

Optical Thermal Optical Thermal Electrical Optical Thermal Electrical

FEATURES:

Automated Data
Acquisition & Analysis

Measure optical properties
as a function of temperature
and operating current

TEC Temperature
Control and Monitoring

DC and Single Pulse
Power Supply Control

Optional Ambient
Temperature Control

APPLICATIONS:

Complete Thermal, Electrical
& Optical Analysis

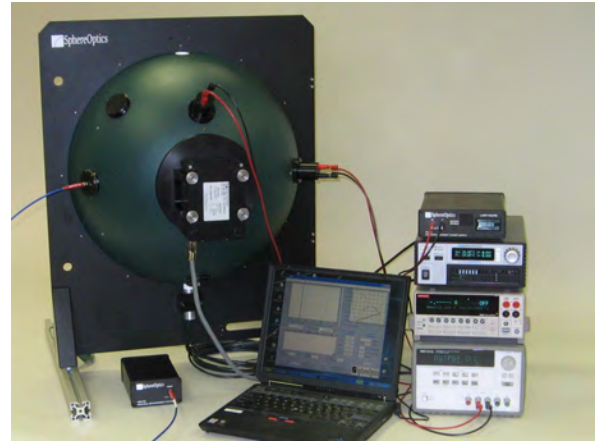
Measure optical properties
as a function of temperature
and operating current

Testing per IESNA
LM-79 & LM-80

DOE SSL Testing

TOCS LED and SSL Thermal-Electrical & Optical Characterization Systems

Our new TOCS series Thermal-Electrical-Optical Characterization systems enhance our standard line of Spectral Lamp Measurement Systems (SLM) or our LCS LED Characterization Systems with the ability to measure complete electrical and thermal characteristics of LED and SSL assemblies in addition to complete optical characterization.



LED manufacturers are paying more attention to the thermal and electrical characteristics of LEDs because excess heat at the junction can affect an LEDs performance in terms of color shift, output, life expectancy and non-linear performance effects.

Our standard SLM and LCS measurement systems measure critical parameters such as intensity, spectrum, derived color values, L-I-V curves and soak time. With a retrofit of our new TOCS option, users can obtain complete thermal, optical and electrical data which have become important parameters for characterization of light-emitting diodes (LEDs) and SSLs.

The TOCS option packages include a temperature controller, a high power H-bridge amplifier optimized for use with the TEC controller, external and internal TE mounting plates and powerful operating software. The software provides complete automated data acquisition and analysis of the DUT and ambient air control. The TOCS adapts to integrating spheres ranging in size from 12 inches to 76 inches. Our integrating sphere design includes ports for ambient air monitoring and temperature control inside the sphere. Spheres less than 20 inches diameter are for 2pi and accept external mounting plates, larger spheres accept either internal and external mounts for 2pi or 4pi conditions. Electrical characteristics are monitored using any of the Keithley Series 2400 source meters, which can be supplied by SphereOptics or customer owned. Software fully integrates with the Keithley 2400 series.

