

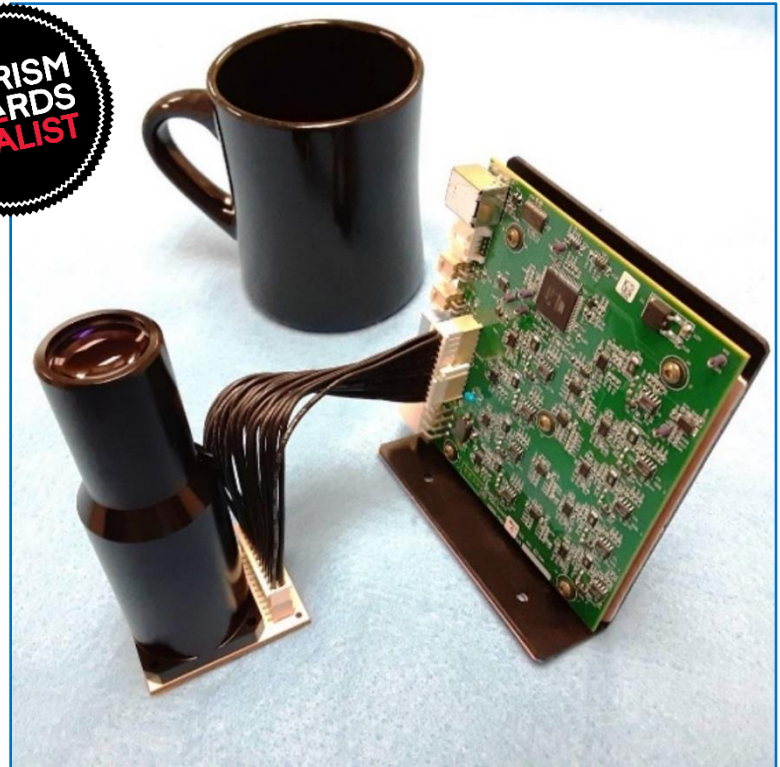


Model 6000B-100 LED Solar Simulator IEC Class AAA



The Model 6000B-100 is a compact, multi-wavelength LED solar simulator for PV manufacturers that meets IEC 60904-9 Class AAA for spectral match, non-uniformity of irradiance and temporal stability requirements. The field of illumination is 50 x 50 mm at a working distance of 155 mm.

Embedded chip-scale spectral sensors provide feedback monitoring to stabilize source irradiance. A digital driver/controller features an RS-485 interface with Modbus RTU communication protocol for remote operation.



Consuming only 15W of input power, it is energy efficient and simplifies any thermal interface or active cooling scheme. The compact and lightweight design supports a diversity of system integration concepts previously unattainable. The extensive value proposition offers lower power, higher stability, smaller size, greater application flexibility, and a significantly lower cost-of-ownership for PV testing compared to other commercial solar simulators.

FEATURES and BENEFITS

- Consumes only 15 Watts for 1 Sun of irradiance in a 50 mm x 50 mm field.
- Embedded spectral sensors as output monitors provide long term stability of irradiance.
- Low power operation simplifies cooling schemes, maximizes operating life and minimizes cost-of-ownership.
- Irradiance adjustable from 0.5 to 1.0 sun
- Mercury and ozone free

