

Small Area Lens Based Solar Simulators

SF series, SLB 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

* SF version only

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Small Area Lens Based Solar Simulators

I. Overview

Sciencetech's SF and SLB solar simulators are low cost lens based systems designed for researchers who do not require a large field of illumination. SF and SLB 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. Unlike the competition SF simulators do not use rear reflectors, which make collimated systems very difficult to align.

The SLB series solar simulators produce divergent beams. The SLB series of solar simulator are more efficient than SF type simulators and are the best choice if you don't need collimated light or significant levels of UV at the target.

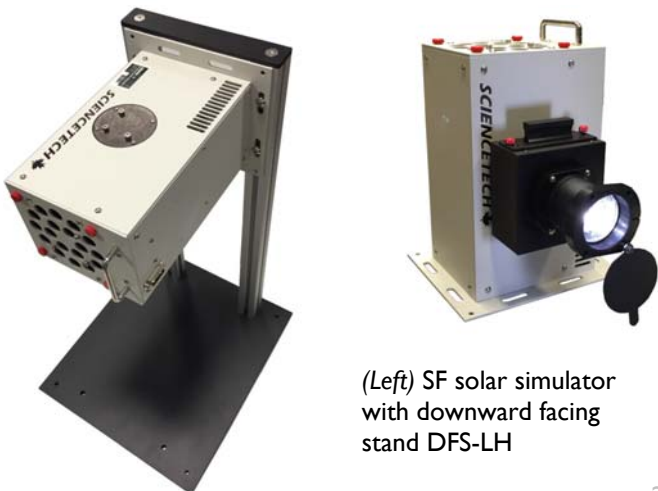
Sciencetech SF and SLB type Solar Simulators include an arc lamp housing, 1 arc lamp, touchscreen power supply with igniter, filter holder, and testing report.

Standards

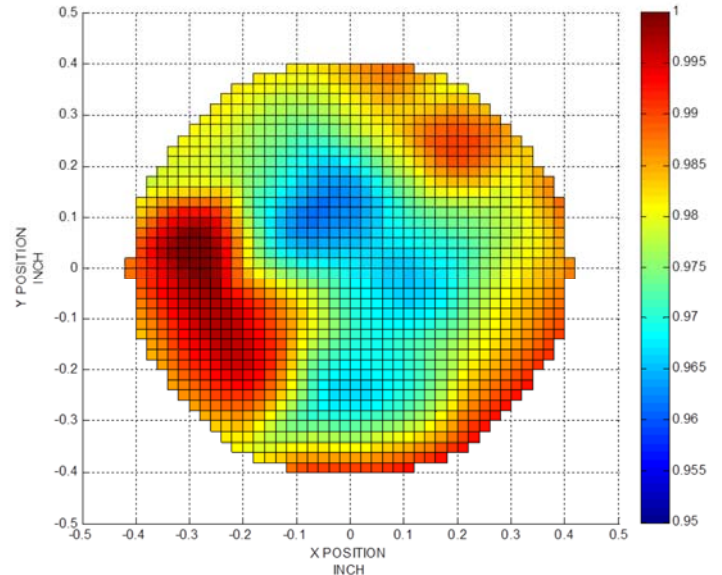
Sciencetech's solar simulator specifications listed are according to ASTM E925 standards, unless otherwise stated.

Please contact us if you are interested in matching IEC 60904, JISC 8912, or other standards.

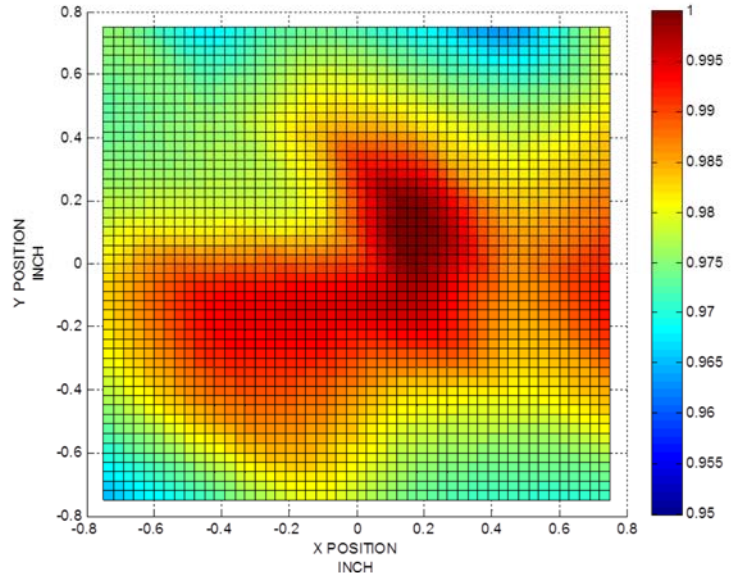
We can accommodate testing to match several standards.



