SOLAR® LIGHT

LS1000-Series 1000W
16S-Series 150-300W

High Energy Visible Output Solar Simulators

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 High Energy Visible (HEV) solar radiation in the 400-500nm range, or the portion of the visible light spectrum that is closest to the UV band (mainly violet and blue light rays.) This range can be customized as required for specific research applications. These precision Simulators 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 ASTM, IEC, 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 HEV 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 UVA Sensors, and all related accessories required for immediate testing
- 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

ASTM Compliant | IEC Compliant | ISO 24443 Compliant | FDA In Vitro SPF | COLIPA Compliant | Boots Star Rated | JIS Compliant | CE Compliant

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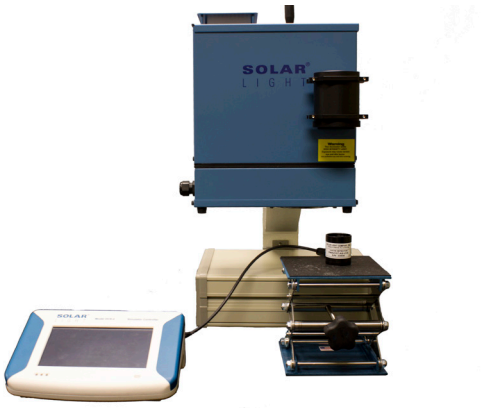

Solar Light's Turnkey Testing Kits include Simulators, Dose Controllers, Radiometers, Sensors, and Accessories so you can start testing instantly!

Turnkey Kits For HEV 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 with 7-inch (17.8 cm) touch sensitive screen allow the user to follow intuitive menus, and make it quick and easy to set control parameters.

Advanced NIST-Traceable Sensors for accurate measurement of the HEV spectrum. 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.

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Round Beam Models				Square Beam Models		
SPECIFICATION	**LS1000-2R-HEV**	**LS1000-4R-HEV**	**LS1000-6R-HEV**	**LS1000-2S-HEV**	**LS1000-4S-HEV**	**LS1000-6S-HEV**
Output Beam Size	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
Beam Orientation	Vertical Downward, Vertical Upward, or Horizontal (for all models - please specify at order)					
Lamp Type	Xenon Short Arc (For All Models)			Xenon Short Arc (For All Models)		
Lamp Wattage (Nominal)	1000W (For All Models)			1000W (For All Models)		
Beam Uniformity	±5% (For All Models)			±5% (For All Models)		
Collimation	±1.5-3 Degree Half Angle (For All Models)			±1.5-3 Degree Half Angle (For All Models)		
Spectral Match Classification	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)		
Temporal Instability Classification	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)		
Uniformity Classification	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)	
Light Ripple	< ±2% rms			< ±2% rms		
Working Distance	5.0" ±2.0" (12.7 cm +/- 5.2 cm)			5.0" ±2.0" (12.7 cm +/- 5.2 cm)		
Long Term Drift (<4 Hours)	<0.1%			<0.1%		
Line Regulation	<0.2% of maximum output current			<0.2% of maximum output current		
Current Regulation	<0.5% of maximum output current			<0.5% of maximum output current		
Current Ripple	<0.5% of maximum output current			<0.5% of maximum output current		
Power Limit	Factory Set Limit is 1,500 watts max			Factory Set Limit is 1,500 watts max		
Operating Temperature	32°F to 95°F / 0°C to 35°C			32°F to 104°F / 0°C to +40°C		
Storage Temperature	-4°F to 185°F / -20°C to +85°C			-4°F to 185°F / -20°C to +85°C		
Humidity	0 to 95% non-condensing			0 to 95% non-condensing		
Cooling	Forced air			Forced air		
Medical Safety Certifications	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)					
EMI/EMC	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)					
Weight	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: 210073
Revision Level: B

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	16S-Series 150W Models			16S-Series 300W Models			
SPECIFICATION	**16S-150-0.4-HEV**	**16S-150-0.8-HEV**	**16S-150-1.2-HEV**	**16S-300-0.8-HEV**	**16S-300-1.2-HEV**	**16S-300-2.2-HEV**	**16S-300-3-HEV**
Output Beam Size	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)
Beam Orientation	Vertical Downward, Vertical Upward, or Horizontal (for all models - please specify at order)						
Lamp Type	Xenon Short Arc (For All Models)			Xenon Short Arc (For All Models)			
Lamp Wattage (Nominal)	150W (For All Models)			300W (For All Models)			
Beam Uniformity	±5% (For All Models)			±5% (For All Models)			
Spectral Match Classification	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)			
Temporal Instability Classification	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)			
Uniformity Classification	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)			
Light Ripple	< ±2% rms			< ±2% rms			
Horizontal Beam Working Distance	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
Vertical Beam Working Distance	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)
Long Term Drift (<4 Hours)	<0.1%			<0.1%			
Power Limit	Factory Set Limit is 150 watts max			Factory Set Limit is 320 watts max			
Operating Temperature	32°F to 95°F / 0°C to 35°C			32°F to 104°F / 0°C to +40°C			
Storage Temperature	-4°F to 185°F / -20°C to +85°C			-4°F to 185°F / -20°C to +85°C			
Humidity	0 to 95% non-condensing			0 to 95% non-condensing			
Cooling	Forced air			Forced air			
Medical Safety Certifications	EN61010-1 Laboratory, EN60335 Appliances, IEC60601-1 Medical						
EMI/EMC	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						
Weight	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: 210073
Revision Level: C

