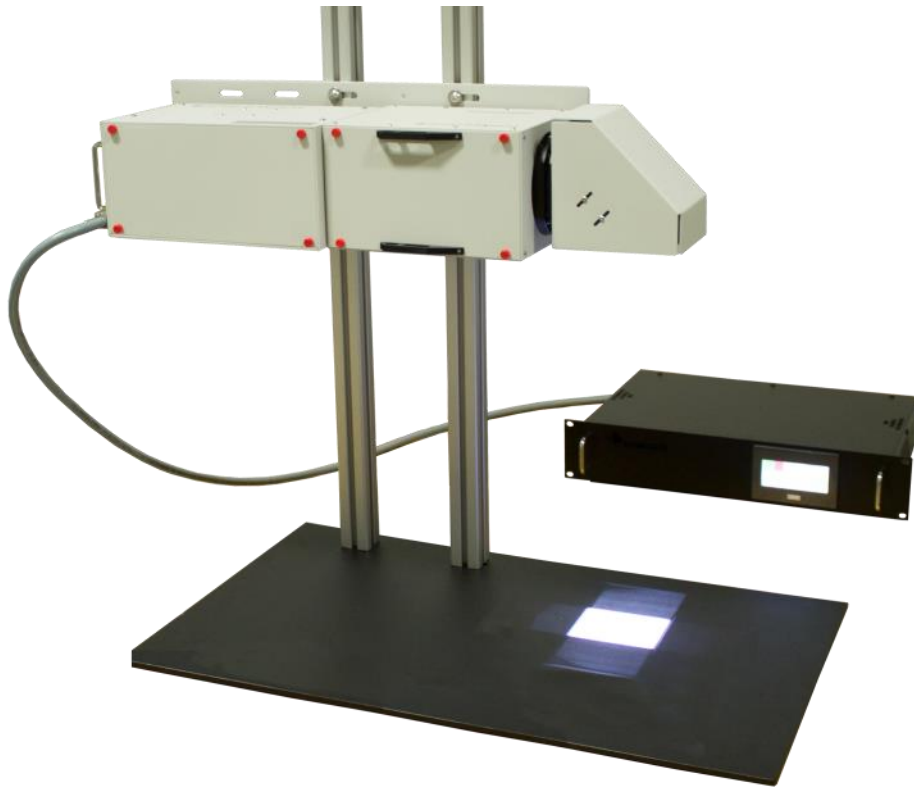


Small Area Solar Simulators

SciSun series



Features

- Class AAA specification (ASTM, IEC)
- Illumination area: 50x50mm
- Touchscreen power supply with control software included
- Manual shutter included (electronic shutter available)
- Variable attenuator from 0.1–2 suns
- Plug and play operation
- Long working distance can facilitate glovebox integration

Applications

- Photovoltaic Testing
- Environmental Testing
- Photobiology and Photochemistry
- Material and degradation testing



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SCIENCETECH
Making Light Work Better

Small Area Solar Simulators SciSun series

Overview

Sciencetech's line of SciSun solar simulators are easy to use, economically priced, and technically superior. The SciSun line is designed for researchers who do not require a large field of illumination. They can produce up to **2 Suns** and feature Class AAA specifications.

The SciSun series provides a flexible output orientation that can be adapted to different requirements. The standard configuration is downward-facing; however, a horizontal output can be achieved easily.

All SciSun models include:

- arc lamp housing with integrated igniter
- xenon arc lamp
- filter holder
- beam turner (variable illumination directions)
- quality control report

Non-LP series models also include:

- touchscreen power supply interface
- power supply control software
- manual variable attenuator
- height-adjustable stand

Specifications

STANDARDS

SciSun solar simulator specifications listed are according to ASTM E927-19 and IEC-60904-9 unless otherwise stated.

