Small Area Collimated Lens Based Solar Simulators

SF series

Features

- Economical, Modular Design
- Up to Class AAA Specification
- Touchscreen Power Supply Interface Included
- Turn Key Operation
- Collimated Systems Available
- Manual Shutter Included
- Electronic Shutter Optional
- Multiple Optional Accessories
- Lamp Life Timer

Applications

- Photovoltaic Testing
- UV Exposure Testing
- Sunscreen Testing
- Cosmetics Testing
- Environmental Testing

1450 Global Drive, London, Ontario Canada, N6N 1R3
Phone: 519 644 0135 / **Fax:** 519 644 0136
Email: sales@sciencetech-inc.com
www.sciencetech-inc.com

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Small Area Collimated Lens Based Solar Simulators

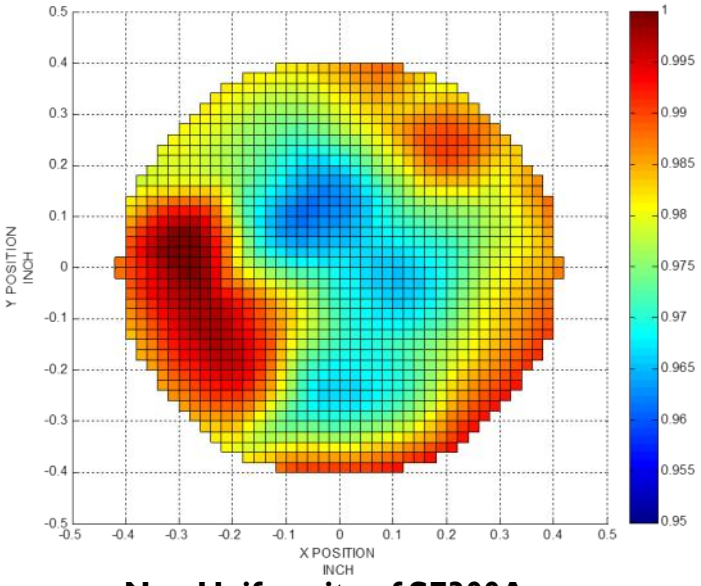
1. Overview

Sciencetech's SF solar simulators are low cost lens based systems designed for researchers who do not require a large field of illumination. SF series solar simulators produce 1 Sun* and are available in Class A, B, or C uniformity.

The beam can be projected horizontally (standard) or vertically with the use of a beam turner or downward-facing stand.

Sciencetech SF series solar simulators produce a collimated output and are an ideal choice for space based research or systems needed high levels of collimation.

Sciencetech SF type Solar Simulators include an arc lamp housing, 1 arc lamp, touchscreen power supply with igniter, filter holder, and testing report.



Non Uniformity of SF300A over 1" Diameter

Standards

Sciencetech's solar simulator specifications listed are according to ASTM E927-10 standards, unless otherwise stated.

Please contact us if you are interested in matching IEC 60904-9 (2007), JISC 8912-1998, or other standards.

We can accommodate testing to match several standards.

(Left) SF solar simulator with downward facing stand DFS-LH

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2. Specifications—SF Series

Model	SF300A	SF150B	SF300B
Part Number	160-9008	160-9002	160-9011
Uniformity	< 2%	< 5%	<5%
Uniformity Classification	A	B	B
Spectral Match Classification	A		
Spectral Range (nm)*	250-2000		
Temporal Stability Classification	A		
Target Diameter (mm)	25	25	50
Working Distance (mm)	100-130		
Working Distance (mm) (with Beam Turning Option 160-9005)	40-50		
Collimation	1.0 degree half angle		
Power Level at Target (AM1.5G Standard—100mW/cm^2)	1 Sun		
Center Beam Line Height (mm)	137		
Lamp Power (W)	300	150	300
Power Supply Model	601-300	601-150	601-300
Dimensions (LxWxH) (mm)	305 x 205 x 276		
Weight (kg) Without power supply	6		
Power Supply Input	110-240V, 50Hz/60Hz , 250W		110-240V, 50Hz/60Hz , 450W
Output Power (W)	180-300	100-150	100-150
Operating Current (A)	5-20	5-12	5-20
Stability / Ripple / Regulation	0.05% / < 1% / 0.02% current variation for 5V line charge		

