

The Lumesphere *Plus*™ TLF Measurement Systems are designed to precisely measure the power (flux) of various lamps and light sources in accordance with CIE and NIST recommendations.

Product Highlights



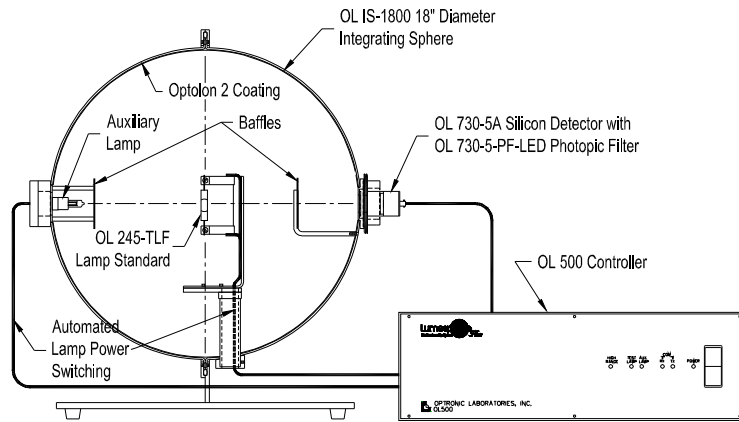
- ⇒ Ease of use, even by inexperienced operators.
- ⇒ Controller incorporates precise lamp current supply.
- ⇒ Optimal range of sphere sizes available.
- ⇒ Auxiliary lamps achieve highest accuracy, self-checks & calibrations.
- ⇒ Automatic power selection for test, standard or auxiliary lamps.
- ⇒ Built-in procedures, Event Logging & password protection.
- ⇒ Revolutionary new large sphere design, minimizes warping and stray light.
- ⇒ Computer interfaces, permitting operation to user-defined protocols.
- ⇒ Seeks Lumens and Lumen Scan software

Optronic Laboratories' **Lumesphere *Plus*** Total Luminous Flux Measurement System is undoubtedly the simplest and most accurate TLF Measurement tool on the market today. Taking the best of over thirty years experience in developing custom solutions for exacting clients, the **Lumesphere *Plus*** is truly a necessity for those involved with developing, manufacturing, or testing lamps and light sources.

The Windows™ 95/98 compatible system 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 TLF 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 (approximately 0.5, 1 and 2 meters) 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 that 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 lamp mounts and sockets are available, and customization is no problem. The design of each lamp holder positions the test lamp near the center of the sphere assembly and includes additional baffle as required by the size of the test lamp. 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.

Clearly the finest TLF Measurement System Available – Lumesphere *Plus* by Optronic Laboratories, Inc.



Schematic Drawing Showing Lumesphere Plus with 18" Integrating Sphere

SPECIFICATIONS

Lumesphere Plus Integrating Spheres

Integrating Sphere Diameter	18, 39, and 76 inches
Sphere Coating (washable)	Optolon 2
Reflectance (visible range)	98.5%
Maximum Lamp Wattage*	150W (18"); 1000W (39"); 5000W (76")
Maximum Lamp Length	12 inches (18"); 30 inches (39"); 60 inches (76")
Maximum Luminous Flux	140,000 lm (18") to 500,000 lm (76")
Noise Equivalent Luminous Flux	7×10^{-7} lm (18") to 2.5×10^{-6} lm (76")
Weight (approximate)	50 lbs. (18"); 106 lbs. (39"); 640 lbs. (76")
Sphere Construction**	Aluminum ($\leq 39"$) or fiber glass ($> 39"$)

* Fluorescent

** Hemispheres mounted in aluminum frames

OL Lamp Standards of Total Luminous Flux

Total Luminous Flux (nominal)	650 lm (45W) to 5000 lm (200W)
Color Temperature (nominal)*	2950K (45W) to 3165K (200W)
Wattage	45W to 200W
Current (nominal)	6.5 amperes dc
Size (nominal)	0.5 x 3 in. (45W) to 0.5 x 4 in. (200W)
Uncertainty (relative to NIST)	$\pm 2\%$

* 2856K operation optionally available

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 f_1')	1.5%

Lumesphere Plus Controller (OL 500)

Status LEDs	Host Communications, Lamp Ramping
Lamp Current Range	0.001 to 6.700 A dc
Lamp Power Cycle	On and Off Ramp Function
Current Uncertainty	$\pm 0.01\%$ @ 6.5 A
Operating Temperature Range	15-35°C
Current Temperature Regulation	$\pm 0.003\%$ / °C
Operating Humidity Range	10% to 85% (non-condensing)
Power (user selectable)	115 or 230 VAC (60/50 Hz) $\pm 10\%$
Size	18" x 18" x 5¼"
Weight	45 lbs.