Model	SciSun-300	SciSun-LP-300	SciSun-150	SciSun-LP-150
Part Number	160-9101	160-9104	160-9103	160-9105
Target Area	50 × 50 mm			
Irradiance Uniformity	Class A ¹			
Irradiance at Target (AM1.5G 1 Sun=100mW/cm ²)	Up to 2 Sun ²		Up to 1 Sun ²	
Lamp Wattage (watts)	300		150	
Spectral Match AM 1.5G	Class A ³			
Lamp Type	Xenon Short Arc , Ozone free			
Temporal Stability	Class A ⁴			
Working Distance (mm)	380 ± 15			
Manual Shutter	Included			
Manual Variable Attenuator	Included	Available	Included	Available
Dimensions (L×W×H)	535 × 183 × 188 mm			
Weight without PS (kg)	8.5 + 8 (stand)	8.5	8.5 + 8 (stand)	8.5
Power Supply Model	601-300	EPS-300	601-150	EPS-150
Power Requirements	110-240V, 50Hz/60Hz , 450W		110-240V, 50Hz/60Hz , 250W	
Stability / Ripple / Regulation	0.05% / < 1% / 0.02% current variation for 5V line charge			

1) Determined from true Isc measurements with silicon sensor mounted on 2 axis automated stage. 2) Measured using NIST traceable secondary reference cell
3) Measured with scanning spectroradiometer calibrated as per ASTM G138-06 4) Determined from 20 measurements spaced at 250ms, NPLC=1
Please note: Due to our continuous improvement system, all specifications are subject to change without notice.

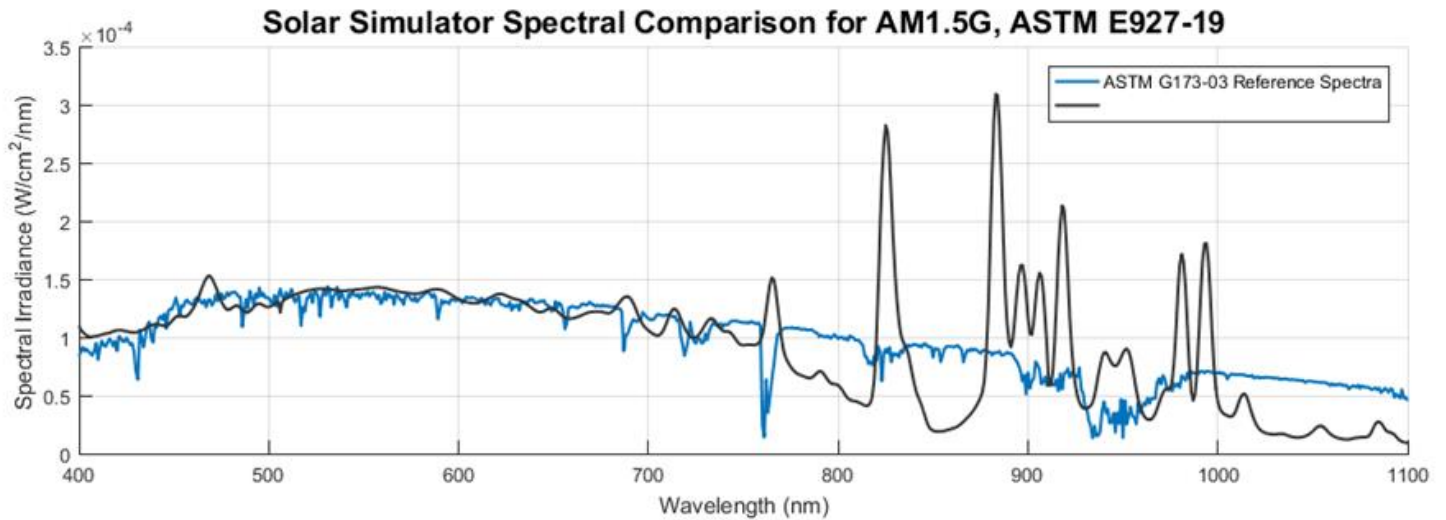
Small Area Solar Simulators SciSun series