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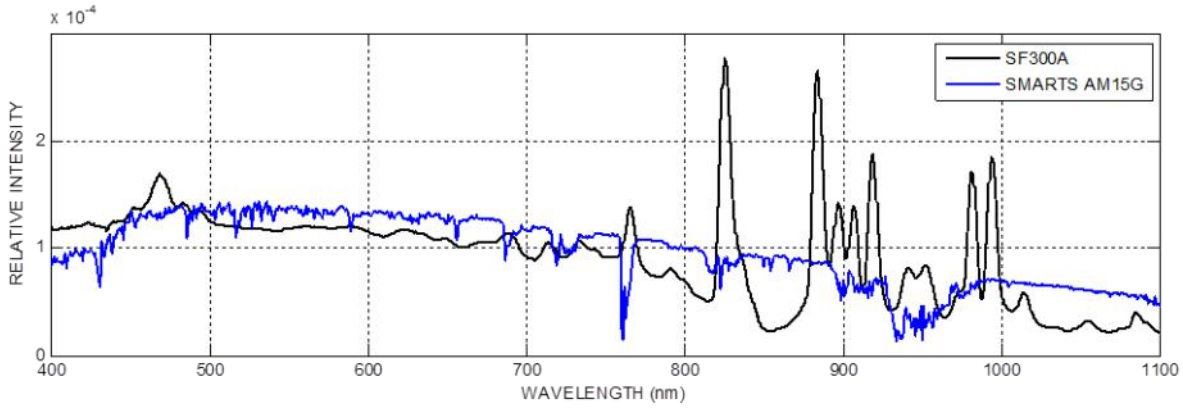
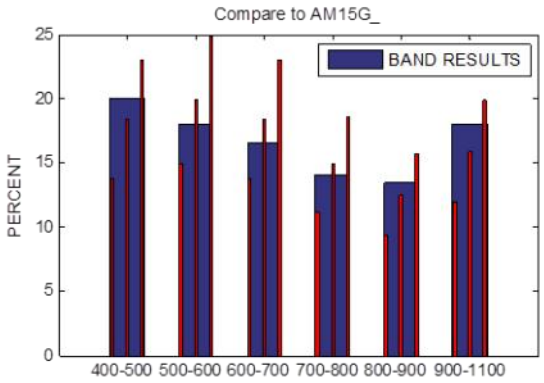
3. Configuration—Wavelength Control





400-500	nm	=	20.02%	, Class A
500-600	nm	=	18.00%	, Class A
600-700	nm	=	16.48%	, Class A
700-800	nm	=	14.08%	, Class A
800-900	nm	=	13.46%	, Class A
900-1100	nm	=	17.96%	, Class A

Solar simulator spectrum compared with ASTM AM1.5G solar spectrum

Sciencetech's low cost line of SF solar simulators include a filter box which can hold a range of filters in Sciencetech's standard SF style filter holder.

The most popular options are AM filters; however, a range of other filter options are available.

Model	Description
160-8023	Air Mass AM1.5G Filter for SF/SLB Series Solar (Standard Range)
160-8025	Air Mass AM1.5D Filter for SF/SLB Series Solar (Standard Range)
160-8019	Air Mass AM0 Filter for SF only Series Solar (Standard Range) **
100-8048	(WF-1Q) Compact IR water Filter, 1.75" with Quartz Windows

Browse Solar Filters

Browse all Filtering Options

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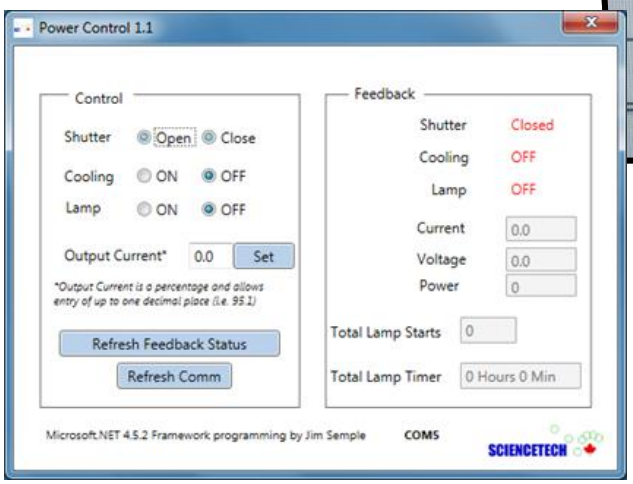
3. Configuration—Power Supply

Sciencetech's 601– series power supplies are the included power supplies for use with Sciencetech's SF and SLB series lamp houses.

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, shown below



Optional Upgrades:

To be added to sales order as optional upgrades

- Temperature monitor
- Optical feedback
- Auto lamp starting

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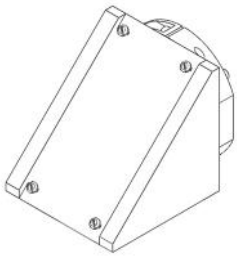
4. Accessories

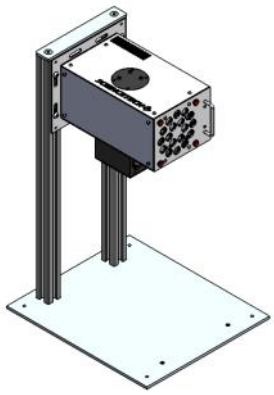
Sciencetech manufactures modular spectroscopy and solar simulation equipment. The SF type simulators are based on Sciencetech's compact LH series lamp house; due to this modular design philosophy, there are a number of available options for SF style solar simulators from Sciencetech's catalog of instrument accessories.

