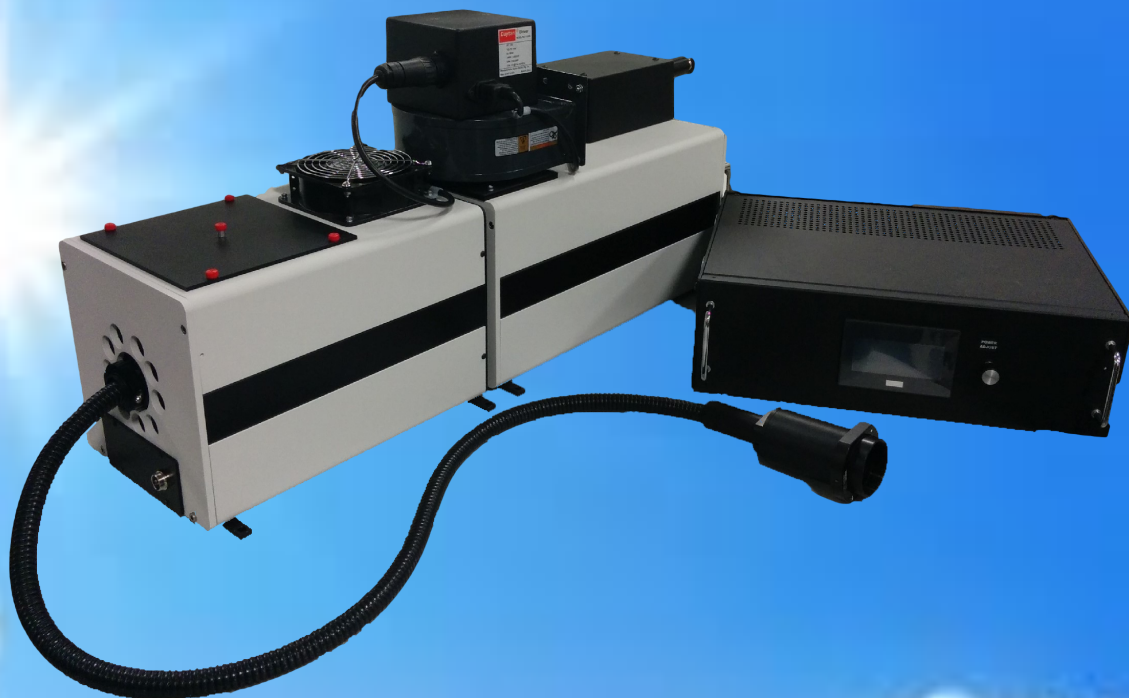# SOLAR LIGHTLINE SERIES

Features

- Meets Class AAA ASTM standards
- Fiberized output for flexible illumination.
- Easy-to-use touchscreen controls
- Light intensity control is available
- Remote control by PC
- Cost-effective for researchers

Applications

- Testing photovoltaic cell performance
- Photochemistry
- Photobiology
- Testing for color fading of paints and fabrics, etc.
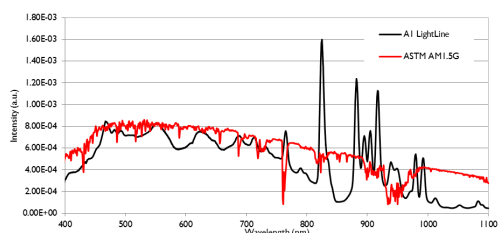
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SOLAR LIGHTLINE SERIES

1. Overview

The Sciencetech Solar LightLine series of fiberized solar simulators are a revolution in the solar simulator industry. With the Solar LightLine you can direct the Class AAA solar light anywhere you wish with the standard 4 foot fiber! Classic designs for solar simulators require you to bring your sample to the solar simulator. Now you can bring the solar simulator to your sample.
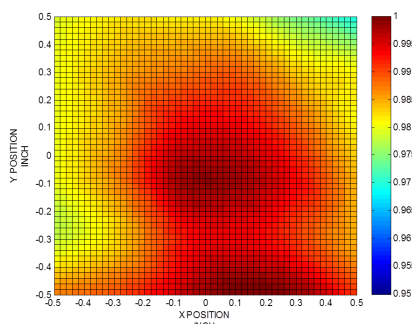
The Solar LightLine simulators come standard with a touchscreen power supply, integrated shutter, and exposure controller. Multiple filter options are available to meet your specific needs.