Solar Simulator Classification Measurement

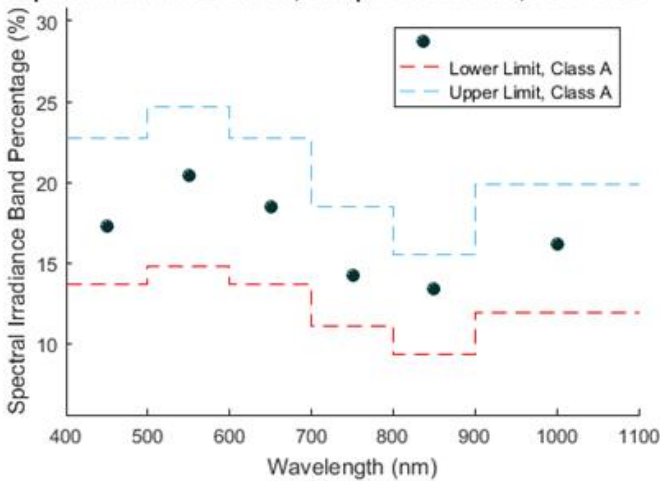
Class A Spectral Match Measurement:

SciSun solar simulators match Class A spectral match when used with a compatible air mass filter (sold separately; see below using an AM1.5G filter). All testing results are for an example SciSun-300 and individual reports will vary.

Spectral Match of SciSun-300



Spectral Irradiance Ratios, Compare to AM1.5G, ASTM E927-19



Wavelength	Percentage	Class
'400-500'	'17.2821'	'A'
'500-600'	'20.4084'	'A'
'600-700'	'18.5142'	'A'
'700-800'	'14.2414'	'A'
'800-900'	'13.4281'	'A'
'900-1100'	'16.1258'	'A'

STANDARDS

SciSun solar simulator specifications listed are according to ASTM E927-19 and IEC-60904-9 unless otherwise stated. We can accommodate testing to match several standards.

Testing procedure as per ASTM E927-19 provided by default. Please specify upon ordering if testing against IEC-60904-9 is required.

Small Area Solar Simulators SciSun series

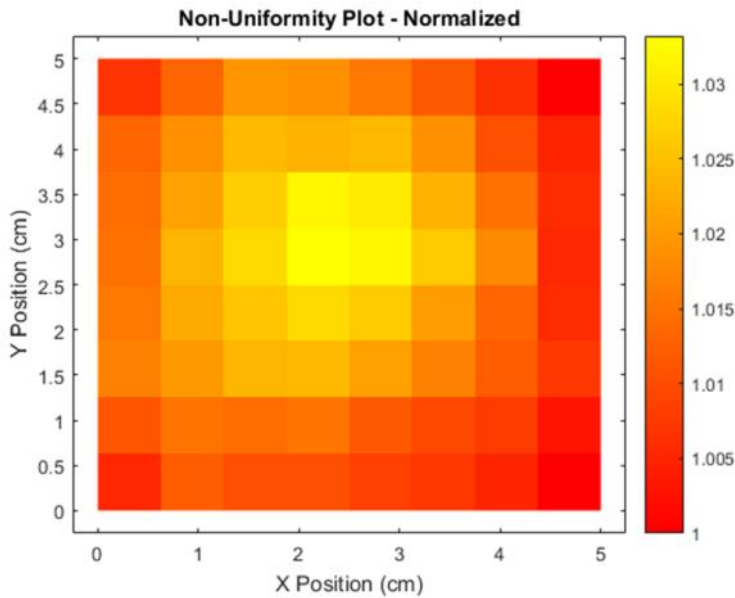
Solar Simulator Classification Measurement

Class A spatial non-uniformity (NU):

SciSun solar simulators meet Class A spatial non-uniformity by default (see below).

Non-uniformity = **1.6% less than 2%**

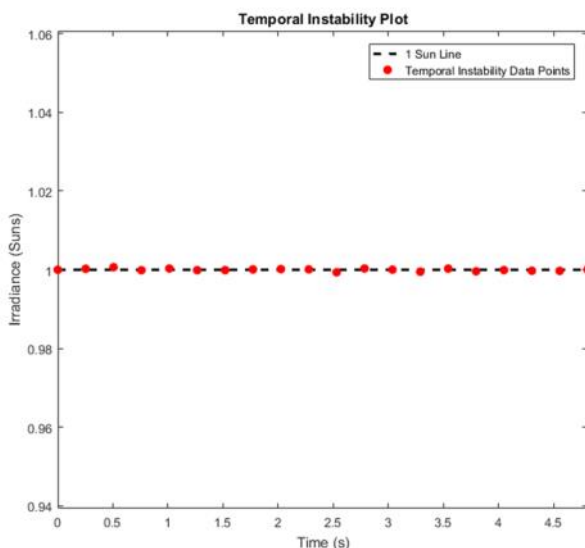
Class B may also be available over larger target sizes upon request.