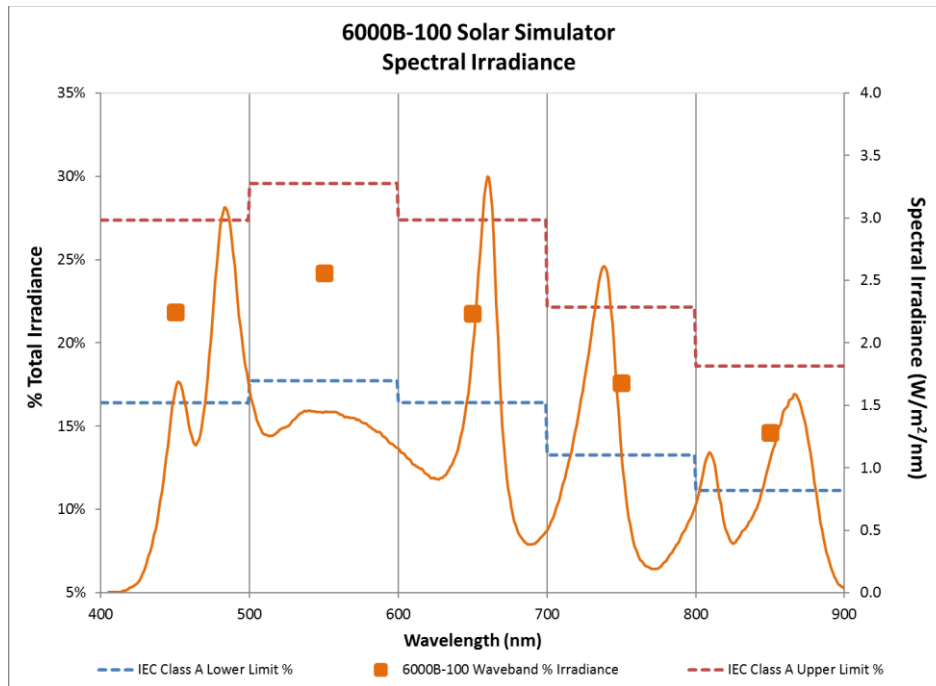
NOTICE

THIS PRODUCT IS INTENDED
FOR INDUSTRIAL USE
AND IS SOLD EXCLUSIVELY TO
QUALIFIED SYSTEM
INTEGRATORS.

*Please Send Inquiries to:
sales@innovationsinoptics.com*



Spectral Power Distribution



| Wavelength range nm | Measured Irradiance W/m ² | % of Total |
|---------------------|--------------------------------------|-------------|
| 400 – 500 | 139.4 | 21.8% |
| 500 – 600 | 154.5 | 24.2% |
| 600 – 700 | 138.9 | 21.8% |
| 700 – 800 | 112.4 | 17.6% |
| 800 – 900 | 93.4 | 14.6% |
| Total | 638.6* | 100% |

Table 1 - Measured Spectral Irradiance Distribution at 1.0 Sun

***NOTE ON THE SPECTRAL AND TOTAL IRRADIANCE OF THE 6000B-100**

The 6000B-100 is optimally designed for I-V testing of CdTe PV materials. These materials have no responsivity beyond 900 nm. The spectral irradiance therefore is confined to a spectral range of 400-900 nm. The total irradiance in 400-900 nm is the same integrated value as AM 1.5 reference solar spectral irradiance distribution according to IEC 60904-3.



Uniformity of Irradiance

| | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|-------|
| 628.2 | 628.1 | 627.4 | 624.9 | 625.6 | 628.7 | 627.9 | 632.7 |
| 629.7 | 629.0 | 627.7 | 628.3 | 628.6 | 630.1 | 630.0 | 631.3 |
| 631.4 | 632.3 | 629.0 | 629.9 | 633.3 | 634.7 | 631.5 | 632.0 |
| 632.9 | 635.3 | 632.9 | 632.7 | 635.4 | 637.5 | 636.2 | 632.1 |
| 633.4 | 635.1 | 636.3 | 635.7 | 634.7 | 636.3 | 635.7 | 636.2 |
| 632.3 | 633.9 | 637.4 | 636.3 | 635.8 | 634.9 | 634.2 | 636.2 |
| 632.0 | 635.4 | 634.1 | 635.7 | 636.0 | 635.6 | 635.7 | 635.4 |
| 634.5 | 632.0 | 632.9 | 633.4 | 633.4 | 634.1 | 633.3 | 635.7 |

Table 2 - Total Irradiance Measured Over the 50 mm x 50 mm Test Plane

$$\text{Non-uniformity (\%)} = \left[\frac{\text{max irradiance} - \text{min irradiance}}{\text{max irradiance} + \text{min irradiance}} \right] \times 100\% = \mathbf{1.0\%}$$

(per IEC60904-9 2007)

