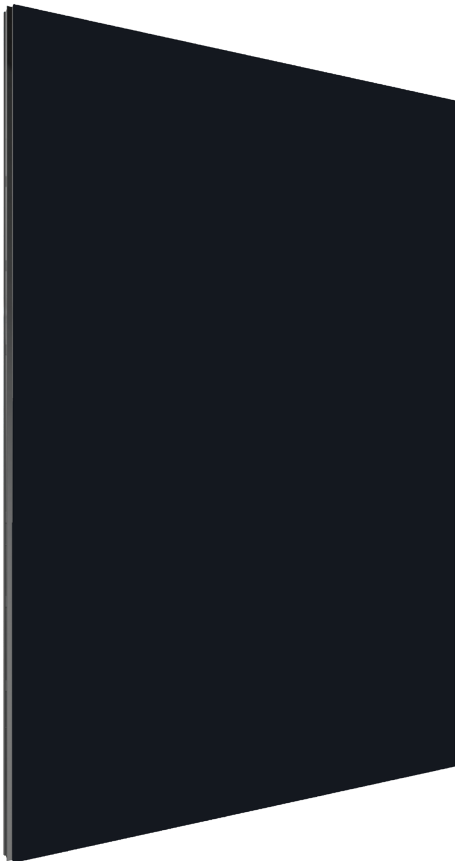




# Series 6 *Plus*

## 455-480 Watt Thin Film Solar Module

First Solar Series 6 *Plus* photovoltaic (PV) modules set the industry benchmark for reliable energy production, optimized design and environmental performance. The advanced design is optimized for every stage of your application, significantly reducing balance of system, shipping, and operating costs.



### More Lifetime Energy per Nameplate Watt

- Industry's best (0.3%) warranted degradation rate
- Superior temperature coefficient, spectral response and shading behavior
- Unlike crystalline silicon modules, First Solar's thin film technology does not experience the losses associated with LID and LeTID
- Anti-reflective coated glass enhances energy production



### Innovative Module Design

- Series 6 *Plus* SL modules offer a value-balanced design delivering maximized savings in low wind-speed areas
- Series 6 *Plus* HL modules offer a more robust design for projects in higher wind-speed areas
- Under-mount frame provides the cleaning and snowshedding benefits of a frameless module while protecting edges against breakage
- Innovative SpeedSlots achieve the industry's fastest installation times and lowest mounting hardware costs
- Dual junction box design optimizes module-to-module connections and eliminates the need for wire management



### Best In-Class Reliability & Durability

- Manufactured under one roof with 100% traceable QA/QC
- Independently tested and certified for reliable performance that exceeds IEC standards in high temperature, high humidity, extreme desert and coastal applications
- Inherently immune to and warranted against power loss from cell cracking



### Best Environmental Profile

- Fastest energy payback time in the industry
- Carbon footprint that is 2.5X lower and a water footprint that is 3X lower than mono crystalline silicon panels on a life cycle basis
- Global PV module recycling services available through First Solar or customer-selected third-party

**19.0%**  
MAXIMUM EFFICIENCY

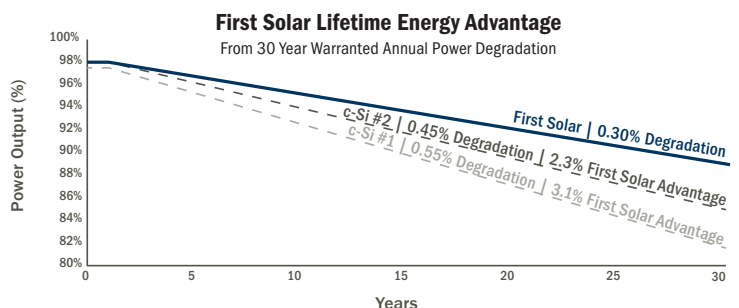
**30YR**  
LINEAR PERFORMANCE  
WARRANTY