The Solar LightLine has two base models (A1-300W and A4-1000W). Each model has multiple configuration options. Configuration options exist for Class AAA illumination up to 50mm square and intensity up to 12Suns.
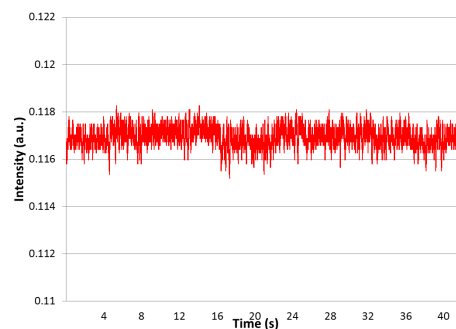
The Sciencetech Solar LightLine can match class A ASTM, IEC, and JIS solar simulator standards. A number of air mass filters are available for the Solar LightLine giving you the capability to customize the instrument for your requirements. In addition to spectral match filters you can also add intensity filters and other spectral filters like UV and IR blocking filters.

Class A Spectral Match

Class A Non-Uniformity

Class A Temporal Instability

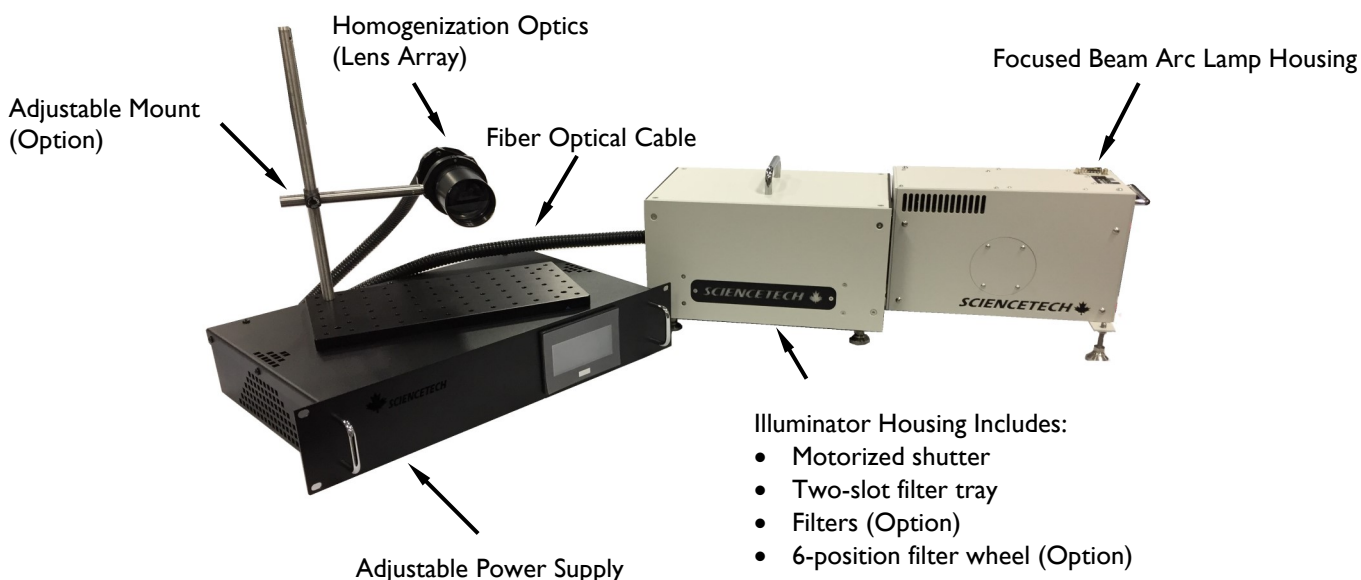| Model	Power operation	Target Size	Sun Level[1]	Working Distance[2]	Class[3]	Projection Optics
A4-LA125-1	120VAC	25mm x 25mm	Up to 4Suns	10cm	AAA	-LA125
A4-LA125-2	220VAC	25mm x 25mm	Up to 4Suns	10cm	AAA	-LA125
A1-LA125-3	120/220VAC	25mm x 25mm	1Sun	10cm	AAA	-LA125
A4-LA200-1	120VAC	50mm x 50mm	1Sun	20cm	AAA	-LA200
A4-LA200-2	220VAC	50mm x 50mm	1Sun	20cm	AAA	-LA200
A4-C250-1	120VAC	Ø12.5mm	Up to 12Suns	25cm	ACA	-C250
A4-C250-2	220VAC	Ø12.5mm	Up to 12Suns	25cm	ACA	-C250
A1-C250-3	120/220VAC	Ø12.5mm	4Suns	25cm	ACA	-C250