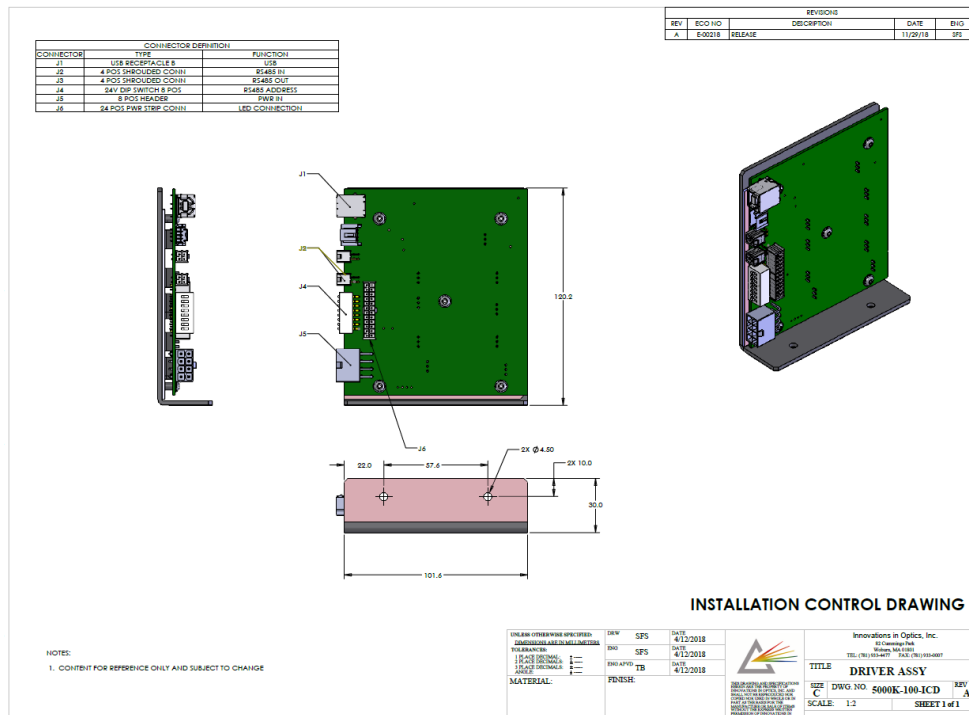
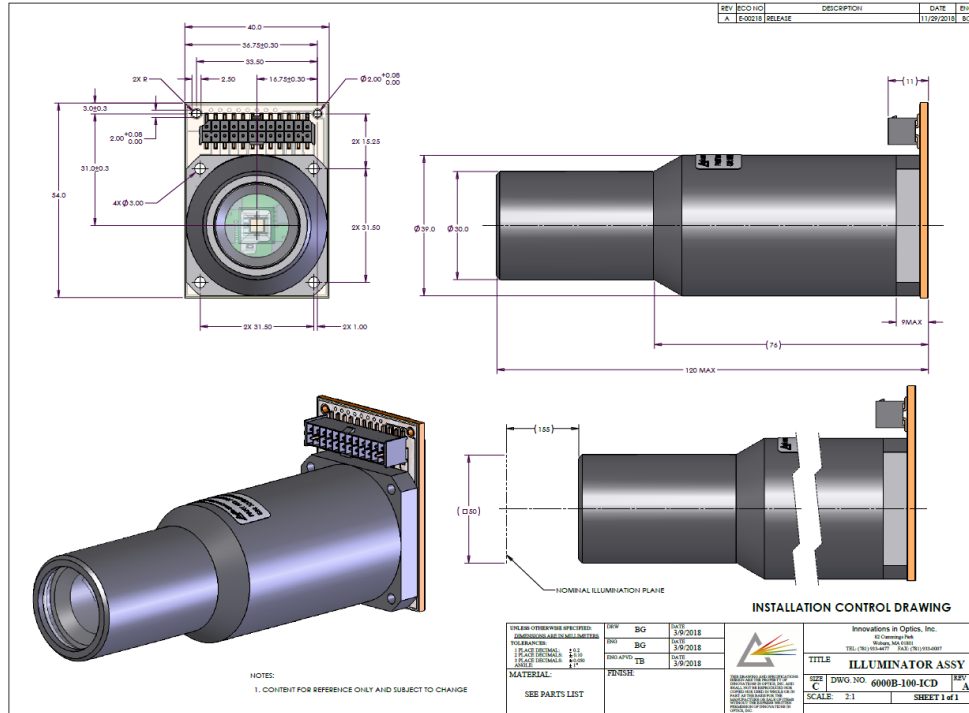


Specifications

| PARAMETER | SPECIFICATION | COMMENT |
|---|-------------------|---|
| Solar simulator class, type | AAA, steady-state | IEC60904-9 2007 |
| Intended use | I-V measurement | CdTe |
| Irradiance range of solar simulator class | 0.5 to 1.0 Sun | 400-900 nm |
| Illumination area | 50 mm x 50 mm | At working distance |
| Working distance (W.D.) | 155 mm | Source exit aperture to test plane |
| Maximum angle subtended at (W.D.) | 29° | Source aperture rim to corner of test plane |
| Warm up time for stable irradiance | 5 minutes | From a cold start |
| Long term instability (LTI) of irradiance | ≤ 0.3% | 60 hours after 5-minute warm-up |
| Operating environment | 20°C to 30°C | <85%, relative humidity, non-condensing |
| Spectral sensor monitor | 450-860 nm | 12 discrete spectral bands |
| Thermal sensors | Safety shutdown | LED and driver PCBs |
| Communication protocol | MODBUS RTU | RS-485 |
| Weight | 0.5 Kg | Without driver/controller PCB |
| Power input | 24 VDC | < 15W power consumption at 1.0 Sun |



Dimensions



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