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



Non Uniformity of SF300A over 1" Diameter



Non Uniformity of SLB300A over 38 mm by 38 mm Area

* Various AM Filters Available

Small Area Lens Based Solar Simulators

2. Specifications—SLB Series

Model	SLB300A	SLB150A	SLB300B	SLB150B
Part Number	160-9017	160-9018	160-9019	160-9020
Uniformity	< 2%	< 2%	<5%	<5%
Uniformity Classification	A	A	B	B
Spectral Match Classification	A (AM0 not available)			
Spectral Range (nm)*	350-2000			
Temporal Stability Classification	A			
Target Size (mm)	38x38	25x25	50x50	38x38
Working Distance (mm)	175 ± 15	125 ± 15	250 ± 15	175 ± 15
Working Distance (mm) (with Beam Turning Option 160-9005)	100	50	150	100
Collimation	12 degree half angle			
Power Level at Target (AM1.5G Standard—100mW/cm ²)	1 Sun	1 Sun	1 Sun	1 Sun
Center Beam Line Height (mm)	137			
Lamp Power (W)	300	150	300	150
Power Supply Model	601-300	601-150	601-300	601-150
Dimensions (LxWxH) (mm)	375 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	180-300	100-150
Operating Current (A)	5-20	5-12	5-20	5-12
Stability / Ripple / Regulation	0.05% / < 1% / 0.02% current variation for 5V line charge			

* range without filter

Spectral matching, non-uniformity, and temporal instability conformity with IEC and JIS standards is available. Please contact your Sciencetech Technical Representative for details.

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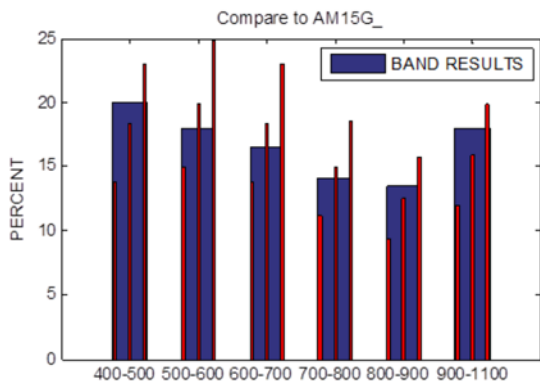
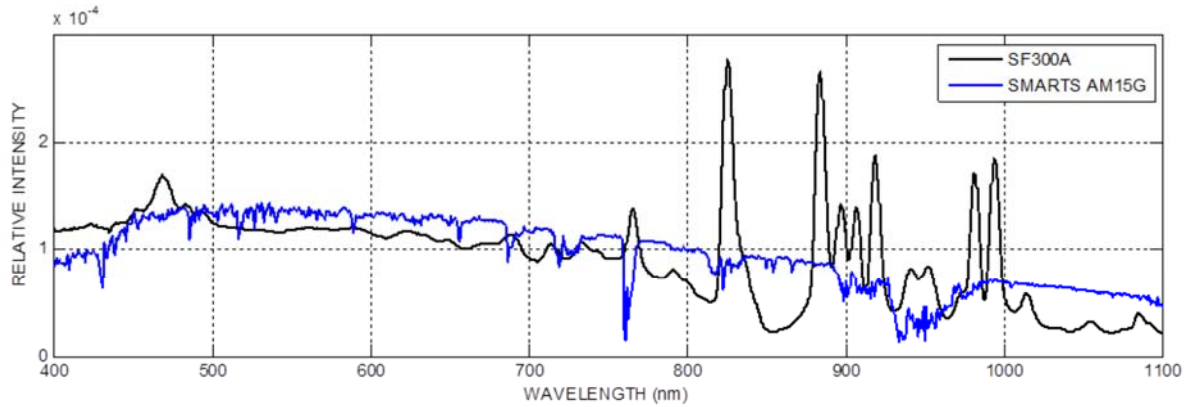
2. Specifications—SF Series

