

## Imaging Sphere for Luminous Intensity Measurement IS-LI™



### Applications

- LED and LED cluster luminous intensity distribution measurement
- Small light source luminous intensity distribution measurement
- Production quality control for LEDs, LED clusters, and other small light sources

### Benefits

- Accurate and reliable measurement of intensity and color as a function of angle
- Fast measurement of complete luminous intensity distribution - all directions in a hemisphere measured simultaneously
- Accuracy of angular distribution unaffected by light source fluctuations
- Easy to use measurement control and analysis software simplifies assessment process

## Rapid, accurate measurement of LEDs and other small light sources

The IS-LI™ (Imaging Sphere for Luminous Intensity Measurement) provides rapid, comprehensive measurement of far field luminous intensity, radiant intensity, CIE chromaticity coordinates, and correlated color temperature (CCT), all as a function of angle, for LEDs and other small light sources.

Because the IS-LI™ is able to obtain full luminous intensity distribution data in a matter of seconds, the system is ideally suited for R&D and production line measurements of LEDs where, for the first time, it provides an economic, fast method for not only measuring total flux but also angular output information that is critical for most illumination and display applications.

The IS-LI™ incorporates patented Imaging Sphere™ technology developed by Radiant Vision Systems jointly with Royal Philips Electronics. Using unique, precision calibrated optics, the IS-LI™ acquires hundreds of thousands of data points over a complete hemisphere ( $2\pi$  steradians) in a single measurement, taking just seconds or less, using a PM-Series™ Imaging Colorimeter.

The IS-LI™ system combines an approximately 500 mm diameter, hemispherical, imaging chamber along with a Radiant Vision Systems IC-PM03 Imaging Colorimeter (512 x 512 pixel resolution) or an IC-PM13 (1024 x 1024 pixel resolution). The Imaging Sphere optics enable the imaging colorimeter to “see” the entire inner surface of the hemisphere, capturing a spatial network of up to almost a million individual measurements of luminance and color.

The IS-LI™ is provided with Radiant Vision Systems sophisticated IS control and analysis software. This software is built on the ProMetric® Software engine and supports measurement set-up and automated and customized measurement sequences. Extensive data analysis and display functions are also supported, including isometric plots, cross-sectional graphs, radar plots, bit maps and color graphs.



## Key Features

- Accurate luminous intensity and color coordinate distribution measurement
- High speed operation, capturing data for all angles simultaneously
- Multiple imaging system resolution options for photopic or colorimetric measurement
- Easy-to-use measurement control and analysis software

## Specifications\*

### Optical Specifications

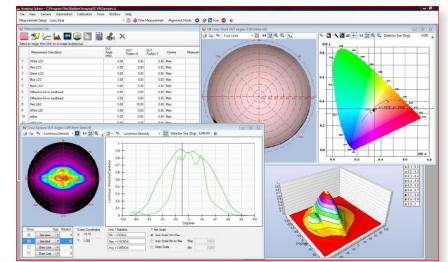
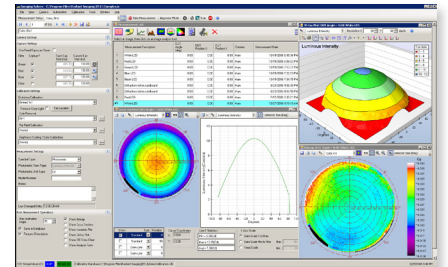
CCD type	Full-frame, cooled and temperature stabilized
CCD bit depth	16-bit (>65K gray levels)
CCD resolution	512 x 512 (PM03) or 1024 x 1024 (PM13) pixels
Field of view	Approximately 2π steradians
Color measurement	CIE 1931 matched XYZ filters (or photopic only)
Neutral density filters	Integrated ND0, 1, and 2 filters standard
Intensity range	From 0.005 to 1x10 <sup>5</sup> cd
Angular resolution	0.5° or 0.25°, depending on CCD resolution
Angular range	Azimuth: 0° - 360°; Inclination: 0° - 85°
System accuracy <sub>1</sub>	Luminous intensity: ±5% Chromaticity coordinates (x,y): ±0.005
Short term repeatability <sub>1</sub>	Luminous intensity: ±0.5% Chromaticity coordinates (x,y): ±0.0006

### Mechanical Specifications

Overall size (WxHxD)	66 cm x 66 cm x 89 cm
Orientation	Rotatable to vertical, face-down, or face-up
Weight	32 kg
Construction	Integrated imaging dome and colorimeter
Minimum measurement time	Photopic: 1 sec Color: 5 sec

### Control and Analysis Software Specifications

Measurement capabilities	Luminous Intensity Distribution, Radiant Intensity Distribution, Color: CCT; CIE x,y; u',v'; E
IS 1.x software function	Measurement set-up and image capture control Gray scale and false color display Intensity and chromaticity cross-sections 3D surface plot of intensity or chromaticity Isometric plot of intensity or chromaticity Graph and image comparison for multiple captures Process measurements (rotate, add, threshold, etc.)



## System Requirements

- 2.0 GHz or faster processor
- 1GB or greater RAM
- Windows® 7, Vista or XP
- USB 2.0 interface

<sup>1</sup> Based on a virtual detector size of 100 pixels.

\* Specifications subject to change without notice