Detector Area:	0.28 cm ²
Number of Measurement Points:	64
Measurement Point Area:	0.39 cm ²
Maximum Irradiance:	1.0169 Suns
Minimum Irradiance:	0.9842 Suns
Sample Standard Deviation of Spatial Non-Uniformity:	0.008 Suns
Spatial Non-Uniformity of Irradiance:	1.60%
Classification:	A

Class A Temporal Instability:

SciSun solar simulators meet Class A temporal instability. **0.05% Less than 2%**



Detector Area:	4 cm
Time Between Data Points:	0.253 Sec
Number of Power Line Cycles (NPLC):	1
Total Measurement Points:	20
Maximum Irradiance:	1.0007 Suns
Minimum Irradiance:	0.9994 Suns
Temporal Instability of Irradiance:	0.05%

Small Area Solar Simulators SciSun series

Standard Features

FILTER BOX ASSEMBLY

Spectral Filter Options		
Model	Description	Part No.
AMI.5G-FT-3	AMI.5G Filter—Class A	160-8085
AMI.0D-FT-3	AMI.0D Filter—Class A	160-8086
AMI.5D-FT-3	AMI.5D Filter—Class A	160-8087

This system has a modular optics assembly which can hold a range of filters in Sciencetech's standard FT style filter holder. The most popular options are AM filters; however a range of other filter options are available such as bandpass filters and neutral density filters.

Variable Aperture VAR-ATTN-M

Sciencetech's SciSun solar simulators include a variable aperture component, which allows variation of the output irradiance level without adjusting the power supply. The range of attenuation is continuously variable from 10% to 100%. Uniformity is best maintained at specific output levels.

Non-uniformity versus output level for the VAR-ATTN-M may vary between models.

POWER SUPPLY AND SOFTWARE CONTROL

Each SciSun series solar simulator (non-LP series) comes with a 601-series power supply.

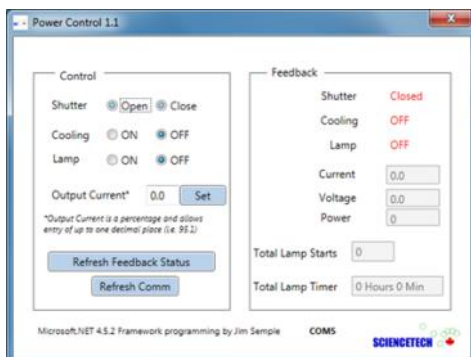
The SciSun-LP series features the EPS-series simplified power supply, which lacks a touchscreen, computer control, or control of electronic accessories.

Standard features included with Sciencetech's 601-series power supplies:

- Touchscreen interface
- Shutter and exposure control*
- Single connection for lamp power, cooling, and communication
- Lamp starts and timer log
- Fan cooling safety interlock
- RS232 software GUI included



