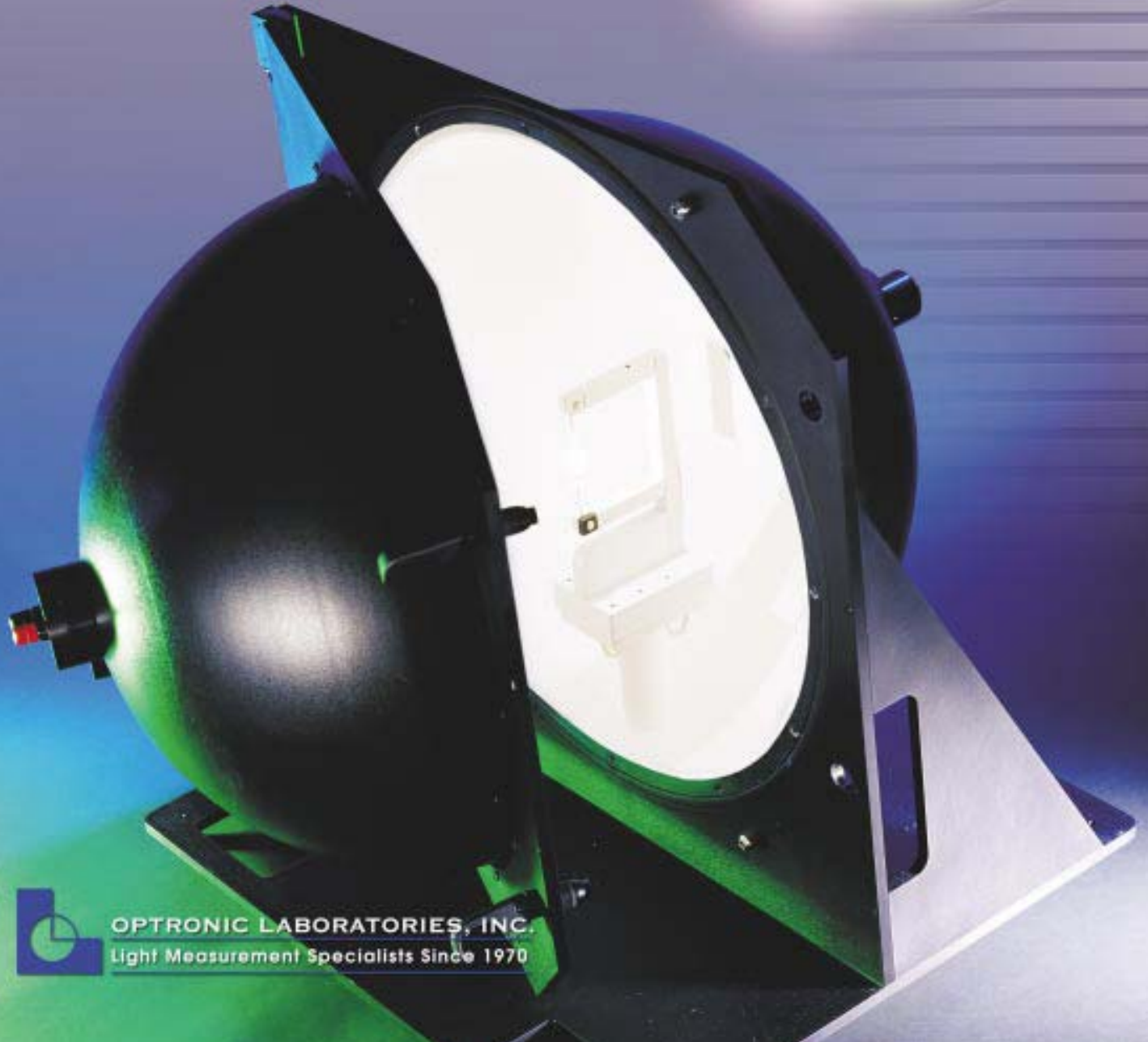


# LUMESPHERE PLUS SERIES

TOTAL LUMINOUS / TOTAL SPECTRAL FLUX  
MEASUREMENT SYSTEM



OPTRONIC LABORATORIES, INC.  
Light Measurement Specialists Since 1970

# LUMESPHERE PLUS SERIES

## TOTAL LUMINOUS/TOTAL SPECTRAL FLUX MEASUREMENT SYSTEM

### Lumesphere Plus

The Lumesphere Plus family of light source measurement instruments are undoubtedly the simplest and most accurate Total Luminous Flux & Total Spectral Flux Measurement tools on the market today. The Windows® compatible application software features built-in procedures to ensure accurate results. The system is precise enough for sophisticated researchers (in the Optronic Laboratories tradition) yet simple enough to be operated even by inexperienced personnel. Defaults guide the operator every step of the way to ensure error-free measurements. The Lumesphere Plus is protective of your test lamps and expensive calibration standards. Software and hardware are highly intuitive, guarding against over-current damage to lamps while accommodating a wide range of input currents. It has the ability to log and track calibration and testing procedures providing audit trails for all requirements. Password protection is also standard to ensure calibration validity. Additional software features include: Seek Lumens to identify proper current/lumen parameters and Lumen Scan which plots lumens vs. input current, both important in most R&D and QA procedures.



Sphere sizes of 18, 39 and 76 inches are offered as standard, and can accommodate geometries of most any lamp. Spheres, baffles and critical internal components are coated with ruggedized Optolon 2™, a revolutionary coating which is highly reflective, washable and hydrophobic (ending the tedium of the time consuming "drying out" process). Sphere designs include

an auxiliary lamp for high accuracy, standard lamp mounts, appropriate baffles and a high accuracy photopic detection system. A wide range of "plug-in" lamp mounts and sockets are available. The design of each lamp holder positions the test lamp near the center of the sphere assembly and includes an additional baffle as required by the size of the test lamp. The "plug-in" design allows the user to interchange different lamp types quickly