

CSLMS SYSTEMS FOR TOTAL SPECTRAL FLUX OF MEDIUM TO LARGE LIGHT SOURCES

Fast, accurate light measurements that are repeatable from research to production



LABSPHERE'S 65-INCH LIGHT MEASUREMENT SPHERE

PIONEERING

First to pioneer and pave the way for array spectrometers with lighting application software, Labsphere continues to set the pace by introducing its new line of total spectral flux solutions. Featuring our line of high-end spectrometers and MtrX-SPEC software, combined with our Light Measurement Spheres and Lamp Standards, CSLMS Systems provide the ultimate solution for spectral flux measurement. The heart of these systems is either the CDS 1100 or CDS 2100 spectrometer coupled with Labsphere's application based software. The base design of these spectrometers is the proven Crossed Czerny-Turner spectrograph with a top of the line thermal electrically cooled back thinned illuminated CCD detector designed for highly efficient stray-light rejection. Carrying over the best features of our industry proven spectrometers while addressing today's industries needs, these spectral engines include user activated integrated shutters for real-time dark correction and the most intuitive software modules for research, development, and production.

FEATURES:

- Methods Driven Operations
- MtrX-SPEC's Intuitive Calibration Processes
- User Calibration and Validation Processes
- Display, Log, and Store Results for Research
- Pass/Fail Testing for Production
- Temporal Plots for Life Performance
- Windows® Office Programs Compatible
- High Dynamic Range for a Broad Range of Light Source
- Multiple Spectral Ranges to Choose From
- NIST traceable lamp standard included

BEST FOR MEASURING:

- Total Spectral Flux (Watts/nm)
- Total Radiant Flux (Watts)
- Total Luminous Flux (lumens)
- Color (CCT)
- Color Ellipses and Quadrangles
- Lamp Performance vs. Time
- Peak and Dominant Wavelength
- Spectral Purity
- Color Rendering Index (CRI)
- Chromaticity Coordinates
- Half-Bandwidth

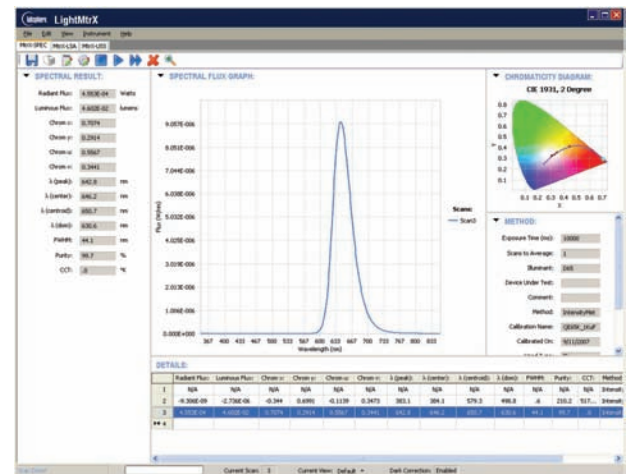
FAST AND ACCURATE

The highly sensitive back thinned CCD array spectrometers offer low noise, high dynamic range, a choice of broad spectral ranges through the UV-VIS-NIR and unparalleled ease of use. When integrated with Labsphere's light metrology systems, the spectrometers and MtrX-SPEC software offer integrated spectral calibration for complete total spectroradiometric, photometric and colorimetric characterization of light sources and light source systems from traditional general lighting lamps and luminaires, to new solid state lighting components and modules.

The fast results can help increase the rate of product development, decrease the time to market, and reduce development costs.

COMPLETE YET FLEXIBLE

Use the high-end spectrometers for research, development or quality control. When you are ready to increase your capacity the integral design and user graphical interface make it easy for you to transition to the production floor with the same high performance you demand from the lab with the ease of use your operations desire.



