

Applications

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

Features

- Class AAA specification (ASTM, IEC)
- Illumination area: 50x50mm
- PLC with touchscreen power supply included, with control software
- Continuously adjustable beam direction in 360°
- Manual shutter included (electronic shutter available)
- Variable attenuator from 0.1–2 suns
- Plug and play operation
- Long working distance can facilitate glovebox integration
- CE Compliant

Low Cost Solar Simulators SciSun Series

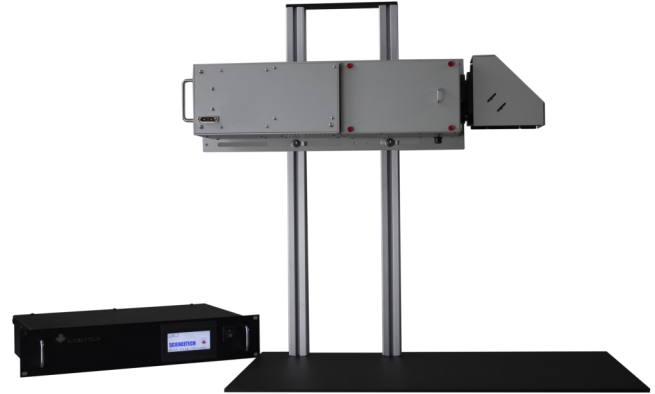


SciSun Solar Simulators

OVERVIEW & SPECIFICATIONS

Sciencetech's line of SciSun solar simulators are easy to use, economically priced, and technically superior. The SciSun line is designed to affordably provide a solution for researchers who require a relatively small field of illumination. They can produce an irradiance of 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.



Specifications

Model	SciSun-300	SciSun-150
	160-9101	160-9103
Target Area	50 × 50 mm	
Solar Simulator Class	AAA (Spatial non-Uniformity, Spectral Match ² , Temporal Instability ³)	
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
Lamp Type	Xenon Short Arc , Ozone free	
Working Distance (mm)	380 ± 15	
Manual Shutter	Included	
Manual Variable Attenuator	Included	
Dimensions (L×W×H)	535 × 183 × 188 mm	
Weight without PS (kg)	8.5 + 8 (stand)	
Power Supply Model	601-300	601-150
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	

Standard Included Components

- _____ Arc Lamp Housing with integrated igniter
- _____ Xenon arc lamp
- _____ Filter holder
- _____ Beam turner
- _____ Continuous beam angle variations from 0-360 degrees
- _____ Quality Control Report
- _____ Touchscreen power supply interface
- _____ Power supply control software
- _____ Manual variable attenuator
- _____ Height adjustable stand

STANDARDS

SciSun Solar Simulator is designed to meet the following standards:

