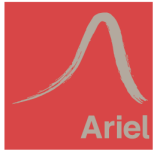


Tier1

BloombergNEF



Lloyd's Syndicate 1910



ISO14001

ISO9001

ISO45001



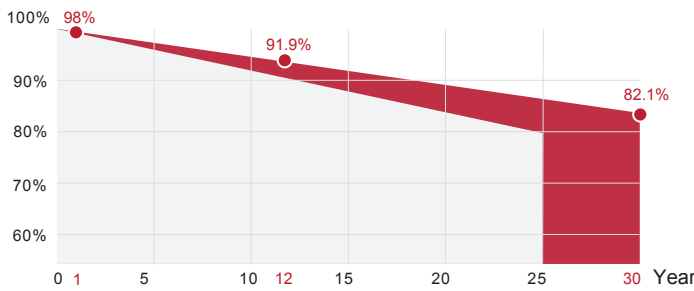
# M12 HIEFF TWIN MONO

## SPDGxxx-110M12

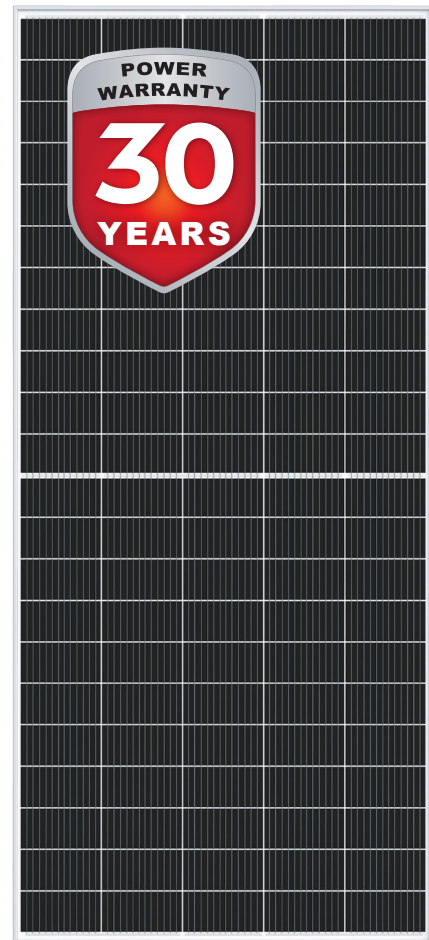
- Double glass (xxx=530~555W)
- Silver frame
- Black frame
- Full black

15 Yr quality guarantee | 30 Yr power warranty

■ SUNPRO Standard (Additional value from 30-year warranty)  
 ■ Industry Standard



\*SUNPRO Standard tiered warranty



### WARRANTY & GUARANTEE

Linear output power guarantee  
12 years: 91.9% power output  
30 years: 82.1% power output



### WITHSTAND STRONG

Snow load 5400Pa  
Wind load 2400Pa



### TWO-SIDED BENEFITS

High efficiency solar cells.  
Effective working area of both sides >75%, with significant power increase. Capture more sunlight and turn it into electricity



### R&D AND PRODUCTION

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



### HIGH EFFICIENCY

Efficiency can reach 21.20%. 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

|                            | 530W                      | 535W  | 540W  | 545W  | 550W  | 555W  |
|----------------------------|---------------------------|-------|-------|-------|-------|-------|
| Max power(Pmax)            | 530                       | 535   | 540   | 545   | 550   | 555   |
| Max power voltage(Vmp)     | 30.80                     | 30.99 | 31.19 | 31.39 | 31.59 | 31.79 |
| Max power current(Imp)     | 17.22                     | 17.27 | 17.32 | 17.36 | 17.41 | 17.46 |
| Open circuit voltage(Voc)  | 37.09                     | 37.29 | 37.49 | 37.69 | 37.89 | 38.09 |
| Short circuit current(Isc) | 18.32                     | 18.37 | 18.42 | 18.47 | 18.52 | 18.57 |
| Module Efficiency(%)       | 20.30                     | 20.50 | 20.70 | 20.90 | 21.00 | 21.20 |
| Max system voltage         | DC 1500V(TUV) / 1000V(UL) |       |       |       |       |       |
| Maximum Series Fuse Rating | 35A                       |       |       |       |       |       |

