

# Sunmodule<sup>+</sup>™

## SW 235 mono black / Version 2.0

### World-class quality

Fully-automated production lines and seamless monitoring of the process and material ensure the quality that the company sets as its benchmark for its sites worldwide.

### SolarWorld Plus-Sorting

Plus-Sorting guarantees highest system efficiency. SolarWorld only delivers modules that have greater than or equal to the nameplate rated power.

### 25 years linear performance guarantee and extension of product warranty to 10 years

SolarWorld guarantees a maximum performance degradation of 0.7% p.a. in the course of 25 years, a significant added value compared to the two-phase warranties common in the industry. In addition, SolarWorld is offering a product warranty, which has been extended to 10 years.\*

\*in accordance with the applicable SolarWorld Limited Warranty at purchase.  
[www.solarworld.com/warranty](http://www.solarworld.com/warranty)



- Qualified, IEC 61215
- Safety tested, IEC 61730
- Periodic Inspection



## SW 235 mono black / Version 2.0

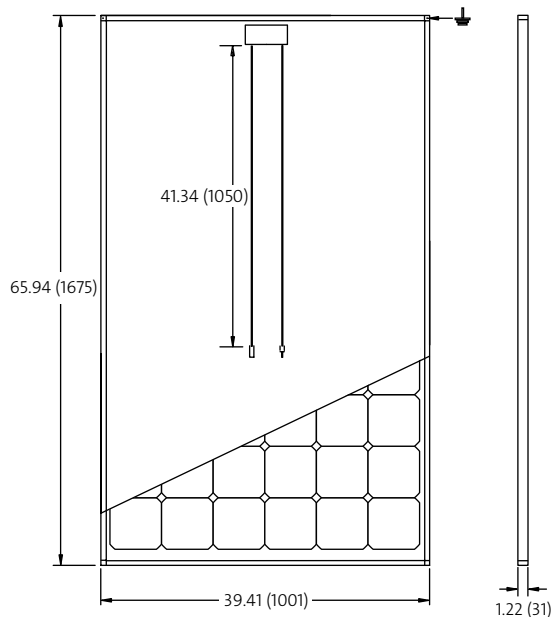
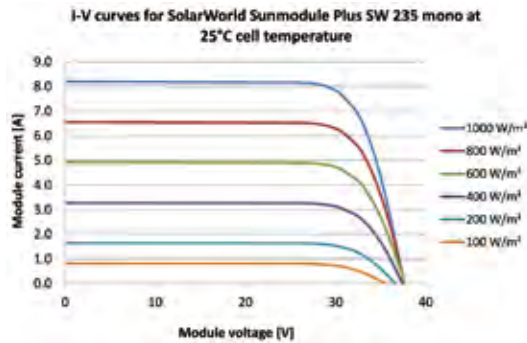
### PERFORMANCE UNDER STANDARD TEST CONDITIONS (STC)\*

|                             |           | SW 235 |
|-----------------------------|-----------|--------|
| Maximum power               | $P_{max}$ | 235 Wp |
| Open circuit voltage        | $V_{oc}$  | 37.5 V |
| Maximum power point voltage | $V_{mpp}$ | 30.3 V |
| Short circuit current       | $I_{sc}$  | 8.19 A |
| Maximum power point current | $I_{mpp}$ | 7.77 A |

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

### THERMAL CHARACTERISTICS

|              |           |
|--------------|-----------|
| NOCT         | 47 °C     |
| TC $I_{sc}$  | 0.042 %/K |
| TC $V_{oc}$  | -0.33 %/K |
| TC $P_{mpp}$ | -0.45 %/K |



### PERFORMANCE AT 800 W/m<sup>2</sup>, NOCT, AM 1.5

|                             |           | SW 235   |
|-----------------------------|-----------|----------|
| Maximum power               | $P_{max}$ | 170.9 Wp |
| Open circuit voltage        | $V_{oc}$  | 34.0 V   |
| Maximum power point voltage | $V_{mpp}$ | 27.5 V   |
| Short circuit current       | $I_{sc}$  | 6.60 A   |
| Maximum power point current | $I_{mpp}$ | 6.22 A   |

Minor reduction in efficiency under partial load conditions at 25°C: at 200W/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                    | Mono crystalline                    |
| Cell dimensions              | 6.14 in x 6.14 in (156 mm x 156 mm) |
| Front                        | tempered glass (EN 12150)           |
| Frame                        | Clear anodized aluminum             |
| Weight                       | 46.7 lbs (21.2 kg)                  |
| UL Maximum Test Load**       | 50 psf (2.4kN/m <sup>2</sup> )      |
| IEC Maximum Snow Test Load** | 113 psf (5.4kN/m <sup>2</sup> )     |

\*\*Please apply the appropriate factors of safety according to the test standard and local building code requirements when designing a PV system.

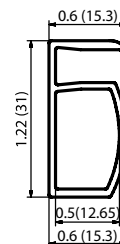
### SYSTEM INTEGRATION PARAMETERS

|                              |                   |                                   |
|------------------------------|-------------------|-----------------------------------|
| Maximum system voltage SC II | 1000 V            |                                   |
| Max. system voltage USA NEC  | 600 V             |                                   |
| Maximum reverse current      | 16 A              |                                   |
| Number of bypass diodes      | 3                 |                                   |
| UL Design Loads*             | Two rail system   | 113 psf downward<br>64 psf upward |
| UL Design Loads*             | Three rail system | 170 psf downward<br>64 psf upward |
| IEC Design Loads*            | Two rail system   | 113 psf downward<br>50 psf upward |

\*Please refer to the Sunmodule installation instructions for the details associated with these load cases.

### ADDITIONAL DATA

|                                       |                          |
|---------------------------------------|--------------------------|
| Measuring tolerance <sup>2)</sup>     | +/- 3 %                  |
| SolarWorld Plus-Sorting <sup>3)</sup> | $P_{Flash} \geq P_{max}$ |
| Junction box                          | IP65                     |
| Connector                             | MC4                      |
| Module efficiency                     | 14,0 %                   |
| Fire rating (UL 790)                  | Class C                  |



#### VERSION 2.0 FRAME

- Compatible with "Top-Down" mounting methods
- ⚡ Grounding Locations: 4 corners of the frame

1) Sunmodules dedicated for the United States and Canada are tested to UL 1703 Standard and listed by a third party laboratory. The laboratory may vary by product and region. Check with your SolarWorld representative to confirm which laboratory has a listing for the product.

2) Measuring tolerance is used conjunctions with the SolarWorld Limited Warranty. SolarWorld AG reserves the right to make specification changes without notice.

3) The output identified by SolarWorld ( $P_{Flash}$ ) is always higher than the nominal output ( $P_{max}$ ) of the module. PFlash is the power rating flashed at a SolarWorld manufacturing facility.

4) All units provided are imperial. SI units provided in parentheses.