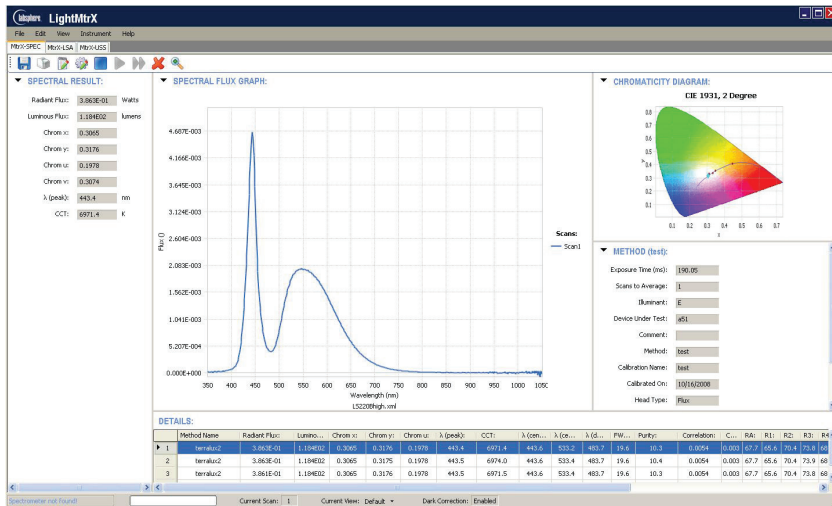


FS2 FLASHLIGHT SPECTRAL FLUX MEASUREMENT SYSTEMS

Light measurement systems designed to accommodate flashlight test requirements



MTRX-SPEC SOFTWARE

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 Flashlight Spectral Flux Measurement Systems. These systems include Labsphere's fast and accurate mini spectrometers, flashlight measurement integrating sphere photometers, lamp standard of forward spectral flux, absorption correction lamp and switch box.

FAST AND ACCURATE

The spectral detectors for the systems are Labsphere's CDS-600 mini CCD array spectrometer which offers low noise, and high dynamic range, through the visible spectrum. When integrated with a Labsphere Flashlight Measurement Sphere the spectrometer and MtrX-SPEC software offer integrated spectral calibration for complete total spectroradiometric, photometric and color metric characterization of flashlights.

FEATURES (WITH OPTIONAL MTRX-SPEC SOFTWARE):

- Easy access side mount for total spectral flux of forward spectral flux
- Easy-to-use Intuitive calibration processes with MtrX-SPEC
- Adhere to Quality management system with user calibration and validation processes
- Capture results instantly with real time graphics
- Select the parameters you want to see and hide the rest
- Display, log, and store results for research
- Pass/fail testing for production
- Temporal plots for life performance
- High dynamic range for a broad range of flashlights
- MtrX-SPEC Software designed for application usability
- NIST traceable lamp standard of forward spectral flux
- Software includes one year of free support and upgrades

MEASURE:

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

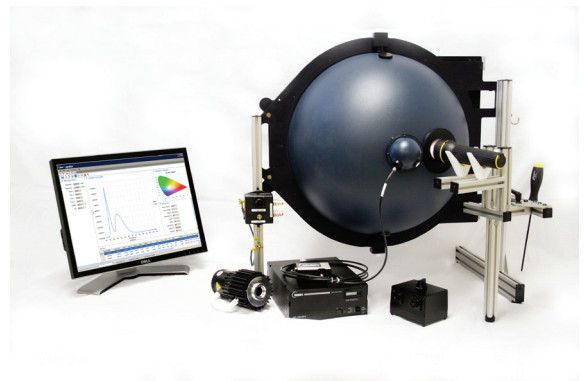
COMPLETE YET FLEXIBLE

The flashlight measurement systems are designed to receive flashlights on an external port of the sphere photometer with the assistance of an external flashlight holder. Coated with Labsphere's Spectrafect® highly diffuse reflectance coating, this sphere design offers exceptional spatial integrating critical for uniform, repeatable and reproducible measurements of these directional sources. With each systems Labsphere offers spectral flux standards for on-site calibration.

Use the FS2 for research, development and quality control. When you are ready to increase your capacity the integral design and graphical user interface makes it easy for users to transition to production with the same high performance that is demanded from the lab that Operations desires.

MtrX-SPEC Spectral Light Measurement Software (Sold Separately) is the most intuitive platform for calibrating and analyzing spectral radiometric, photometric and colorimetric properties of flashlights including LED, tungsten, krypton, and xenon. Need to track life or performance with time? The MtrX-SPEC temporal feature allows users to monitor optical and electrical performance versus elapsed operating time.

DLL drivers are standard with the MtrX-SPEC platform including examples written for today's most popular programming languages. When users are ready to increase their capacity, the integral design and user graphical interface makes it easy to transition from research to production.



