SCIENCETECH
Making Light Work Better

Applications

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

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

Small Area Solar Simulators
SciSun Series

MADE IN CANADA · FABRIQUÉ AU CANADA

SciSun Solar Simulators
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.

Our **SciSun-LP** is an affordable Model, which include a basic power supply, and does not include some features of our Standard Model (See right table).

Configuration	Standard Model	LP Model
Arc Lamp Housing with integrated igniter	●	●
Xenon arc lamp	●	●
Filter holder	●	●
Beam turner	●	●
Continuous beam angle variations from 0-360 degrees	●	●
Quality Control Report	●	●
Basic Power Supply		●
Touchscreen power supply interface	●	
Power supply control sofware	●	
Manual variable attenuator	●	
Height adjustable stand	●	

Model	SciSun-300 160-9101	SciSun-LP-300 160-9104	SciSun-150 160-9103	SciSun-LP-150 160-9105
Target Area	50 × 50 mm			
Solar Simulator Class	A-A-A (Irradiance Uniformity[1], Spectral Match[2], Temporal Stability[3])			
Irradiance at Target (AM1.5G 1 Sun=100mW/cm2)	Up to 2 Sun[2]		Up to 1 Sun[2]	
Lamp Wattage (watts)	300		150	
Lamp Type	Xenon Short Arc , Ozone free			
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			

STANDARDS

SciSun solar simulator specifications listed are according to
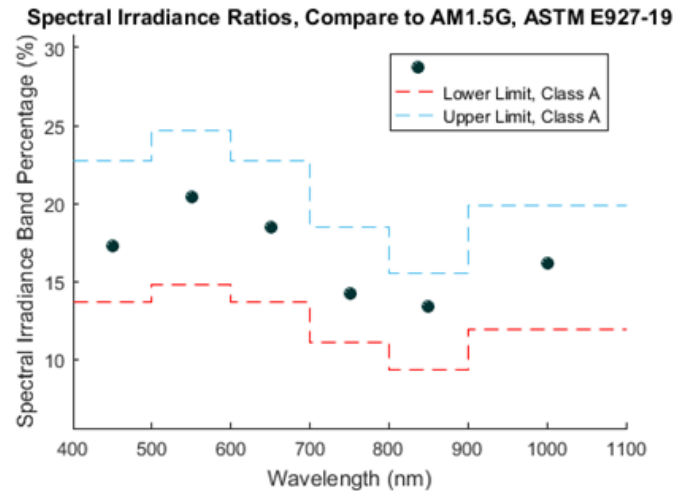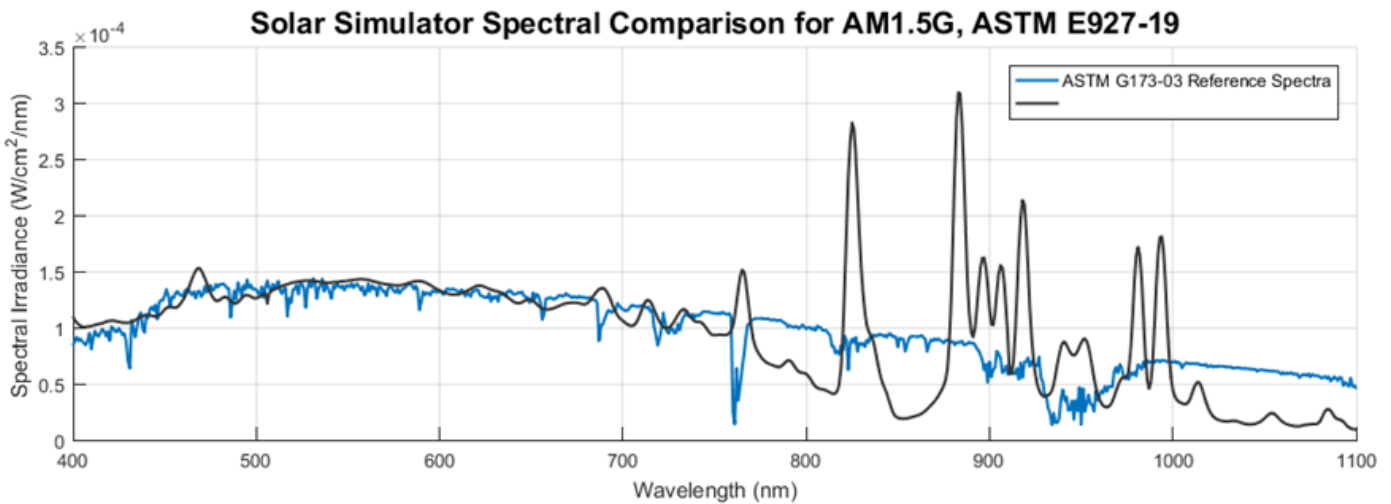
ASTM E927-19

