

# PHOTO RESEARCH SpectraScan® PR-1050 Spectroradiometer

## Ultra-Extended Dynamic Range Spectroradiometer Proven technology when accuracy, speed, and flexibility matters



The Photo Research PR-1050 SpectraScan Spectroradiometer combines decades of engineering expertise and builds upon the industry-leading Photo Research 7 Series. The PR-1050 features the two most critical attributes of any spectral based photometric and colorimetric light measurement instrument—superior sensitivity and speed. And to meet the demands of measuring near-eye displays, the PR-1050 also works with an Augmented & Virtual Reality (AR/VR) lens that attaches directly to the device, allowing the user to measure light from AR/VR target areas.

### Features & Benefits:

**Augmented (AR) & Virtual Reality (VR) testing:** Available AR/VR Aperture Diameters: 3mm, 4mm & 5mm.

**Wide Dynamic Range:** Test any display/backlight without adding external filtration or changing apertures.

**Variable Spectral Bandwidth:** Spectral resolution capability for any display technology from OLED to laser sources.

**High speed cycle times:** Dramatic reduction of total time required to test / calibrate display products.

Designed for applications requiring precise light measurements from a range of light sources, such as display monitors and projectors, reflective surfaces, and industrial applications, the industry-leading 500,000,000:1 dynamic range of the PR-1050 provides the optimal solution for measuring the output of your device. From black to full white, without the need for external attenuation or any changes to the optical geometry.

An optional special Augmented & Virtual Reality (AR/VR) lens attaches to the PR-1050, allowing the user to measure light from AR/VR target areas.

### Typical Applications:

- OLED, LCD, microLED Screens
- Augmented and Virtual Reality Devices
- Automotive & Aerospace Displays
- Laser Projector Calibration
- Display Backlight Testing



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Specification	Value	Specification	Value
<b>Detector Elements</b>	Back-thinned CCD – 512 element cooled	<b>Color Accuracy *</b>	±0.0015 for CIE 1931 x, y for Illum. A (2856K) at 5.14E-4 cd/m <sup>2</sup>
<b>Spectral Bandwidth</b>	2, 5 or 8 nm or Automatically Switchable 2, 4 and 8 nm	<b>Color Repeatability *</b>	±0.0005 for CIE 1931 x, y for Illum. A (2856K) at 1.19E-2 cd/m <sup>2</sup>
<b>Exposure Time Range</b>	7 ms - 2 min.	<b>Polarization Error</b>	< 0.2%
<b>Measurement Time @ 3.34 cd/m<sup>2</sup> with 2° aperture</b>	300 ms	<b>Stray Light</b>	< 0.06%
<b>Wavelength Accuracy</b>	< 0.4 nm	<b>Storage</b>	Secure Digital (SD) Card
<b>Spectral Resolution</b>	1 nm	<b>AutoSync Range</b>	20 to 2000 Hz
<b>Digital Resolution</b>	16 bits	<b>Interfaces</b>	USB, RS232
<b>Available Apertures</b>	2°, 1°, 0.5°, 0.25°, 0.2°, 0.125°, 0.1°, 0.1° x 1° (Ver. Slit), 0.5° x 1.5° (Hor. Slit)	<b>Power</b>	Li-ion battery or AC Adapter (90- 240 VAC)
<b>Luminance Sensitivity *+</b>	1.71E-5 cd/m <sup>2</sup>	<b>Battery Life</b>	> 8 hours
<b>Luminance Accuracy *</b>	±2% against NIST traceable Illum. A (2856K) Lum. Std. at 5.14E-4 cd/m <sup>2</sup>	<b>Weight</b>	6.01 kg
<b>Luminance Repeatability *</b>	≤1% at 5.14E-4 cd/m <sup>2</sup> against NIST traceable Lum. Std. @ 2856K (Illum. A)	<b>Dimensions</b>	28.0 x 17.0 x 20.3 cm
		<b>Operating Temperature</b>	1° to 35° C 0-90% RH non-condensing

\*Luminance values are calculated using the 2° aperture, and 8 nm bandwidth.

+Minimum sensitivity values are at 10:1 signal-to-noise

Specifications subject to change without notice.

## PR-1050 Aperture v.s. Measurement Spot Size

Accessory	Aperture					
	Distance	2°	1°	0.5°	0.25°	0.1°
MS-75 (355 mm to infinity)	355 mm	10.5 mm	5.25 mm	2.63 mm	1.315 mm	0.525 mm
	305 m	10.64m	5.23 m	2.66 m	1.33 m	532 mm
SL-0.5X	94.1 to 137 mm	3.0 to 5.08 mm	1.50 to 2.54 mm	0.75 to 1.27 mm	0.375 to 0.635 mm	0.15 to 0.254 mm
SL-1X	46 to 66 mm	1.78 to 2.64 mm	0.890 to 1.32 mm	0.445 to 0.660 mm	0.226 to 0.330 mm	0.089 to 0.132 mm
MS-7.5	100 mm	35.0 mm	17.5 mm	8.75 mm	4.38c mm	1.75 mm
	30.5 m	10.64 m	5.32 m	2.66 m.	1.33 m	5.32 mm
LA-730	Contact	13.2 mm	13.2 mm	13.2 mm	13.2 mm	13.2 mm
FP-730	Contact	3.17 mm	3.17 mm	3.17 mm	3.17 mm	3.17 mm

