

Solar Light Company, LLC has been the foremost name in light sciences since we invented the world's first Solar Simulator in 1967. Our state of the art single output **LS1000-Series and 16S-Series Solar Simulators produce solar UVB radiation** in the 280-320nm range, and can be quickly and easily configured by the user to provide UVA only, UVA+B, or full spectrum sunlight optionally. These precision research-grade instruments are specifically designed for *in vitro* and *in vivo* sunscreen testing, as well as clinical, medical, and photobiological studies. They are fully compliant with the most current FDA and ISO requirements. Everything required for instant testing right out of the crate is included direct from the factory: Solar Simulator, Dose Controller / Radiometer, NIST-traceable UVA Sensor, safety glasses, and all related accessories!



### LS1000-Series

- > 95% Uniformity, with 98% Uniformity available in beam's central usable area
- Square Beam Models available in 4" (10 cm) and 6" (15 cm) single port outputs
- Collimated Output Provides up to 14" (35.5 cm) Working Distance

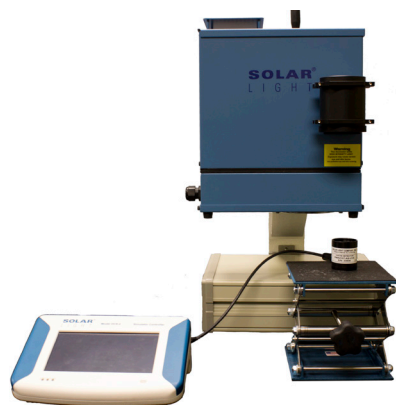
### 16S-Series

- > 90% Uniformity in beam's usable area
- Round Beam Model available in 0.4" (1 cm) to 3" (7.5 cm) single port output
- Focused Output provides up to 18" (46 cm) working distance

### Advantages

- Standard and Customizable Simulators validated to comply with FDA, ISO, and COLIPA Standards
- CE Compliant
- Prepackaged Kits include Dose Controller / Radiometer, NIST-traceable UVB Sensors, and all related accessories required for immediate testing
- Temperature rise of the sample is <0.2 °C.
- Custom-Designed Spectra available
- High performance fused silica optical components included
- Excellent long-term stability
- Easy to use Intensity and Uniformity Measurement System
- Automatic shutter with remote control connection Included
- High efficiency Switching Power Supply with adjustable output for variable lamp power included
- Optional Air Mass 0 and 1.5 Spectra from 250-2500nm available
- Optional Visible Light Only output available
- Optional Light Attenuation Screens available
- Optional Validation available





Solar Light's Turnkey Testing Kits include Simulators, Dose Controllers, Radiometers, Sensors, and Accessories so you can start testing instantly!

### Turnkey Kits For UVB-Only Irradiation

Our prepackaged kits combine these state of the art Solar Simulators with our innovative Automatic Dose Controllers, advanced Data Logging Radiometers, NIST-traceable Sensors, and other hardware to allow for instant testing right out of the crate.

Typical kits include:



**Sophisticated Automatic Dose Controllers** measure the spectral response following the Erythema Action Spectrum and UVA Spectrum to allow accurate dose control when measuring SPF values. The 7-inch (17.8 cm) touch sensitive screen allows the user to follow intuitive menus and makes it quick and easy to set control parameters.



**Advanced NIST-Traceable Sensors** for accurate measurement of biologically-weighted SUV or non-weighted UVB. Over 130+ different sensor models available for custom configurations.



**Laboratory Scissor Jacks** with 5.5"x5.5" (14cm x 14cm) surface allow for height adjustment from 2.75" to 10.25" (7cm to 26cm) for accurate specimen setup.