and conveniently. Sphere assemblies are mounted in a sturdy custom-machined aluminum frame, with larger spheres featuring locking casters. The two hemispheres separate smoothly, allowing easy installation or interchanging of test lamps. They close easily to give a light-tight seal. A fixed feed-through tube for electrical cables is provided for connecting the lamps to the OL 500 Controller or alternate external power.



# Lumesphere Plus

Total Luminous Flux System



When you need to measure color coordinates of light sources, a PC plug-in CCD spectrometer is added to the Lumesphere Plus system transforming it into a powerful TLF/TSF measurement tool. The Lumesphere Plus Color, comes complete with all the standard features of the Lumesphere Plus, but also includes:

- **2048 element CCD spectrometer mounted on a PC plug-in card.**
- **2 meter long fiber optic cable to couple spectrometer to integrating sphere.**
- **NIST traceable lamp standard of total luminous & spectral (350 – 800 nm) flux.**

Integrated software controls the spectrometer, and calculates the following:

- **Chromaticity coordinates**
- **Correlated color temperature**
- **CIE Lab/Luv coordinates**
- **Color rendering indices**
- **Peak & dominant wavelengths**
- **Half bandwidth**

Custom parameters can be added on request.

## Features and Benefits

- Controller incorporates precise lamp current supply.
- Auxiliary lamps achieve highest accuracy, self-checks & calibrations.
- Automatic power selection for test, standard or auxiliary lamps.
- Built-in procedures, Event Logging & more.
- Revolutionary new large sphere design, available in optimal sizes, minimizes warping and stray light.
- Ease of use. Computer interfaces permit operation to user-defined protocols.
- Seek Lumens and Lumen Scan software.
- Chromaticity Coordinates, CRI, Lab/Luv, Spectral Flux, Color Temperature, Peak & Dominant Wavelengths, HBW (on Plus Color system only)
- Storage of data to Access® database

## Visit Our Web Site

The Optronic

Laboratories web site

offers a large database

of specific information

concerning your

OL Series Product,

as well as a host of other

features that will provide

solutions and personal

applications support to

ensure our customers

satisfaction.

