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

www.sciencetech-inc.com
sales@sciencetech-inc.com
+1 519 644 0135 (Canada)

SCIENCETECH
Making Light Work Better

Version 3.0 October 2019

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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

STANDARDS

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

Specifications

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.

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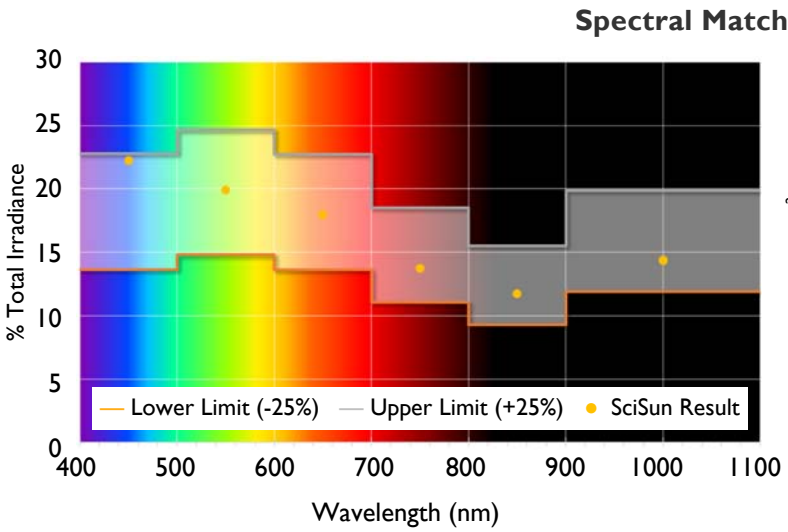
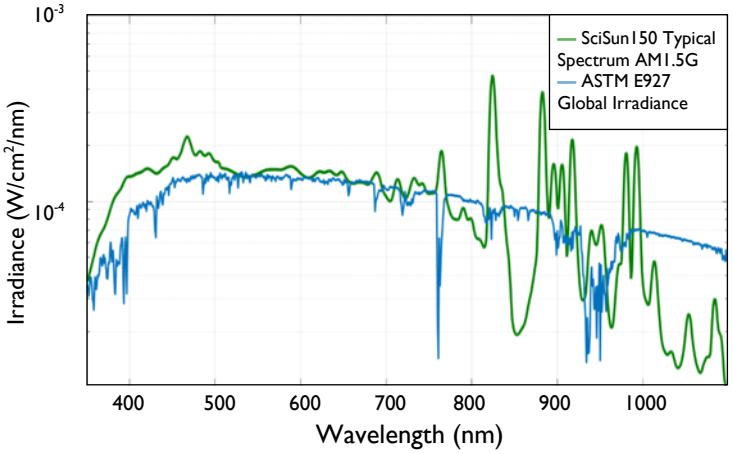
Solar Simulator Classification Measurement

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-150 and individual reports will vary.



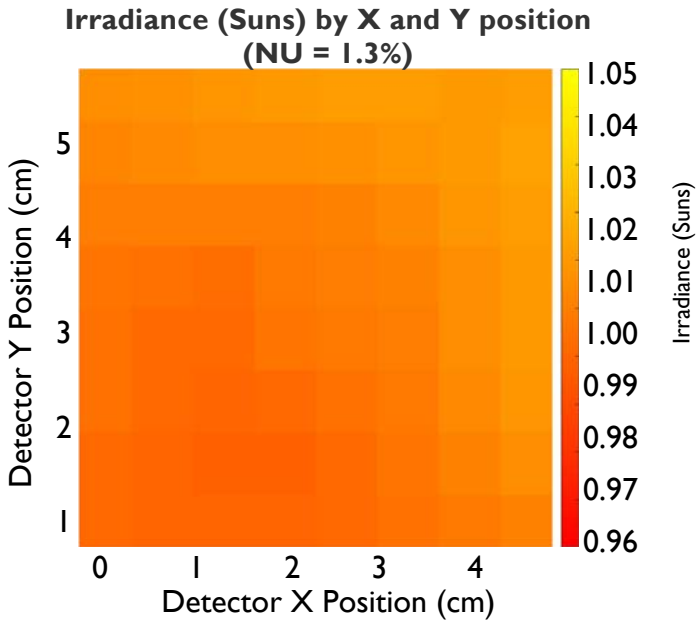


Class A spatial non-uniformity (NU):