Round Beam Models				Square Beam Models		
SPECIFICATION	LS1000-2R-UVB	LS1000-4R-UVB	LS1000-6R-UVB	LS1000-2S-UVB	LS1000-4S-UVB	LS1000-6S-UVB
<b>Output Beam Size</b>	2" (5 cm) Round	4" (10 cm) Round	6" (15.25 cm) Round	2" (5 cm) Square	4" (10 cm) Square	6" (15.25 cm) Square
<b>Beam Orientation</b>	Vertical Downward, Vertical Upward, or Horizontal (for all models - please specify at order)					
<b>Lamp Type</b>	Xenon Short Arc (For All Models)			Xenon Short Arc (For All Models)		
<b>Lamp Wattage (Nominal)</b>	1000W (For All Models)			1000W (For All Models)		
<b>Beam Uniformity</b>	±5% (For All Models)			±5% (For All Models)		
<b>Collimation</b>	±1.5-3 Degree Half Angle (For All Models)			±1.5-3 Degree Half Angle (For All Models)		
<b>Spectral Match Classification</b>	A (IEC 60904-9 2007)			A (IEC 60904-9 2007)		
	A (JIS C 8912)			A (JIS C 8912)		
	A (ASTM E927 - 05)			A (ASTM E927 - 05)		
<b>Temporal Instability Classification</b>	A (IEC 60904-9 2007)			A (IEC 60904-9 2007)		
	A (JIS C 8912)			A (JIS C 8912)		
	A (ASTM E927 - 05)			A (ASTM E927 - 05)		
<b>Uniformity Classification</b>	A (IEC 60904-9 2007)	B (IEC 60904-9 2007)	A (IEC 60904-9 2007)		B (IEC 60904-9 2007)	
	A (JIS C 8912)	B (JIS C 8912)	A (JIS C 8912)		B (JIS C 8912)	
	A (ASTM E927 - 05)	B (ASTM E927 - 05)	A (ASTM E927 - 05)		B (ASTM E927 - 05)	
<b>Light Ripple</b>	< ±2% rms			< ±2% rms		
<b>Working Distance</b>	5.0" ±2.0" (12.7 cm +/- 5.2 cm)			5.0" ±2.0" (12.7 cm +/- 5.2 cm)		
<b>Long Term Drift (&lt;4 Hours)</b>	<0.1%			<0.1%		
<b>Line Regulation</b>	<0.2% of maximum output current			<0.2% of maximum output current		
<b>Current Regulation</b>	<0.5% of maximum output current			<0.5% of maximum output current		
<b>Current Ripple</b>	<0.5% of maximum output current			<0.5% of maximum output current		
<b>Power Limit</b>	Factory Set Limit is 1,500 watts max			Factory Set Limit is 1,500 watts max		
<b>Operating Temperature</b>	32°F to 95°F / 0°C to 35°C			32°F to 104°F / 0°C to +40°C		
<b>Storage Temperature</b>	-4°F to 185°F / -20°C to +85°C			-4°F to 185°F / -20°C to +85°C		
<b>Humidity</b>	0 to 95% non-condensing			0 to 95% non-condensing		
<b>Cooling</b>	Forced air			Forced air		
<b>Medical Safety Certifications</b>	EN61010-1 Laboratory, EN60335 Appliances, IEC60601-1 Medical (XPS-Series Power Supply also includes UL60601-1, EN 60601-1, and CAN/CSA C22.2 No. 601.1-M90)					
<b>EMI/EMC</b>	EN55011 Emissions, IEC60601-1-2:2001, 2nd Rev 2 Medical, IEC61000-3-2 Harmonic, IEC61000-3-3 Flicker, IEC61000-4-2 ESD, IEC61000-4-3 Radiated, IEC61000-4-4 EFT, IEC61000-4-5 Surge, IEC61000-4-6 Conducted, IEC61000-4-11 Voltage Dip, IEC61000-4-8 Magnetic Field (XPS-Series Power Supply also includes FCC 47 CFR Class A Emissions and EN55011:1998 Group 1 Class A Emissions)					
<b>Weight</b>	40 lbs. (18.2 kg.)	40 lbs. (18.2 kg.)	45 lbs. (20.5 kg.)	40 lbs. (18.2 kg.)	40 lbs. (18.2 kg.)	45 lbs. (20.5 kg.)

