GAMMA SCIENTIFIC
Light Measurement Solutions

GS-1220 Display Measurement Systems

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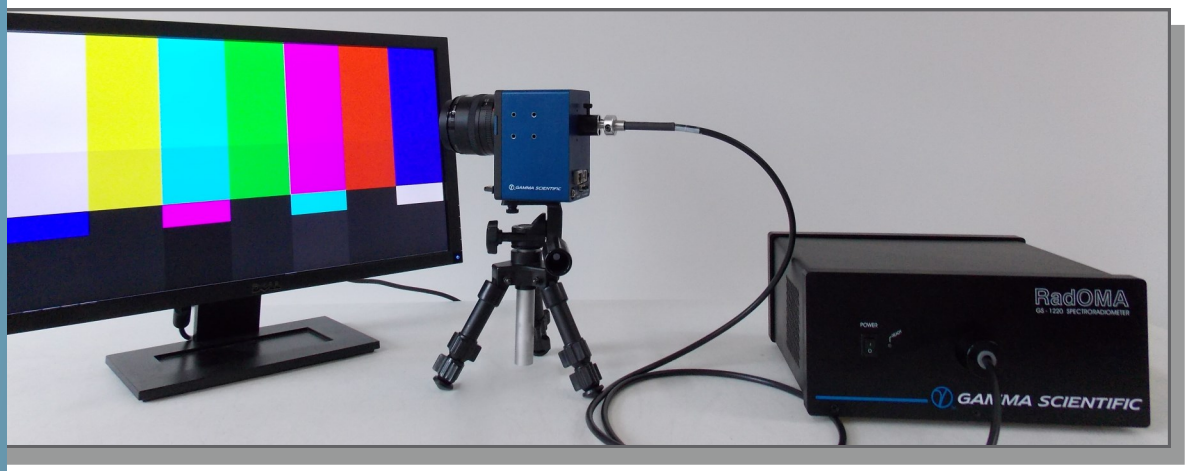

About Gamma Scientific

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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With over 50 years of experience in developing commercial light measurement instruments, Gamma Scientific is trusted by the world's leading organizations to provide accurate and repeatable test systems.

GS-1220 Display Measurement Systems can capture spectral measurements of displays in milliseconds with ultra-low uncertainty. Any application which demands high sensitivity in the blue-light region, such as LED backlit displays, will benefit from the systems back-thinned CCD technology.

GS-1220 Display Measurement Systems are available in three models covering a wide spectral range: 250-900 nm, 360-900 nm and 360-1100 nm. Interchangeable system components are available for easy customization and integration. Gamma Scientific's powerful Light Touch spectral data acquisition and analysis software package, available in both engineering/R&D and QC/production line versions, powers all GS-1220 Display Measurement Systems.

GS-1220 Spectroradiometers feature superior wavelength and color accuracy via low thermal expansion coefficient materials, luminance measurements down to 0.0015 cd/m^2, low polarization error and a high resolution: 0.3 nm/pixel.

Original system calibration is performed in Gamma Scientific's NVLAP accredited laboratory using NIST-traceable standards. GS-1220 spectroradiometers can be self-calibrated and do not have to be returned to the factory for calibration.

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FEATURES

- Luminance measurements down to 0.0015 cd/m2
- Superior wavelength and color accuracy via low thermal expansion coefficient materials
- Near-real-time measurement
- High resolution: 0.3 nm/pixel
- Spectral ranges: 250-900 nm, 360-900 nm, and 360-1100 nm
- Low polarization error
- User-selectable half power bandwidth
- Six different measurement apertures
- AVS Viewing System
- USB interface
- Windows-based control/analysis software
- NIST-traceable accuracy
- Self-calibrated, system never has to be returned to lab for calibration

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Detector and Wavelength Specifications			
Model Number	**GS-1220-DMS-0**	**GS-1220-DMS-1**	**GS-1290-DMS-2**
Spectral Range (nominal)	250-900 nm	360-900 nm	360-1100 nm
	UV-VIS	VIS	VIS-NIR
Wavelength Resolution	0.32 nm/element	0.32 nm/element	0.35 nm/element
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
Stray Light	Less than 1 x 10^{-4} (at 8 times the HPBW from a HeNe laser line)		
Polarization Error[1]	< 1%		
Measuring Angle	5°, 2°, 1°, 0.5°, 0.3°, or 0.1° (user-selectable)		
Min. measuring distance	69 mm with macro lens. Single calibration valid from 100 mm to infinity.		
Integration Time	2 µsec to 2.67 sec		
Computer Interface	USB 2.0		
Control Software	Analysis in CIE1931 XYZ and xy; CIE1976 UCS u'v'; CIE1976 L*u*v* and L*a*b*; CIE 1964 XYZ		
Operating Temp / Humidity	5 to 35°C / relative humidity 0 to 90%, non-condensing		
Size	5.25" H x 12.00" W x 10.20" L (13.34 cm H x 30.48 cm W x 25.91 cm L)		
Weight	10 lbs. (4.6 kg)		
Power	AC Adapter (100-240 V~, 50-60 Hz)		