ASTM E927-19 | IEC-60904-9-Ed.3

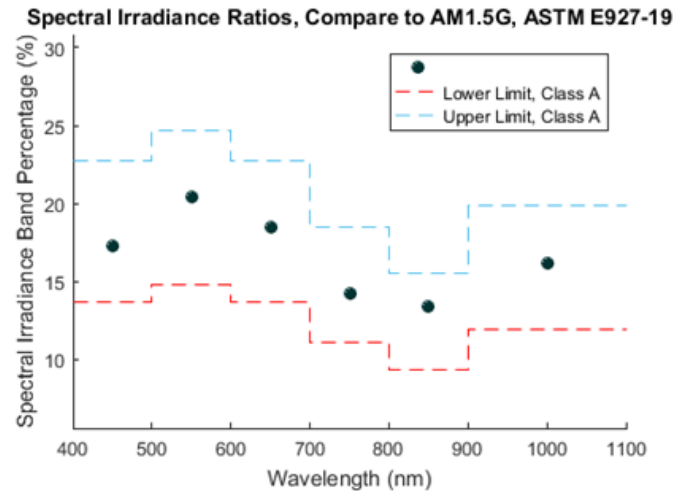
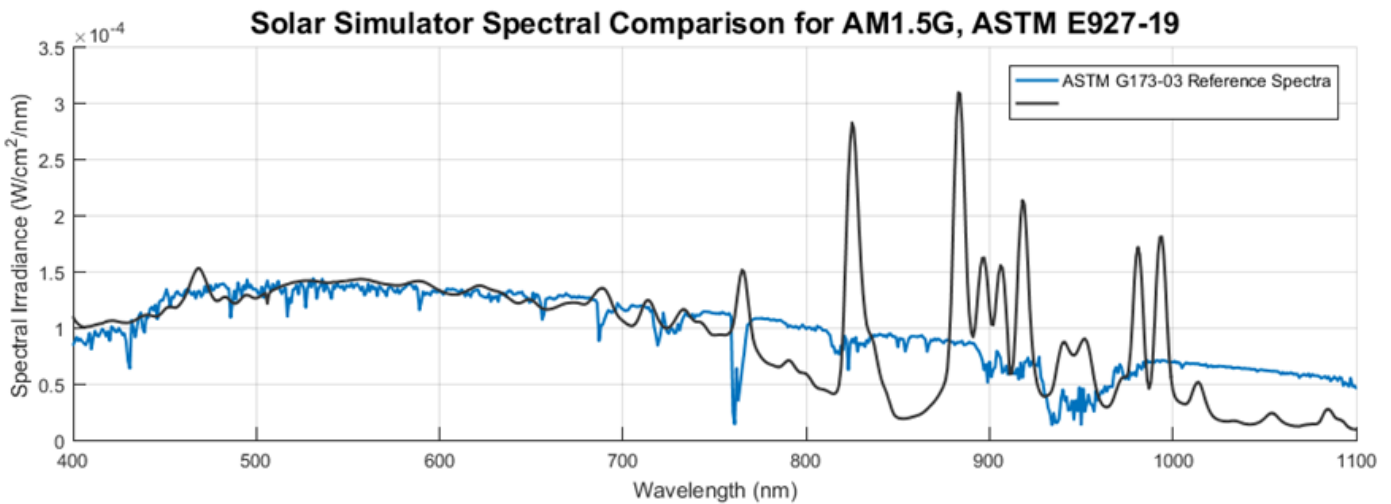
1) Determined from true Isc measurements with silicon sensor mounted on 2 axis automated stage. 2) Measured using NIST traceable secondary reference cell. 3) Measured with scanning spectroradiometer calibrated as per ASTM G138-06. 4) Determined from 20 measurements spaced at 250ms, NPLC=1. Due to our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

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.



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-Ed.3 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-Ed.3 is required.

SciSun Solar Simulators

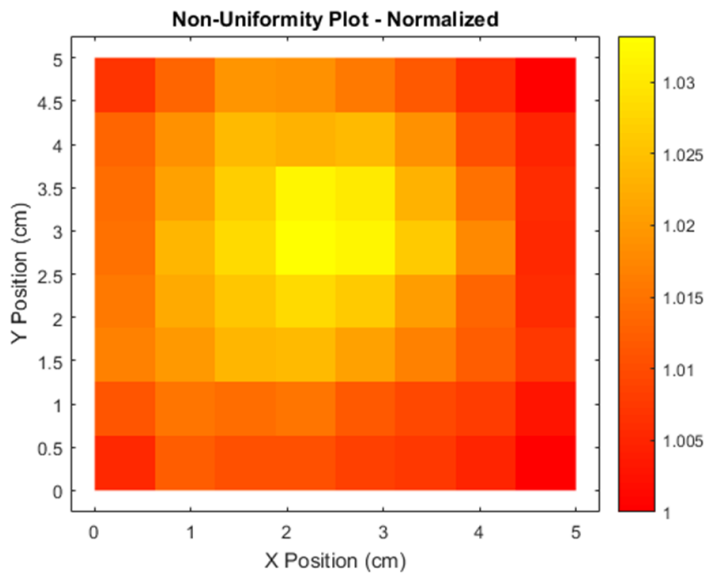
CLASSIFICATION AAA

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.

