

Spectrosun[®] X-25 Mark II Solar Simulator

Benefits

- World standard steady state solar simulator.
- Used most frequently in laboratory or production environments for precision testing and/or calibration of light-sensitive (e.g., photovoltaic) devices. Also used on terrestrial, aerospace and satellite products as a long-term simulated sunlight exposure system to test optical coatings, thermal control coatings, paints, etc.
- Self-contained and easily movable.
- All optical maintenance can be performed by your existing inhouse personnel.
- Very low ongoing maintenance required.
- Lamp change and refocusing typically requires only 2 to 4 hours.
- Durable: All systems designed into high-strength welded steel enclosures.

Features

- Source Module's xenon short-arc lamp is attached to a special strain-free adjustable mount for positive alignment.
- Interchangeable optical packages, spectral filtering and a collimating lens accessory also available. Lenses and optical filters are custom designed and fabricated from UV grade quartz. Metal mirrors and electroformed aconic (patented) collector are first-surface aluminized and overcoated as required.
- Environmental control unit has forced air cooling with 6" exhaust duct outlet. It maintains lamp, collector and douser temperatures within correct operating ranges. Interlocks stop or prevent lamp operation in the event of cooling system failure.
- Power supply is solid state. Lamp amperage is regulated by either a precision shunt in constant current mode or by a light feedback sensor. The light feedback mode is used during long term tests (e.g., over 200 hours, continuous) where lamp aging causes light output at constant current to decrease. Power supply automatically increases lamp amperage to compensate for aging.
- Size: 79" high, 25" wide, 32" deep. Weight: 1000 lbs (454 kg). Basic control console less accessory interchangeable lenses.



Product Description

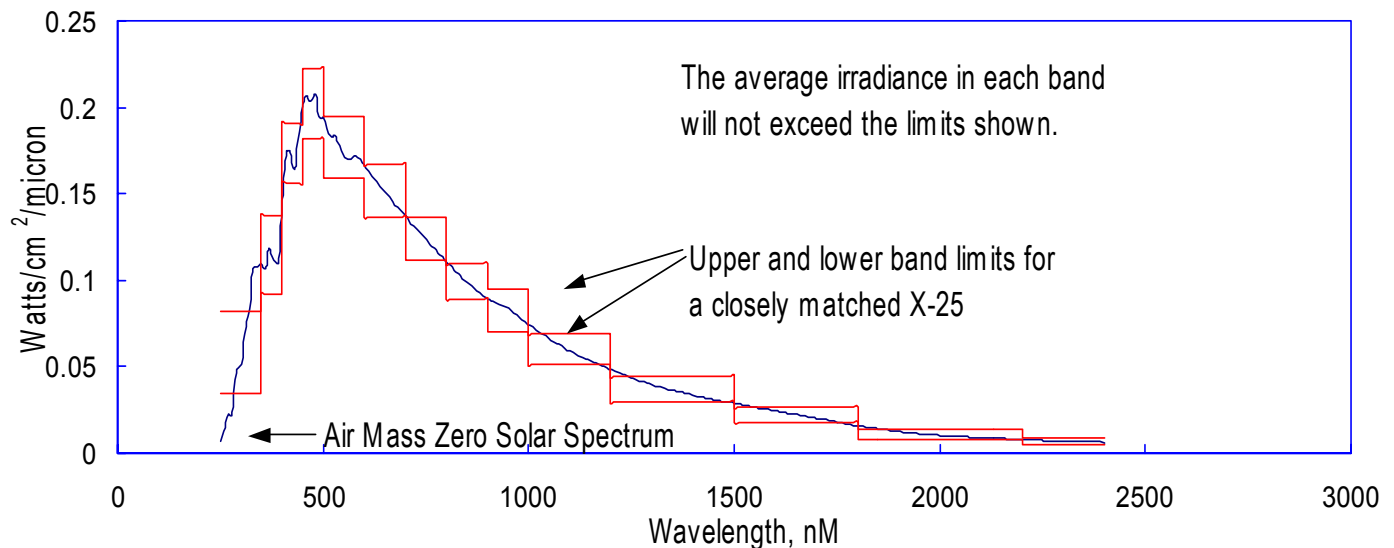
- Self contained movable simulator used wherever a stable, uniform and reproducible source of artificial sunlight is required.
- All models can be equipped with accessory optical filters to closely match the simulator's irradiance to sunlight at sea level (Air-Mass-One, AM1.5) or outside the earth's atmosphere (AM0).
- Supplied with a 3 kW xenon short-arc source lamp and multi-element quartz integrating optics. Special applications may require the optional 4 kW lamp.
- An electrically driven elevator mechanism adjusts output beam height from 46" to 64" above floor level.
- Equipped with an electrically operated remote beam douser (shutter).

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System Specifications

Beam Diameter	The most popular beam diameter for AM0 and AM1.5 testing is 13". Other beam sizes and shapes are also available.
Beam Intensity	Intensities of 0.23 to 200 solar constants are available with different optics packages. Beam intensity is monitored and displayed on the control panel, adjustable to within 2% over a range of 40%. Range can be attenuated to 80% or more with accessory intensity screen set, consisting of three neutral density filters.
Beam Uniformity	Lenticular system with $\pm 2\%$ and $\pm 3\%$ uniformity. Projection system with $\pm 5\%$ and $\pm 10\%$ uniformity. 1cm ² monitors.
Stability Of Beam Intensity	Beam instability and localized time variant not to exceed $\pm 1\%$ for time periods of 100 milliseconds to 24 hours. Power supply mode can be selected from either "constant current" for best short-time stability, or "light feedback" to compensate for lamp aging during long-term tests (e.g., over 200 hours).
Collimation or Projection Angle	Standard lenticular optical systems with $\pm 2^\circ$ projection or collimated beams. Projection optical systems with $\pm 14^\circ$ or $\pm 7^\circ$. Collimated projection optics with $\pm 1.2^\circ$ for 12" diameter and $\pm 2.4^\circ$ for 6" diameter systems.
Spectral Match (see chart below)	0.25 to 2.7 micron high-pressure xenon arc spectrum is modified by filters and optical design to more closely match sunlight. Close filtering available for AM0, AM1, and AM1.5. Spectral quality limited to the first 400 hours of lamp life.
Beam Orientation	Horizontal beam with axis 46" from floor. Optional electrically driven elevator accessory available which adjusts beam height over the range of 46"-64" from the floor. Optional folding mirrors available to fold output beam 90° down to vertical for table-top testing. Other folding directions also possible.
Lamp Life	Xenon Source lamp rated at 1500 hrs pro rata warranted for 750 hrs, when used for at least 20 minutes per ignition.
Input Power	Three phase, 230V AC $\pm 10V$, 60Hz, 20 amps/phase or 460V AC $\pm 20V$, 10 amps/phase, 60Hz. Other 3 phase voltages available: 208V AC, 60Hz; 315V AC, 50Hz; 380V AC, 50Hz. Specify voltage and frequency at time of order.

X-25 Spectral Characteristics



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Specifications subject to change without notice. 08/20/1997