Model	SF300A	SF150B	SF150C	SF300B	SF300C
Part Number	160-9008	160-9002	160-9010	160-9011	160-9014
Uniformity	< 2%	< 5%	<10%	<5%	<10%
Uniformity Classification	A	B	C	B	C
Spectral Match Classification	A				
Spectral Range (nm)*	250-2000				
Temporal Stability Classification	A				
Target Diameter (mm)	25	25	25	50	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 (AMI.5G Standard—100mW/cm ²)	1 Sun				
Center Beam Line Height (mm)	137				
Lamp Power (W)	300	150	150	300	300
Power Supply Model	601-300	601-150	601-150	601-300	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	180-300	100-150	100-350
Operating Current (A)	5-20	5-12	5-12	5-20	5-20
Stability / Ripple / Regulation	0.05% / < 1% / 0.02% current variation for 5V line charge				

* range without filter

Small Area Lens Based Solar Simulators

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 AMI.5G solar spectrum

Sciencetech's low cost line of SF and SLB solar simulators include a filter box which can hold a range of filters in Sciencetech's standard SF/SLB 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-IQ) Compact IR water Filter, 1.75" with Quartz Windows



[Browse Solar Filters](#)



[Browse all Filtering Options](#)



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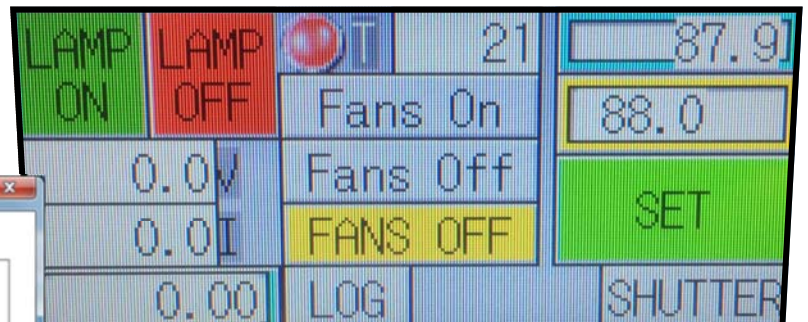
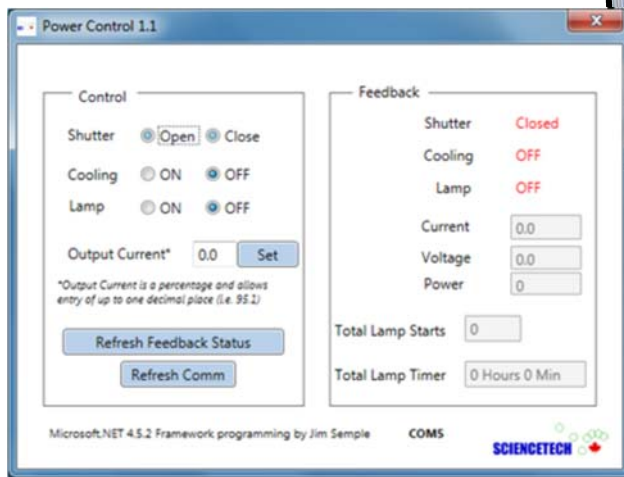
3. Configuration—Power Supply



Sciencetech's 60I– 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 60I– 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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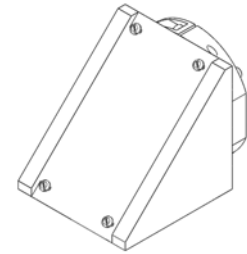
4. Accessories

Sciencetech manufactures modular spectroscopy and solar simulation equipment. The SF and SLB 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 and SLB style solar simulators from Sciencetech's catalog of instrument accessories.