**98%**  
WARRANTY START POINT

**0.3%**  
WARRANTED ANNUAL  
DEGRADATION RATE<sup>1</sup>



Learn more about First Solar and Series 6 *Plus* at [firstsolar.com/S6](https://firstsolar.com/S6)



# Series 6 Plus

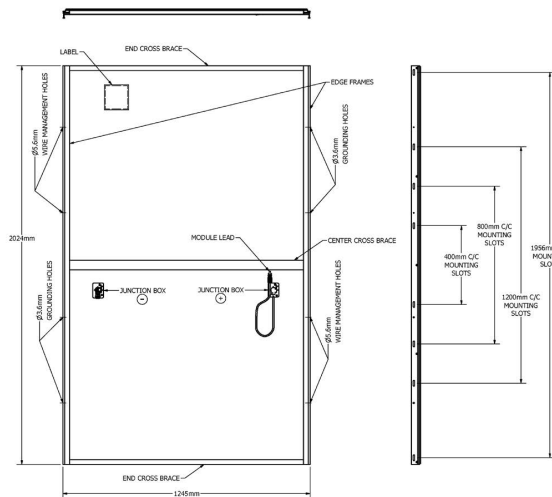
## Electrical Specifications

| RATINGS AT STANDARD TEST CONDITIONS (1000W/m <sup>2</sup> , AM 1.5, 25°C) <sup>2</sup> |                      |                   |       |       |       |       |       |
|----------------------------------------------------------------------------------------|----------------------|-------------------|-------|-------|-------|-------|-------|
| SERIES 6 PLUS SL MODEL TYPES: FS-6XXX-P-I / FS-6XXXA-P-I                               |                      |                   |       |       |       |       |       |
| SERIES 6 PLUS HL MODEL TYPES: FS-6XXX-P / FS-6XXXA-P (XXX = NOMINAL POWER)             |                      |                   |       |       |       |       |       |
| Nominal Power <sup>3</sup> (-0/+5%)                                                    | P <sub>MAX</sub> (W) | 455               | 460   | 465   | 470   | 475   | 480   |
| Efficiency (%)                                                                         | %                    | 18.1              | 18.3  | 18.5  | 18.7  | 18.9  | 19.0  |
| Voltage at P <sub>MAX</sub>                                                            | V <sub>MAX</sub> (V) | 187.8             | 188.8 | 189.8 | 191.1 | 191.5 | 192.8 |
| Current at P <sub>MAX</sub>                                                            | I <sub>MAX</sub> (A) | 2.42              | 2.44  | 2.45  | 2.46  | 2.48  | 2.49  |
| Open Circuit Voltage                                                                   | V <sub>OC</sub> (V)  | 222.0             | 222.9 | 223.8 | 224.3 | 224.8 | 225.4 |
| Short Circuit Current                                                                  | I <sub>SC</sub> (A)  | 2.58              | 2.59  | 2.60  | 2.61  | 2.61  | 2.62  |
| Maximum System Voltage                                                                 | V <sub>SYS</sub> (V) | 1500 <sup>5</sup> |       |       |       |       |       |
| Limiting Reverse Current                                                               | I <sub>R</sub> (A)   | 5.0               |       |       |       |       |       |
| Maximum Series Fuse                                                                    | I <sub>CF</sub> (A)  | 5.0               |       |       |       |       |       |

| RATINGS AT NOMINAL OPERATING CELL TEMPERATURE OF 45°C (800W/m <sup>2</sup> , 20°C AIR TEMPERATURE, AM 1.5, 1m/s WIND SPEED) <sup>2</sup> |                      |       |       |       |       |       |       |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------|-------|-------|-------|-------|-------|
| Nominal Power                                                                                                                            | P <sub>MAX</sub> (W) | 343.6 | 347.3 | 351.3 | 355.0 | 358.8 | 362.4 |
| Voltage at P <sub>MAX</sub>                                                                                                              | V <sub>MAX</sub> (V) | 176.2 | 176.3 | 177.4 | 179.3 | 179.4 | 180.3 |
| Current at P <sub>MAX</sub>                                                                                                              | I <sub>MAX</sub> (A) | 1.95  | 1.97  | 1.98  | 1.98  | 2.00  | 2.01  |
| Open Circuit Voltage                                                                                                                     | V <sub>OC</sub> (V)  | 209.6 | 210.4 | 211.3 | 211.8 | 212.3 | 212.7 |
| Short Circuit Current                                                                                                                    | I <sub>SC</sub> (A)  | 2.08  | 2.09  | 2.10  | 2.10  | 2.11  | 2.11  |

