



## Sunmodule<sup>+</sup>

### SW 220/225/230/235 mono

High-quality, high performance, and high reliability – the Sunmodule Plus<sup>®</sup> is designed and built for long-term yield stability and ease of use.

Every module is factory flashed at standard test conditions (STC) to determine the power output and then sorted in 5 watt increments. Only modules with a flashed power that is greater than or equal to the nameplate rated power are delivered. Flash report data is provided with every order.

The proven design of the patented low profile Sunbox junction box, has been installed on over 4,000,000 modules. Integrated by-pass diodes and sealed welded connections ensure reliability and eliminate failures resulting from exposure to the elements. The molded fins on the exterior housing dissipate heat quickly to maximize power output.

The patented box channel frame design provides extraordinary stiffness in bending and torsion. The laminate with 4mm glass is set deep in the frame channel and secured with precision applied adhesive. The frame is assembled by press fit to maximize strength and longevity. The result is an extremely robust package that can be mounted in any orientation and can withstand static loads of up to 113 psf.

SolarWorld provides a 5-year workmanship warranty\* and 25-year linear performance guarantee\*

\*See warranty statement for details.



## SW 220/225/230/235 mono

### Performance under standard test conditions (STC\*)

|                             |           | SW 220 | SW 225 | SW 230 | SW 235 |
|-----------------------------|-----------|--------|--------|--------|--------|
| Maximum power               | $P_{max}$ | 220 Wp | 225 Wp | 230 Wp | 235 Wp |
| Open circuit voltage        | $V_{oc}$  | 37.2 V | 37.3 V | 37.4 V | 37.5 V |
| Maximum power point voltage | $V_{mpp}$ | 29.4 V | 29.7 V | 30 V   | 30.3 V |
| Short circuit current       | $I_{sc}$  | 8.10 A | 8.13 A | 8.16 A | 8.19 A |
| Maximum power point current | $I_{mpp}$ | 7.50 A | 7.59 A | 7.68 A | 7.77 A |

\*STC: 1000W/m<sup>2</sup>, 25°C, AM 1.5

### Performance at 800 W/m<sup>2</sup>, NOCT, AM 1.5

|                             |           | SW 220 | SW 225 | SW 230 | SW 235 |
|-----------------------------|-----------|--------|--------|--------|--------|
| Maximum power               | $P_{max}$ | 159 Wp | 163 Wp | 167 Wp | 171 Wp |
| Open circuit voltage        | $V_{oc}$  | 33.5 V | 33.7 V | 33.9 V | 34 V   |
| Maximum power point voltage | $V_{mpp}$ | 26.5 V | 26.8 V | 27.2 V | 27.5 V |
| Short circuit current       | $I_{sc}$  | 6.53 A | 6.56 A | 6.58 A | 6.60 A |
| Maximum power point current | $I_{mpp}$ | 6.00 A | 6.07 A | 6.14 A | 6.22 A |

Minor reduction in efficiency under partial load conditions at 25°C: at 220 W/m<sup>2</sup>, 95% (+/- 3%) of the STC efficiency (1000 W/m<sup>2</sup>) is achieved.

### Component materials

|                  |                           |
|------------------|---------------------------|
| Cells per module | 60                        |
| Cell type        | monocrystalline silicon   |
| Cell dimensions  | 156 x 156 mm <sup>2</sup> |

### System integration parameters

|                                |  |
|--------------------------------|--|
| Maximum system voltage SC II   | 1000 V <sub>DC</sub>   |
| Maximum system voltage USA NEC | 600 V <sub>DC</sub>  |
| Maximum series fuse rating     | 15 A   |
| Maximum reverse current        | Do not apply external voltages larger than V <sub>oc</sub> to the module |

### Thermal characteristics

|                     |           |
|---------------------|-----------|
| NOCT                | 46°C      |
| TC I <sub>sc</sub>  | 0.042 %/K |
| TC V <sub>oc</sub>  | -0.33 %/K |
| TC P <sub>max</sub> | -0.45 %/K |

### Additional data

|                 |           |
|-----------------|-----------|
| Power tolerance | +/- 3 %   |
| Junction box    | IP 65     |
| Connector       | MC type 4 |

