

## LFC-050-LE Light Flux Color and Luminous Efficacy Measurement Systems

### The most economical and reliable solution for photometry of light source needs!

LightFluxColor-LE Series Systems are the most affordable and reliable systems for testing LED lighting products. Whether you are a manufacturer of LED luminaires, street lights, solar powered LED lanterns, LED bulbs, or any other type of LED lighting product, LightFluxColor Systems will meet all your testing requirements. LightFluxColor Systems allow luminaire manufacturers to test LED products for photometric performance.

LightFluxColor-LE Series Systems allow users to test AC/DC characterization of lamps at various input frequencies along with lumens and color parameters. Electrical lamp parameters such as power factor can also be tested.

The NIST traceable calibrated standard included with the system allows users to perform simple in-house system recalibration and verification without having to ship the system to our manufacturing facility. The systems are available with 0.5 m, 1 m, 1.5 m and 2 m integrating sphere size options to accommodate LED chips as well as larger street lights and fixtures. The integrating sphere is coated with Spectrafect® coating which has up to 98% reflectance with near Lambertian properties. The integrating sphere coating is extremely stable, does not yellow over time, and doesn't need periodic recoating. The integrating spheres are designed to measure LED sources in both the 2π and 4π geometries.

### Ideal For Flux, Color & AC/DC Electrical Characterization of:

- Automotive Lamps**
- Traffic Lighting**
- LED Clusters**
- Architectural Lighting**
- LED Bulbs**
- Railway Lighting**

LightFluxColor-LE Series Systems also include a highly sensitive mini-calibrated CCD Array Spectrometer with spectral range from 250 to 850 nm. This low noise and broad spectral response spectrometer provide instantaneous measurement of radiometric, photometric, and color characteristics of the LED sources.

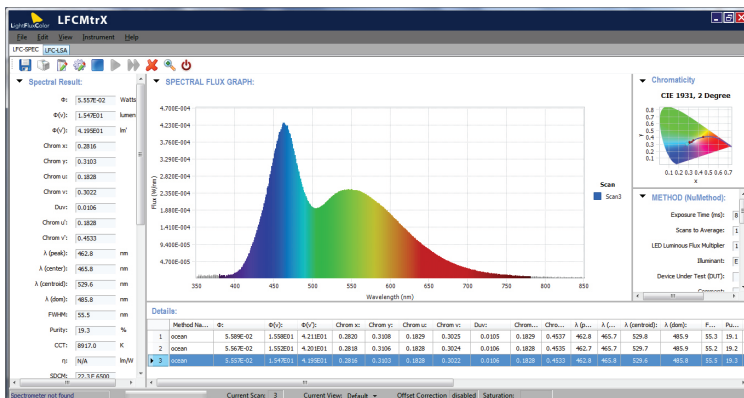
The fast results from the spectrometer helps to increase the rate of product development, decrease the time to market, and reduce development costs.

Users of the systems are also able to perform absorption correction with standard LightFluxColor Systems and the system includes application specific software.

With ability to measure light source spectrum, luminous flux, electrical characteristics and complete color parameters with highest degree of accuracy and traceability, LightFluxColor Systems have the best value of all the LED measurement systems in the market.

### Why Choose LightFluxColor

- Calibrations are traceable to NIST (USA) which are accepted and recognized globally.
- Calibrated lamp standards NVLAP accreditation Lab Code 200951-0 (ISO 17025)
- Spectral flux standards (calibration performed at each wavelength) are supplied with each system for highest possible accuracy.
- Single software controls all electronics and provides optical and electrical data.
- Competitive systems only provide luminous flux standards with CCT calibration which limits overall system accuracy.
- AC/DC operation in one packaged testing system
- An auxiliary lamp is provided for absorption correction which is applied at each wavelength. This improves overall measurement accuracy as compared to other systems on the market.
- The integrating sphere is coated with Labsphere's Spectrafect® that has up to 98% reflectance and is the highest Lambertian coating in the market.
- The sphere coating doesn't yellow over time and doesn't degrade in due course.
- The integrating spheres are capable of measuring in 2π and 4π geometries.
- Local support and training.