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

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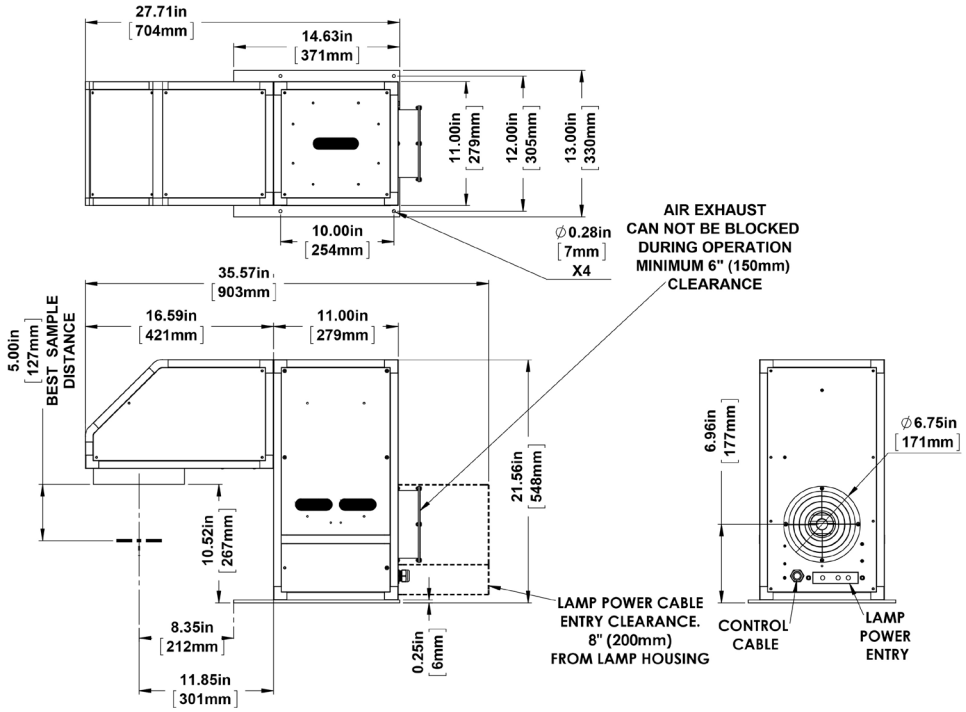
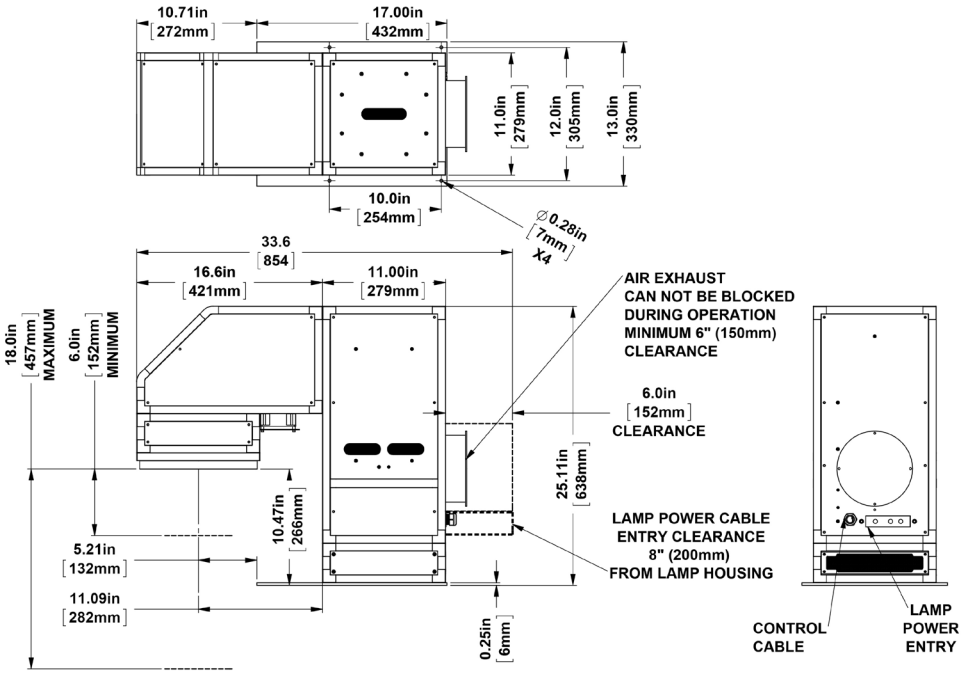
LS1000-Series 2 Inch (5 cm) and 4 Inch (10 cm) Round and Square Beam Solar Simulator Outline Drawing
LS1000-Series 6 Inch (15.25 cm) Round Beam Only Solar Simulator Outline Drawing