Specifications subject to change without notice.

Part Number: 210071  
Revision Level: B

16S-Series 150W Models				16S-Series 300W Models			
SPECIFICATION	16S-150-0.4-UVB	16S-150-0.8-UVB	16S-150-1.2-UVB	16S-300-0.8-UVB	16S-300-1.2-UVB	16S-300-2.2-UVB	16S-300-3-UVB
<b>Output Beam Size</b>	0.4" (1 cm)	0.8" (2 cm)	1.2" (3 cm)	0.8" (2 cm)	1.2" (3 cm)	2.2" (5.7 cm)	3" (7.5 cm)
<b>Beam Orientation</b>	Vertical Downward, Vertical Upward, or Horizontal (for all models - please specify at order)						
<b>Lamp Type</b>	Xenon Short Arc (For All Models)			Xenon Short Arc (For All Models)			
<b>Lamp Wattage (Nominal)</b>	150W (For All Models)			300W (For All Models)			
<b>Beam Uniformity</b>	±5% (For All Models)			±5% (For All Models)			
<b>Spectral Match Classification</b>	A (IEC 60904-9 2007)			A (IEC 60904-9 2007)			
	A (JIS C 8912)			A (JIS C 8912)			
	A (ASTM E927 - 05)			A (ASTM E927 - 05)			
<b>Temporal Instability Classification</b>	A (IEC 60904-9 2007)			A (IEC 60904-9 2007)			
	A (JIS C 8912)			A (JIS C 8912)			
	A (ASTM E927 - 05)			A (ASTM E927 - 05)			
<b>Uniformity Classification</b>	B (IEC 60904-9 2007)			B (IEC 60904-9 2007)			
	B (JIS C 8912)			B (JIS C 8912)			
	B (ASTM E927 - 05)			B (ASTM E927 - 05)			
<b>Light Ripple</b>	< ±2% rms			< ±2% rms			
<b>Horizontal Beam Working Distance</b>	3" (7.6 cm)	7.1" (18 cm)	11.8" (30 cm)	5.9" (15 cm)	7.1" (18 cm)	18.5" (47 cm)	n/a
<b>Vertical Beam Working Distance</b>	n/a	2.4" (6 cm)	3.9" (10 cm)	2.4" (6 cm)	3.9" (10 cm)	18.1" (46 cm)	18.5" (47 cm)
<b>Long Term Drift (&lt;4 Hours)</b>	<0.1%			<0.1%			
<b>Power Limit</b>	Factory Set Limit is 150 watts max			Factory Set Limit is 320 watts max			
<b>Operating Temperature</b>	32°F to 95°F / 0°C to 35°C			32°F to 104°F / 0°C to +40°C			
<b>Storage Temperature</b>	-4°F to 185°F / -20°C to +85°C			-4°F to 185°F / -20°C to +85°C			
<b>Humidity</b>	0 to 95% non-condensing			0 to 95% non-condensing			
<b>Cooling</b>	Forced air			Forced air			
<b>Medical Safety Certifications</b>	EN61010-1 Laboratory, EN60335 Appliances, IEC60601-1 Medical						
<b>EMI/EMC</b>	EN55011 Emissions, IEC60601-1-2:2001, 2nd Rev 2 Medical, IEC61000-3-2 Harmonic, IEC61000-3-3 Flicker, IEC61000-4-2 ESD, IEC61000-4-3 Radiated, IEC61000-4-4 EFT, IEC61000-4-5 Surge, IEC61000-4-6 Conducted, IEC61000-4-11 Voltage Dip, IEC61000-4-8 Magnetic Field						
<b>Weight</b>	7 lbs (3.2kg)	7 lbs (3.2kg)	7 lbs (3.2kg)	10.5 lbs (4.8kg)	10.5 lbs (4.8kg)	10.5 lbs (4.8kg)	10.5 lbs (4.8kg)