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

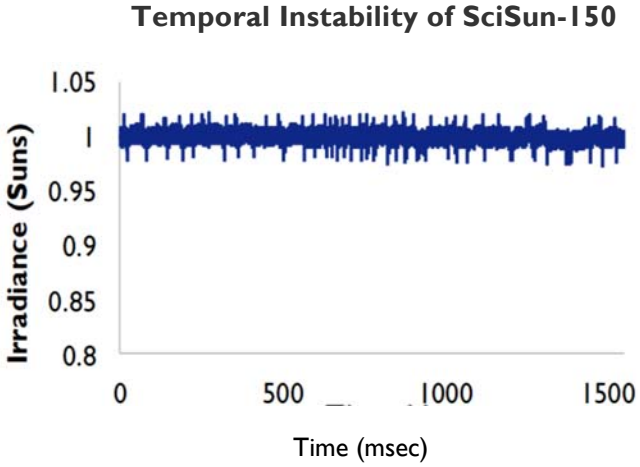
Non-uniformity = **1.3%**

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



Class A Temporal Instability:

SciSun solar simulators meet Class A temporal instability.



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.

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Standard Features

FILTER BOX ASSEMBLY

Spectral Filter Options	
Model	**Description**
AM1.5G-FT-3	AM1.5G Filter—Class A
AM1.0D-FT-3	AM1.0D Filter—Class A
AM1.5D-FT-3	AM1.5D Filter—Class A

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 SOFWARE CONTROL

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

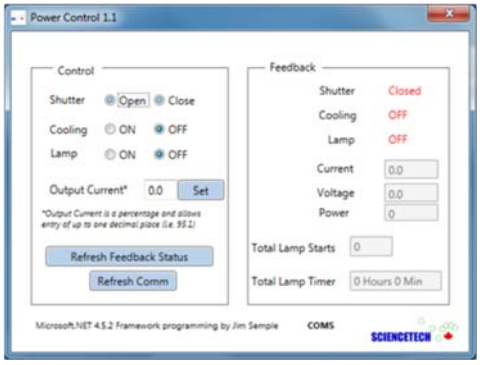
The SciSun-LP series features the EPS-series simplified power supply, which lacks a touchscreen, computer control, or control of electronic accessories.

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

601-series touchscreen power supply main control screen



Software GUI for power supply control

601-series touchscreen power supply automatic shutter control screen

* if electronic shutter is supplied

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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)

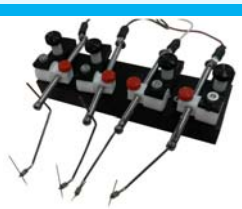
20W IV Tester for Continuous Solar Simulators (current range = 1 A, voltage range = 200 V)

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-LH (127-9005)

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

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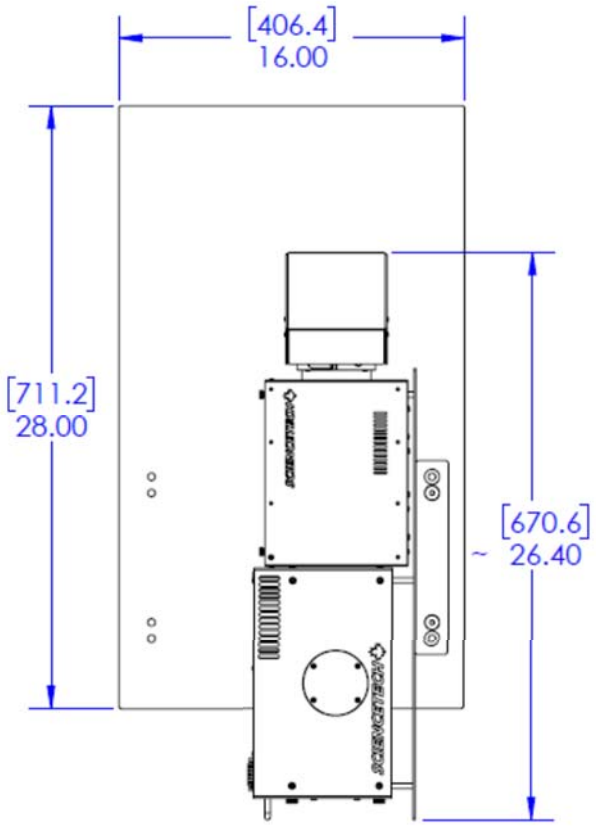
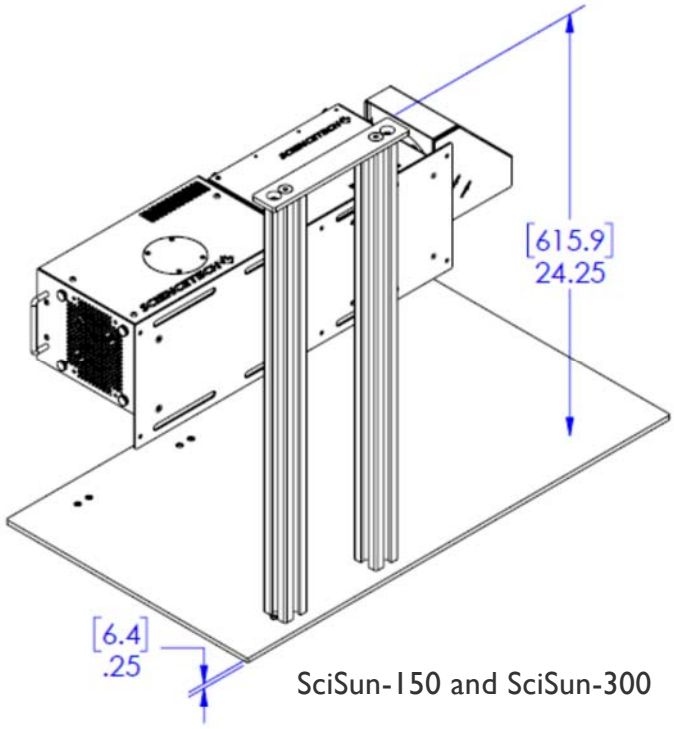
Dimensions