Model	Description
CTBT-2 (160-9005)	Beam turning accessory for SF type solar simulators. The beam turning accessory can be rotated 360 degrees offering a wide range of simulator arrangements.
LH-DFS (100-8052)	Downward facing stand for LH series lamp houses.
SH-LH (127-9005)	Computer controlled shutter for LH series lamp houses (*works with SF series solar simulators)
SH-LH-HS (165-8033)	High speed shutter for SF solar simulators. Contact a Sciencetech representative for more technical details.
SSIVT-20C (175-9103)	20W IV Tester for Continuous Solar Simulators
UV-Glasses-Drk (720-0159)	Dark safety glasses
Various	Power Meters and Calibration Cells (*See Sciencetech's modular IV brochure)

SF Solar Simulator with 160-9005 CTBT-2 Beam Turning Accessory



160-9005 CTBT-2 Beam Turning Accessory



100-8015 LH-DFS Downward Facing Stand

Contact a Sciencetech Technical Sales Representative for information on these other accessories or to discuss your custom requirements!

- Cold mirrors for beam turning assembly
- Replacement lamps

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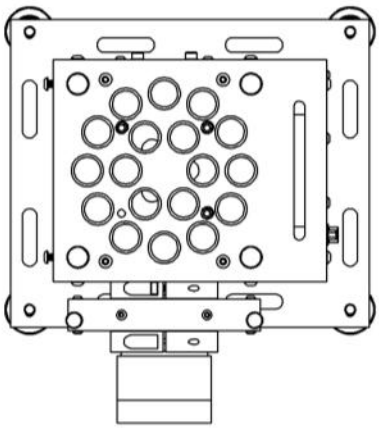
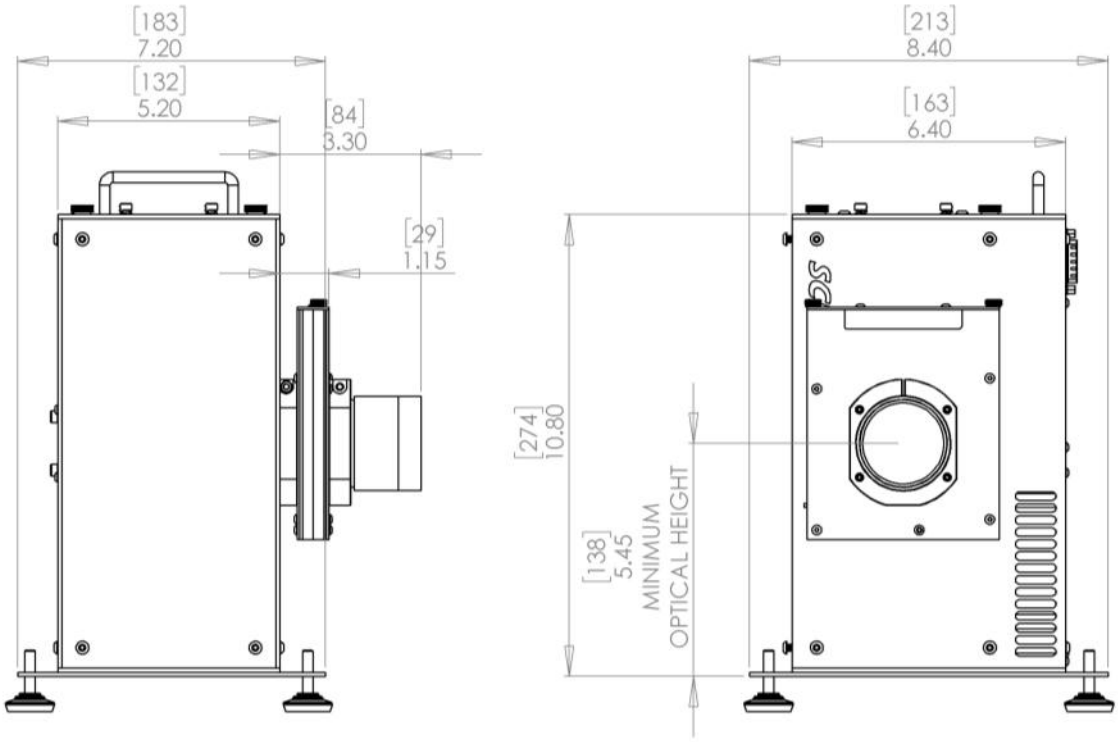
5. Dimensions

SF solar simulator featuring compact filter box.





OVERALL H x W x L	165.1 x 182.9 x 271.8 mm
WEIGHT	5 kg
OPTICAL HEIGHT	68.6 mm or 80-100 mm
MOUNTING OPTIONS	1/4-20 leveling feet—M6-M8 through holes—76.2 mm spacing

販売店:
インターケミ株式会社
〒270-0013千葉県松戸市小金きよしヶ丘3-7-7
TEL: 047-344-8558　FAX: 047-344-8108
http://www.autolabj.com
e-mail: sales@autolabj.com

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