

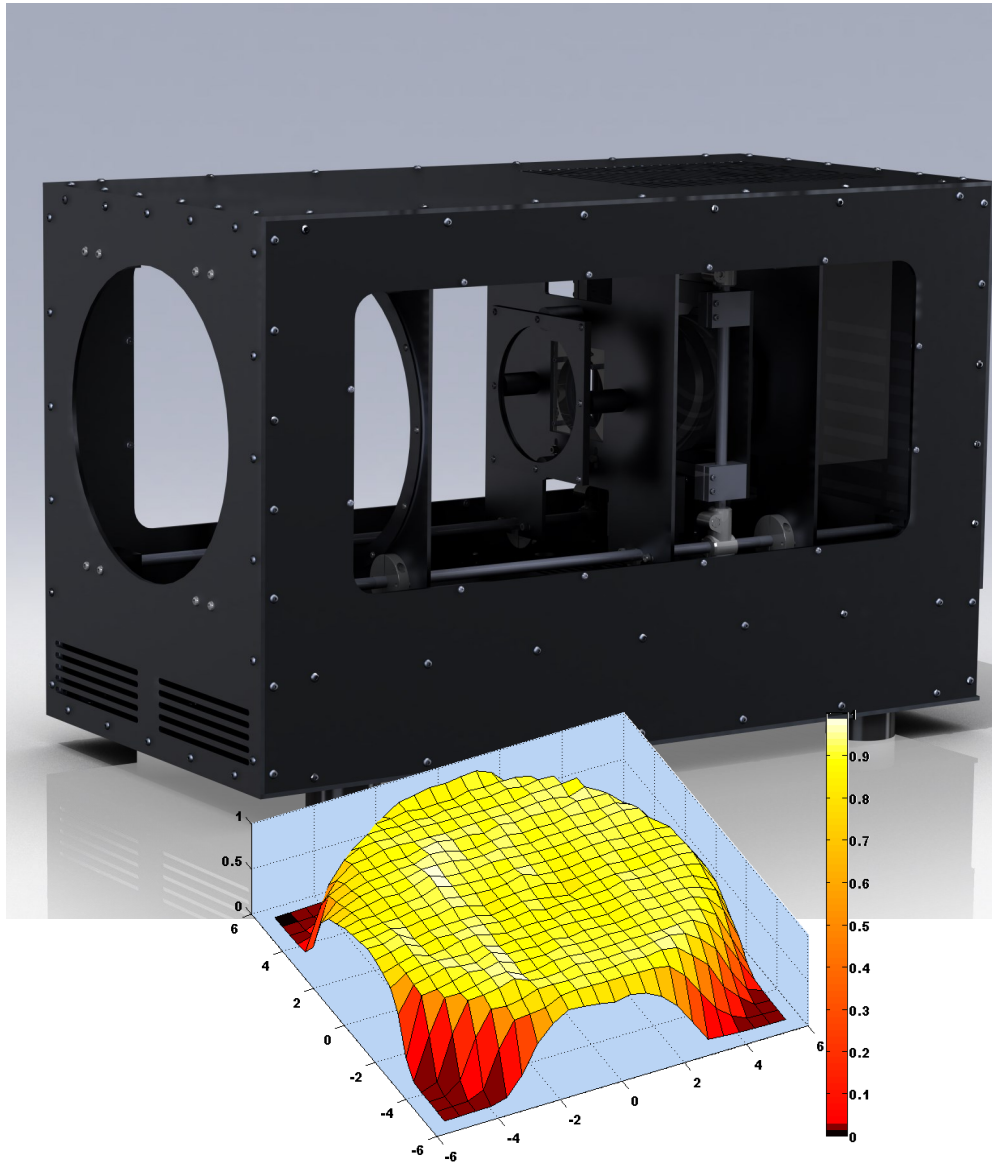
## HIGHLY COLLIMATED CLASS ABA SOLAR SIMULATORS SSI.6K-XE-FR / SS3.0K-XE-FR

### Features

- Xenon short arc lamp
- High collimation
- Proprietary optical system
- Large area illumination
- Optional Class ABA
- A variety of available filters
- Advanced lamp alignment
- Adaptable framework
- Integrated power supply
- Simple operation

### Applications

- Photovoltaic Testing
- CPV Systems
- Solar Thermal Systems
- UV Exposure Related Testing