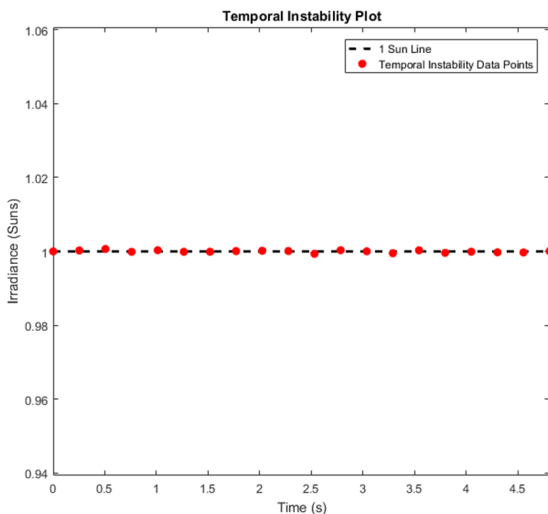


Non Uniformity Map of a SciSun Solar Simulator.

Detector Area:	0.28 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 ²
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%

SciSun Solar Simulators

STANDARD FEATURES

Touchscreen Power Supply - 601

Each SciSun series solar simulator comes with a 601-series power supply.



601-series power supply

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

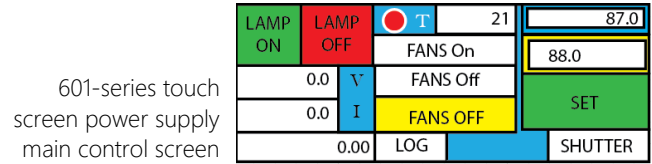
- Touchscreen interface
- Shutter and exposure control (if electronic shutter is supplied)
- Single connection for lamp power, cooling, and communication
- Lamp starts and timer log
- Fan cooling safety interlock
- RS232 software GUI included

Filter Box Assembly

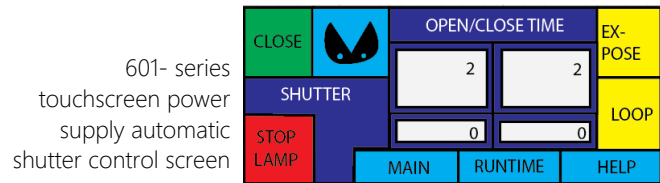
This system has a modular optics assembly which can hold a range of filters in Sciencetech's standard FT style filter holder. The most popular options are AM filters; however a range of other filter options are available such as bandpass filters and neutral density filters.

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.



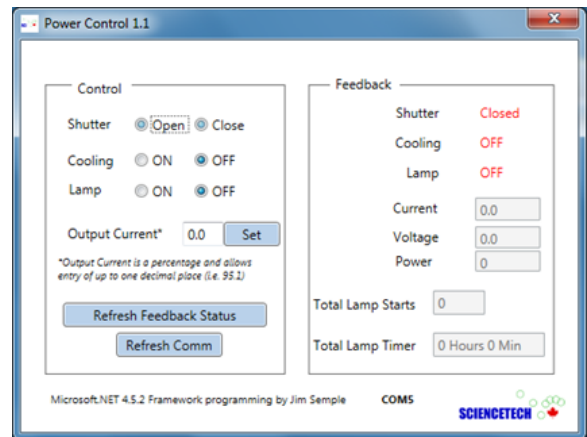
601-series touch screen power supply main control screen



601-series touchscreen power supply automatic shutter control screen

Software Included

SciSun Solar Simulators come with SciLampPower Control.



