

ProMetric® I

Imaging Colorimeter



Designed for in-line inspection of displays, backlit components, light sources, and assemblies

ProMetric I Highlights

- Optimized for speed, resolution and measurement accuracy
- Delivers color and light measurements that are precisely correlated with human visual perception
- Incorporates Radiant Vision Systems Smart Technology™ innovations
- Flexible system, capable of addressing multiple applications for lit and non-lit components
- Works seamlessly with Radiant Vision Systems TrueTest™ Automated Visual Inspection Software packages

The world's fastest and most accurate high-resolution imaging colorimeter

ProMetric I is designed to address the demands for high-volume manufacturing of displays, backlit components, light sources, and assemblies. Whether expanding test coverage or increasing throughput, ProMetric I delivers the required performance for highly accurate color and luminance measurements in an automated manufacturing environment. ProMetric I is designed around scientific-grade CCD sensors, ranging in resolution from 2 megapixels in the I2 to 29 megapixels in the I29. These sensors enable pixel-level measurements of displays (LCD, OLED), inter- and intra-character luminance measurements on backlit keyboards and panels, and accurate measurements of LED luminance and color in luminaires with large LED arrays.

ProMetric I incorporates Smart Technology innovations that speed setup and simplify operation:

- Smart Control™ allows you to electronically adjust lens focus and aperture settings via application software. This eliminates the need for manual adjustments and ensures precise measurement setup.
- Smart Touch™ provides a touch-sense user interface that supports measurement setup, data acquisition, and measurement review on the imaging colorimeter.
- Smart Calibration™ monitors lens focal distance and aperture settings and automatically applies the correct flat-field calibration for the installed lens. This simplifies setup and ensures accurate measurement results.

A production line is a harsh environment and reliable communications can be a challenge. ProMetric I supports USB 2.0 and Gigabit Ethernet communications, providing highly reliable operation over long distances, even in the most demanding manufacturing environments.

ProMetric I is optimized to work with the industry-leading TrueTest™ Automated Visual Inspection Software from Radiant Vision Systems. TrueTest provides a complete, turnkey solution for production-level test sequencing using a library of light measurement and inspection software tools. From absolute accuracy in product design to optimal efficiency in light and color quality control on the line, ProMetric I is designed specifically for your application.

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Key Features

- High-speed, high-resolution, cooled interline CCDs
- 2MP, 8MP, 16MP, and 29MP CCD sensor options
- Multi-exposure High Dynamic Range mode
- CIE-matched color filters and neutral density filters, closely matches human visual perception
- Multiple lens choices with Smart Calibration™ for a wide range of distance and aperture settings
- Radiant Vision Systems ProMetric Software for camera control and data analysis

Specifications

Parameter	ProMetric I2	ProMetric I8	ProMetric I16	ProMetric I29
Primary Application	Uniformity Testing, NFMS, ProMetric in R&D Setting	Production Line Testing, Display Testing, Color Correction		
CCD Pixels	1600 x 1200	3296 x 2472	4896 x 3264	6576 x 4384
CCD Megapixels	1.9	8.1	16.0	28.8
CCD Type	Interline, Cooled to +5° C.†			
System Dynamic Range (single exposure, per pixel)	61.4 dB (1 x 1 binning)			
	73.4 dB (2 x 2 binning)			
High Dynamic Range (multi-exposure)	>1,000,000:1			
Luminance (Minimum)	0.00001 cd/m² Limit of Detection			
	0.0001 cd/m²@ SNR = 60			
	0.0005 cd/m²@ SNR = 100			
Luminance (Maximum)	10 ¹⁰ cd/m² with optional ND filters			
System Accuracy*	Illuminance ± 3%; Luminance (Y) ± 3%; Color Coordinates (x,y) ± 0.003			
Short-term Repeatability**	Illuminance ± 0.02%; Luminance (Y) ± 0.02%; Color Coordinates (x,y) ± 0.00005			
Lens Type / Focal Distances Available	Electronically controlled focus and aperture; 24, 35, 50, 100, 200 mm	Electronically controlled focus and aperture; 35, 50, 100, 200 mm	Electronically controlled focus and aperture; 35, 50, 100, 200 mm	Electronically controlled focus and aperture; 50, 100, 200 mm
Field of View (Full Angle, H x V degrees)	24 mm 20° x 15° 35 mm 14° x 10° 50 mm 10° x 8° 100 mm 5° x 4° 200 mm 3° x 2°	24 mm 38° x 30° 35 mm 29° x 22° 50 mm 21° x 16° 100 mm 10° x 8° 200 mm 5° x 4°	35 mm 41° x 28° 50 mm 30° x 20° 100 mm 15° x 10° 200 mm 8° x 5°	50 mm 40° x 28° 100 mm 20° x 14° 200 mm 11° x 7°
Minimum Measurement Time ¹	0.3 sec - photopic 1.1 sec - color	0.4 sec - photopic 1.2 sec - color	0.6 sec - photopic 1.5 sec - color	0.9 sec - photopic 2.4 sec - color
Spatial Measurement Capabilities	Luminance, Radiance, Illuminance, Irradiance, Luminous Intensity, Radiant Intensity, CIE Chromaticity Coordinates, L*a*b* Color Scale, Correlated Color Temperature (CCT), Dominant Wavelength			
Units	foot-lambert, cd/m², nit, W/sr/m², foot-candles, lux, lux-s, W/m², W-s/m², candela, W/sr. CIE (x, y) and (u', v'), Kelvin (CCT)			
Communication Interface	Ethernet 100/1000, USB 2.0			
Power	100-240 V, 50-60 Hz, 140 Watts			
LCD Touch Panel	Resolution: 800 x 600; Diagonal: 125 mm			
Dimensions (H x W x D)	238 mm x 181 mm x 230 mm			
Weight	4.9 kg			
Operating Temperature	0 - 30° C			
Operating Humidity	20 - 70% non-condensing			

Specifications subject to change without notice.
¹For 100 cd/m², using gigabit Ethernet



Purpose-built for automated visual inspection.

System Recommendations

- 3.0 GHz and 8 cores
- 16 - 32 GB RAM
- Windows 7 or 10, 64 bit
- Dual-monitor video output
- Ethernet 100/1000 or USB 2.0

* Based on illuminant A or user calibration for specific spectra. Based on a virtual detector size of 1% of the FOV.

** Based on a virtual detector size of 1% of FOV.

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