### Electrical parameters at NMOT test conditions

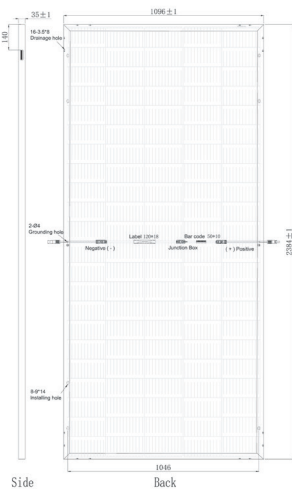
(Irradiance 800W/m<sup>2</sup>, Ambient Temperature 20°C, AM 1.5, Wind Speed 1m/s)

| Typical type               | 530W  | 535W  | 540W  | 545W  | 550W  | 555W  |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Max power(Pmax)            | 432.0 | 435.8 | 439.8 | 443.5 | 447.5 | 451.5 |
| Max power voltage(Vmp)     | 31.30 | 31.40 | 31.60 | 31.80 | 32.00 | 32.20 |
| Max power current(Imp)     | 13.82 | 13.86 | 13.90 | 13.94 | 13.99 | 14.03 |
| Open circuit voltage(Voc)  | 37.30 | 37.50 | 37.70 | 37.80 | 38.00 | 38.20 |
| Short circuit current(Isc) | 14.64 | 14.68 | 14.72 | 14.76 | 14.80 | 14.84 |

### Electrical Characteristics with 15% Rear Side Power Gain

| Front power Pmax/W | 530W  | 535W   | 540W  | 545W   | 550W  | 555W   |
|--------------------|-------|--------|-------|--------|-------|--------|
| Total power Pmax/W | 609.5 | 615.25 | 621   | 626.75 | 632.5 | 638.25 |
| Vmp/V(Total)       | 30.80 | 30.99  | 31.19 | 31.39  | 31.59 | 31.79  |
| Imp/A(Total)       | 19.79 | 19.85  | 19.91 | 19.97  | 20.02 | 20.08  |
| Voc/V(Total)       | 37.09 | 37.29  | 37.49 | 37.69  | 37.89 | 38.09  |
| Isc/A(Total)       | 21.07 | 21.13  | 21.18 | 21.24  | 21.30 | 21.36  |

### DIMENSIONS AND STRUCTURE



### Mechanical Data

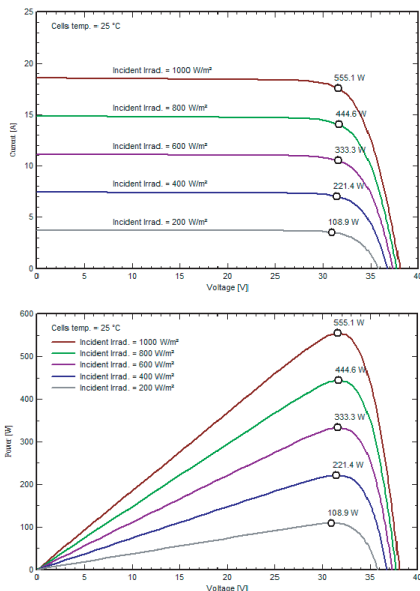
|                 |  |
|-----------------|--|
| Dimensions      | 2384x1096x35mm   |
| Weight          | 33 kg  |
| Glass           | (F) 2.0 mm High Transmission, AR Coated Heat Strengthened Glass<br>(B) 2.0 mm High Transmission, AR Coated Heat Strengthened Glass |
| Output cables   | 4mm <sup>2</sup> , symmetrical lengths 1300mm  |
| Connectors      | MC4 compatible IP68  |
| Cell type       | Mono-Crystalline PERC, 12BB, 210x105mm   |
| Number of cells | 110 cells ( Half-Cell )  |

### Temperature Characteristics

### Packing Configuration

|                                   |           |                       |       |
|-----------------------------------|-----------|-----------------------|-------|
| Temp.Coeff.of Isc(TK Isc)         | 0.049%/°C | Container             | 40'HQ |
| Temp.Coeff.of Voc(TK Voc)         | -0.27%/°C | Pieces per pallet     | 62    |
| Temp.Coeff.of Pmax(TK Pmax)       | -0.35%/°C | Pallets per container | 10    |
| Operating temperature             | -40~+85°C | Pieces per container  | 620   |
| Normal operating cell temperature | 44±2°C    |                       |       |

### I-V CHARACTERISTICS AT DIFFERENT IRRADIATION



### Tests, Certifications and Warranties

|                                     |   |
|-------------------------------------|---|
| Standard tests                      | IEC 61215, IEC 61730, IEC 61701, IEC 62716, PPP 58042           |
| System certs                        | ISO 9001, ISO14001, ISO45001                                    |
| Certifications                      | TUV, CE, WEEE, INMETRO, FIRE CERTIFICATE C1                     |
| Extreme wind and snow loads testing | Withstand extreme wind(2400 Pascal) and snow loads(5400 Pascal) |
| Power tolerance                     | 0~+3%   |
| Junction box                        | IP 68   |
| Warranties                          | 15 years product warranty and 30 years 82.1% of power           |