Software GUI for power supply control

Spectral Filter Options

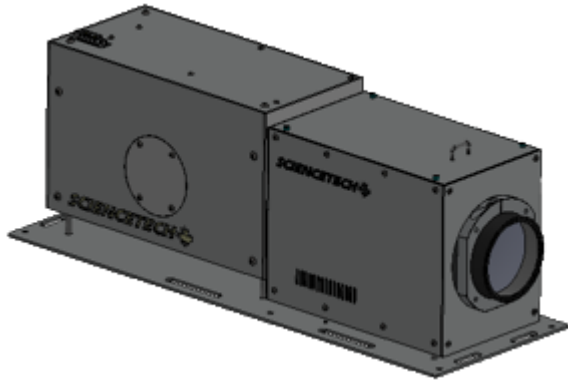
AM1.5G-FT-3: Includes AM1.5G Filter—Class A

AM1.0D-FT-3: Includes AM1.0D Filter—Class A

AM1.5D-FT-3: Includes AM1.5D Filter—Class A

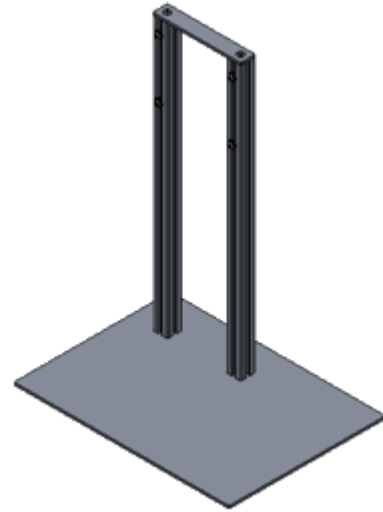
SciSun Solar Simulators

STAND OPTIONS



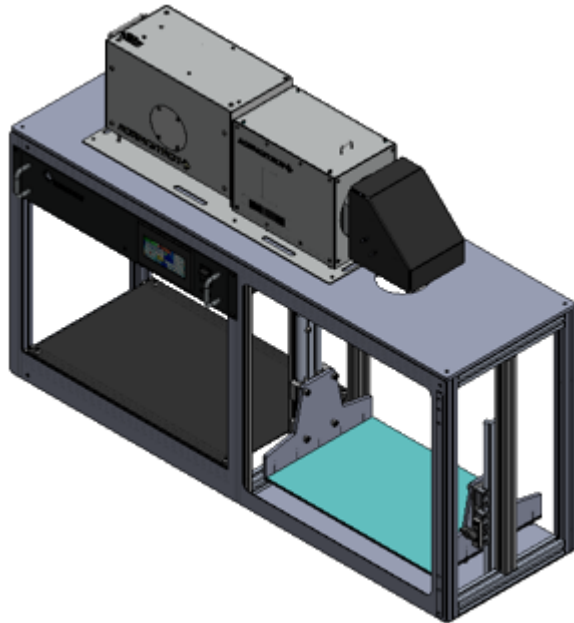
No stand

No stand. Beam turner (not pictured) is still included with the SciSun.



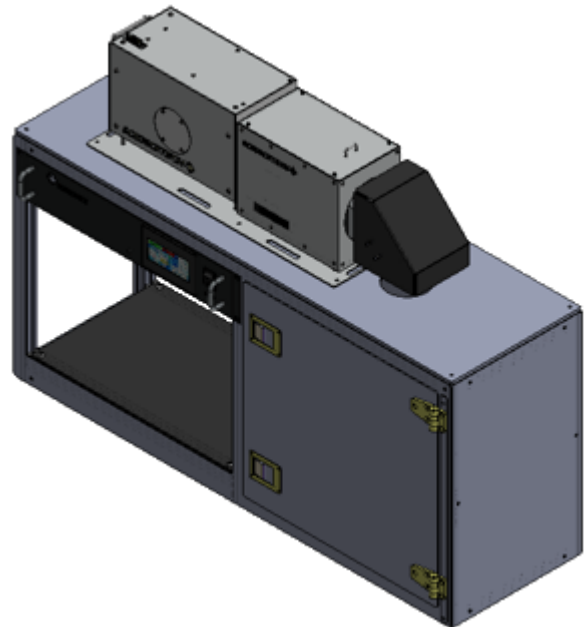
HAS (101-8024)

Height-adjustable stand, comes standard with the SciSun.