Part Number: 210071

Revision Level: B

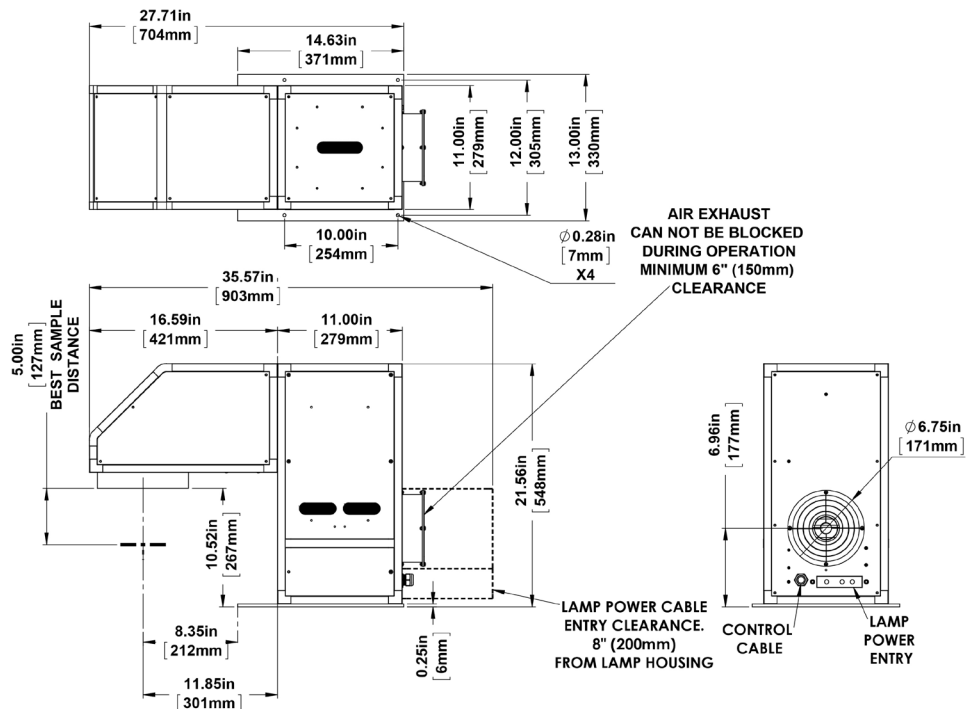
Specifications subject to change without notice.

