

# Eigenlite™ RS-5B Spectrally Programmable Light Source

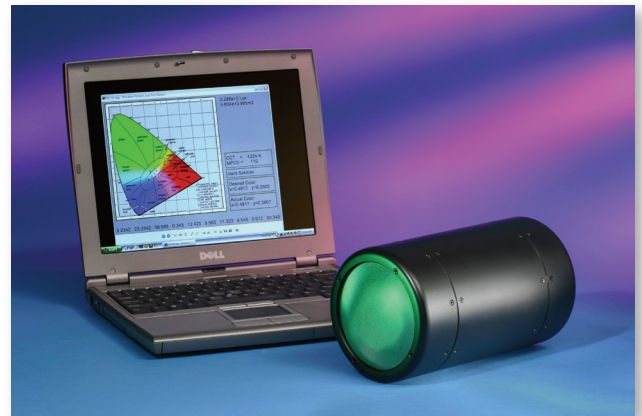
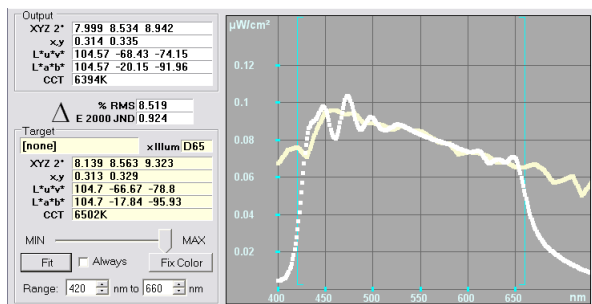
## PRODUCT SUMMARY

The Eigenlite™ RS-5B spectrally programmable digital light source provides a versatile way to test and characterize CCD, CMOS, and other image sensors, cameras, and detectors. Together with a range of projector options, the system delivers near perfect linearity and uniformity, giving the sensor or camera engineer and manufacturer an unparalleled foundation with which to verify the quality and consistency of their components and products.

The Model RS-5B is equipped with both manual and computer interface control. Manual control is through either the RS-5B rear panel or using an RS-5 desktop controller (refer to the separate RS-5 Digital Light Source Product Summary). Computer control uses simple ASCII commands over a built in RS-232 port. When coupled with a PC, the optional SynthiColor™ software package provides interactive spectral and colorimetric programming.

The system allows a single operator to perform a diverse set of highly accurate measurements in just a matter of minutes. And behind the system's absolute measurements stands the precision calibration and measurement expertise at Gamma Scientific. In fact, Gamma's laboratory calibration standards fall within one percent uncertainty relative to international standards – reinforcing the company's preeminent position in producing and maintaining the most accurate light measurement and generation equipment available today.

*Eigenlite RS-5B digital sources produce and control light energy in exactly the ways you want.*

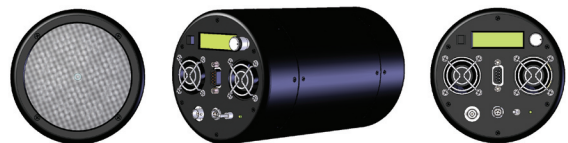


## FEATURES

- Spectral and color selections from the UV region to the near infrared, including broadband whites.
- Quickly set exactly the color, intensity or spectral profile required for almost any measurement.
- Computer controllable with simple commands that easily integrate into existing testers or new test systems.
- Adjustable light-level setting to 1 part in 65,535 in absolute, NIST-traceable, radiometric and photometric units.
- Near-perfect linearity and uniformity over the entire intensity range.
- Output luminance settling time less than 0.01 second.
- Nearly zero downtime – runs continuously for thousands of hours.
- Enables a single operator with a single instrument to perform a series of highly accurate measurements in minutes.

## APPLICATIONS

- Photometric, radiometric and colorimetric testing and calibration of sensors, lenses and imaging systems.
- Testing and calibration of monochromators, spectrometers, and other optical instruments.
- Design and calibration of color display systems.
- Illumination for photochemical probes and other photochemistry and fluorescence applications.
- Almost any controlled illumination application that requires extreme linearity and stability.



**GAMMA SCIENTIFIC**

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# Eigenlite™ RS-5B Spectrally Programmable Light Source

## SPECIFICATIONS

<b>General Description</b>	Integrated Linear Programmable Light Source Controller. and Projector Head Stabilized LED source. Computer and manual control with digital rear panel display. CW and pulswidth modulation. Calibrated in absolute optical units.
<b>Source Geometry</b>	100 mm diameter extended source. Projection beam, lambertian/super-lambertian radiator, or uniform illuminator option. Up to 10 spectral channels.
<b>Spectral Output</b>	Narrow or broadband configurations from 360 to 1550 nm. Custom spectrums/illuminants or CIE[x,y] gamuts by request.
<b>Spectral Bandwidth</b>	10-700 nm ( <i>can be narrowed on request</i> ).
<b>Linear Brightness Adjustment</b>	
Resolution	16 bits
Dynamic Adjustment Range	Depends on Spectrum (14 bits typical)
Signal to Noise ratio	96 dB
Non-linearity	
Radiometric	0.25% nominal (RMS of full scale)
Photometric	< 1.0% RMS of full scale
Colorimetric	< 1.0% RMS of full scale
CCT	< 1.0% RMS of full scale
Spectral	1% to 10% RMS of full scale (depends on spectrum)
<b>Color Error</b>	
vs. CIE[x,y]	1.0 JND ( <i>CIE 2000 Delta E</i> )
vs. intensity	1.0 JND ( <i>CIE 2000 Delta E</i> )
<b>Output Power</b>	Depends on center wavelength and illuminator configuration. (i.e. F#, lambertian subtense, and illumination field size)
Irradiance	< 1 nanowatt/cm <sup>2</sup> to >2 mw/cm <sup>2</sup>
Illuminance	< 1 nanolux to > 8000 Lux
Radiance	< 1 nanowatt /cm <sup>2</sup> *sr <sup>-1</sup> to >2 mw/cm <sup>2</sup> *sr <sup>-1</sup>
Luminance	< 1 nanocd/m <sup>2</sup> to >80,000 cd/m <sup>2</sup>
<b>Illumination Non-uniformity</b>	Depends on illuminator configuration. (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
<b>Brightness Instability</b>	
Settling time	< 0.003 secs. for 1.0% brightness certainty < 1.0 secs. for 0.1% brightness certainty
Repeatability	> 99.99% after settling
<b>Drift with temperature</b>	
Radiometric OFFSET	0.005 % of full scale/C°
Radiometric GAIN	0.02 % of full scale/C°
<b>Long Term Drift</b>	1% of full scale, combined OFFSET and GAIN
<b>Maximum Control Rate</b>	10 kHz using rear panel TTL input ( <i>for 100% modulation depth</i> )
<b>Absolute NIST-traceable accuracy</b>	± 5% of dial setting at full scale (±1% by request)



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