SOFTWARE

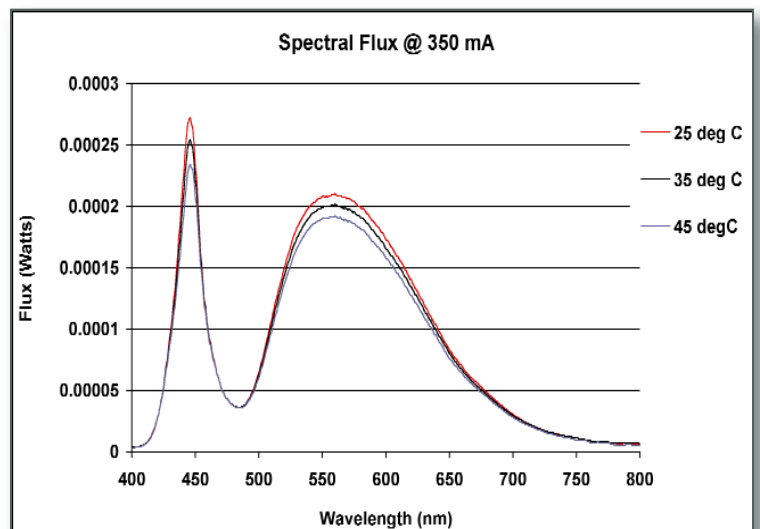
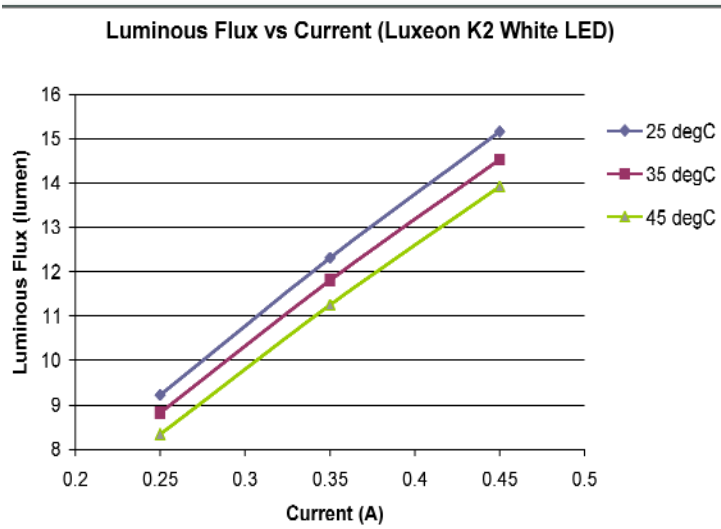
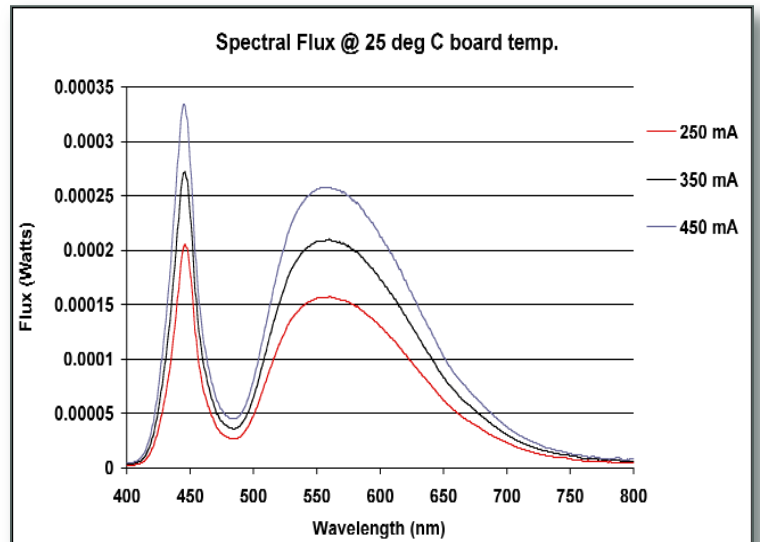
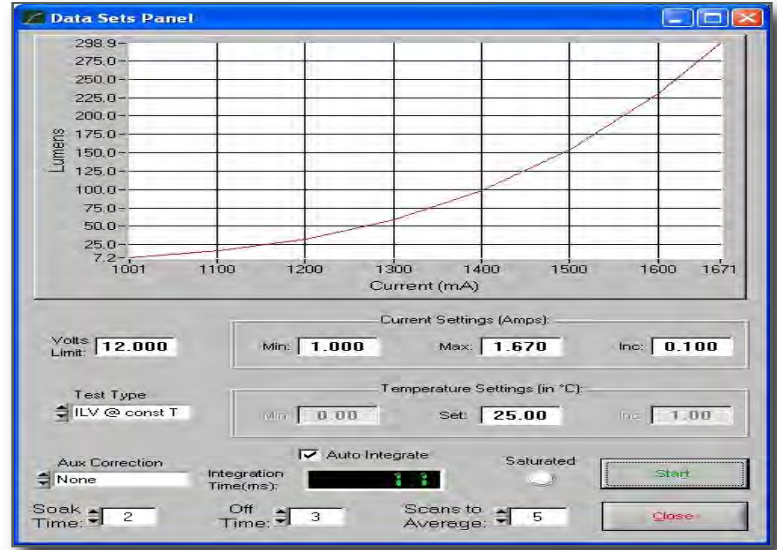
Optical Thermal Electrical
 Electrical Thermal
 Optical

System software automates procedures for measurement and control of current, temperature and spectral characteristics. Software simultaneously collects electrical, optical and thermal test which can be graphed and view on screen, or exported to excel format for further analysis. Functions include: case temperature, thermal resistance and temporal conditions to determine luminous flux, spectrum distribution, peak wavelength and colorimetric values, as well as electrical and working current parameters.