LABSPHERE FLASHLIGHT MEASUREMENT SYSTEM, FS2



Specifications

Model and Description	FS2-1060 AA-00911-100	FS2-2060 AA-00911-200	FS2-4060 AA-00911-400
System Includes			
Light Measurement Sphere	AS-02477-000	AS-02477-000	AS-02478-000
Forward Flux Standard	AS-02768-100	AS-02768-100	AS-02768-200
Preset Power Supply	AS-02656-416	AS-02656-416	AS-02600-833
CCD Array Spectrometer	AS-02767-000	AS-02767-000	AS-02767-000
50 W Absorption Correction Lamp	AS-02737-050	AS-02737-050	AS-02737-050
Lamp Switch Box	AS-02776-000	AS-02776-000	AS-02776-000
Required, Sold Separately			
LightMtrX Light Measurement Software	MtrX-SPEC	MtrX-SPEC	MtrX-SPEC
System Properties and Performance			
Sphere Specifications			
Sphere Coating Reflectance	10 -inch 98%	20 -inch 98%	40 -inch 98%
Radiometric Range	100 W (max)	400 W (max)	1,500 W (max)
Photometric Range (Illuminant A)	560 mIm - 12500 Im	2.25 Im - 50000	9.0 Im - 200000
Spectral Range	350 - 850 nm	350 - 850 nm	350 - 850 nm
Max Recommended DUT dimension	2 x 2 in (5 x 5 cm)	4 x 4 in (10 x 10 cm)	7 x 7 in (18 x 18 cm)
Sphere Weight	8 lbs (3.6 kg)	21 lbs. (9.5 kg)	187 lbs. (84.7 kg)
Sphere Dimension (W x D x H)	16.7 x 11.9 x 15.5 in (42.4 x 30.2 x 39.4 cm)	28.5 x 23.7 x 29.4 in (72.4 x 60.2 x 74.7 cm)	48.9 x 42.3 x 68.5 in (1.24 x 1.07 x 1.74 m)
Dimensions:			
Detector range:	CDS 600 89.1 mm x 63.3 mm x 34.4 mm	CDS 600 89.1 mm x 63.3 mm x 34.4 mm	CDS 600 89.1 mm x 63.3 mm x 34.4 mm
Pixel size:	200-1100 nm	200-1100 nm	200-1100 nm
Pixel well depth:	2048 pixels	2048 pixels	2048 pixels
Sensitivity:	14 µm x 200 µm ~62,500 electrons 75 photons/count at 400 nm 41 photons/count at 600 nm	14 µm x 200 µm ~62,500 electrons 75 photons/count at 400 nm 41 photons/count at 600 nm	14 µm x 200 µm ~62,500 electrons 75 photons/count at 400 nm 41 photons/count at 600 nm
Focal length:	42 mm input; 68 mm output	42 mm input; 68 mm output	42 mm input; 68 mm output
Entrance aperture:	100 µm	100 µm	100 µm
Wavelength range:	200-850 nm	200-850 nm	200-850 nm
Signal-to-noise ratio:	250:1 (at full signal)	250:1 (at full signal)	250:1 (at full signal)
A/D resolution:	16 bit	16 bit	16 bit
Dynamic range:	2 x 10 ⁸ (system)	2 x 10 ⁸ (system)	2 x 10 ⁸ (system)
Integration time:	8 ms to 20 seconds	8 ms to 20 seconds	8 ms to 20 seconds
Stray light:	<0.05% at 600 nm; <0.10% at 435 nm	<0.05% at 600 nm; <0.10% at 435 nm	<0.05% at 600 nm; <0.10% at 435 nm
Corrected linearity:	>99.8%	>99.8%	>99.8%
Lamp Standard			
Number of lamps	FFS-100-400 1	FFS-100-400 1	FFS-100-1000 1
Approx. Luminous Flux (lumens)	400	400	1000
Lamp Current (amps.)	4.167	4.167	8.333
Rated Voltage (volts)	12	12	12
Rated Life (hours)	2000	2000	2000
Power Supply			
Power Requirements	LPS-150-0416 110/220 VAC, 50/60 Hz	LPS-150-416 110/220 VAC, 50/60 Hz	LPS-100-833 110./220 VAC, 50/60 Hz
Current Stability	0.1%	0.1%	+/- 0.01%
Current Rise Time	20 s	20 s	20 +/- 5 seconds
Regulated Current	4.17 A +/- 0.1%	4.17 A +/- 0.1%	8.33 A +/- 0.1%
Weight	6.5 lbs (2.9 kg)	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)	8.3 x 10.5 x 3.5 in (21.1 x 26.7 x 8.9 cm)
Compliance	CE	CE	CE
Optional Accessories			
Center Mount Lamp Holder	AS-02477-002	AS-02478-001	AS-02479-001