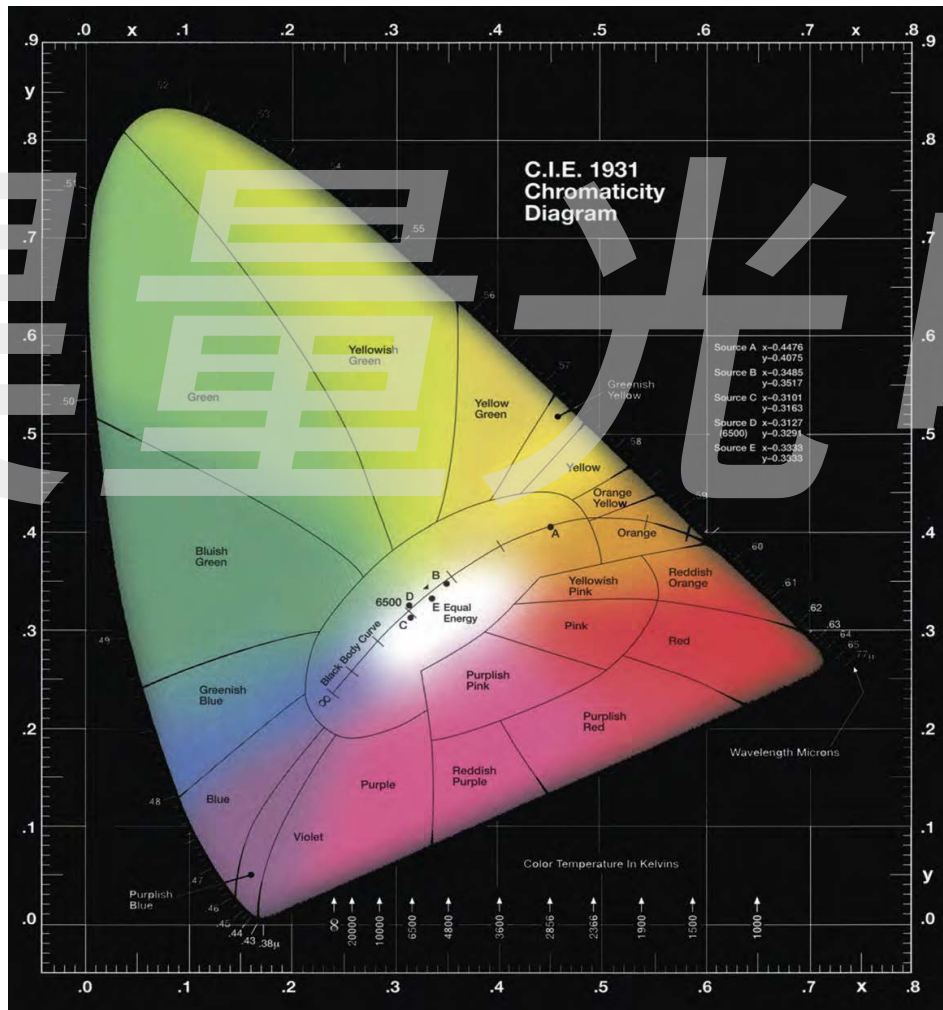
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## PR-1050 Luminance Range Chart (cd/m<sup>2</sup>)

Accessory	Aperture				
	2°	1°	0.5°	0.25°	0.1°
MS-75	1.71E -05 to 1.71E+04	6.85E -05 to 6.85E+04	2.74E -04 to 2.74E+05	1.10E -03 to 1.10E+06	6.85E -03 to 6.85E+06
SL-0.5X	1.71E -05 to 1.71E+04	6.85E -05 to 6.85E+04	2.74E -04 to 2.74E+05	1.10E -03 to 1.10E+06	6.85E -03 to 6.85E+06
SL-1X	1.71E -05 to 1.71E+04	6.85E -05 to 6.85E+04	2.74E -04 to 2.74E+05	1.10E -03 to 1.10E+06	6.85E -03 to 6.85E+06
MS-7.5	1.71E -05 to 1.71E+04	6.85E -05 to 6.85E+04	2.74E -04 to 2.74E+05	1.10E -03 to 1.10E+06	6.85E -03 to 6.85E+06
LA-730	1.71E -05 to 1.71E+04	6.85E -05 to 6.85E+04	2.74E -04 to 2.74E+05	1.10E -03 to 1.10E+06	6.85E -03 to 6.85E+06
FP-730	4.28E -05 to 1.07E+05	1.71E -04 to 4.28E+05	6.85E -04 to 1.71E+06	2.74E -03 to 6.85E+06	1.71E -02 to 4.28E+07
CR-730 (fc)	1.00E -05 to 3.43E+04	4.00E -05 to 1.37E+05	1.60E -04 to 5.48E+05	6.40E -04 to 2.19E+06	4.00E -03 to 1.37E+07



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