Sirius Series Solar Simulators, Class A AM1.5G, 0.2–1.2 Sun Adjustable

Model Sirius Series · waveqvanta.com/products/sirius-series-solar-simulators

Xenon-lamp solar simulators that reproduce AM1.5G sunlight for photovoltaic research and quality assurance.



Sirius series solar simulators use a xenon arc lamp with an AM1.5G spectral correction filter to approximate sea-level sunlight for testing all types of solar cells. All models reach a Class A spectral match (0.75–1.25) to IEC 60904-9 and deliver up to 1200 W/m^2 over a 40 × 40 mm or 60 × 60 mm area with ±4° collimation. Versions are available for upward, downward or horizontal (left) irradiation.

Key features

- Class A spectral match (0.75–1.25) across the six IEC 60904-9 bands from 400 to 1100 nm
- Class A non-uniformity and instability (≤2%) on SS150A and SS300A models; Class B non-uniformity (≤5%) on SS150 models
- Optical intensity stability < 0.5%, within the ≤2% Class A instability limit
- Intensity continuously adjustable from 0.2 to 1.2 sun, maximum output 1200 W/m^2
- Built-in timer records bulb operating hours; remote shutter control
- Optical path configurable for vertical or horizontal irradiation
- Optional IV-2400 or IV-2450 digital source meter for complete I-V measurement

Specifications

Spectral Match	0.75–1.25 (Class A, IEC 60904-9)
Spectrum	AM1.5G, with spectral correction filter
Non-uniformity	≤2% Class A (SS150A, SS300A models); ≤5% Class B (SS150 models)
Instability	≤2% (Class A), all models
Optical Intensity Stability	< 0.5%
Irradiation Area	40 × 40 mm (SS150 types), 60 × 60 mm (SS300A types)
Maximum Power Output	1200 W/m^2
Intensity Adjustment	0.2–1.2 sun, continuous
Collimation Angle	±4°
Irradiation Direction	Up (no suffix), Down (-D) or Left (-L)
Shutter	Remote shutter control
Lamp Timer	Built-in, monitors bulb operating time
Spectral Match 400–500 nm (Test Result)	1.02 (standard 18.4%, measured 18.8%)
Spectral Match 500–600 nm (Test Result)	1.06 (standard 19.9%, measured 21.0%)
Spectral Match 600–700 nm (Test Result)	1.04 (standard 18.4%, measured 19.1%)
Spectral Match 700–800 nm (Test Result)	1.00 (standard 14.9%, measured 14.9%)
Spectral Match 800–900 nm (Test Result)	0.92 (standard 12.5%, measured 11.5%)

Spectral Match 900–1100 nm (Test Result)	0.92 (standard 15.9%, measured 14.7%)
Optional Source Meter IV-2400	5½-digit, 0.012% basic accuracy, 200 mV–200 V, 1 µA–1 A, 20 W
IV-2400 Interface and Speed	GPIB, RS-232; > 2000 readings/s; 5000-point buffer; banana jacks
Optional Source Meter IV-2450	6½-digit, 0.012% basic accuracy, 20 mV–200 V, 10 nA–1 A, 20 W
IV-2450 Interface and Speed	GPIB, RS-232, Ethernet; > 3000 readings/s; > 250,000-point buffer
IV-2450 Display and Connections	5-inch capacitive touchscreen; banana jacks or triaxial connections

Model overview

Model	Irradiation Area (mm)	Spectral Match	Non-uniformity	Instability	Max. Output (W/m^2)	Collimation	Direction
Sirius-SS150A	40 × 40	0.75–1.25 (A)	≤2% (A)	≤2% (A)	1200	±4°	Up
Sirius-SS150A-D	40 × 40	0.75–1.25 (A)	≤2% (A)	≤2% (A)	1200	±4°	Down
Sirius-SS150A-L	40 × 40	0.75–1.25 (A)	≤2% (A)	≤2% (A)	1200	±4°	Left
Sirius-SS300A	60 × 60	0.75–1.25 (A)	≤2% (A)	≤2% (A)	1200	±4°	Up
Sirius-SS300A-D	60 × 60	0.75–1.25 (A)	≤2% (A)	≤2% (A)	1200	±4°	Down
Sirius-SS150	40 × 40	0.75–1.25 (A)	≤5% (B)	≤2% (A)	1200	±4°	Up
Sirius-SS150-D	40 × 40	0.75–1.25 (A)	≤5% (B)	≤2% (A)	1200	±4°	Down
Sirius-SS150-L	40 × 40	0.75–1.25 (A)	≤5% (B)	≤2% (A)	1200	±4°	Left

Typical applications

- Solar cell I-V and efficiency testing
- Photovoltaic device research
- Quality assurance of solar cells
- Light source for solar cell I-V test systems