

GS-1290-DMS Display Measurement System



GS-1290-DMS display measurement spectroradiometers represent the state-of-the-art in speed and accuracy, with the highest dynamic range in an array-type spectroradiometer available. The system offers 1,000,000:1 contrast measurements for a single measurement aperture and luminance measurements down to 0.00015 cd/m². The optical viewing system also back-projects the measurement aperture, superimposing the measurement spot on the DUT, which is both visible on the DUT or on the host computer via a USB 2.0 camera.

State of the Art in Speed & Accuracy for Display Characterization

- Luminance measurements down to 0.00015 cd/m²
- Contrast measurements to 1,000,000:1
- Superior wavelength and color accuracy via low thermal expansion coefficient materials
- Extremely high resolution - 0.6 nm/pixel
- User-selectable half power bandwidth
- Six different measurement apertures
- AVS Viewing System or Reflex Viewing System
- USB interface and Windows-based control/analysis software
- Original system calibration in our NVLAP accredited laboratory using NIST-traceable standards
- Can be field calibrated by the end user if a known standard is present

Original system calibration is performed in Gamma Scientific's NVLAP accredited laboratory (NVLAP Lab Code 200823-0) using NIST-traceable standards.

Detector & Wavelength Specifications		GS-1290-DMS-1		GS-1290-DMS-2		GS-1290-DMS-3	
Nominal Spectral Range		360 to 800 nm 200 to 800 nm w/quartz optics		360 to 1100 nm 200 to 1100 nm w/quartz optics		360 to 940 nm	
Data Point Interval		0.6 nm / element		0.9 nm / element		0.6 nm / element	
Spectral Bandwidth		Integrated user-selectable Half-Power-Bandwidth. Highlighted values are factory default settings					
		10.0 nm		20.0 nm		10.0 nm	
		5.0 nm		10.0 nm		5.0 nm	
		2.5 nm		5.0 nm		2.5 nm	
		1.8 nm		2.7 nm		1.4 nm	
Wavelength Repeatability		0.02 nm		0.03 nm		0.02 nm	
Wavelength Accuracy		± 0.25nm		± 0.25nm		± 0.25 nm	
Common Specifications							
Stray Light		< 1.0 x 10 ⁻⁴					
Polarization Error ⁽¹⁾		< 1%					
Measuring Angle		5°, 2°, 1°, 0.5°, 0.33°, or 0.1° (user selectable)					
Minimum Measuring Distance		69 mm with macro lens. Single calibration valid from 100 mm to ∞					
Integration Time		8 msec to 520 seconds					
Control Software		USB 2.0 interface with Light Touch™ software for Windows® Analysis in CIE1931 XYZ and xy; CIE1976 UCS u'v'; CIE1976 L*u*v* and L*a*b*; CIE 1964 XYZ					
Operating Conditions		0 to 35° C at relative humidity, 95% (non-condensing)		100 – 240 VAC at 50/60 Hz			
Dimensions		151 mm (6 in) H x 308 mm (12 in) W x 300 mm (11.8 in) L				9 kg (20 lbs.)	
Sensitivity and Accuracy ⁽²⁾							
Aperture Size	5°	2°	1°	0.5°	0.33°	0.1°	
Sensitivity (cd/m ²)	0.00015 to 36,500	0.00022 to 53,600	0.0009 to 220,000	0.0034 to 829,000	0.016 to 3,900,000	0.09 to 21,900,000	
