

LS-LAM100C

Computerized calibrated lambertian light source

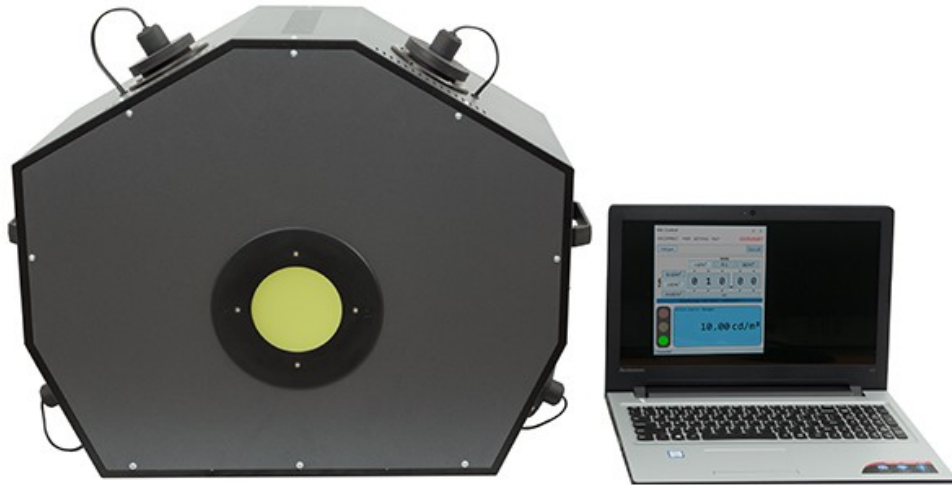


Fig. 1. LS-LAM100C light source (with optional laptop)

BASIC INFORMATION:

LS-LAM100C is a computerized calibrated halogen light source that emits light from 100mm emitter of angular distribution like near perfect Lambertian light source. In other words LS-LAM100C belong to a group of light sources commonly called as integration spheres.

LS-LAM100C emits light in VIS-SWIR spectral band. Light spectrum in VIS-NR band is like ideal blackbody of color temperature 2850K.

LS-LAM100C light source offers extremely high dynamic range, continuous regulation of light intensity (ability to simulate both ultra night conditions and ultra bright day conditions). Intensity of the tungsten bulb is regulated using an opto-mechanical attenuator that

changes light intensity but does not change light color temperature.

Light intensity of LS-LAM100C is typically calibrated in photometric units (as luminance in cd/m^2) but can be optionally delivered in version when radiance values for VIS, NIR and SWIR band in $\text{W}/\text{sr m}^2$ are known, or spectral radiance in $\text{W}/\text{sr m}^2 \mu\text{m}$ any wavelength is known.

To summarize, the LS-LAM100C source is quasi universal broadband Lambertian type light source that enables calibration of virtually all VIS-SWIR sensors/cameras of aperture up to 100mm. The light source can be also used in any application where a calibrated medium size source of VIS-SWIR light is needed to simulate night/day level conditions.

FEATURES

- Lambertian light source of large 100mm light emitter.
- Ultra wide calibrated spectral band from visible to short wave infrared.
- Extremely high dynamic range and continuous regulation of luminance that enable over million of different luminance levels. Typical sources enable step luminance regulation or enable continuous regulation but for much smaller luminance range.
- Spectrum of LS-LAM100C light source resemble well spectrum of standard greybody of 2857K color temperature in VIS-NIR band.
- Calibration in luminance or radiance units.
- Fully computerized light source. Regulation of light intensity and mode of calibration using specialized software.

OPTIONS

Basic version of LS-LAM100C is calibrated in luminance units (cd/m^2) as a reference light source of 2850K color temperature spectrum in VIS-NIR spectral band. It can be optionally delivered with additional calibration in radiometric units:

- A. Calibration as band radiance for VIS-SWIR, VIS-NIR, VIS, NIR and SWIR bands in $\text{W}/\text{sr m}^2$ units.
- B. Calibration as spectral radiance in $\text{W}/\text{sr m}^2 \mu\text{m}$ unit for any wavelength in VIS-NIR band.
- C. Calibration as spectral radiance in $\text{W}/\text{sr m}^2 \mu\text{m}$ unit for any wavelength in VIS-SWIR band.

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SPECIFICATIONS

<i>Parameter</i>	<i>Value</i>
Light source	special halogen bulb
Light source aperture	100 mm
Spectral band of emitted light	At least from 400nm to 2000nm
Light spectrum	2856K color temperature in VIS-NIR band
Luminance Uniformity	At least 98%
Regulation type	Continuous
Regulation method	Opto-mechanical attenuator controlled from PC
Calibration of light intensity	Luminance in cd/m^2 units Radiance in $\text{W/sr m}^2 \mu\text{m}$ units Spectral radiance in $\text{W/sr m}^2 \mu\text{m}$ units
Total luminance range	At least $1 \text{ mcd/m}^2 - 10 \text{ kcd/m}^2$
Simulated illuminance ranges (approximate values for targets of 100% reflectance)	At least 3 mlx – 30 klx
Total dynamic of light source	10^7
Regulation resolution	Not worse than 10 mcd/m^2
Temporal stability	< 1%
Working temperature	+5°C to +35°C
Storage temperature	-5°C to +55°C
Humidity	Up to 90% (non condensing)
Dimensions	About 43x49x29cm
Mass	About 15 kg
Operating voltage	110/220 VAC, 50Hz

*specifications are subject to change without prior notice

SUMMARY

LS-LAM100C light source due to extremely wide range of regulated luminance, ultra high maximal luminance, stable light color temperature for different luminance levels, PC control, and compact design significantly exceeds simple integrating spheres offered at international market.

CONTACT: Tel: +48 22 6668780

Fax: +48 22 3987244

Email: info@inframet.com