SCISUN-WS

Workstation for Scisun. Includes mounting for compatible power supply and adjustable sample stage.



SCISUN-WS-D

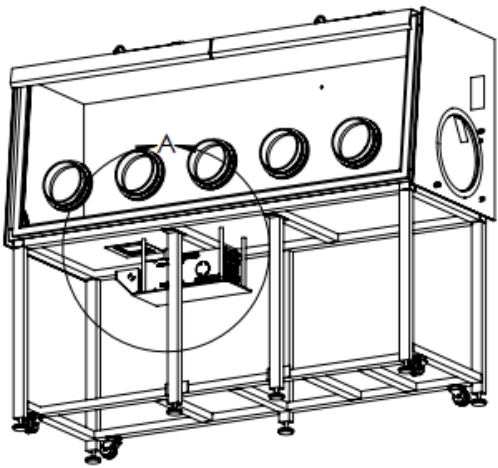
Workstation for Scisun with dark chamber. Includes mounting for compatible power supply and adjustable sample stage.

SciSun Solar Simulators

GLOVEBOX INTEGRATION

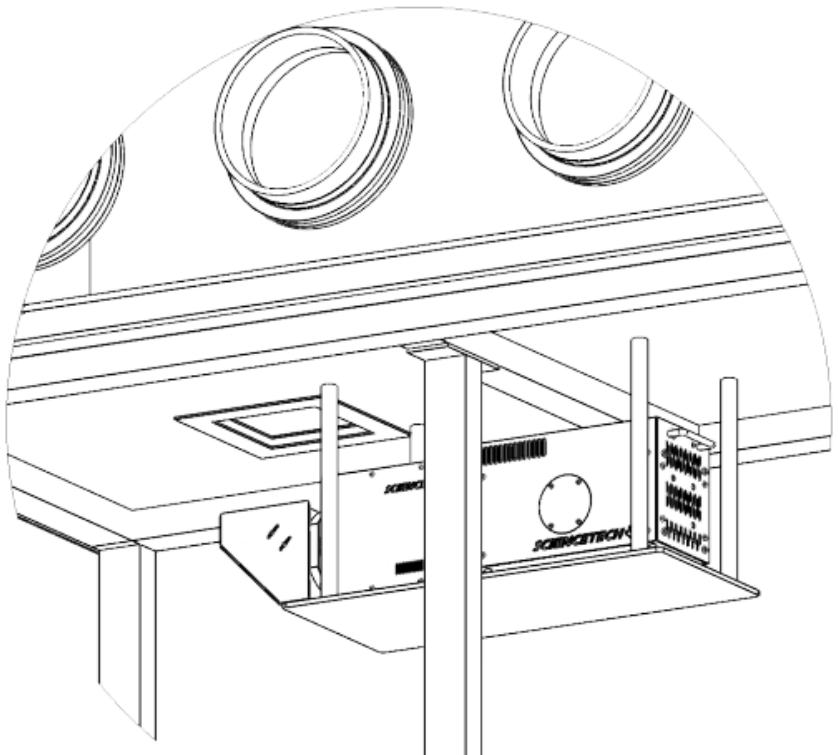
SciSun Integrates Easily with a Glovebox

The compact size and flexible output of the Scisun allows for easy integration with a glovebox. Using the beam turner to orient the beam in an upward-facing direction, the output light can be directed up through a window onto a sample.



SCISUN-300 with glovebox. Power supply not shown.

Mounting tray for glovebox is not included.



DETAIL A
SCALE 1 : 8

Model	SKU	Description
MF-71-FT-3	640-9007	Standard 75 mm (3") neutral density mesh filter. 71% transmission options is recommended for glovebox integration to accommodate potential losses through glovebox window.