LIGHTMTRX SOFTWARE

Specifications

Model and Description	CSLMS 4011	CSLMS 4021
40-inch Spectral Flux Measurement System with CDS 1100 or CDS 2100	AS-02479-600	AS-02479-700
System includes		
Light Measurement Sphere, LMS-400	AS-02479-000	AS-02479-000
Spectrally Calibrated Lamp, SCL 1400	AS-01342-000	AS-01342-000
Miniature Screw Lamp Socket Assembly	AS-02236-000	AS-02236-000
Lamp Power Supply, LPS-150-0268	AS-02600-268	AS-02600-268
CCD Array Spectrometer, CDS 1100 or 2100	AS-02746-100	AS-02746-200
Sold separately		
MtrX-SPEC Spectral Light Measurement Software	MtrX-SPEC	MtrX-SPEC
System Properties and Performance		
Sphere Diameter	40 in (1.02 m)	40 in (1.02 m)
Sphere Coating Reflectance	98%	98%
Radiometric Range	1,500 W (max)	1,500 W (max)
Photometric Range (Illuminant A)	2 – 72,500 lm	2 – 72,500 lm
Red LED Range	0.62 – 26,000 lm	0.62 – 26,000 lm
Green LED Range	0.60 – 28,500 lm	0.60 – 28,500 lm
Blue LED Range	0.25 – 8,900 lm	0.25 – 8,900 lm
Max recommended lamp dimension	4 x 4 in (10 x 10 cm)	4 x 4 in (10 x 10 cm)
Maximum Tubular Lamp Length	24 in (60 cm)	24 in (60 cm)
Sphere Weight	187 lbs (84.7 kg)	187 lbs (84.7 kg)
Sphere Dimension (W x D x H)	48.9 x 42.3 x 68.5 in (1.24 x 1.07 x 1.74 m)	48.9 x 42.3 x 68.5 in (1.24 x 1.07 x 1.74 m)
Spectrometer	CDS 1100	CDS 2100
Detector	TE Cooled 1044 x 64 CCD (back thinned)	TE Cooled 1044 x 64 CCD (back thinned)
Spectral range	250-850 nm	350-1050 nm
Resolution	1.5 FWHM	1.5 FWHM
Integration time	10 ms – 60 s	10 ms – 60 s
Cooling	10 +/- 0.05 C	10 +/- 0.05 C
TE Temp Drift	+/- 1 C	+/- 1 C
Linearity	+/- 0.5%	+/- 0.5%
Wavelength Accuracy	<+/- 0.4 nm	<+/- 0.4 nm
Stray light Broadband	<10-4 at 400nm w/ III A source	<10-4 at 400nm w/ III A source
Stray light LED/laser	<10-5 at 500nm w/633 nm laser	<10-5 at 500nm w/633 nm laser
Focal Length	100 mm	100 mm
Optical Input	Choice of Optical Fibers sold separately	Choice of Optical Fibers sold separately
Speed	0.1 scans /sec	0.1 scans /sec
Dynamic range (single scan)	30000:1	30000:1
Spectral Sample interval	0.25nm	0.25nm
Mechanical Shutter	Yes	Yes
AD Converter	16 bit	16 bit
PC Interface	USB 2.0	USB 2.0
Trigger	11.3 lbs (5.04 kg)	11.3 lbs (5.04 kg)
Dimensions (W x D x H)	8.3 x 13.0 x 3.5 in (21.1 x 32.9 x 8.9 cm)	8.3 x 13.0 x 3.5 in (21.1 x 32.9 x 8.9 cm)
Lamp Standard	SCL-1400	SCL-1400
Power	75 W	75 W
Approximate Luminous Flux	1400 lm	1400 lm
Rated Life	2000 hrs	2000 hrs
Calibration	Spectral Flux (W/nm) 350 - 1050 nm	Spectral Flux (W/nm) 350 - 1050 nm
Power Supply	LPS 150-0268	LPS 150-0268
Power Requirements	110./220 VAC, 50/60 Hz	110./220 VAC, 50/60 Hz
Current Stability	+/- 0.01%	+/- 0.01%
Current Rise Time	20 +/- 5 seconds	20 +/- 5 seconds
Regulated Current	2.679 A +/- 0.1%	2.679 A +/- 0.1%
Weight	6.5 lbs. (2.9 kg)	6.5 lbs. (2.9 kg)
Dimension (W x D x H)	8.3 x 10.5 x 3.5 in (21.1 x 26.7 x 8.9 cm)	8.3 x 10.5 x 3.5 in (21.1 x 26.7 x 8.9 cm)
Compliance	CE	CE
Optional Accessories		
Sphere Photometer Temperature Probe, TP-400	AS-02637-400	
Sphere Photometer Temperature Monitor and Probe, TPM-400	AS-02638-400	
Absorption Correction Lamp, Aux-100	AS-02737-000	