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***[www.optroniclabs.com](http://www.optroniclabs.com)***

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## Specifications

### LUMESPHERE PLUS INTEGRATING SPHERES

Integrating Sphere Diameter	18, 39, & 76 inches
Sphere Coating (washable)	Optolon 2™
Reflectance (visible range)	98.5%
Maximum Lamp Wattage	150 W (18"), 1000 W (39"), & 5000 W (76")
Maximum Lamp Length	12 inches (18"), 30 inches (39"), & 60 inches (76")
Maximum Luminous Flux	40,000 lm (18") to 500,000 lm (76")
Noise Equivalent Luminous Flux	7 x 10 <sup>7</sup> lm (18") to 2.5 x 10 <sup>8</sup> lm (76")
Weight (approximate)	50 lb. (18"), 106 lb. (39"), & 640 lb. (76")

### OL LAMP STANDARDS OF TOTAL LUMINOUS FLUX

Total Luminous Flux (nominal)	650 lm (45 W) to 5000 lm (200 W)
Color Temperature (nominal)	2950K (45 W) to 3165K (200 W) [2856K operation optionally available]
Wattage	45 W to 200 W
Current (nominal)	6.5 amperes dc
Size (nominal)	0.3 x 3 (45 W) to 0.5 x 4 (200 W) inches
Uncertainty (relative to NIST)	± 2%

### PHOTOPIC DETECTION SYSTEM

Input Optic	Opal Cosine Diffuser
Detector Element Size	1 x 1 cm
Dynamic Range	12 decades
Spectral Response	Photopic
Photopic Response Matching Error (CIE fl')	≤ 1.5%

### COLOR MEASUREMENT SPECIFICATIONS (PLUS COLOR SYSTEMS ONLY)

Wavelength Range	350 – 800 nm
Pixel Resolution	<0.5 nm
Spectral Resolution	1.5 nm
Wavelength Accuracy	< 0.5 nm
Number of Detector Elements	2048
Exposure Time	20 ms – 60 sec
Exposure Range	5 ms – 60 sec
Order Sorting Filters	Installed as Standard
Fiber Diameter	600 microns
Fiber NA	0.22
Fiber Coupling	SMA
Sensitivity	< 0.1 lumen TLF with 18" sphere
Chromaticity Coordinate Accuracy	± 0.005 x, y, z for illuminant A
Signal Input	ISA card plug into PC
Data Transfer Rate	1 MHz

### LUMESPHERE PLUS CONTROLLER (OL 500)

Status LED's	Host Communications, Lamp Ramping Voltage Range
Lamp Current Range	0 to 6.700 A dc Voltage Range
Lamp Power Cycle	On and Off Ramp Function
Current Uncertainty	± 0.01% @ 6.5 A
Operating Temperature Range	15 to 35 °C
Current Temperature Regulation	± 0.003% °C
Operating Humidity Range	10% to 85% (non-condensing)
Power (user selectable)	115 or 230 VAC (60/50 Hz) ± 10%
Size	18" x 18" x 5 1/4"



OPTRONIC LABORATORIES, INC. HEADQUARTERS • Orlando, Florida

## About Optronic Laboratories

Since 1970, Optronic Laboratories has been improving the way the world measures light (UV/VIS/NIR). In fact, the company enjoys a worldwide reputation as a leader and innovator in the field of optical radiation measurement. From the characterization and compliance of the most sophisticated NVIS instrumentation to tanning beds, Optronic Laboratories provides both standard and custom products and services to satisfy the most demanding light measurement applications.

We are headquartered in Orlando, Florida. Here, we design and manufacture research-grade and industrial-grade light measurement solutions. This means that clients are guaranteed the industry's highest quality modular systems and accessories available, designed to provide consistent, traceable measurements throughout the long life of the instrumentation.

Our commitment to providing instrumentation designed for flawless precision and accuracy pays off through customer loyalty and the opportunity to solve some of the world's most difficult light measurement challenges.



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