### Light Measurement Software

## Key System Features

- AC/DC operation
- NIST traceable calibrated standards for in-house recalibration NVLAP accreditation Lab Code 200951-0 (ISO 17025)
- Measurement of electrical parameters including power factor
- Measure absolute spectrum in milliseconds
- Comprehensive Light Measurement Software capable of measuring:
  - Total Spectral Flux (Watts/nm)
  - Luminous Flux (Lumens)
  - Luminous Efficacy (Lumens/Watt)
  - Radiant Flux (Watts)
  - Chromaticity (x, y, u, v)
  - CCT
  - CRI
  - Peak Wavelength
  - Dominant Wavelength
- Spectrafect® interior coating for sphere
- Absorption correction capabilities included

## Detailed Technical Specifications

### LFC-050 0.5 meter System includes:

Light Measurement Sphere, 0.5 meter  
 Spectrally Calibrated Lamp, SCL-650  
 Auxiliary Lamp, AUX-50  
 Calibration and Aux Lamp Socket Assembly  
 Programmable DC Power Supply, M8811, 30V, 5A  
 CCD Array Spectrometer (250 - 850 nm)  
 Light Measurement Software  
 System Manual and Electrical Rack  
 AC Power Supply, Parwa APS6001L 0-300V,1KW  
 AC Power Meter, TET P62201  
 AC Power Supply, Chroma61603,0-300V, 1.5KW  
 Power Meter, Yokogawa® WT210  
 Relay Controller, Arroyo RC1

### LFC-050-LES

Part # AA-01166-050  
 ✓  
 ✓  
 ✓  
 ✓  
 ✓  
 ✓  
 ✓  
 ✓  
 ✓  
 ✓  
 ✓  
 ✓  
 ✓  
 ✓  
 ✓

### LFC-050-LEX

Part # AA-01165-050  
 ✓  
 ✓  
 ✓  
 ✓  
 ✓  
 ✓  
 ✓  
 ✓  
 ✓  
 ✓  
 ✓  
 ✓  
 ✓  
 ✓  
 ✓

### Also Available

LFC-200/050-LEX (2 m and 0.5 m sphere systems with LEX rack)

LFC-200/050-LES (2 m and 0.5 m sphere systems with LES rack)

\*This configuration includes a 2 m and 0.5 m sphere with shared electronic rack and suitable cables.

### Part Number

AA-01165-000

AA-01166-000

## LFC-200/050 LES LFC-200/050 LEX System Properties and Specifications

Sphere	20 in (50 cm)	20 in (50 cm)
Sphere Coating Reflectance	98%	98%
Photometric Range(Illuminant A)	0.5 - 1800 lm	0.5 - 1800 lm
Spectral Range (Spectrometer)	250* - 850 nm	250* - 850 nm
2π Port Size	6 in (15.24 cm)	6 in (15.24 cm)
Sphere & Crate Weight	60 kg	60 kg
Crate Dimension (W x D x H)	0.7 M x 1.45 M x 1.0 M	0.7 M x 1.45 M x 1.0 M
<i>System input power requirements: 220V-240V, 16A</i>		

### Spectrometer Detector

Spectral Range	<b>Sony ILX511 linear silicon CCD array</b> 250* - 850 nm	<b>Sony ILX511 linear silicon CCD array</b> 350 - 1000 nm
Integration Time	1 ms - 5 s	1 ms - 5 s
Wavelength Accuracy	<+/- 0.5 nm	<+/- 0.5 nm
Optical Input Optical Fiber	600 um, 3 m long, (SMA Connection)	600 um, 3 m long, (SMA Connection)

### Lamp Standard

Power	35 W	35 W
Approximate Luminous Flux	650 lm	650 lm
Calibration	Spectral Flux (W/nm) 350 - 1050 nm	Spectral Flux (W/nm) 350 - 1050 nm
Traceability	NIST traceable	NIST traceable