Specifications

Model and Description	CSLMS 6511	CSLMS 6521
65-inch Spectral Flux Measurement System with CDS 1100 or 2100	AS-02480-600	AS-02480-700
System includes		
Light Measurement Sphere, LMS-650	AS-02480-000	AS-02480-000
Spectrally Calibrated Lamp, SCL 1400	AS-01342-000	AS-01342-000
Miniature Screw Lamp Socket Assembly	AS-02236-000	AS-02236-000
Lamp Power Supply, LPS-150-0268	AS-02600-268	AS-02600-268
CCD Array Spectrometer, CDS 1100 or 2100	AS-02746-100	AS-02746-200
Sold separately		
MtrX-SPEC Spectral Light Measurement Software,	MtrX-SPEC	MtrX-SPEC
System Properties and Performance		
Sphere Diameter	65 in (1.65 m)	65 in (1.65 m)
Sphere Coating Reflectance	98%	98%
Radiometric Range	4,000 W (max)	4,000 W (max)
Photometric Range (Illuminant A)	6 – 200,000 lm	6 – 200,000 lm
Red LED Range	1.2 – 68,000 lm	1.2 – 68,000 lm
Green LED Range	1.5 – 77,000 lm	1.5 – 77,000 lm
Blue LED Range	0.50 – 23,000 lm	0.50 – 23,000 lm
Max recommended lamp dimension	7 x 7 in (18 x 18 cm)	7 x 7 in (18 x 18 cm)
Maximum Tubular Lamp Length	34 in (86 cm)	34 in (86 cm)
Sphere Weight	600 Lbs (272 kg)	600 Lbs (272 kg)
Sphere Dimension (W x D x H)	112.6 x 78.4 x 84.1 in (2.86 x 1.99 x 2.13 m)	112.6 x 78.4 x 84.1 in (2.86 x 1.99 x 2.13 m)
Spectrometer	CDS 1100	CDS 2100
Detector	TE Cooled 1044 x 64 CCD (back thinned)	TE Cooled 1044 x 64 CCD (back thinned)
Spectral range	250-850 nm	350-1050 nm
Resolution	1.5 FWHM	1.5 FWHM
Integration time	10 ms – 60 s	10 ms – 60 s
Cooling	10 +/- 0.05 C	10 +/- 0.05 C
TE Temp Drift	+/- 1 C	+/- 1 C
Linearity	+/- 0.5%	+/- 0.5%
Wavelength Accuracy	<+/- 0.4 nm	<+/- 0.4 nm
Stray light Broadband	<10 ⁻⁴ at 400nm w/ III A source	<10 ⁻⁴ at 400nm w/ III A source
Stray light LED/laser	<10 ⁻⁵ at 500nm w/633 nm laser	<10 ⁻⁵ at 500nm w/633 nm laser
Focal Length	100 mm	100 mm
Optical Input	Choice of Optical Fibers sold separately	Choice of Optical Fibers sold separately
Speed	0.1 scans /sec	0.1 scans /sec
Dynamic range (single scan)	30000:1	30000:1
Spectral Sample interval	0.25nm	0.25nm
Mechanical Shutter	Yes	Yes
AD Converter	16 bit	16 bit
PC Interface	USB 2.0	USB 2.0
Trigger	11.3 lbs (5.04 kg)	11.3 lbs (5.04 kg)
Dimensions (W x D x H)	8.3 x 13.0 x 3.5 in (21.1 x 32.9 x 8.9 cm)	8.3 x 13.0 x 3.5 in (21.1 x 32.9 x 8.9 cm)
Lamp Standard	SCL-1400	SCL-1400
Power	75 W	75 W
Approximate Luminous Flux	1400 lm	1400 lm
Rated Life	2000 hrs	2000 hrs
Calibration	Spectral Flux (W/nm) 350 - 1050 nm	Spectral Flux (W/nm) 350 - 1050 nm
Power Supply	LPS 150-0268	LPS 150-0268
Power Requirements	110./220 VAC, 50/60 Hz	110./220 VAC, 50/60 Hz
Current Stability	+/- 0.01%	+/- 0.01%
Current Rise Time	20 +/- 5 seconds	20 +/- 5 seconds
Regulated Current	2.679 A +/- 0.1%	2.679 A +/- 0.1%
Weight	6.5 lbs. (2.9 kg)	6.5 lbs. (2.9 kg)
Dimension (W x D x H)	8.3 x 10.5 x 3.5 in (21.1 x 26.7 x 8.9 cm)	8.3 x 10.5 x 3.5 in (21.1 x 26.7 x 8.9 cm)
Compliance	CE	CE
Optional Accessories		
Sphere Photometer Temperature Probe, TP-400	AS-02637-400	
Sphere Photometer Temperature Monitor and Probe, TPM-400	AS-02638-400	
Absorption Correction Lamp, Aux-100	AS-02737-000	