1 With AM1.5G filter installed
2 Working distance can be customized with different optics but will change target size
3 Tested to ASTM E927-05 standards, other standard testing is available upon request

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SOLAR LIGHTLINE SERIES

2. Specifications

A1 LightLine

Homogenization Optics (Lens Array)

Focused Beam Arc Lamp Housing

Adjustable Mount (Option)

Fiber Optical Cable

Illuminator Housing Includes:
- Motorized shutter
- Two-slot filter tray
- Filters (Option)
- 6-position filter wheel (Option)

Adjustable Power Supply

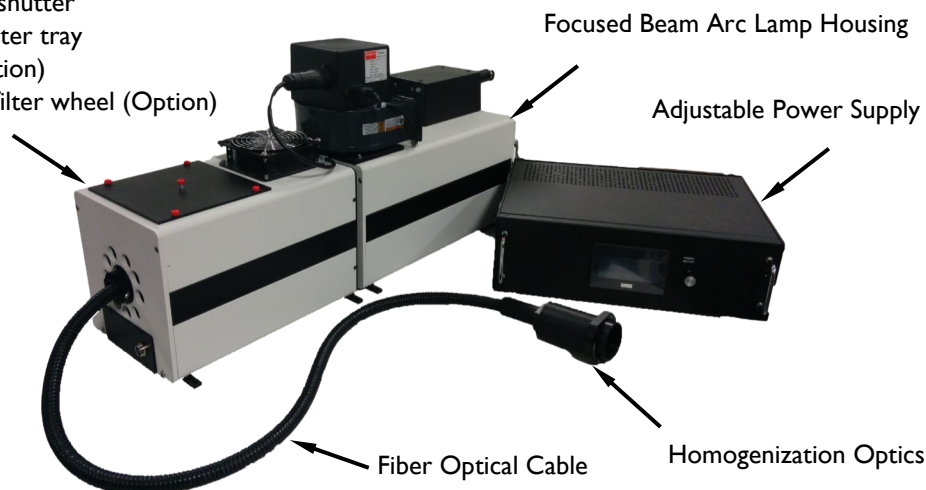| MODEL	A1-LA125-3	A1-C250-3
Class	AAA	ACA
Working Distance	10cm	25cm
Target Size	25mm x 25mm	Ø12.5mm
Wavelength Range	350 - 1800nm (Standard Spectral Match 400 - 1100nm)	
Air Mass Filter	AM1.0D, AM1.5G, AM1.5D, AM2.0	
Collimation Angle	10° Half Angle (depends on selected optics)	
Lamp	300W Xenon, 1000h (average) Lifetime, Forced Air Cooling	
Shutter	Integrated Touchscreen Control, 0 - 10000s, Adjustable Duty Cycle	
Fiber Bundle Length	1.22m (4') Standard	
Power Supply Model	601-300	
Input Voltage/Current	Switchable110-130V / 9A or 220-240V / 6A Operation	
Environment	Temperature 10-35 °C, Humidity 20-80%, Avoid Condensation	
Dimension (LxWxH)	58.7cm x 20.6cm x 20.8cm	
Weight	5kg	

