

**Tier1**

BloombergNEF



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HYBRID-ENERGY.RU СОЛНЕЧНЫЕ ПАНЕЛИ С ГАРАНТИЕЙ И ДОСТАВКОЙ ПО РФ

## M10 TOPCON MONO

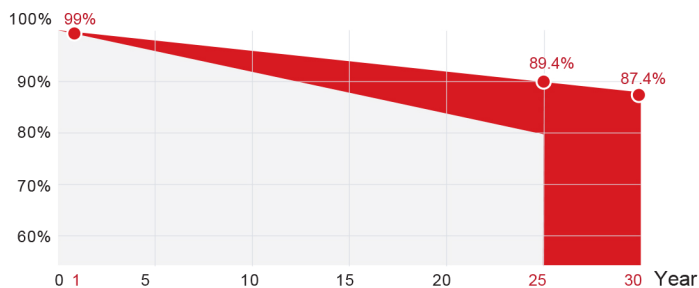
SPxxx-N108M10

410~440W

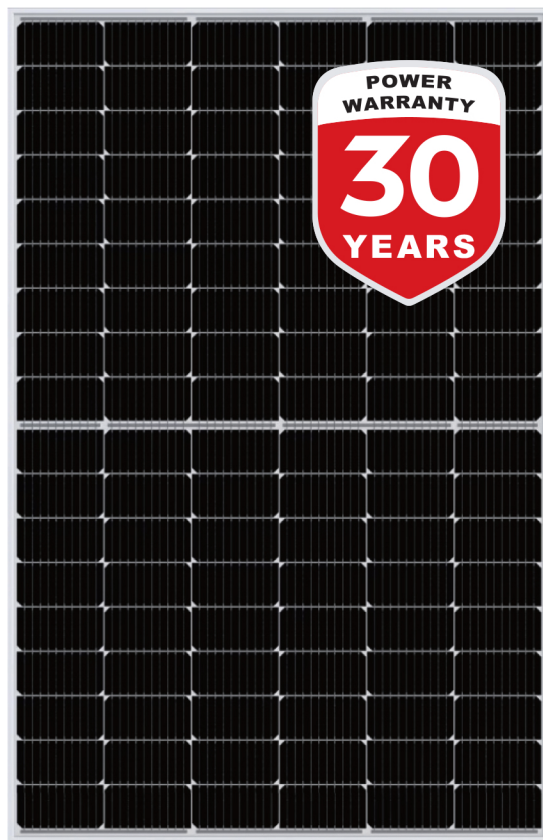
- Silver frame
- Black frame
- Full black

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

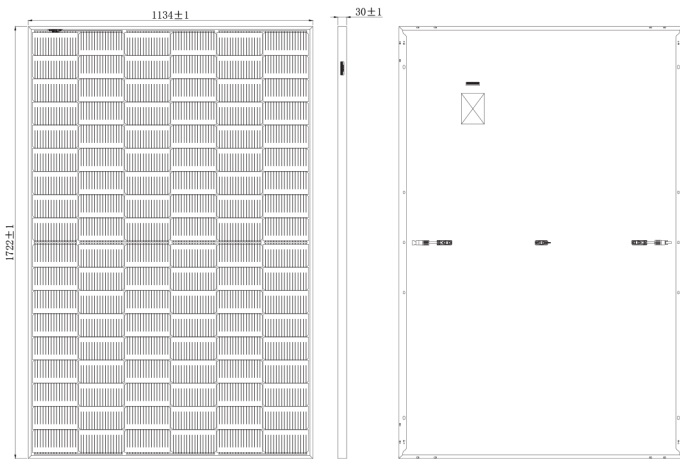
N-type, Components have better reliability and lower LID/LETID attenuation. Efficiency can reach 22.53%. Excellent low light performance. Higher power output under the conditions of haze, overcast, etc.