### Power Supply (DC)

Power Requirements	<b>M8811, DC 30V, 5A</b> 110/220 VAC, 50/60 Hz	<b>M8811, DC 30V, 5A</b> 110/220 VAC, 50/60 Hz
Current Stability	0.1%	0.1%
Current Rise Time	35 s	35 s
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

### Aux Lamp

**AUX-50 (50W)**

**AUX-50 (50W)**

\*system calibration range 350 - 1050 nm

## System Optional Components

SCL-650 Cal Lamp	AS-01335-100
Replacement Aux-50 bulb	LEW-00014-000
CSFS-650	AS-01336-100

### Part Number

## Key System Features

- AC/DC operation
- NIST traceable calibrated standards for in-house recalibration NVLAP accreditation Lab Code 200951-0 (ISO 17025)
- Measurement of electrical parameters including power factor
- Measure absolute spectrum in milliseconds
- Comprehensive Light Measurement Software capable of measuring:
  - Total Spectral Flux (Watts/nm)
  - Luminous Flux (Lumens)
  - Luminous Efficacy (Lumens/Watt)
  - Radiant Flux (Watts)
  - Chromaticity (x, y, u, v)
  - CCT
  - CRI
  - Peak Wavelength
  - Dominant Wavelength
- Spectrafect® interior coating for sphere
- Absorption correction capabilities included

## Detailed Technical Specifications

### LFC-100 1 meter System includes:

	LFC-100-LES	LFC-100-LEX
Light Measurement Sphere, 1 meter	√	√
Spectrally Calibrated Lamp, SCL-650	√	√
Auxiliary Lamp, AUX-50	√	√
Calibration and Aux Lamp Socket Assembly	√	√
Programmable DC Power Supply, M8811, 30V, 5A	√	√
CCD Array Spectrometer (250 - 850 nm)	√	√
Light Measurement Software	√	√
System Manual and Electrical Rack	√	√
AC Power Supply, Parwa APS6001L 0-300V,1KW	√	
AC Power Meter, TET P62201	√	
AC Power Supply, Chroma61603,0-300V, 1.5KW		√
Power Meter, Yokogawa® WT210		√
Relay Controller, Arroyo RC1	√	√

### Also Available

LFC-200/050-LEX (2 m and 0.5 m sphere systems with LEX rack)

LFC-200/050-LES (2 m and 0.5 m sphere systems with LES rack)

\*This configuration includes a 2 m and 0.5 m sphere with shared electronic rack and suitable cables.

### Part Number

AA-01165-000

AA-01166-000

## System Properties and Specifications

Sphere	40 in (100 cm)	40 in (100 cm)
Sphere Coating Reflectance	98%	98%
Photometric Range (Illuminant A)	5 - 15,000 lm	5 - 15,000 lm
Spectral Range (Spectrometer)	250* - 850 nm	250* - 850 nm
2π Port Size	12 in (30 cm)	12 in (30 cm)
Sphere Weight	110 kg	110 kg
<i>System input power requirements: 220V-240V, 16A</i>		

### Spectrometer Detector

	Sony ILX511 linear silicon CCD array	Sony ILX511 linear silicon CCD array
Spectral Range	250* - 850 nm	350 - 1000 nm
Integration Time	1 ms - 5 s	1 ms - 5 s
Wavelength Accuracy	<+/- 0.5 nm	<+/- 0.5 nm
Optical Input Optical Fiber	600 um, 3 m long, (SMA Connection)	600 um, 3 m long, (SMA Connection)

### Lamp Standard

Power	35 W	35 W
Approximate Luminous Flux	650 lm	650 lm
Calibration	Spectral Flux (W/nm)	Spectral Flux (W/nm)
Traceability	350 - 1050 nm	350 - 1050 nm
	NIST traceable	NIST traceable

### Power Supply (DC)

	M8811, DC 30V, 5A	M8811, DC 30V, 5A
Power Requirements	110/220 VAC, 50/60 Hz	110/220 VAC, 50/60 Hz
Current Stability	0.1%	0.1%
Current Rise Time	35 s	35 s
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

