

Eigenlite™ RS-5A Digital Light Source

PRODUCT SUMMARY

The Eigenlite™ RS-5A linear programmable digital light source provides a versatile way to test and characterize CCD, CMOS, and other image sensors, cameras and detectors. The RS-5A is a larger aperture, higher power version of the original RS-5 digital light source. The RS-5A also includes a number of other enhancements and functions previously only available in the RS-5B spectrally programmable light source. When an RS-5A is combined with one of our wide range of projector options, it becomes another extraordinary instrument for photometric and radiometric calibration.

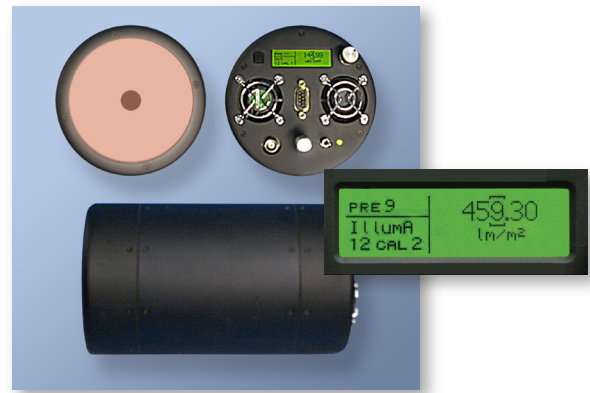
The Model RS-5A offers the monolithic package design of the RS-5B; the optical head and controller are integrated into a single unit. The RS-5A is equipped with the same manual and computer interface control capabilities as the RS-5B; control is via the rear control panel, or through a standard RS232 serial connection, or through an RS-5 desktop controller.

Spectral output selections for RS-5A optical heads range from the UV region into the near infrared, offering the same narrow-band, quasi-monochromatic, or broadband white light as the RS-5. Each head provides a single calibrated spectrum. The controller LCD display reads in absolute NIST-traceable radiometric and/or photometric units.

As with its companion products, the RS-5A enables accurate imager measurements at relatively high speeds; often making complete detector transfer function measurements practical. Using the serial computer interface, fully automated sensor and camera testing systems can be constructed that automatically generate transfer function data (i.e. photon and gamma transfer), and report various figures of merit such as sensitivity, responsivity, electronic gain and defect maps.

If you already rely on the RS-5, you will love the RS-5A, or, for even greater capability, including spectral and colorimetric control, ask about the RS-5B spectrally programmable light source.

"The Eigenlite RS series of digital light sources are the best thing that has happened to light since the first photon appeared 10 billion years ago."



FEATURES

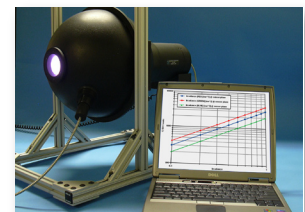
- High-resolution digital brightness control provides near perfect linearity - less than 0.1% R.M.S residual nonlinearity over the entire brightness range.
- Light level setting to 1 part in 65,535, in absolute, NIST traceable, radiometric and/or photometric units.
- Spectral distributions ranging from the UV into the near infrared, RGB, and broadband white.
- Computer controllable with simple commands that easily integrate into test systems.

Enhancements and additional features as compared to the RS-5

- 3x the output power and 8x the aperture area.
- Monolithic package design.
- User controlled ambient light compensation.
- Feedback arbitrated PWM - up to 10 KHz
- Higher control rate - up to 1000 changes/second
- 5x the number of recallable presets
- Enhanced units handling with more built-in unit options and intelligent control over prefixes and exponents



RS-5A desktop controller option.



RS-5A coupled to an integrating sphere using synchronous high-speed control via a PC.



GAMMA SCIENTIFIC

8581 Aero Drive San Diego, CA 92123 Ph (858) 279-8034 Fax (858) 576-9286
Website: www.gamma-sci.com

Eigenlite™ RS-5A Digital Light Source

SPECIFICATIONS

General Description	Integrated Linear Programmable Light Source Controller and Projector Head Stabilized LED source. Computer and manual control with digital rear panel display. CW and pulsewidth modulation. Calibrated in absolute optical units.
Source Geometry	100 mm diameter extended source. Projection beam, lambertian/super-lambertian radiator, or uniform illuminator option.
Wavelength	Almost any center wavelength from 360-1550 nanometers.
Spectral Bandwidth	8-300 nm depending on center wavelength and spectrum. (can be narrowed on request)
Output Power	Depends on center wavelength, spectrum and illuminator configuration. (i.e. F#, lambertian subtense, and illumination field size)
Irradiance	< 1 nanowatt/cm ² to >2 mw/cm ²
Illuminance	< 1 nanolux to > 8000 Lux
Radiance	< 1 nanowatt /cm ² *sr ⁻¹ to >2 mw/cm ² *sr ⁻¹
Luminance	< 1 nanocd/m ² to >80,000 cd/m ²
Linear Brightness Adjustment	
Dynamic Adjustment Range	16 bits or 1 part in 65535
Signal to Noise ratio	96 dB @ full scale
Non-linearity	0.25% nominal (RMS of full scale)
Maximum Control rate	10 kHz using rear panel TTL input (<i>for 100% modulation depth</i>)
Settling Time	< 0.003 secs, for 1% brightness uncertainty < 0.1 second for 0.1% brightness uncertainty
Repeatability	> 99.99% (after settling)
Absolute NIST-traceable accuracy	± 5% of dial setting at full scale (<i>± 1% by request</i>)
Brightness Instability	
Drift with temperature	OFFSET: <0.005% of full scale/1°C GAIN: <0.02% of full scale/1°C
Long term drift	1.0% of full scale combined OFFSET and GAIN
Irradiance/Illuminance	Depends on illuminator configuration.
Non-uniformity	(i.e. F#, lambertian subtense, and illumination field size)
Irradiance/illuminance	<0.1% to 10% over 50mm diameter aperture
Radiance/luminance	<0.1% to 10% over 60 degree angular subtense
Spectral Shift with Brightness	1-30 nm depending on center wavelength, spectrum and filter options: <2 nm typical for most wavelengths. Shift is repeatable and can be completely characterized with optional calibration
Standard Calibrations Available	Radiant intensity, Spectral Radiant intensity Luminous intensity, Spectral Luminous intensity Irradiance, Spectral Irradiance Illuminance, Spectral Illuminance Radiance, Spectral Radiance Luminance, Spectral Luminance Flash energy in lux*sec or watt*sec



GAMMA SCIENTIFIC

8581 Aero Drive San Diego, CA 92123 Ph (858) 279-8034 Fax (858) 576-9286
Website: www.gamma-sci.com