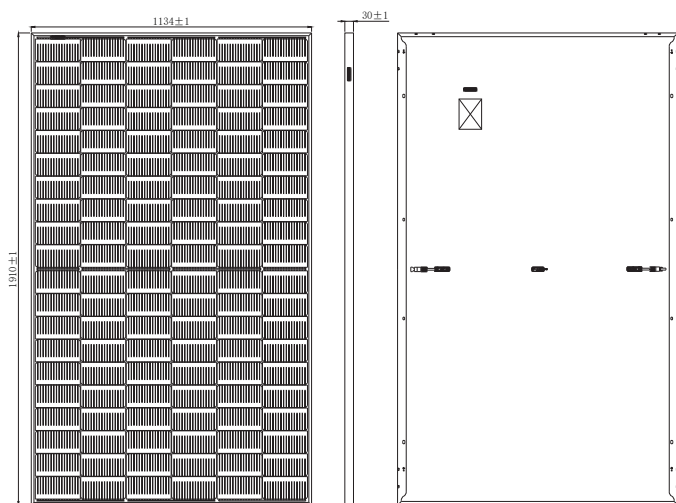
N-type , Components have
better reliability and
lower LID/LETID attenuation.
Efficiency can reach 22.62%
Excellent low light
performance. Higher power
output under the conditions
of haze, overcast, etc.

Electrical parameters at standard test conditions (STC:AM=1.5, 1000W/m², Cells Temperature 25°C)

Typical type

	455W	460W	465W	470W	475W	480W	485W	490W
Max power(P _{max})	455	460	465	470	475	480	485	490
Max power voltage(V _{mp})	34.76	34.88	34.99	35.11	35.24	35.38	35.52	35.66
Max power current(I _{mp})	13.09	13.19	13.29	13.39	13.48	13.57	13.66	13.75
Open circuit voltage(V _{oc})	42.1	42.24	42.38	42.52	42.66	42.8	42.94	43.06
Short circuit current(I _{sc})	13.83	13.94	14.03	14.12	14.2	14.29	14.38	14.47
Module Efficiency(%)	21.01	21.24	21.47	21.70	21.93	22.16	22.39	22.62
Max system voltage	DC 1500V (TÜV, UL)							
Maximum Series Fuse Rating	25A							

DIMENSIONS AND STRUCTURE



Electrical parameters at NMOT test conditions

(Irradiance 800W/m², Ambient Temperature 20°C, AM 1.5, Wind Speed 1m/s)

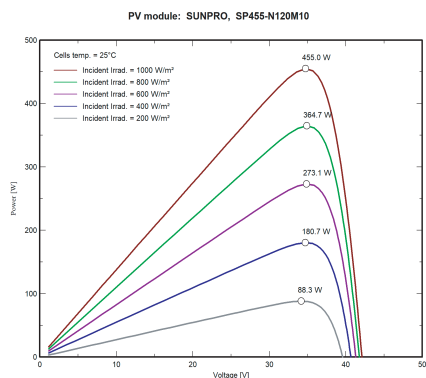
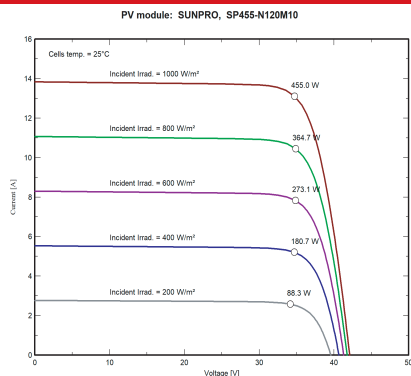
Typical type

	455W	460W	465W	470W	475W	480W	485W	490W
Max power(P _{max})	342	346	350	354	358	362	363	366
Max power voltage(V _{mp})	32.6	32.7	32.9	33	33.2	33.3	33.20	33.30
Max power current(I _{mp})	10.48	10.56	10.63	10.71	10.77	10.86	10.92	11.00
Open circuit voltage(V _{oc})	39.6	39.8	39.9	40.1	40.2	40.4	40.20	40.30
Short circuit current(I _{sc})	11.15	11.24	11.31	11.38	11.44	11.52	11.59	11.66

Mechanical Data

Dimensions	1910x1134x30mm
Weight	22.5kg
Glass	3.2mm ultra clear embossed tempered coated glass
Output cables	4mm ² , symmetrical lengths 1100mm
Connectors	MC4 compatible IP68
Cell type	Mono-Crystalline, N type Bifacial, 182x91mm
Number of cells	120cells (Half-Cell)

I-V CHARACTERISTICS AT DIFFERENT IRRADIATION



Temperature Characteristics

Temp.Coeff.of I _{sc} (TK I _{sc})	0.046%/°C
Temp.Coeff.of V _{oc} (TK V _{oc})	-0.25%/°C
Temp.Coeff.of P _{max} (TK P _{max})	-0.30%/°C
Operating temperature	-40~+85°C
Normal operating cell temperature	45±2°C

Packing Configuration

Container	40'HQ
Pieces per pallet	36
Pallets per container	24
Pieces per container	864

Tests, Certifications and Warranties

Standard tests	IEC 61215, IEC 61730
System certs	ISO 9001, ISO14001, ISO45001
Certifications	TÜV, CE, CEC, WEEE
Extreme wind and snow loads testing	Withstand extreme wind(2400 Pascal) and snow loads(5400 Pascal)
Power tolerance	0~+5W
Junction box	IP 68
Warranties	15 years product warranty and 30 years 87.4% of power