### Aux Lamp

### AUX-50 (50W)

### AUX-50 (50W)

\*system calibration range 350 - 1050 nm

## System Optional Components

	Part Number
SCL 650 cal lamp	AS-01335-100
Replacement Aux-50 bulb	LEW-00014-000
CSFS-650	AS-01336-100

## Key System Features

- AC/DC operation
- NIST traceable calibrated standards for in-house recalibration NVLAP accreditation Lab Code 200951-0 (ISO 17025)
- Measurement of electrical parameters including power factor
- Measure absolute spectrum in milliseconds
- Comprehensive Light Measurement Software capable of measuring:
  - Total Spectral Flux (Watts/nm)
  - Luminous Flux (Lumens)
  - Luminous Efficacy (Lumens/Watt)
  - Radiant Flux (Watts)
  - Chromaticity (x, y, u, v)
  - CCT
  - CRI
  - Peak Wavelength
  - Dominant Wavelength
- Spectrafect® interior coating for sphere
- Absorption correction capabilities included

## Detailed Technical Specifications

### LFC-150 1.5 meter System includes:

	LFC-150-LES	LFC-150-LEX
Light Measurement Sphere, 1.5 meter	√	√
Spectrally Calibrated Lamp, SCL-650	√	√
Auxiliary Lamp, AUX-50	√	√
Calibration and Aux Lamp Socket Assembly	√	√
Programmable DC Power Supply, M8811, 30V, 5A	√	√
CCD Array Spectrometer (250 - 850 nm)	√	√
Light Measurement Software	√	√
System Manual and Electrical Rack	√	√
AC Power Supply, Parwa APS6001L 0-300V,1KW	√	
AC Power Meter, TET P62201	√	
AC Power Supply, Chroma61603,0-300V, 1.5KW		√
Power Meter, Yokogawa® WT210		√
Relay Controller, Arroyo RC1	√	√

### Also Available

LFC-200/050-LEX (2 m and 0.5 m sphere systems with LEX rack)

LFC-200/050-LES (2 m and 0.5 m sphere systems with LES rack)

\*This configuration includes a 2 m and 0.5 m sphere with shared electronic rack and suitable cables.

### Part Number

AA-01165-000

AA-01166-000

## System Properties and Specifications

Sphere	60 in (1.5 m)	60 in (1.5 m)
Sphere Coating Reflectance	98%	98%
Photometric Range (Illuminant A)	10 - 40,000 lm	10 - 40,000 lm
Spectral Range (Spectrometer)	250* - 850 nm	250* - 850 nm
2π Port Size	18 in (45 cm)	18 in (45 cm)
Sphere Weight	200 kg	200 kg
<i>System input power requirements: 220V-240V, 16A</i>		

### Spectrometer Detector

	Sony ILX511 linear silicon CCD array	Sony ILX511 linear silicon CCD array
Spectral Range	250* - 850 nm	350 - 1000 nm
Integration Time	1 ms - 5 s	1 ms - 5 s
Wavelength Accuracy	<+/- 0.5 nm	<+/- 0.5 nm
Optical Input Optical Fiber	600 um, 3 m long, (SMA Connection)	600 um, 3 m long, (SMA Connection)

### Lamp Standard

Power	35 W	35 W
Approximate Luminous Flux	650 lm	650 lm
Calibration	Spectral Flux (W/nm)	Spectral Flux (W/nm)
Traceability	350 - 1050 nm	350 - 1050 nm
	NIST traceable	NIST traceable

### Power Supply (DC)

	M8811, DC 30V, 5A	M8811, DC 30V, 5A
Power Requirements	110/220 VAC, 50/60 Hz	110/220 VAC, 50/60 Hz
Current Stability	0.1%	0.1%
Current Rise Time	35 s	35 s
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

### Aux Lamp

### AUX-50 (50W)

### AUX-50 (50W)

\*system calibration range 350 - 1050 nm

## System Optional Components

	Part Number
SCL-650 Cal Lamp	AS-01335-100
Replacement Aux-50 bulb	LEW-00014-000
CSFS-650	AS-01336-100