MEASURE:

- ILV @ constant T step & control I, stabilize T, measure L & V
- VLI @ constant T step & control V, stabilize T, measure L & I
- TLV @ constant I step & control T, stabilize T, measure L & V
- TLI @ constant V step & control T, stabilize T, measure L & I
- ILV/T perform ILV@constant T, step T and repeat at each T
- VLI/T perform VLI @ constant T, step T and repeat at each T

Key: L = Lumens
 V = Voltage
 I = Current
 T = Temperature



HARDWARE

Optical Thermal Electrical
Electrical Thermal Optical

Integrating Spheres
in sizes from 12 to 76 inches

Spectrometer

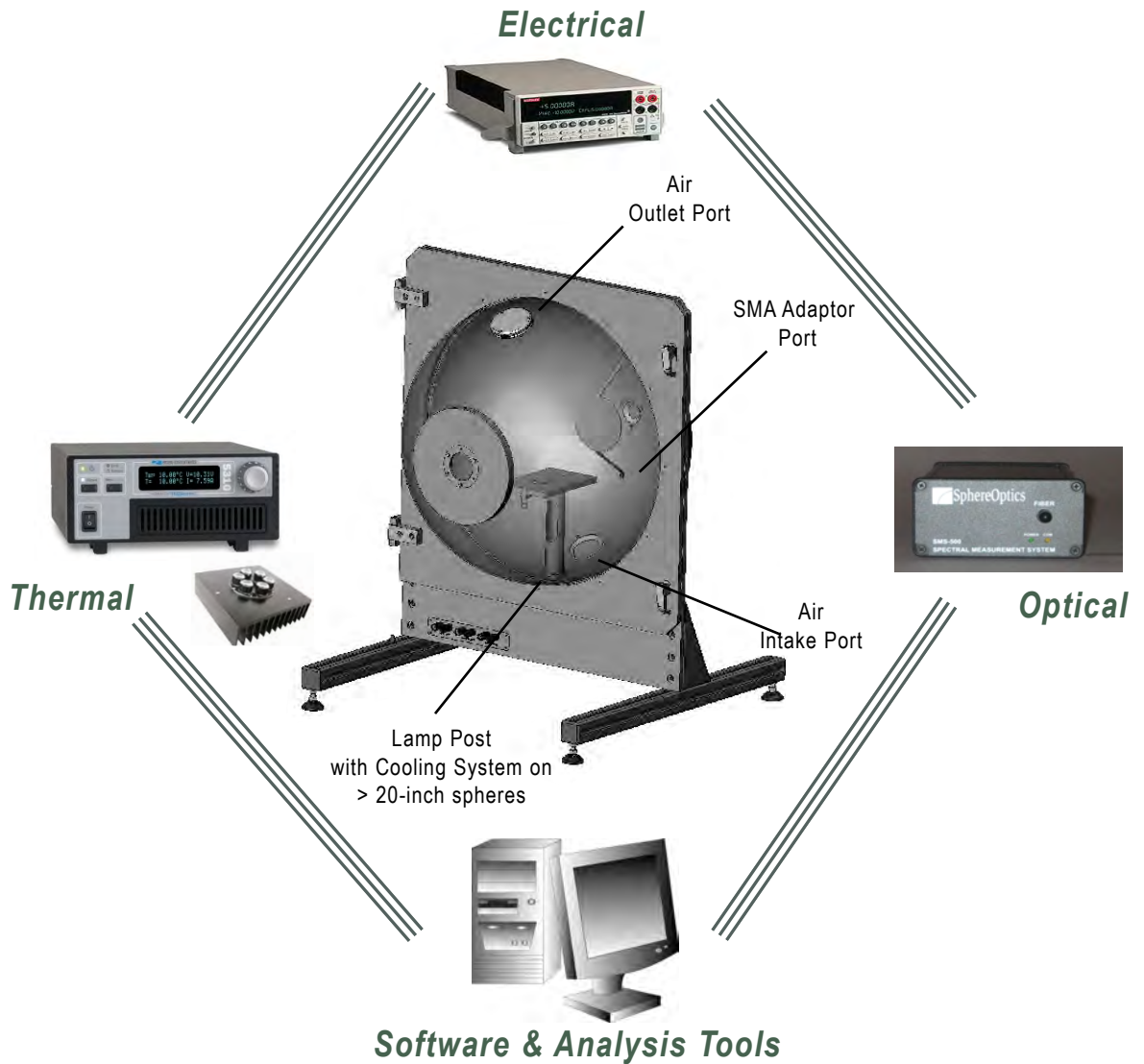
SourceMeter /Power Supply

Temperature Controller

Calibration Lamp

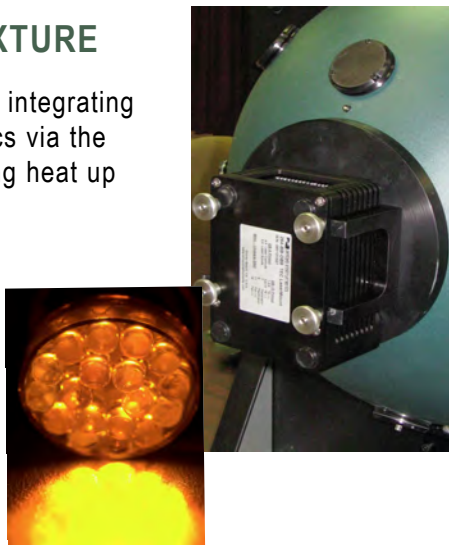
Internal and External
TE Interface plates for
 2π and 4π measurement

Operating Software



TEMPERATURE STABILIZED LED FIXTURE

This fixture mounts to the DUT fixture port of the integrating sphere and is controlled by the system electronics via the system operating software. It is capable of sinking heat up to 80 W. The temperature can be programmed into the software between 20°C and 80°C.



Ordering Information

Order No:	TOCS-12	TOCS-20	TOCS-40	TOCS-65	TOCS-76
DUT Configuration:	2 π	2 π	2 or 4 π	2 or 4 π	2 or 4 π
Temperature Range:	20° – 80°C	20° – 80°C	20° – 80°C	20° – 80°C	20° – 80°C
Rated Sphere Size:	12-inch	20-inch	40-inch	65-inch	76-inch
Typical Lumens Range:	0.15 to 12,000	0.5 to 25,000	2 to 75,000	5 to 150,000	7 to 250,000