1: Measuring 100% linearly polarized light through a Glan-Thompson Prism
2: Sensitivities are for a 10:1 signal-to-noise ratio based on the percent coefficient of variance measuring the luminance of a CIE Illuminant A source.
3: 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.

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Sensitivity and Accuracy Chart[2]						
Aperture Size	**5°**	**2°**	**1°**	**0.5°**	**0.33°**	**0.1°**
Sensitivity (cd/m²)	0.0015 to 1,125	0.002 to 1,650	0.009 to 6,750	0.03 to 28,100	0.16 to 120,000	0.9 to 675,000
Chromaticity Accuracy	x,y: ±0.0020 (0.0015-0.05 cd/m²)	x,y: ±0.0025 (0.002-0.07 cd/m²)	x,y: ±0.0025 (0.009-0.3 cd/m²)	x,y: ±0.0025 (0.03-1.1 cd/m²)	x,y: ±0.0025 (0.16-5.1 cd/m²)	x,y: ±0.0025 (0.9-29 cd/m²)
	x,y: ±0.0015 (0.05-1,125 cd/m²)	x,y: ±0.0015 (0.07-1,650 cd/m²)	x,y: ±0.0015 (0.3-6,750 cd/m²)	x,y: ±0.0015 (1.1-28,100 cd/m²)	x,y: ±0.0015 (5.1-120,000 cd/m²)	x,y: ±0.0015 (29-675,000 cd/m²)
Canon 50 mm Compact Macro 1:2.5						
Measurement Spot Size @ 69 mm (2.72")	ø 9.83 mm (0.387″)	ø 3.93 mm (0.155″)	ø 1.97 mm (0.077″)	ø 0.98 mm (0.039″)	ø 0.65 mm (0.026″)	ø 0.20 mm (0.008″)
Measurement Spot Size @ 100 mm (3.94")	ø 10.49 mm (0.413″)	ø 4.20 mm (0.165″)	ø 2.10 mm (0.083″)	ø 1.05 mm (0.041″)	ø 0.69 mm (0.027″)	ø 0.21 mm (0.008″)
Measurement Spot Size @ 279 mm (11")	ø 28.26 mm (1.113")	ø 11.30 mm (0.445")	ø 5.65 mm (0.223")	ø 2.83 mm (0.111")	ø 1.86 mm (0.073")	ø 0.57 mm (0.022″)
Canon 50mm Compact Macro 1:2.5 with Life-size Converter EF; MAG = 1.46						
Measurement Spot Size @ 69 mm (2.72")	ø 4.83 mm (0.190″)	ø 1.93 mm (0.076″)	ø 0.97 mm (0.038″)	ø 0.48 mm (0.019″)	ø 0.32 mm (0.013″)	ø 0.10 mm (0.004″)
Measurement Spot Size @ 100 mm (3.94")	ø 6.86 mm (0.270″)	ø 2.74 mm (0.108″)	ø 1.37 mm (0.054″)	ø 0.69 mm (0.027″)	ø 0.45 mm (0.018″)	ø 0.14 mm (0.005″)
Measurement Spot Size @ 279 mm (11")	ø 19.37 mm (0.763″)	ø 7.75 mm (0.305″)	ø 3.87 mm (0.153″)	ø 1.94 mm (0.076″)	ø 1.28 mm (0.050″)	ø 0.39 mm (0.015″)
Tamron 180 mm Macro 1:3.5						
Measurement Spot Size @ 279 mm (11")	ø 10.49 mm (0.413″)	ø 4.20 mm (0.165″)	ø 2.10 mm (0.083″)	ø 1.05 mm (0.041″)	ø 0.69 mm (0.027″)	ø 0.21 mm (0.008″)

1: Measuring 100% linearly polarized light through a Glan-Thompson Prism
2: Sensitivities are for a 10:1 signal-to-noise ratio based on the percent coefficient of variance measuring the luminance of a CIE Illuminant A source.
3: 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%
4: 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.
5: Revised on April 9, 2015