SciSun Solar Simulators

COMPATIBLE 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).



SCI-MO Reference Cell

(125-9040)

A robust PCB mounted solar cell with active area of 22x7mm, it is intended to be used as a reference monitors for determining solar simulator sun level.



SC-LT-Q

(585-0154)

Calibrated Reference Cell, Quartz Window, traceable to NIST and NREL.



MF-##-FT-3

(640-90##)

Standard 75 mm (3") neutral density mesh filters.

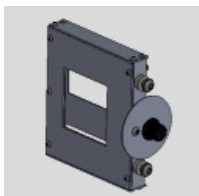
10, 20, 34, 40, 49, 55, 71, and 80% transmission options available.



SH-SC3

(127-8004)

Motorized shutter. Open/close time is ~200ms. Installs inside SciSun, must be selected at the time of purchase.



VAR-ATTN-M

(173-8004)

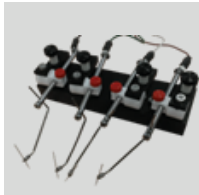
Computer controlled shutter. Attenuation control is from 10% transmission to 100% transmission. Calibration in 20 steps. Installs inside SciSun, must be selected at the time of purchase. May affect uniformity at the output.

SciSun Solar Simulators

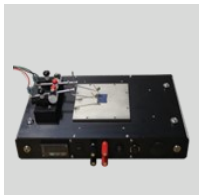
IV ACCESSORIES

**SSIVT-21C****(175-9106)**

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

**SCP-4T****(165-8211)**

Probe Station, 4 Probes, Tungsten Needle-tip Kelvin Probes

**SCI-SCC3-TE****(165-8202)**

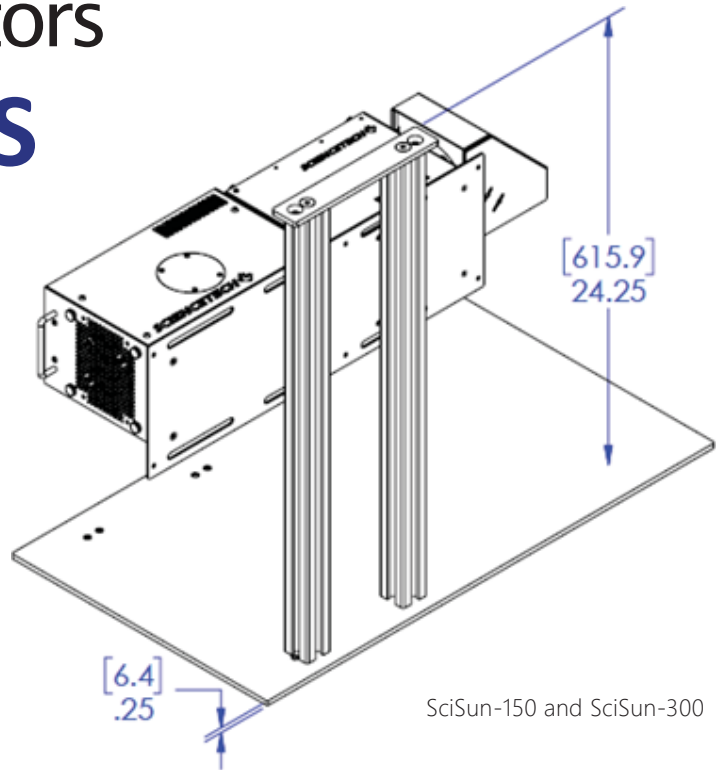
3.5" x 3.5" Solar Cell Chuck, TE Cooled, Computer controllable, Vacuum ready.