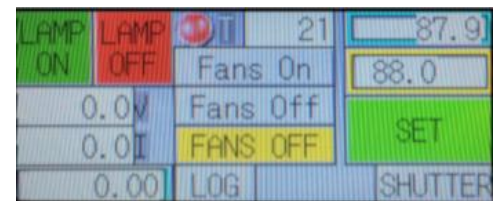
601-series power supply



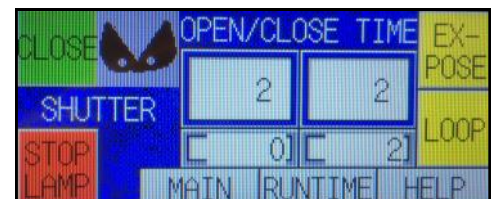
Software GUI for power supply control

* if electronic shutter is supplied

601-series touchscreen power supply main control screen



601-series touchscreen power supply automatic shutter control screen



Small Area Solar Simulators SciSun series

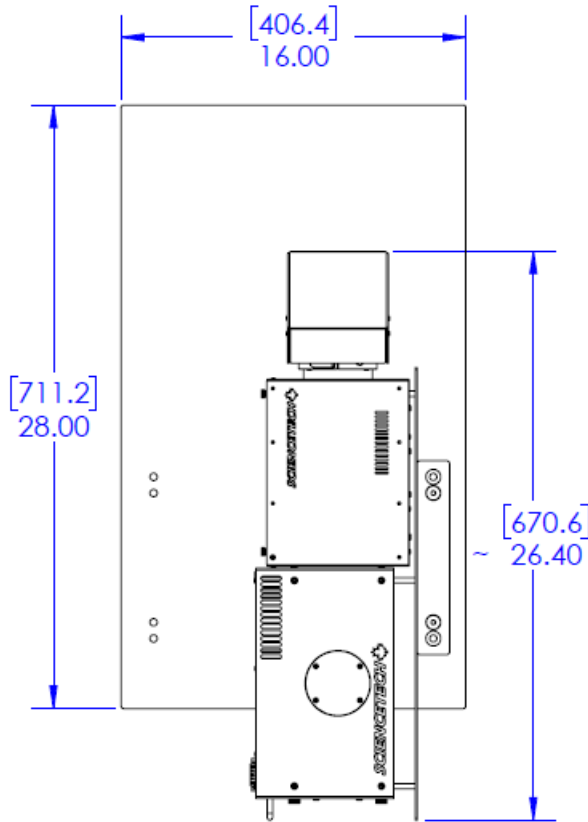
Popular Accessories

		
SOL-METER (125-9011) Solar Power Meter, a digital meter for use with solar calibrated detectors (e.g. SSIVT-REF or SC-LT-Q)	SSIVT-REF (125-9007) SSIVT Reference Detector	SC-LT-Q (585-0154) Calibrated Reference Cell, Quartz Window, traceable to NIST and NREL.
		
SSIVT-20C (175-9103) 20W IV Tester for Continuous Solar Simulators (current range = 1 A, voltage range = 200 V)	SCI-SCC3-TE (165-8202) 3.5" x 3.5" Solar Cell Chuck, TE Cooled, Computer controllable, Vacuum Ready**	SCI-SCC3-L-B (165-8221) 3.5" x 3.5" Solar Cell Chuck, Liquid Cooled, Rear Contact**
		
SCP-4T (165-8211) Probe Station, 4 Probes, Tungsten Needle-tip Kelvin Probes***	SCI-REF-NL (125-9028) A simple PCB mounted solar cell, as a reference cell. No load.	HAS (101-8024) Height-adjustable stand.
		
MF-49-FT-3 (640-9006) Wire mesh neutral density filter capable of blocking 49% of incident light. 75 mm diameter.	SH-SC3 (127-8004) Computer controlled shutter. Installs inside SciSun (non-LP versions only).	

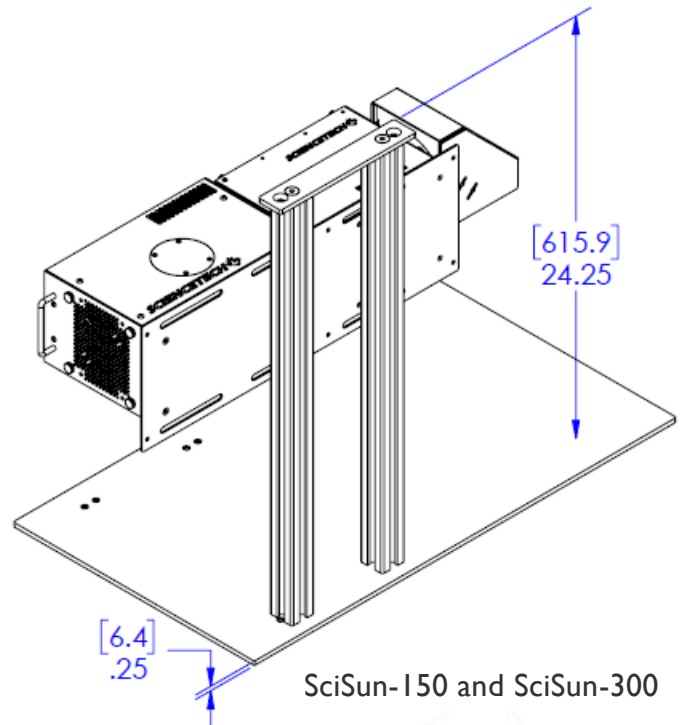
Small Area Solar Simulators SciSun series