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SOLAR LIGHTLINE SERIES

A4 LightLine

Illuminator Housing Included:
- Motorized shutter
- Two-slot filter tray
- Filters (Option)
- 6-position filter wheel (Option)

Focused Beam Arc Lamp Housing

Adjustable Power Supply

Homogenization Optics

Fiber Optical Cable

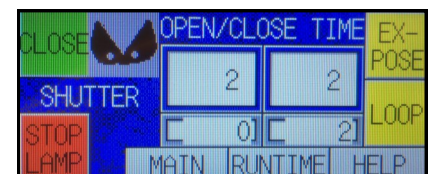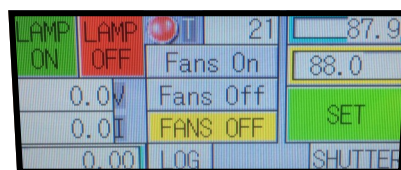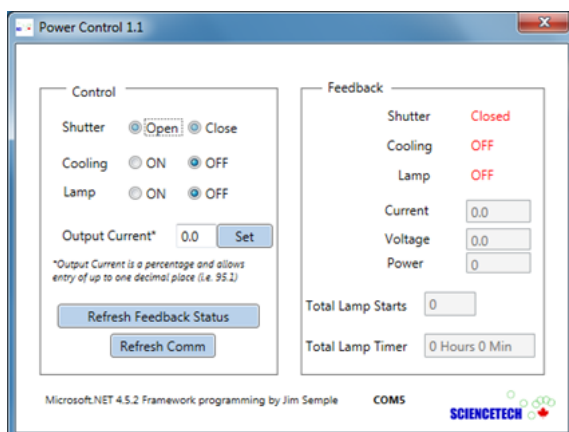| MODEL	A4-LA125-1/2	A4-LA200-1/2	A4-C250-1/2
Class	AAA	AAA	ACA
Working Distance	10cm	20cm	25cm
Target Size	25mm x 25mm	50mm x 50mm	Ø12.5mm
Wavelength Range	350 - 1800nm (Standard Spectral Match 400 - 1100nm)		
Air Mass Filter	AM1.0D, AM1.5G, AM1.5D, AM2.0		
Collimation Angle	10° Half Angle (depends on selected optics)		
Lamp	1000W Xenon, 1000h (average) Lifetime, Forced Air Cooling		
Shutter	Integrated Touchscreen Control, 0 - 10000s, Adjustable Duty Cycle		
Fiber Bundle Length	1.22m (4') Standard		
Power Supply Model	501-1k		
Input Voltage/Current	110-130V / 9A or 220-240V / 6A		
Environment	Temperature 10-35 °C , Humidity 20-80% , Avoid Condensation		
Dimension (LxWxH)	76.8cm x 21.6cm x 38.3cm		
Weight	20kg		

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SOLAR LIGHTLINE SERIES

3. Accessories

Touchscreen Power Supply

MODEL (Default)	DESCRIPTION
Shutter and Exposure Controller	This feature provides an onboard shutter and exposure controller built into the power supply. A standard 2-pin connector is provided on the back of the power supply to connect a Sciencetech solenoid driven shutter mechanism. With this option the power supply firmware provides an interface for programming shutter loops and exposure sequences.
Power Connection for Cooling Fans	The power connection for cooling fans feature provides a power pass through connection for the lamp house cooling fans. With this option the lamp housing cooling fans operation is monitored by the lamp house.
Safety Interlock	With the safety interlock feature the power supply will turn off, extinguishing the lamp, if the interlock is opened. The interlock wiring can be connected to a mechanical safety interlock such as a magnetic switch or rocker switch on the lamp house.
RS232 Computer Control	This feature provides RS232 computer control of the power supply through a DB9 connector mounted on the rear panel of the power supply (Power control 1.1 software and cable are included).