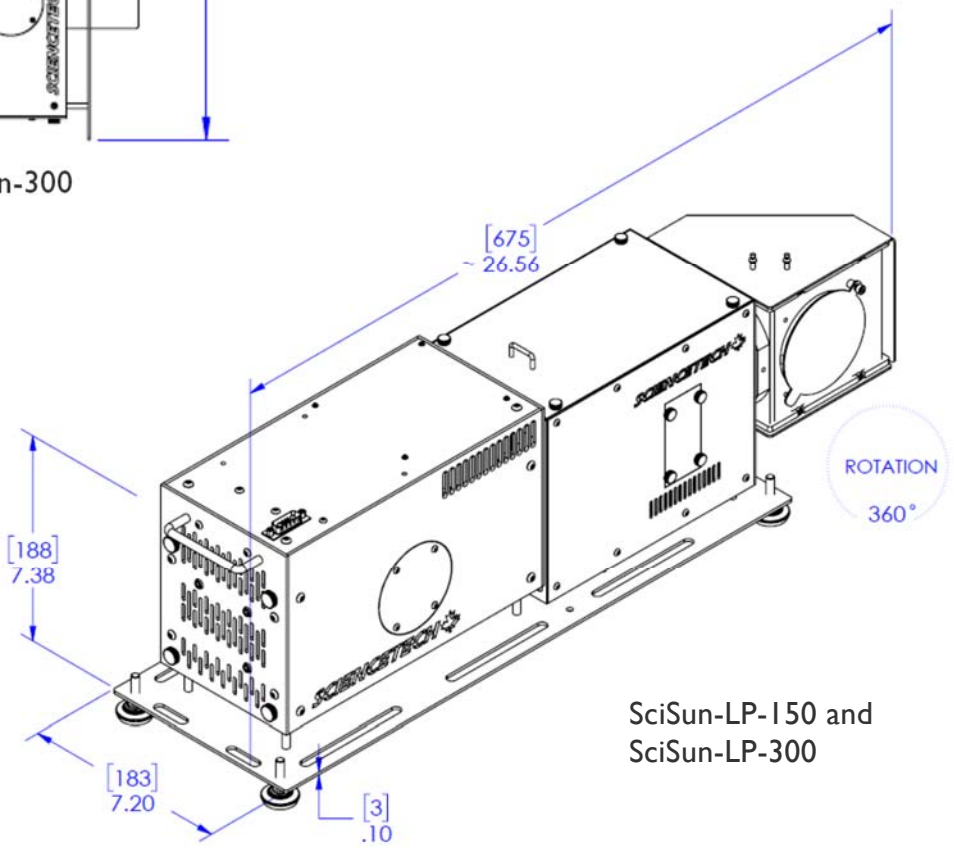
Dimensions are in [mm] and inches.



SciSun-150 and SciSun-300



SciSun-150 and SciSun-300



SciSun-LP-150 and
SciSun-LP-300

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www.sciencetech-inc.com
1450 Global Drive, London, On. N6N1R3. Canada
sales@sciencetech-inc.com | +1 519-644-0135