Dimensions

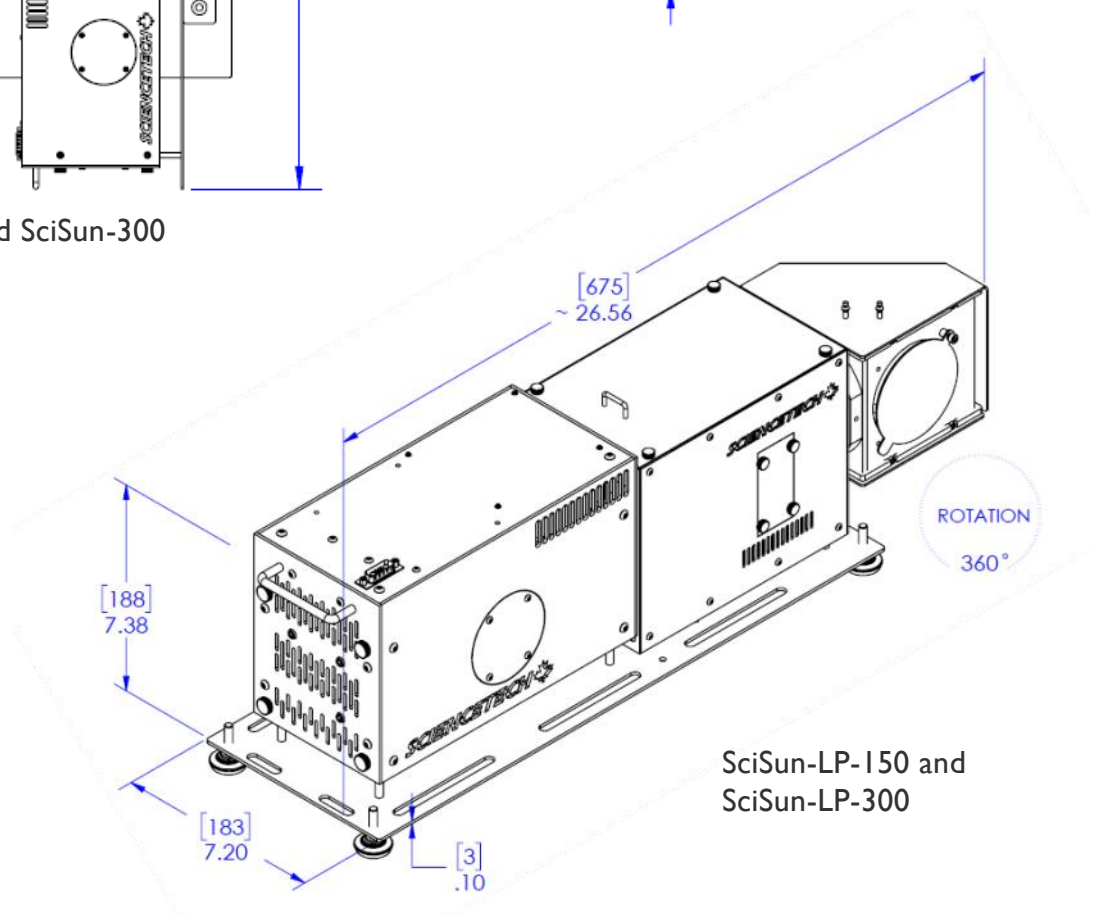
Dimensions are in [mm] and inches.



SciSun-I50 and SciSun-300



SciSun-I50 and SciSun-300



SciSun-LP-I50 and
SciSun-LP-300