## Electrical parameters at standard test conditions (STC:AM=1.5, 1000W/m<sup>2</sup>, Cells Temperature 25°C)

### Typical type

|                            |                |       |       |       |       |       |       |
|----------------------------|----------------|-------|-------|-------|-------|-------|-------|
| Max power(Pmax)            | 410W           | 415W  | 420W  | 425W  | 430W  | 435W  | 440W  |
| Max power voltage(Vmp)     | 31.25          | 31.37 | 31.49 | 31.64 | 31.79 | 31.94 | 32.09 |
| Max power current(Impp)    | 13.12          | 13.23 | 13.34 | 13.44 | 13.53 | 13.62 | 13.72 |
| Open circuit voltage(Voc)  | 37.94          | 38.04 | 38.13 | 38.24 | 38.34 | 38.43 | 38.53 |
| Short circuit current(Isc) | 13.85          | 13.96 | 14.07 | 14.16 | 14.25 | 14.34 | 14.43 |
| Module Efficiency(%)       | 21.00          | 21.25 | 21.51 | 21.76 | 22.02 | 22.28 | 22.53 |
| Max system voltage         | DC 1500V (TÜV) |       |       |       |       |       |       |
| Maximum Series Fuse Rating | 25A            |       |       |       |       |       |       |

### DIMENSIONS AND STRUCTURE



### Electrical parameters at NMOT test conditions

(Irradiance 800W/m<sup>2</sup>, Ambient Temperature 20°C, AM 1.5, Wind Speed 1m/s)

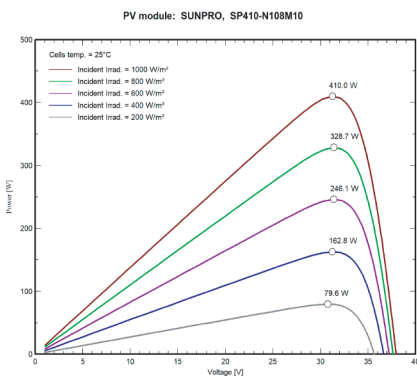
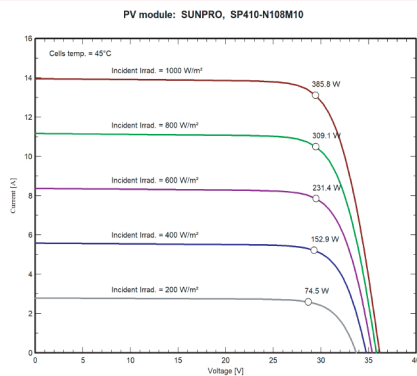
#### Typical type

|                            |       |       |       |       |       |       |       |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|
|                            | 410W  | 415W  | 420W  | 425W  | 430W  | 435W  | 440W  |
| Max power(Pmax)            | 308   | 312   | 316   | 320   | 324   | 325   | 329   |
| Max power voltage(Vmp)     | 29.4  | 29.5  | 29.6  | 29.7  | 29.9  | 29.8  | 29.9  |
| Max power current(Impp)    | 10.49 | 10.58 | 10.67 | 10.75 | 10.84 | 10.91 | 11.00 |
| Open circuit voltage(Voc)  | 35.7  | 35.8  | 35.9  | 36    | 36.1  | 36.00 | 36.10 |
| Short circuit current(Isc) | 11.16 | 11.25 | 11.34 | 11.41 | 11.48 | 11.56 | 11.63 |

### Mechanical Data

|                 |                                                  |
|-----------------|--------------------------------------------------|
| Dimensions      | 1722x1134x30mm                                   |
| Weight          | 21kg                                             |
| Glass           | 3.2mm ultra clear embossed tempered coated glass |
| Output cables   | 4mm <sup>2</sup> , symmetrical lengths 1100mm    |
| Connectors      | MC4 compatible IP68                              |
| Cell type       | N type Mono-Crystalline , 182x91mm               |
| Number of cells | 108cells ( Half-Cell )                           |

### I-V CHARACTERISTICS AT DIFFERENT IRRADIATION



### Temperature Characteristics

|                                   |           |
|-----------------------------------|-----------|
| Temp.Coeff.of Isc(TK Isc)         | 0.046%/°C |
| Temp.Coeff.of Voc(TK Voc)         | -0.25%/°C |
| Temp.Coeff.of Pmax(TK Pmax)       | -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 | 26    |
| Pieces per container  | 936   |

### 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           |