IEC-60904-9

JIS C8904-9 (2017)

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. Due to our continuous improvement system, all specifications are subject to change without notice.

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SciSun Solar Simulators
CLASSIFICATION AAA

Class A Spectral Match

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

Solar Simulator Spectral Comparison for AM1.5G, ASTM E927-19

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'

Solar Simulator 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.

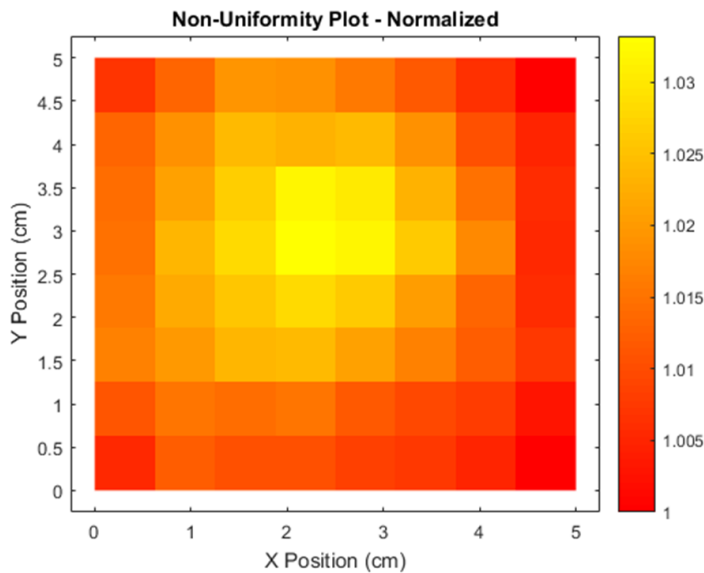SCIENCETECH

SciSun Solar Simulators
CLASSIFICATION AAA

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.

Non Uniformity Map of a SciSun Solar Simulator.

Detector Area:	0.28 cm2
Number of Measurement Points:	64
Measurement Point Area:	0.39 cm2
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%.
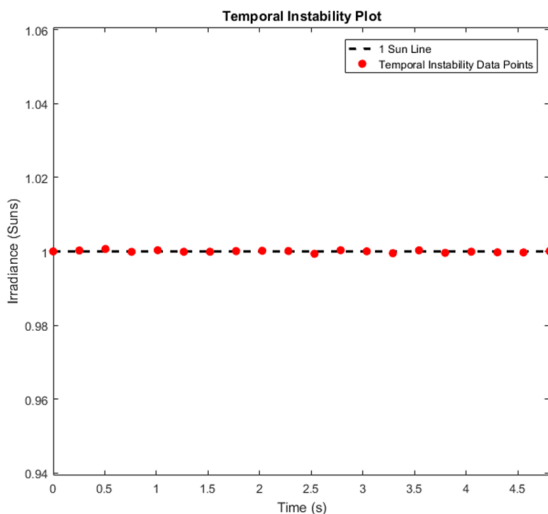
Detector Area:	4 cm
Time Between Data Points:	0.253 Sec
Number of Power Line Cycles (NPLC):	1
Total Measurement Points:	20
Maximum Irradiance:	1.0007 Suns
Minimum Irradiance:	0.9994 Suns
Temporal Instability of Irradiance:	0.05%