Chromaticity Accuracy GS-1290-DMS-1	x,y: ±0.0020 (0.0015-0.05 cd/m ²)	x,y: ±0.0025 (0.002-0.07 cd/m ²)	x,y: ±0.0025 (0.009-0.3 cd/m ²)	x,y: ±0.0025 (0.03-1.1 cd/m ²)	x,y: ±0.0025 (0.16-5.1 cd/m ²)	x,y: ±0.0025 (0.9-29 cd/m ²)	
	x,y: ±0.0015 (0.05-800 cd/m ²)	x,y: ±0.0015 (0.07-1,150 cd/m ²)	x,y: ±0.0015 (0.3-4,700 cd/m ²)	x,y: ±0.0015 (1.1-17,750 cd/m ²)	x,y: ±0.0015 (5.1-83,500 cd/m ²)	x,y: ±0.0015 (29-470,000 cd/m ²)	
	x: ±0.0015 y: ±0.001 (800-36,500 cd/m ²)	x: ±0.0015 y: ±0.001 (1,150-53,600 cd/m ²)	x: ±0.0015 y: ±0.001 (4.7-220 kcd/m ²)	x: ±0.0015 y: ±0.001 (17.75-829 kcd/m ²)	x: ±0.0015 y: ±0.001 (83,500-3.9M cd/m ²)	x: ±0.0015 y: ±0.001 (470,000-21.9M cd/m ²)	
Chromaticity Accuracy GS-1290-DMS-2	x,y: ±0.0040 (0.0015-0.05 cd/m ²)	x,y: ±0.0050 (0.002-0.07 cd/m ²)	x,y: ±0.0050 (0.009-0.3 cd/m ²)	x,y: ±0.0050 (0.03-1.1 cd/m ²)	x,y: ±0.0050 (0.16-5.1 cd/m ²)	x,y: ±0.0050 (0.9-29 cd/m ²)	
	x,y: ±0.0030 (0.05-800 cd/m ²)	x,y: ±0.0030 (0.07-1,150 cd/m ²)	x,y: ±0.0030 (0.3-4,700 cd/m ²)	x,y: ±0.0030 (1.1-17,750 cd/m ²)	x,y: ±0.0030 (5.1-83,500 cd/m ²)	x,y: ±0.0030 (29-470,000 cd/m ²)	
	x: ±0.0030 y: ±0.002 (800-36,500 cd/m ²)	x: ±0.0030 y: ±0.002 (1,150-53,600 cd/m ²)	x: ±0.0030 y: ±0.002 (4,700-220,000 cd/m ²)	x: ±0.0030 y: ±0.002 (17,750-829,000 cd/m ²)	x: ±0.0030 y: ±0.002 (83,500-3.9M cd/m ²)	x: ±0.0030 y: ±0.002 (470,000-21.9M cd/m ²)	
Chromaticity Accuracy GS-1290-DMS-3	x,y: ±0.0020 (0.0015-0.05 cd/m ²)	x,y: ±0.0025 (0.002-0.07 cd/m ²)	x,y: ±0.0025 (0.009-0.3 cd/m ²)	x,y: ±0.0025 (0.03-1.1 cd/m ²)	x,y: ±0.0025 (0.16-5.1 cd/m ²)	x,y: ±0.0025 (0.9-29 cd/m ²)	
	x,y: ±0.0015 (0.05-800 cd/m ²)	x,y: ±0.0015 (0.07-1,150 cd/m ²)	x,y: ±0.0015 (0.3-4,700 cd/m ²)	x,y: ±0.0015 (1.1-17,750 cd/m ²)	x,y: ±0.0015 (5.1-83,500 cd/m ²)	x,y: ±0.0015 (29-470,000 cd/m ²)	
	x: ±0.0015 y: ±0.001 (800-36,500 cd/m ²)	x: ±0.0015 y: ±0.001 (1,150-53,600 cd/m ²)	x: ±0.0015 y: ±0.001 (4,700-220,000 cd/m ²)	x: ±0.0015 y: ±0.001 (17,750-829,000 cd/m ²)	x: ±0.0015 y: ±0.001 (83,500-3.9M cd/m ²)	x: ±0.0015 y: ±0.001 (470,000-21.9M cd/m ²)	
Canon 50 mm Compact Macro 1:2.5							
Spot Size @ 69mm	ø 9.83 mm	ø 3.93 mm	ø 1.97 mm	ø 0.98 mm	ø 0.65 mm	ø 0.20 mm	
Spot Size @ 100mm	ø 10.49 mm	ø 4.20 mm	ø 2.10 mm	ø 1.05 mm	ø 0.69 mm	ø 0.21 mm	
Spot Size @ 279mm	ø 28.26 mm	ø 11.30 mm	ø 5.65 mm	ø 2.83 mm	ø 1.86 mm	ø 0.57 mm	
Canon 50 mm Compact Macro 1:2.5 with Life-size Converter EF; MAG = 1.46							
Spot Size @ 69mm	ø 4.83 mm	ø 1.93 mm	ø 0.97 mm	ø 0.48 mm	ø 0.32 mm	ø 0.10 mm	
Spot Size @ 100mm	ø 6.86 mm	ø 2.74 mm	ø 1.37 mm	ø 0.69 mm	ø 0.45 mm	ø 0.14 mm	
Spot Size @ 279mm	ø 19.37 mm	ø 7.75 mm	ø 3.87 mm	ø 1.94 mm	ø 1.28 mm	ø 0.39 mm	
Tamron 180 mm Macro 1:3.5							
Spot Size @ 279mm	ø 10.49 mm	ø 4.20 mm	ø 2.10 mm	ø 1.05 mm	ø 0.69 mm	ø 0.21 mm	

(1) Measuring linearly polarized light through a Glan-Thompson prism

(2) Sensitivity specifications assume a 10:1 signal-to-noise ratio based on the percent coefficient of variance measuring the luminance of a CIE illuminant A source. Specifications are subject to change without notice.