Spi-Sun Simulator™ 5100SLP

The Newest Standard in PV Module Performance Measurement

The latest addition to Spire's suite of Solar Simulators is the Spi-Sun Simulator™ 5100SLP. Targeted for high volume production testing of solar modules, the 5100SLP is designed to meet the demanding standards of PV module makers worldwide while providing the uncompromised performance and quality expected of the Spire simulator family.

The 5100SLP focuses on reducing the cost of ownership with a single lamp and small footprint design that integrates easily into any factory environment. A totally new approach to the internal optical design has resulted in improved optical efficiency without thermal problems or power limitations.

The 5100SLP is a very compact metrology instrument and has been developed to exceed IEC 60904-9 Class AAA specifications for irradiance spectrum, spatial uniformity, and temporal stability. The new system provides better than Class A irradiance from 400nm-1100nm which replicates true sunlight conditions and is critical for getting every watt out of high efficiency c-Si and thin film modules. The system also allows for better control of "measurement uncertainty" with a measurement repeatability of better than 0.15%.

The 5100SLP's delivers accurate and repeatable power measurements enabling traceability to international gold module standards certified by the world's leading certification bodies. Spire's simulators are the industry standard for test labs and universities worldwide, and used in Independent and National Labs including NREL, UL, TÜV, FSEC, EC-JRC, CSA, KIER, and Intertek.

World Leader in Module Performance Measurement

FEATURES AND BENEFITS
Industry leading accuracy and precision* for more reliable power measurement and increased profitability
Best form factor for inline automation interfaces combined with high throughput (30 second typical cycle time)
Superior repeatability (≤ 0.15%) provides the foundation for long-term simulator stability and "matching" of simulators across multiple plant locations
Better than Class A performance (spectral, spatial, and temporal) - exceeds IEC 60904-9 standards
Reduced measurement uncertainty allows tighter power binning
Low cost of ownership
Single lamp design
Low profile design with small footprint integrates easily into any production or test environment
Long lamp lifetime and rapid lamp change do not affect spectrum or add downtime

** Repeatability and reproducibility*

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Specifications

Simulator Model	**Spi-Sun Simulator 5100SLP**
Maximum Module Dimensions (mm)	2,100 x 1,400
Light Source	
Number of Lamps	1
Lamp Type	Single Long Pulse filtered xenon tube
Pulse Duration	10 to > 40 ms at 1,000 W/m^2
Spectrum	400 - 1100 nm, ≤ ±18 %, AM1.5G
Irradiance Temporal Stability	≤ 0.2% at 1,000 W/m^2
Irradiance Spatial Uniformity	≤ 1%
Lamp Life	> 100,000 flashes
Measurement Range and Performance	
Range of Light Intensity	200 -1,100 W/m^2
Measurement Duration	< 1 second
Power/Module (max)	600 W
Voltage Ranges	5 ranges (2.5, 10, 25, 100, 250 V full-scale)
Current Ranges	4 ranges (3, 6, 12, 25 A full-scale)
I/V Resolution	0.003%
Repeatability	≤ 0.15% Pmax, Isc, Voc, FF
Throughput	
Continuous Typical Cycle Time	30 seconds
System Specifications (not including control cabinet)	
Overall Length x Width x Height (mm)	2,740 x 2,007 x 1040
Net Weight	702 kg (1,547 lbs)
Control Cabinet Specifications	
Overall Length x Width x Height (mm)	1,716 x 635 x 1,380
Net Weight	316 kg (697 lbs)
Utility Requirements	
Electricity (no automation)	208 - 240 V (±10%), 30 A, 50/60 Hz, 1 Ph
Environment	
Temperature	23 ± 5°C
Humidity	40 to 55% r.h. Non-condensing
Certification	CE

SPIRE SOLAR, INC.
REGISTERED TO ISO 9001:2008
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