| TEMPERATURE CHARACTERISTICS                 |                                    |                                             |
|---------------------------------------------|------------------------------------|---------------------------------------------|
| Module Operating Temperature Range          | (°C)                               | -40 to +85                                  |
| Temperature Coefficient of P <sub>MAX</sub> | T <sub>K</sub> (P <sub>MAX</sub> ) | -0.32%/°C [Temperature Range: 25°C to 75°C] |
| Temperature Coefficient of V <sub>OC</sub>  | T <sub>K</sub> (V <sub>OC</sub> )  | -0.28%/°C                                   |
| Temperature Coefficient of I <sub>SC</sub>  | T <sub>K</sub> (I <sub>SC</sub> )  | +0.04%/°C                                   |

## Mechanical Specifications



| PACKAGING INFORMATION |                  |                         |
|-----------------------|------------------|-------------------------|
| Model Type            | Modules Per Pack | Packs per 40' Container |
| Series 6 Plus SL      | 30               | 18                      |
| Series 6 Plus HL      | 27               | 18                      |



LEADING THE WORLD'S SUSTAINABLE ENERGY FUTURE

### Disclaimer

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## Certifications & Tests<sup>4</sup>

### CERTIFICATIONS & LISTINGS

IEC 61215:2016 & 61730-1:2016<sup>5</sup>, CE  
IEC 61701 Salt Mist Corrosion  
IEC 60068-2-68 Dust and Sand Resistance  
UL 61730 1500V Listed  
Buy American Act (BAA) Compliant

### EXTENDED DURABILITY TESTS

IEC 63209-1 Extended Stress Test  
Long-Term Sequential  
Thresher Test  
PID Resistant

### QUALITY & EHS

ISO 9001:2015  
ISO 14001:2015  
ISO 45001:2018  
ISO 14064-3:2006  
EPEAT Silver Registered



### MECHANICAL DESCRIPTION

|                          |                                                                |
|--------------------------|----------------------------------------------------------------|
| Length                   | 2024mm                                                         |
| Width                    | 1245mm                                                         |
| Area                     | 2.52m <sup>2</sup>                                             |
| Module Weight            | Series 6 Plus SL: 33.3kg<br>Series 6 Plus HL: 34.0kg           |
| Leadwire <sup>6</sup>    | 2.5mm <sup>2</sup> , 733mm (+) & Bulkhead (-)                  |
| Connectors               | TE Connectivity PV4-S, MC4-EVO 2, or alternate                 |
| Junction Box             | IP68 Rated                                                     |
| Bypass Diode             | N/A                                                            |
| Cell Type                | Thin film CdTe semiconductor, up to 268 cells                  |
| Frame Material           | Anodized Aluminum                                              |
| Front Glass              | Heat strengthened                                              |
| Back Glass               | Heat strengthened                                              |
| Encapsulation            | Laminate material with edge seal                               |
| Frame to Glass Adhesive  | Silicone                                                       |
| Load Rating <sup>7</sup> | Series 6 Plus SL: +1950/-1350Pa<br>Series 6 Plus HL: +/-2400Pa |

Install in portrait only

- Limited power output and product warranties subject to warranty terms and conditions
- All ratings ±10%, unless specified otherwise. Specifications are subject to change
- Measurement uncertainty applies
- Testing Certifications/Listings pending
- IEC 61730-1: 2016 Class II
- Leadwire length from junction box exit to connector mating surface
- 1500Pa tentative load rating for 1956mm mounting slots on Series 6 Plus HL product. Higher loads may be acceptable, subject to testing