MODEL (Option)	DESCRIPTION
Programmable Remote Temperature Monitor/TM	The programmable remote temperature monitor option provides over temperature protection for the lamp house that the power supply is being used with. With this option an RTD or K-type Thermocouple is wired between the lamp house and power supply.
Monitor Output/OC	This option provides a male nine pin connector on the rear of the power supply for monitoring the status of the power supply. Parameters that can be monitored: lamp current 0-10V, lamp voltage 0-10V, lamp On/Off (1-5V TTL).
Auto Start Lamp/AS	The option provides the capability to automatically start the lamp. This allows the user to set a time for the light source to automatically ignite.

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SOLAR LIGHTLINE SERIES

Filters

Numerous filtering options are available with the Sciencetech Solar LightLine. The standard Solar LightLine comes with two filter slots. One slot is usually reserved for an air mass filter. The secondary slot can accommodate other filtering options.

MODEL	Code	DESCRIPTION
FT-75-3	100-8035	Empty FT Style Filter Holder for 75mm Square or Diameter Filters (3mm thick)
MF-34-FT-3	640-9005	75mm Mesh 34% Neutral Density Filter with Holder
MF-49-FT-3	640-9006	75mm Mesh 49% Neutral Density Filter with Holder
MF-71-FT-3	640-9007	75mm Mesh 71% Neutral Density Filter with Holder
HPF-BB-NIR-FT-3	640-9012	Passes UVA, UVB, and VIS (280-730nm). Blocks NIR (730-1100nm).
HPF-LP-VIS-FT-3	640-9014	Passes VIS and NIR. Blocks UVA and UVB (<400nm).
HPF-LP-NIR-FT-3	640-9015	Passes NIR (700-2000 nm). Blocks UVA, UVB, and VIS (<700 nm).
HPF-BB-VIS-FT-3	640-9016	Passes UVA and UVB (245-400nm). Blocks VIS (400-700nm).
HPF-LP-UVA-FT-3	640-9017	Passes UVA,VIS, and NIR. Blocks UVB (<320nm)
HPF-BB-UVB-FT-3	640-9018	Passes UVB, VIS, and NIR. Blocks UVA (320-400nm)
HPF-BP-VIS-FT-3	640-9019	Passes VIS (400-700nm). Blocks UVA, UVB, and NIR.
MF-25	640-9013	Set of 25mm Diameter Wire Mesh Filters to Attenuate Solar Level. For use with the –SFW option.
AM0-FT-3	160-8020	Air Mass AM0 Filter (Standard Range)*
AM1.0D-FT-3	160-8022	Air Mass AM1.0D (Standard Range)
AM1.5G-FT-3	160-8024	Air Mass AM1.5G (Standard Range)
AM1.5D-FT-3	160-8026	Air Mass AM1.5D (Standard Range)
AM2.0D-FT-3	160-8028	Air Mass AM2.0D (Standard Range)
WF-1Q	100-8048	Compact IR Water Filter

* AM0 power level only. For true AM0 spectrum, a UV-transmitting fiber and lens array are required, contact a Sciencetech product representative for more information.
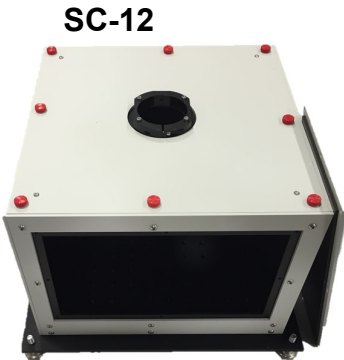
FT-75-3