Specifications

Model and Description	CSLMS 7611	CSLMS 7621
76-inch Spectral Flux Measurement System with CDS 1100 and 2100	AS-02481-600	AS-02481-700
System includes		
Light Measurement Sphere, LMS-760	AS-02481-000	AS-02481-000
Spectrally Calibrated Lamp, SCL 1400	AS-01342-000	AS-01342-000
Miniature Screw Lamp Socket Assembly	AS-02236-000	AS-02236-000
Lamp Power Supply, LPS-150-0268	AS-02600-268	AS-02600-268
CCD Array Spectrometer, CDS 1100 or 2100	AS-02746-100	AS-02746-200
Sold separately		
MtrX-SPEC Spectral Light Measurement Software	MtrX-SPEC	MtrX-SPEC
System Properties and Performance		
Sphere Diameter	76 in (1.93 m)	76 in (1.93 m)
Sphere Coating Reflectance	98%	98%
Radiometric Range	5,000 W (max)	5,000 W (max)
Photometric Range (Illuminant A)	0.08 – 260,000 lm	0.08 – 260,000 lm
Red LED Range	1.7 – 93,000 lm	1.7 – 93,000 lm
Green LED Range	2.0 – 10,000 lm	2.0 – 10,000 lm
Blue LED Range	0.70 – 32,000 lm	0.70 – 32,000 lm
Max recommended lamp dimension	8 x 8 in (21 x 21 cm)	8 x 8 in (21 x 21 cm)
Maximum Tubular Lamp Length	52 in (1.3 m)	52 in (1.3 m)
Sphere Weight	800 lbs (363 kg)	800 lbs (363 kg)
Sphere Dimension (W x D x H)	116.9 x 88.2 x 91.4 in (2.97 x 2.24 x 2.32 m)	116.9 x 88.2 x 91.4 in (2.97 x 2.24 x 2.32 m)
Spectrometer	CDS 1100	CDS 2100
Detector	TE Cooled 1044 x 64 CCD (back thinned)	TE Cooled 1044 x 64 CCD (back thinned)
Spectral range	250-850 nm	350-1050 nm
Resolution	1.5 FWHM	1.5 FWHM
Integration time	10 ms – 60 s	10 ms – 60 s
Cooling	10 +/- 0.05 C	10 +/- 0.05 C
TE Temp Drift	+/- 1 C	+/- 1 C
Linearity	+/- 0.5%	+/- 0.5%
Wavelength Accuracy	<+/- 0.4 nm	<+/- 0.4 nm
Stray light Broadband	<10-4 at 400nm w/ III A source	<10-4 at 400nm w/ III A source
Stray light LED/laser	<10-5 at 500nm w/633 nm laser	<10-5 at 500nm w/633 nm laser
Focal Length	100 mm	100 mm
Optical Input	Choice of Optical Fibers sold separately	Choice of Optical Fibers sold separately
Speed	0.1 scans /sec	0.1 scans /sec
Dynamic range (single scan)	30000:1	30000:1
Spectral Sample interval	0.25nm	0.25nm
Mechanical Shutter	Yes	Yes
AD Converter	16 bit	16 bit
PC Interface	USB 2.0	USB 2.0
Trigger	11.3 lbs (5.04 kg)	11.3 lbs (5.04 kg)
Dimensions (W x D x H)	8.3 x 13.0 x 3.5 in (21.1 x 32.9 x 8.9 cm)	8.3 x 13.0 x 3.5 in (21.1 x 32.9 x 8.9 cm)
Lamp Standard	SCL-1400	SCL-1400
Power	75 W	75 W
Approximate Luminous Flux	1400 lm	1400 lm
Rated Life	2000 hrs	2000 hrs
Calibration	Spectral Flux (W/nm) 350 - 1050 nm	Spectral Flux (W/nm) 350 - 1050 nm
Power Supply	LPS 150-0268	LPS 150-0268
Power Requirements	110./220 VAC, 50/60 Hz	110./220 VAC, 50/60 Hz
Current Stability	+/- 0.01%	+/- 0.01%
Current Rise Time	20 +/- 5 seconds	20 +/- 5 seconds
Regulated Current	2.679 A +/- 0.1%	2.679 A +/- 0.1%
Weight	6.5 lbs. (2.9 kg)	6.5 lbs. (2.9 kg)
Dimension (W x D x H)	8.3 x 10.5 x 3.5 in (21.1 x 26.7 x 8.9 cm)	8.3 x 10.5 x 3.5 in (21.1 x 26.7 x 8.9 cm)
Compliance	CE	CE
Optional Accessories		
Sphere Photometer Temperature Probe, TP-400	AS-02637-400	
Sphere Photometer Temperature Monitor and Probe, TPM-400	AS-02638-400	
Absorption Correction Lamp, Aux-100	AS-02737-000	