## Key System Features

- AC/DC operation
- NIST traceable calibrated standards for in-house recalibration NVLAP accreditation Lab Code 200951-0 (ISO 17025)
- Measurement of electrical parameters including power factor
- Measure absolute spectrum in milliseconds
- Comprehensive Light Measurement Software capable of measuring:
  - Total Spectral Flux (Watts/nm)
  - Luminous Flux (Lumens)
  - Luminous Efficacy (Lumens/Watt)
  - Radiant Flux (Watts)
  - Chromaticity (x, y, u, v)
  - CCT
  - CRI
  - Peak Wavelength
  - Dominant Wavelength
- Spectrafect® interior coating for sphere
- Absorption correction capabilities included

## Detailed Technical Specifications

### LFC-200 2 meter System includes:

	LFC-200-LES	LFC-200-LEX
Light Measurement Sphere, 2 meter	√	√
Spectrally Calibrated Lamp, SCL-650	√	√
Auxiliary Lamp, AUX-50	√	√
Calibration and Aux Lamp Socket Assembly	√	√
Programmable DC Power Supply, M8811, 30V, 5A	√	√
CCD Array Spectrometer (250 - 850 nm)	√	√
Light Measurement Software	√	√
System Manual and Electrical Rack	√	√
AC Power Supply, Parwa APS6001L 0-300V,1KW	√	
AC Power Meter, TET P62201	√	
AC Power Supply, Chroma61603,0-300V, 1.5KW		√
Power Meter, Yokogawa® WT210		√
Relay Controller, Arroyo RC1	√	√

### Also Available

LFC-200/050-LEX (2 m and 0.5 m sphere systems with LEX rack)

LFC-200/050-LES (2 m and 0.5 m sphere systems with LES rack)

\*This configuration includes a 2 m and 0.5 m sphere with shared electronic rack and suitable cables.

### Part Number

AA-01165-000

AA-01166-000

## System Properties and Specifications

Sphere	78 in (200 cm)	78 in (200 cm)
Sphere Coating Reflectance	98%	98%
Photometric Range (Illuminant A)	15 - 50,000 lm	15 - 50,000 lm
Spectral Range (Spectrometer)	250* - 850 nm	250* - 850 nm
2π Port Size	20 in (50.8 cm)	20 in (50.8 cm)
Sphere & Crate Weight	500 kg	500 kg
Create Dimensions (W x D x H)	2.3 M x 2.45 M x 2.53 M	2.3 M x 2.45 M x 2.53 M
<i>System input power requirements: 220V-240V, 16A</i>		

### Spectrometer Detector

	Sony ILX511 linear silicon CCD array	Sony ILX511 linear silicon CCD array
Spectral Range	250* - 850 nm	350 - 1000 nm
Integration Time	1 ms - 5 s	1 ms - 5 s
Wavelength Accuracy	<+/- 0.5 nm	<+/- 0.5 nm
Optical Input Optical Fiber	600 um, 3 m long, (SMA Connection)	600 um, 3 m long, (SMA Connection)

### Lamp Standard

Power	35 W	35 W
Approximate Luminous Flux	650 lm	650 lm
Calibration	Spectral Flux (W/nm)	Spectral Flux (W/nm)
Traceability	350 - 1050 nm	350 - 1050 nm
	NIST traceable	NIST traceable

### Power Supply (DC)

	M8811, DC 30V, 5A	M8811, DC 30V, 5A
Power Requirements	110/220 VAC, 50/60 Hz	110/220 VAC, 50/60 Hz
Current Stability	0.1%	0.1%
Current Rise Time	35 s	35 s
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

### Aux Lamp

### AUX-50 (50W)

### AUX-50 (50W)

\*system calibration range 350 - 1050 nm

## System Optional Components

	Part Number
SCL-650 Cal Lamp	AS-01335-100
Replacement AUX-50 Bulb	LEW-00014-000
CSFS-650	AS-01336-100