



GAMMA SCIENTIFIC *Light Measurement Solutions*



GS-1220 Spectroradiometers



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GS-1220 Spectroradiometers



About Gamma Scientific

Since 1961 Gamma Scientific has produced LED, display and light measurement test solutions for production and R&D environments. Gamma Scientific instruments are trusted by leading global organizations that require high-speed, precision measurements and custom configurations for the most challenging environments. Gamma Scientific also operates a NVLAP accredited laboratory that performs LM-79/LM-80 LED testing and is ISO 17025 compliant. NVLAP Lab Code 200823-0.

To view the complete line of test and measurement solutions from Gamma Scientific, please visit our website at www.gamma-sci.com.

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High Speed LED Testing

GS-1220 [spectroradiometers](#) are optimized for quality control and high speed LED testing applications, with up to 100 ms optical integration time.

The GS-1220 spectroradiometer features a proprietary optical design and back illuminated CCD technology that provides exceptional low-light measurements, superior blue light sensitivity and highly accurate measurements of wavelength, color and power.

The 2048 pixel back illuminated CCD is temperature cooled for superior instrument repeatability.

Original system calibration is performed in Gamma Scientific's NVLAP accredited laboratory using NIST-traceable standards.

Features

- High resolution, temperature cooled-back illuminated 2048 pixel CCD Sensor
- Exceptional accuracy via high-resolution bandwidth coverage
- Superior wavelength and color accuracy
- Near-real-time measurement
- Spectral ranges: 250-900 nm, 360-900 nm, 360-1100 nm
- NIST-traceable calibration
- Integrated neutral density filter wheel
- Hardware input/output trigger
- Windows based control/analysis software with Excel integration
- Wide variety of test sockets for many LED types

Trusted for Over 50 Years

As the inventors of the first high-performance, computer-controlled LED spectroradiometers, Gamma Scientific has continued to set the standard in spectroradiometer accuracy and reliability. Gamma Scientific instruments have been trusted by the world's leading organizations to provide accurate measurements for over 50 years.





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GS-1220 Spectroradiometer Accessories



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940 LED Series Goniophotometers

Gamma Scientific's 940 LED Series of Goniophotometers utilize a RadOMA spectroradiometer to capture complete spectral measurements as a function of angle. [940 LED Goniophotometers](#) are designed to analyze angle dependent spatial radiation properties of LED luminaires, lamps and modules.

With an angular resolution of 0.01°, the 940 LED-1250 captures highly accurate and repeatable LED measurements. The goniophotometer is in conformity with CIE, DIN and IES standards.

Integrating Spheres (Luminous and Radiant Flux)

With over 40 years of experience in designing integrating spheres, Gamma Scientific has the expertise to build custom [integrating spheres](#) and sphere systems to meet your testing requirements.

Gamma Scientific integrating spheres are available in a wide range of sizes from 25mm to 3m in diameter. Multi-purpose integrating spheres provide maximum flexibility and are custom built to meet your exact testing requirements. Light measurement spheres for LED testing are optimized for capturing total flux measurements of LEDs, lamps and luminaires.

Choose from our proprietary polytetrafluoroethylene (PTFE) or a specially formulated barium-sulfate coating. The PTFE coating gives > 99% reflectance over the UV/VIS/NIR region, and is almost perfectly Lambertian.

LED Test Sockets

Gamma Scientific offers a variety of precision and ultra-precision [LED measurement sockets](#). These sockets accommodate regular, miniature and sub-miniature LED's and feature a locking flange that snaps firmly into place, ensuring proper alignment with the mechanical axis. Each test socket has banana connectors for use with high-precision power supplies.





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GS-1220 Spectroradiometer Specifications

Detector and Wavelength Specifications			
Spectrometer Model	GS-1220-0	GS-1220-1	GS-1220-2
Nominal Spectral Range	250-900nm UV-VIS	360-900nm VIS	360-1100nm VIS-NIR
Datapoint Interval	0.32 nm	0.32 nm	0.35 nm
Spectral Bandwidth	Built-In User Selectable Half-Power Bandwidth (HPBW) Bold is factory setting		
	10 nm	10 nm	10 nm
	5.0 nm	5.0 nm	5.0 nm
	2.5 nm	2.5 nm	2.5 nm
	1.4 nm	1.4 nm	1.4 nm
	1.0 nm	1.0 nm	1.0 nm
Wavelength Repeatability	0.02 nm	0.02 nm	0.02 nm
Wavelength Accuracy	+/- 0.1 nm	+/- 0.1 nm	+/- 0.1 nm
Accuracy ¹			
Luminous Intensity	± 1%	± 1%	± 1%
Luminous Flux	± 1%	± 1%	± 1%
Chromaticity (CIE1931 xy) ²	x,y=±0.0015	x,y=±0.0015	x,y=±0.0015
Dominant Wavelength ²	± 0.5 nm	± 0.5 nm	± 0.5 nm
Sensitivity ³			
Luminous Intensity (10:1 signal-to-noise)	0.02 mcd to 15 kcd	0.02 mcd to 15 kcd	0.02 mcd to 15 kcd
Luminous Flux ⁴ (12" sphere ; 10:1 signal-to-noise)	1 mlm – 240 klm	1 mlm – 240 klm	1 mlm – 240 klm
Illuminance Sensitivity (10:1 signal-to-noise)	0.02 mlux - 15,000 lux	0.02 mlux - 15,000 lux	0.02 mlux - 15,000 lux
Measuring time (range)	2 µsec to 2.67 sec	2 µsec to 2.67 sec	2 µsec to 2.67 sec
Measuring Time at 1 mcd (10:1 signal-to-noise)	40 msec	40 msec	40 msec
Specifications for All Spectrometers			
Stray Light	Less than 1×10^{-4} (at 8 times the HPBW from HeNe Laser Line)		
Spectral Sensor	High Resolution 2048 pixel CCD Sensor		
Temperature Stabilized Sensor	-5° C below ambient		
Electrical Resolution	16 Bit		
Dynamic Range (single scan)	6,670:1		
Computer Interface	USB 2.0		
Control Software	Lightouch LED software for Windows		
Dimensions:	5.25" H x 12.00" W x 10.20" L (13.34" cm x 30.48 cm W x 25.91 cm L)		
Weight	20 lbs (9.1 kg)		

- 1: Accuracy specifications assume sufficient signal to noise and are valid immediately after proper calibration, relative to the calibration standard.
- 2: Applies to colored LEDs with sufficient signal-to-noise ratio.
- 3: Sensitivity specifications assume a 10:1 signal-to-noise ratio for white 5000K CCT LED's.
- 4: Luminous flux is with a GS-IS300 integrating sphere calibrated with Deuterium and tungsten standards to cover a 250 to 860nm range
- 5: The information contained in this data sheet is based on Gamma Scientific's internal evaluation and is subject to change at any time without notice
- 6: Standard Operating Range for Gamma Scientific Instruments- Temperature: Minimum: 0°C (32°F) - Maximum: 35°C (95°F); Relative Humidity (Non-Condensing): Minimum: 20% - Maximum 70%
- 7: Revised on April 9, 2015