Mesh filter

Filters

WF-1Q

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SOLAR LIGHTLINE SERIES

Optional Accessories

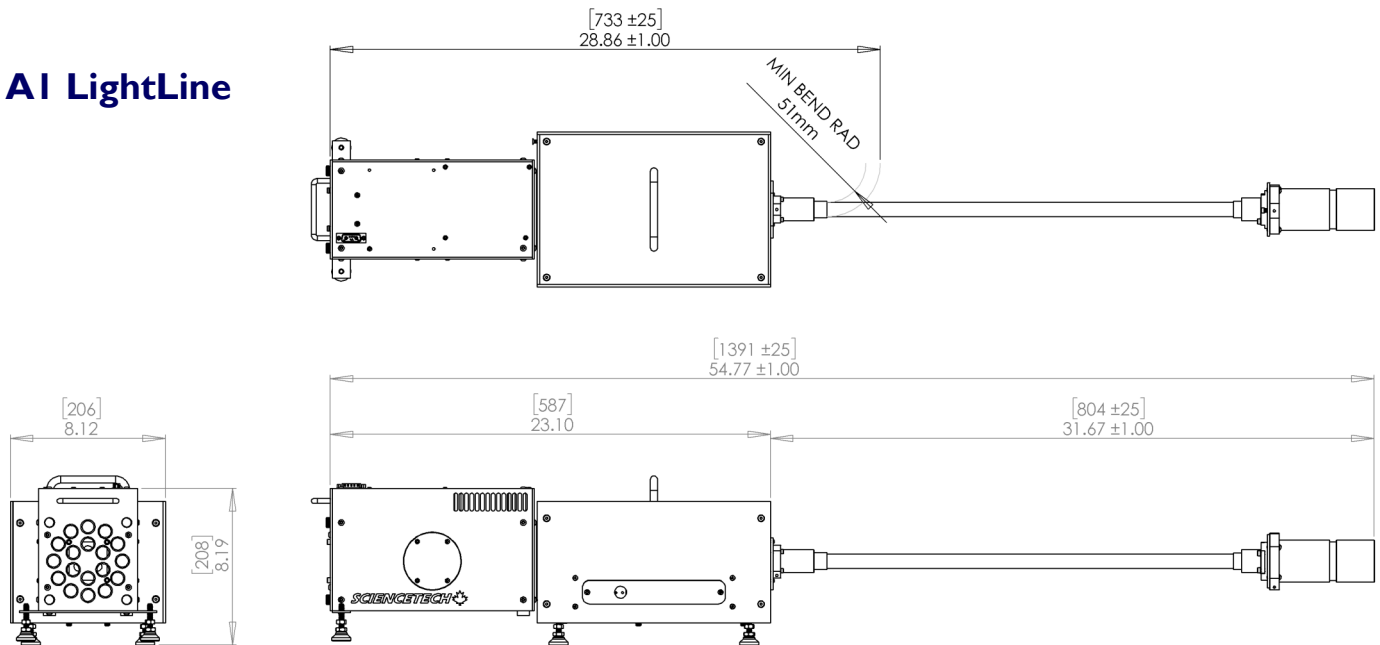| MODEL	PART No.	DESCRIPTION
SC-12	130-9011	A general-purpose sample chamber that can be configured in multiple ways to address a number of application requirements. The SC-12 includes 4 optical ports (on three sides and one on the top) as well as a side door for easy access to the sample area. Three of the side walls feature optical ports with a Sciencetech standard B4 hole pattern as well as removable anodized access panels that can be machined to accommodate most types of feedthroughs, including electrical, liquid and gas.
-PM90	100-8060	A stand/fiber holder designed to hold the LightLine optical illumination delivery fiber. Fiber holder position is adjustable for vertical and horizontal illumination and any angle in-between. Includes a sturdy baseplate.
FB-0.5-8	670-0103	8 foot optical fiber upgrade to allow for further versatility with the A1 and A4 LightLine. Please note that with the A4 LightLine there will be a reduction in the power output with an 8 foot fiber.
-SFW	189-9012	6-position computer controlled filter wheel (25 mm diameter filters)

SC-12

PM-90

FB-0.5-8

-SFW

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5. Dimensions

A1 LightLine

A4 LightLine

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