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SciSun Solar Simulators
STANDARD FEATURES

Touchscreen Power Supply - 601

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

601– series power supply

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

- Touchscreen interface

- Shutter and exposure control (if electronic shutter is supplied)

- Single connection for lamp power, cooling, and communication

- Lamp starts and timer log

- Fan cooling safety interlock

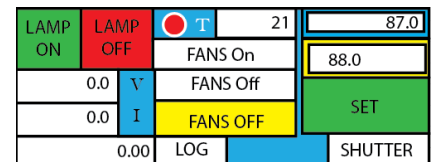- RS232 software GUI included

Filter Box Assembly

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

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.

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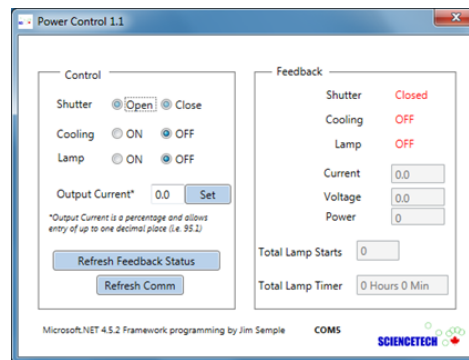
601-series touch screen power supply main control screen

601- series touchscreen power supply automatic shutter control screen
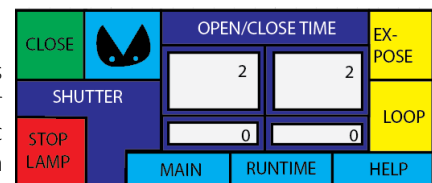
Software Included

SciSun Solar Simulator come with SciLampPower Control.

Software GUI for power supply control

Spectral Filter Options

AM1.5-FT-3 Model: Includes AM1.5 Filter-Class A with 160-8085 part number.

AM1.0D-FT-3 Model: Includes AM1.0D Filter-Class A with 160 -8086 part number.

AM1.5D-FT-3 Model: Includes AM1.5 Filter-Class A with 160-8087 part number.

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SciSun Solar Simulators
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)

This silicon detector is designed to be used for monitoring and verifying the sun level of solar simulators.

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.
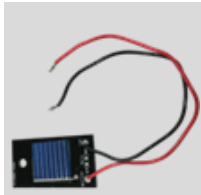

SCI-SCC3-L-B   (165-8221)

3.5" x 3.5" Solar Cell Chuck, Liquid Cooled, Rear Contact.

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SciSun Solar Simulators
ACCESSORIES

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.

Height Adjustable Stand   (101-8024)

Height adjustable Stand. The stand allows to adjust the working distance as required.

MF-49-FT-3   (640-9006)

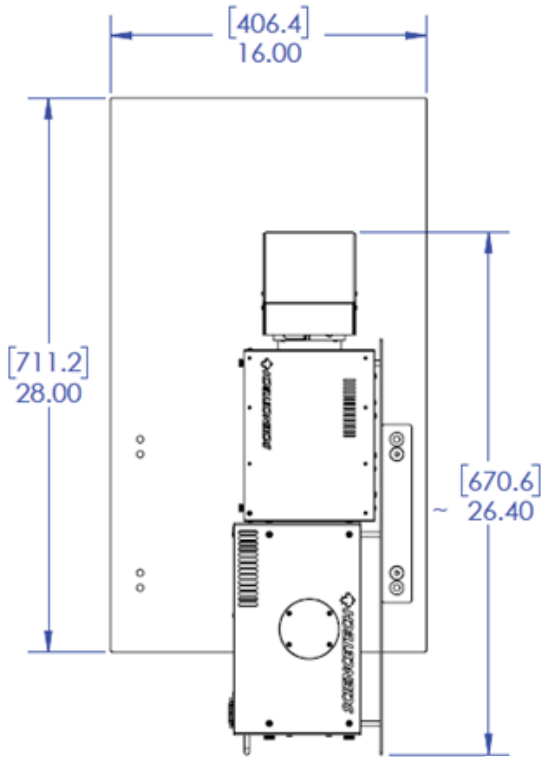Standard 75 mm (3") neutral density mesh filters (different light transmissions available).