**Custom beam sizes and configurations available - please consult factory for details.**

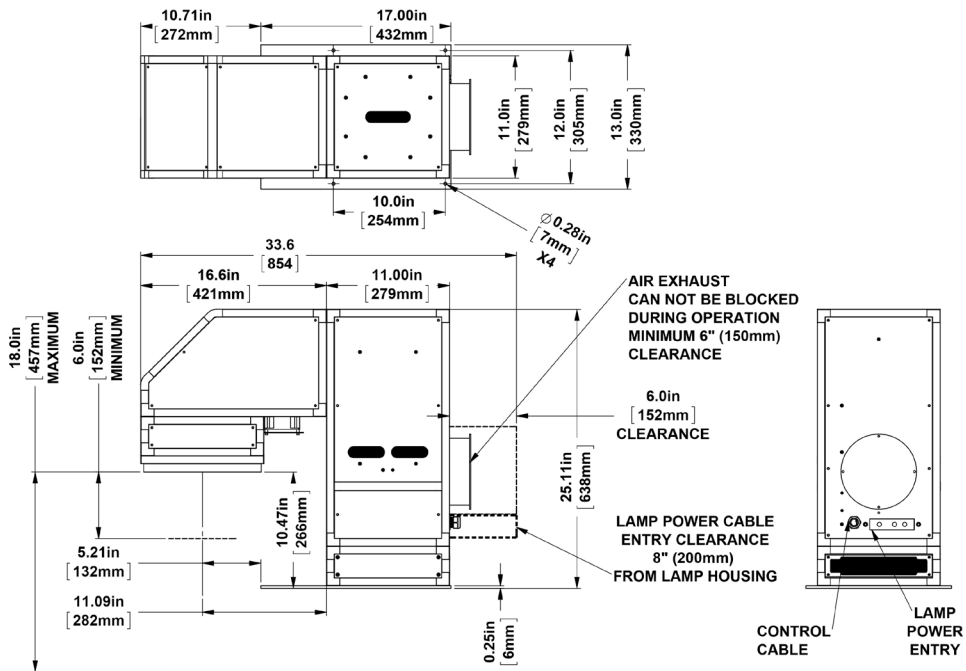
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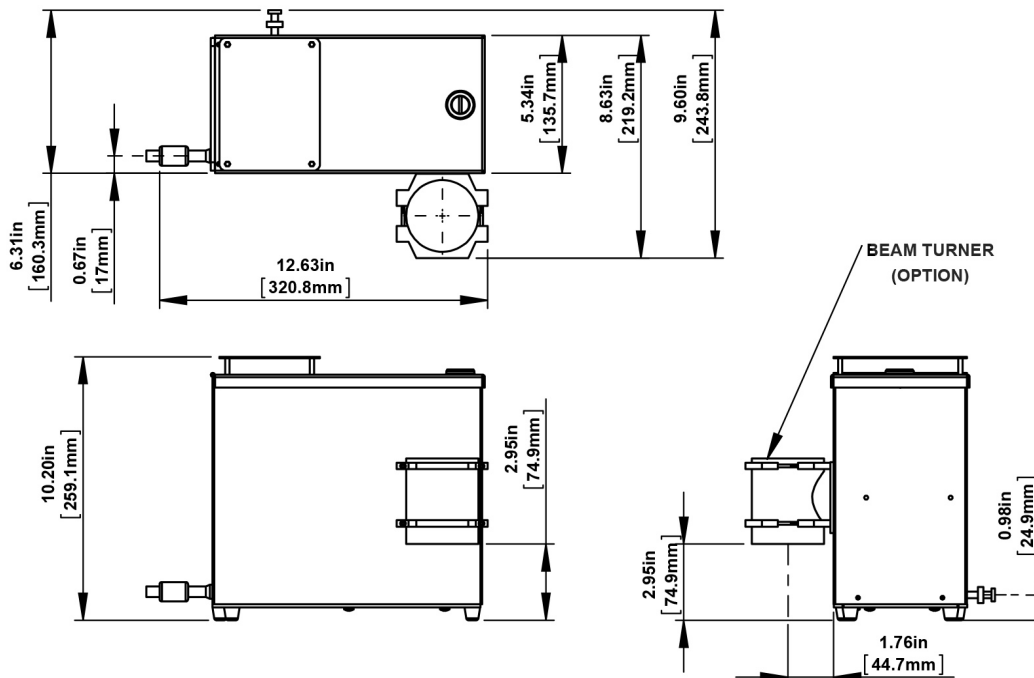
### LS1000-Series 2 Inch (5 cm) and 4 Inch (10 cm) Round and Square Beam UVB Solar Simulator Outline Drawing LS1000-Series 6 Inch (15.25 cm) Round Beam Only UVB Solar Simulator Outline Drawing