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

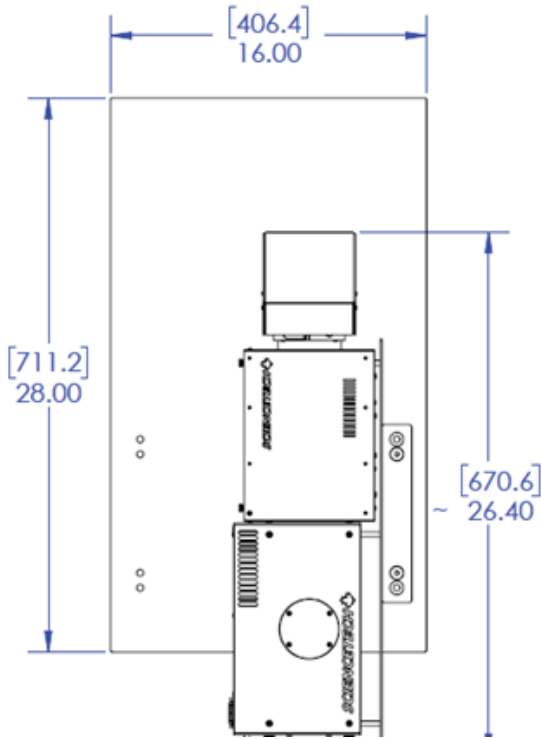
3.5" x 3.5" Solar Cell Chuck, Liquid Cooled, Rear Contact.

SciSun Solar Simulators DIMENSIONS

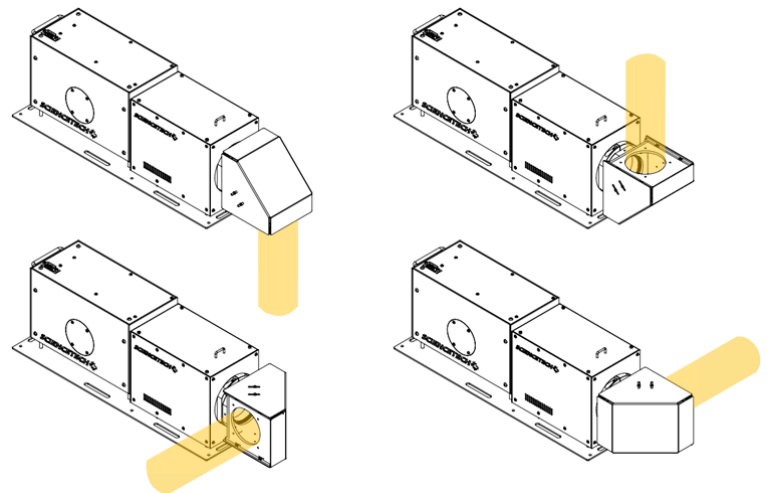
Dimensions are in [mm] and inches.



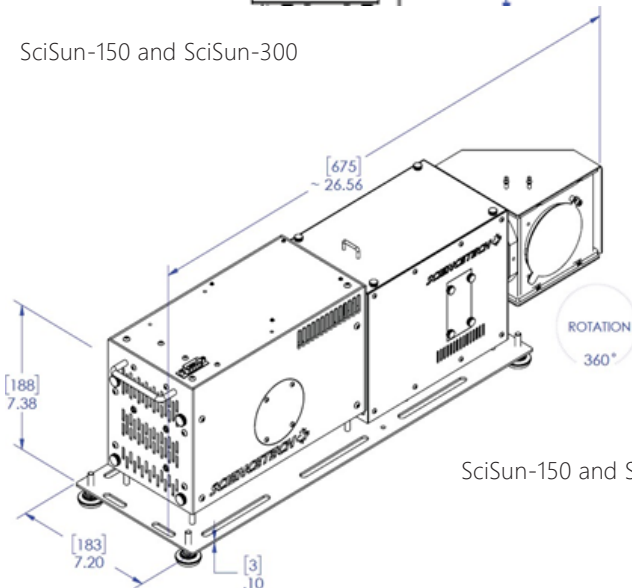
SciSun-150 and SciSun-300



SciSun-150 and SciSun-300



360° beam output orientation options available.



SciSun-150 and SciSun-300

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