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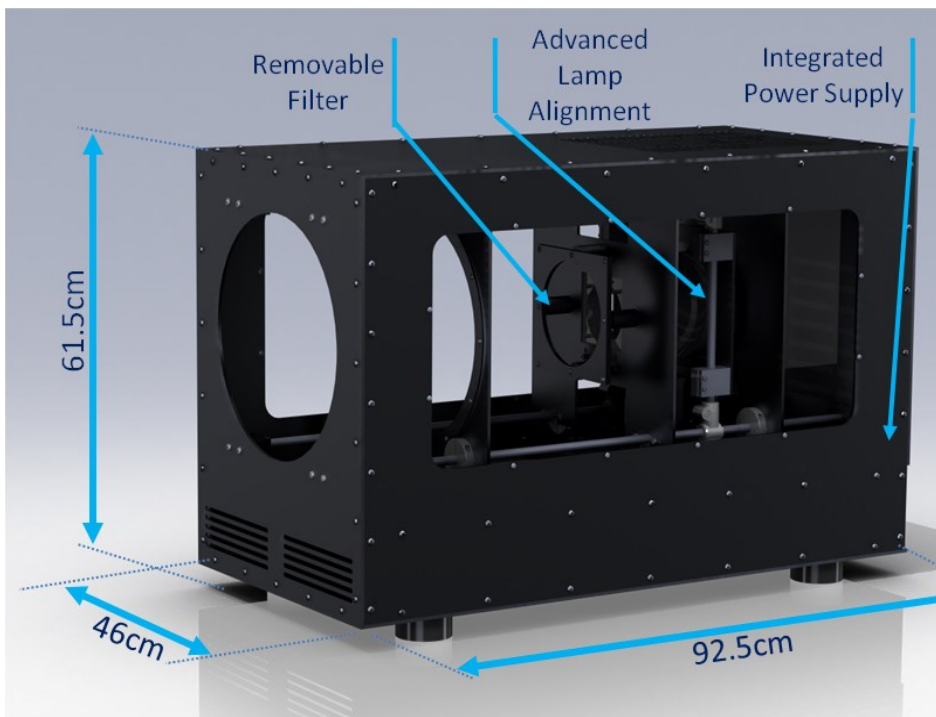
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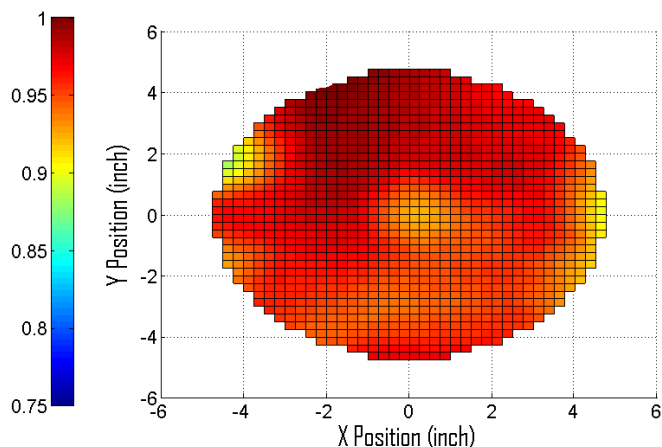
# HIGHLY COLLIMATED CLASS ABA SOLAR SIMULATORS SSI.6K-XE-FR / SS3.0K-XE-FR

Sciencetech's highly collimated solar simulators were designed for photovoltaic cell testing applications where a very high degree of collimation of the incident radiation is required. CPV and solar thermal applications generally both require light sources with angular divergences approaching that of the sun (0.5 degree).

Sciencetech's highly collimated solar simulators can provide ABA classification, large area continuous illumination (9" and 12" respectively) and high collimation (0.7 degrees half angle). These solar simulators include integrated power supplies and an advanced lamp alignment tool which makes them easy to use.



## NON-UNIFORMITY\*



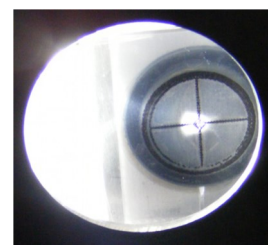
\*Measured NU  $< \pm 5\%$  for both the 3.0kW and 1.6kW simulators with add-on (B) uniformity option

## SPECTRAL MATCH

Range (nm)	ASTM Standard AM1.5D	Xe-FR Series Result	$< \pm 25\%$ of Standard?
400-500	16.90%	15.70%	pass
500-600	19.70%	19.10%	pass
600-700	18.50%	20.80%	pass
700-800	15.20%	15.90%	pass
800-900	12.90%	12.30%	pass
900-1100	16.80%	16.30%	pass
<b>SUM</b>	<b>100%</b>	<b>100%</b>	<b>pass</b>

Generally highly collimated systems utilize 'direct' type filters. However other filter types are available

Two pinhole cameras with attached reticules are used to help align the lamp in the correct position.