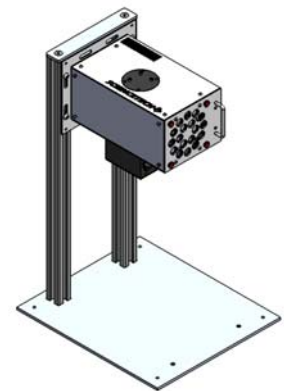


[SF Solar Simulator with 160-9005 CTBT-2 Beam Turning Accessory](#)

Model	Description
CTBT-2 (160-9005)	Beam turning accessory for SF/SLB 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 and SLB series solar simulators)
SH-LH-HS (165-8033)	High speed shutter for SF/SLB solar simulators. Contact a Sciencetech representative for more technical details.
SSIIVT-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)



[160-9005 CTBT-2 Beam Turning Accessory](#)



[100-8015 LH-DFS Downward Facing Stand](#)

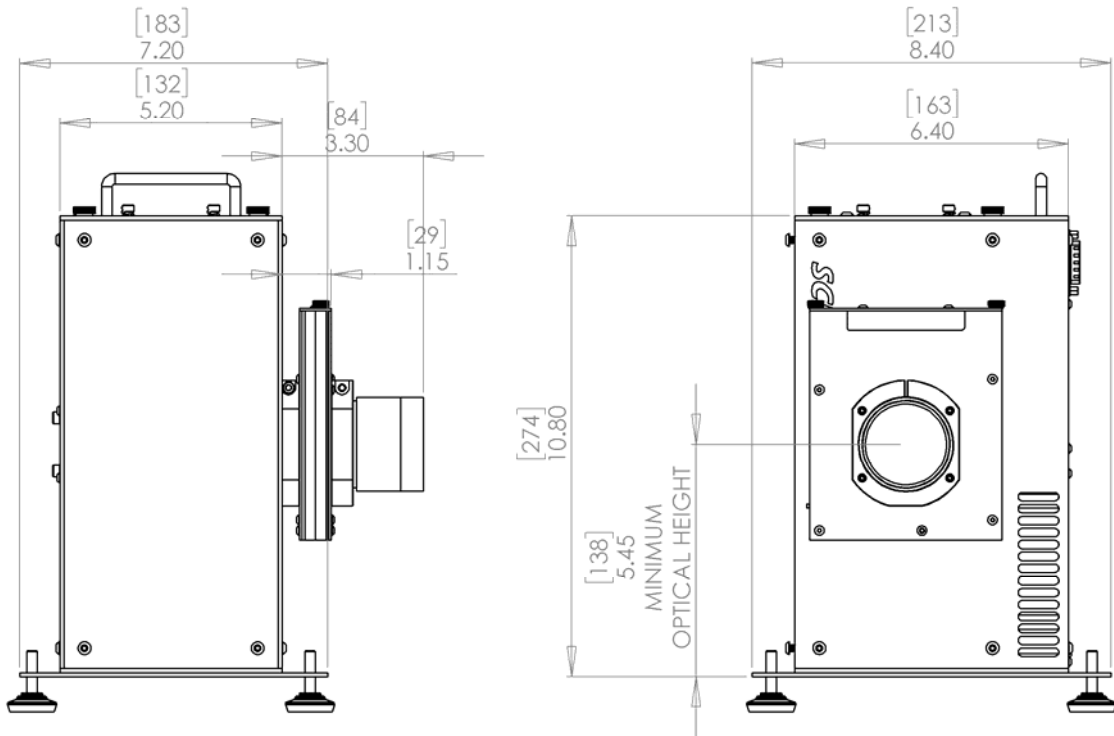
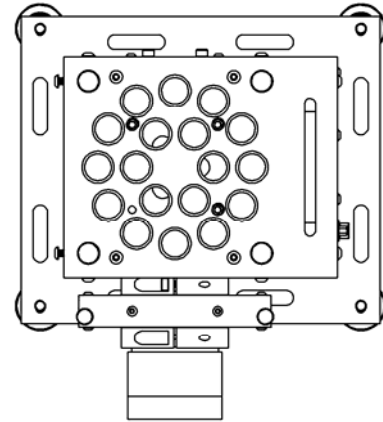
Contact a Sciencetech Technical Sales Representative for information on these other accessories or to discuss your custom requirements!

- [Cold mirrors for beam turning assembly](#)
- [Replacement lamps](#)

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5. Dimensions

SF solar simulator featuring compact filter box. SLB model will have 50mm (2") longer output lens.



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