SH-SC3   (127-8004)

Computer controlled shutter. Installs inside SciSun (non-LP versions only).
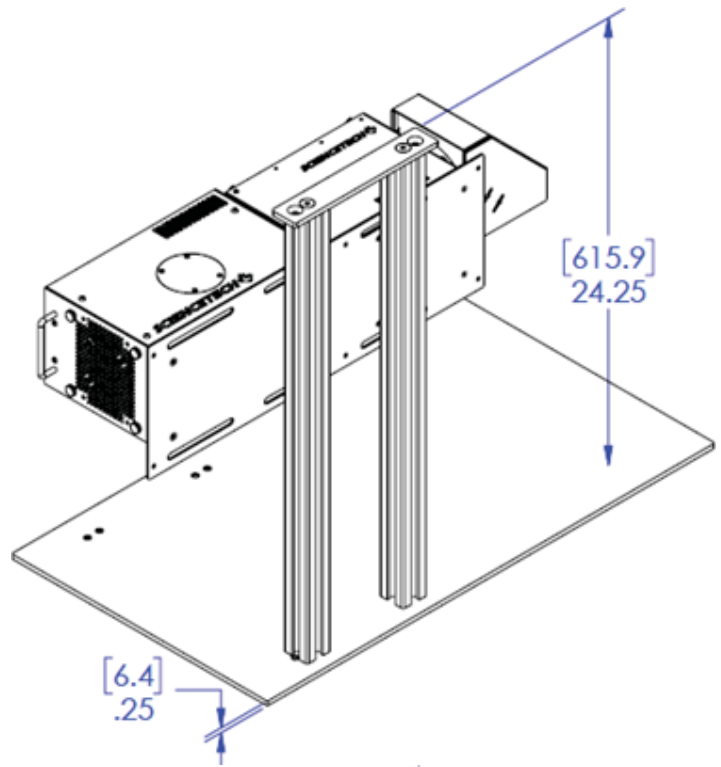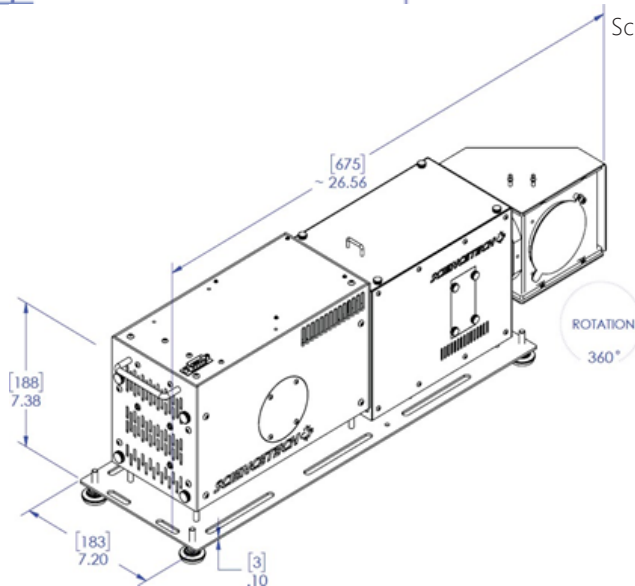
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SciSun Solar Simulators
DIMENSIONS

Dimensions are in [mm] and inches.

SciSun-150 and SciSun-300

SciSun-150 and SciSun-300

SciSun-150 and SciSun-300

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