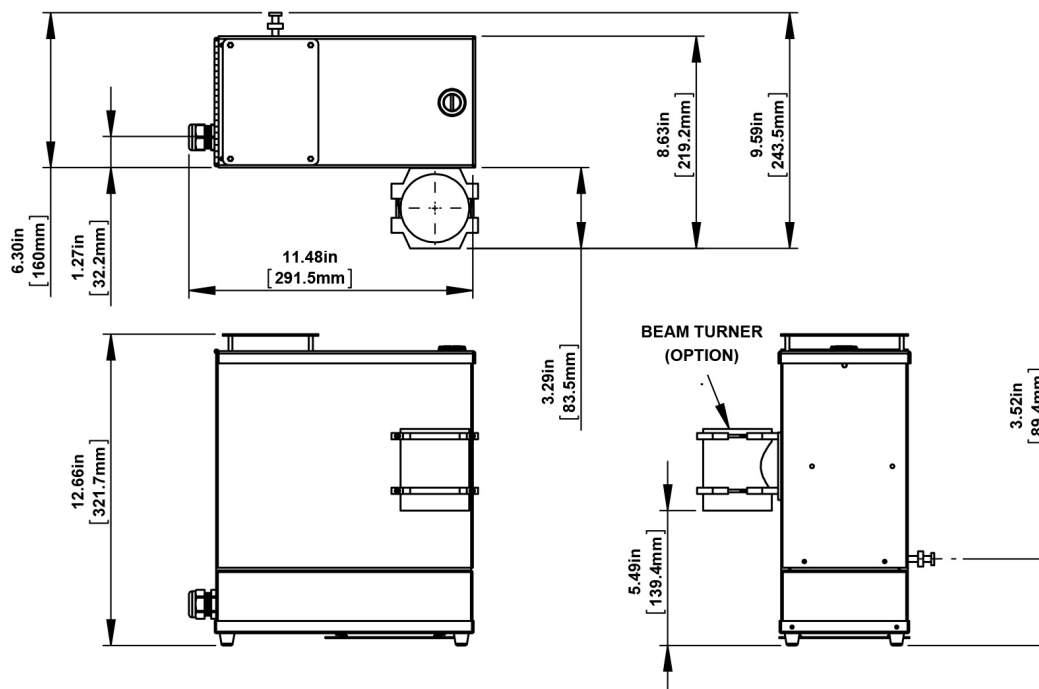
### LS1000-Series 6 Inch (15.25 cm) Square Beam Only UVB Solar Simulator Outline Drawing



### 16S-Series 150W Solar Simulator Outline Drawing



### 16S-Series 300W Solar Simulator Outline Drawing



Since 1967, Solar Light Company, LLC has been recognized worldwide as America's premier manufacturer of Precision Solar Simulators and Light Sources, Light Measurement Instrumentation, UV Transmittance Analyzers, Meteorological Instrumentation, and Digital and Analog Sensors. Our advanced line of UV, visible, and IR radiometers and light meters measure laboratory, industrial, environmental, and health related light levels with NIST traceable accuracy. Column ozone, aerosol, and water vapor thickness measurements, in addition to long-term global ultraviolet radiation studies all over the world are performed using our atmospheric line of instrumentation. Solar Light also provides NIST traceable spectroradiometric analyses, calibrations for light meters and light sources, accelerated ultraviolet radiation degradation testing of materials, and OEM instrumentation and monitors. Please visit our website for more details, specifications, and pictures!



**State Of The Art Solar Simulators** available in 150-1000+ watt UV or AM variations for a variety of applications including PV Cell Testing, Materials Testing, Pre-Irradiation for In Vitro Broad Spectrum Sunscreen Testing, SPF Testing, and much more.



**Multi-Functional Professional Grade Radiometers** available with and without data logging, and compatible with over 130 Solar Light PMA-Series Sensors to measure UV, Visible and IR wavelengths. Specialty Meters also available to measure UV Radiation, SUV/UVA, Scotopic/Photopic Spectra, and much more.



**Advanced NIST-Traceable Sensors** for accurate measurement of UVA, UVB, UVA+B, UVC, Visible, IR, Photostability, Temperature, and Custom Wavelength – well over 130 models in both digital and analog configurations, all compatible with our Radiometers.



**Ultraviolet Transmittance Analyzers** available as complete integrated turnkey systems to meet the latest ISO24443 requirements.



**Handheld Ozonometers and Sunphotometers** for fast and dependable Column Ozone, Aerosol, and Water Vapor Thickness measurements, in addition to long-term global ultraviolet radiation studies.



Compliant



Compliant



ISO 24443 Compliant



FDA In Vitro SPF



COLIPA Compliant



Boots Star Rated



Compliant



Compliant