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



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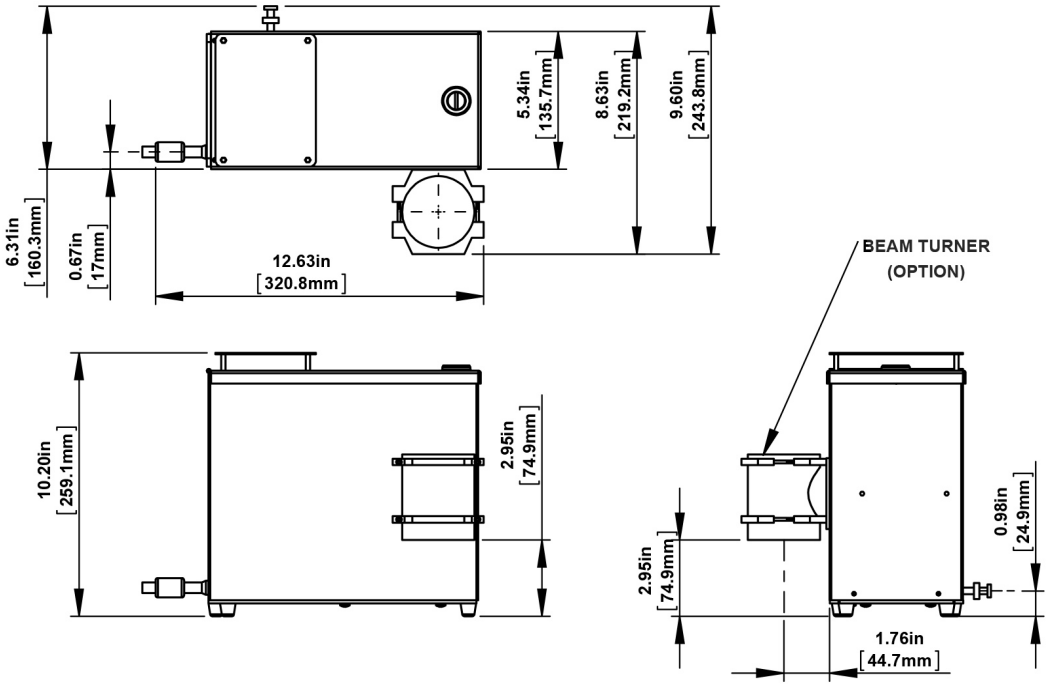
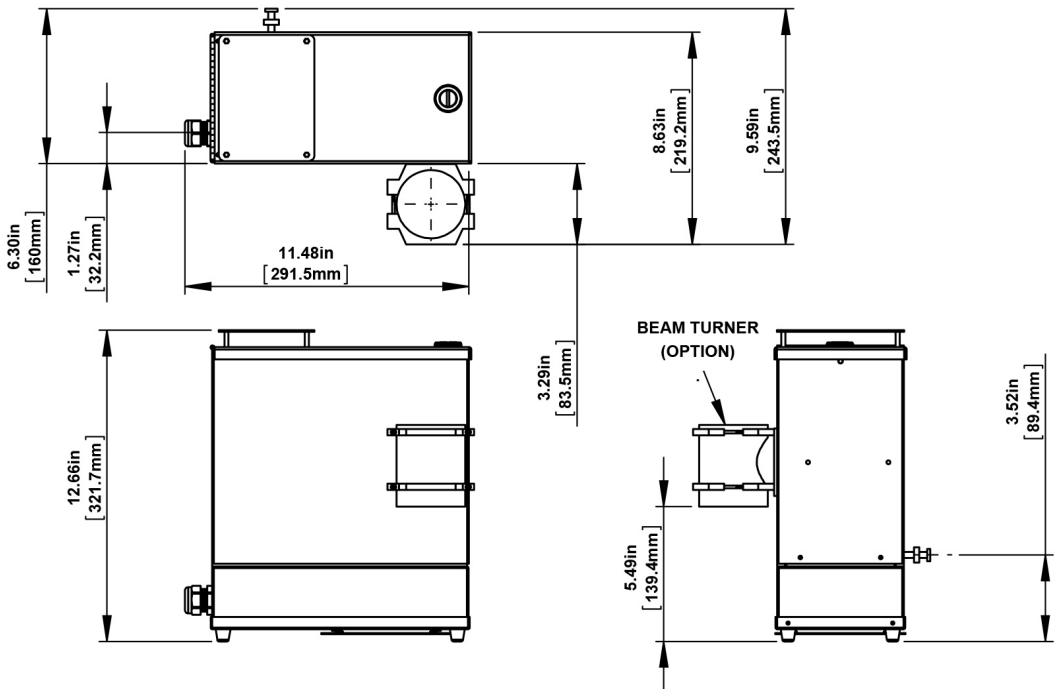
16S-Series 150W Solar Simulator Outline Drawing



16S-Series 300W Solar Simulator Outline Drawing



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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.

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