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# HIGHLY COLLIMATED CLASS ABA SOLAR SIMULATORS

## SSI.6K-XE-FR / SS3.0K-XE-FR

Specification	SSI.6k-Xe-FR	SS3.0k-Xe-FR
<b>Illumination Area<sup>1</sup></b>	<ul style="list-style-type: none"> <li>• 22cm (for AM1.5D sun level)</li> <li>• 20cm (for AM1.5G sun level)</li> <li>• 15cm (for AM0 sun level)</li> </ul>	<ul style="list-style-type: none"> <li>• 30cm (for AM1.5D sun level)</li> <li>• 28cm (for AM1.5G sun level)</li> <li>• 21cm (for AM0 sun level)</li> </ul>
<b>Angular Divergence<sup>2</sup></b>	± 0.7 degree	± 0.7 degree
<b>Spectral Match<sup>3</sup></b>	Class A	Class A
<b>Filters</b>	Various available	Various available
<b>Spatial Non-uniformity<sup>4</sup></b>	+/- 25% base system +/- 5% With uniformity option (B)	+/-25% base system +/- 5% with uniformity option (B)
<b>Temporal Stability</b>	< ± 2%	< ± 2%
<b>Working Distance</b>	30cm	20cm
<b>Illumination Intensity<sup>5</sup></b>	Up to 200mW/cm <sup>2</sup> without filters	Up to 200mW/cm <sup>2</sup> without filters
<b>Orientation</b>	Horizontal	Horizontal
<b>Light Source</b>	1.6kW Xenon Short Arc Lamp	3.0kW Xenon Short Arc Lamp
<b>Unfiltered Spectral range</b>	250-2500nm	250-2500nm
<b>Lamp voltage, current</b>	23V / 65 A	29 V / 100 A
<b>Lamp life (hours)</b>	2000	1000
<b>Power supply</b>	Integrated adjustable constant current supply	Integrated adjustable constant current supply
<b>Input power / Freq required</b>	200VAC-240VAC (47-63Hz)	200VAC-240VAC (47-63Hz)
<b>Ripple</b>	< 0.5%	< 0.5%
<b>Lamp Cooling</b>	Forced air, interlocked to power supply	Forced air, interlocked to power supply
<b>Dimensions (cm)</b>	92.5 x 46 x 61.5	92.5 x 46 x 61.5
<b>Weight (kg)</b>	50	50

1) Varies with required illumination intensity.

2) Angular divergence measured is for >70% of the optical power at the target plane

3) With an appropriate filter, purchased separately

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# HIGHLY COLLIMATED CLASS ABA SOLAR SIMULATORS SSI.6K-XE-FR / SS3.0K-XE-FR



## LIGHT STABILIZATION (FS-02-N)

The FS-02-N module provides long term light stabilization.

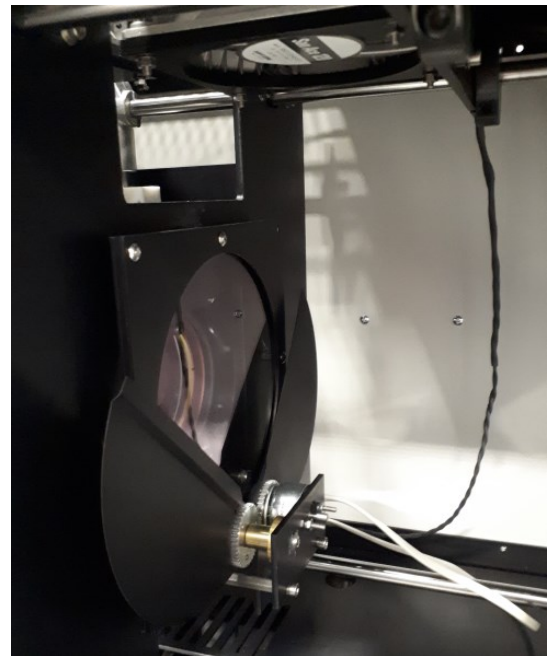
The module works by monitoring the optical intensity inside the simulator and increasing or decreasing the current to the lamp to maintain a stable optical output. The FS-02-N includes an external module as well as internal detectors and should be ordered with the initial purchase of the simulator

## INTERNAL SHUTTER (SSES-XE-FR)

Internal shutter designed for Sciencetech highly collimated solar simulators model SSI.6K-XE-FR and SS3.0K-XE-FR. This shutter includes additional cooling fans and mounting hardware inside the simulator. It should be ordered at the time of purchasing the simulator.

## BEAM TURNING ASSEMBLY (CTBT-XE-FR)

The XE-FR line of simulators produces a horizontal facing beam. The beam line can be turned vertically with an additional large mirror module on the output of the system.



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# HIGHLY COLLIMATED CLASS ABA SOLAR SIMULATORS

## SS1.6K-XE-FR / SS3.0K-XE-FR

Available Filters		
Item Number	Description	Used with
160-8030	AM1.5G Filter, 150x150mm	SS3.0k-Xe-FR
160-8031	AM1.5D Filter, 150x150mm	SS3.0k-Xe-FR
160-8029	AM0 Filter 150x150mm	SS3.0k-Xe-FR
647-0160	AM1.5G Filter, 76.2x76.2mm	SS1.6k-Xe-FR
647-0013	AM1.5D Filter, 76.2x76.2mm	SS1.6k-Xe-FR
647-0010	AM0 Filter, 76.2x76.2mm	SS1.6k-Xe-FR

Ordering Information		
Item Number	Model	Note
164-9001	SS1.6KXeFR-B	<b>Class B Uniformity</b>
164-9005	SS1.6KXeFR	<b>No Uniformity classification</b>
164-9002	SS3.0KXeFR-B	<b>Class B Uniformity</b>
164-9004	SS3.0KXeFR	<b>No Uniformity classification</b>

## SPECTRAL MATCH

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<b>SUM</b>	<b>100%</b>	<b>100%</b>	<b>pass</b>

Personal Protective Equipment	
Item Number	Description
720-0159	(UV-Glasses-Drk) Dark safety glasses
LS0001	Powder free gloves, Large

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