TE Mounting Plate:	External (2 π)	External (2 π)	External (2 π) & Internal (4 π)	External (2 π) & Internal (4 π)	External (2 π) & Internal (4 π)
Ambient Air Control:	Available	Available	Available	Available	Available

Specifications

Spectral Range:	360 to 1000 nm (standard model) 300 to 1050 nm (extended range model)
Dynamic Range Resolution:	16 bit
Optical Input:	SMA Fiber Connector
Wavelength Accuracy:	± 0.5 nm
Wavelength Repeatability:	± 0.1 nm
Stray Light:	$< 10^{-3}$
Chromaticity Accuracy: (x,y)	± 0.002
Chromaticity Repeatability: (x,y)	± 0.0005
CCT Reproducibility:	$< \pm 5$ K (Illuminant A)
Integration Time Range:	1ms - 4000ms
Power Supply:	Choice of Keithly 2400 DC Series Models
Thermal Control Range: (typical)	20° to 80° C, up to 80 W (contact sales)
Thermal Control Repeatability:	± 0.5 C
Thermal Set-Point Resolution:	0.1 C

Have an existing lamp measurement sphere system?

We can retrofit your system to a Thermal-Optical-Electrical Characterization System!

Discuss your needs with one of our technical sales experts.



www.sphereoptics.com

www.sphereoptics.de

USA HEADQUARTERS

SphereOptics LLC
Tel: 603-715-3000 / Sales: 858-695-2895
Fax: 603-225-3089
Email: sales@sphereoptics.com

FRANCE

SphereOptics SARL
Tel: +33 (0) 1 69 07 21 84
Fax: +33 (0) 1 69 07 71 38
Email: infofr@sphereoptics.com

GERMANY

SphereOptics GmbH
Tel: +49 (0) 7556 929 9666
Fax: +49 (0) 7556 50108
Email: infode@sphereoptics.com

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