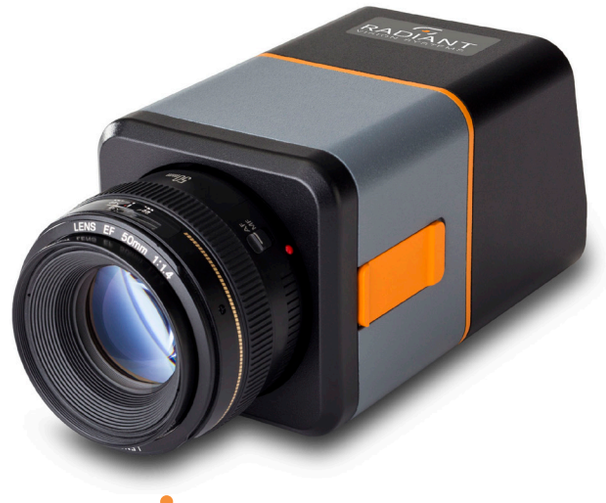
RADIANT
VISION SYSTEMS

ProMetric® Y
Imaging Photometer



Purpose-built for manufacturing test of displays, illuminated keyboards, and surfaces.

ProMetric Y Highlights

- **Display Test**:
  Inspect for particle and line defects, uniformity, light leakage, mura, demura (pixel correction), luminance, surface defects (bubbles, scratches, debris).
- **Cosmetic Defects**:
  Detect scratches, dings, dents, missing / disoriented elements, confirm text, evaluate overall surface uniformity.
- **Keypad Inspection**:
  Evaluate brightness, inter- and intra-character uniformity, light leakage, missing character, wrong character.

Key Features

- Optimized for speed, resolution, and measurement accuracy
- Available in photometric and radiometric models
- Multiple lens choices for a wide range of focus and aperture settings
- Seamless integration with TrueTest™ and other specialized software

Fast, small-format imaging photometer optimized for display and cosmetic inspection in production

The ProMetric® Y family of rugged, small-form-factor imaging photometers is optimized to test displays, keyboards, assemblies, and cosmetic surfaces in high-volume production settings. The sophisticated measurement performance of this photometer combined with configurable analysis software and local engineering expertise delivers a complete production test solution. Faster measurements enable shorter cycle times. Objective quantification replaces subjective human inspection to reduce operating costs. Reliable test analyses improve yield. Deploying a ProMetric Y system increases output, improves quality, and controls cost to deliver a quick return on your production test investment.

Each ProMetric Y Imaging Photometer employs a scientific-grade image sensor that provides accurate, repeatable measurements. ProMetric cameras optimize resolution and dynamic range to ensure imaging performance. ProMetric Y supports high-speed USB and/or Ethernet communications.

ProMetric Y incorporates industry-first **Smart Technology**™ innovations, which simplify setup and ensure accurate measurement results.

- **Smart Control**™ for fast, precise setup: Smart Control allows users to electronically adjust both focus and aperture settings of the lens.
- **Smart Calibration**™ for automatic high-accuracy results: ProMetric Y offers a variety of electronically controlled lenses, each calibrated over a wide range of working distances and aperture settings. ProMetric Y monitors focal distance and aperture settings and automatically applies the correct flat-field calibration.

ProMetric Y comes standard with ProMetric Software to operate the photometer in a manual mode or to support programming via an API. ProMetric Y is optimized for automation via optional TrueTest™ Automated Visual Inspection Software and a range of application-specific software modules. TrueTest Software provides a complete, turnkey solution for high-volume manufacturing of display devices (televisions, phones, tablets, notebooks), backlit symbols (keyboards, instrument panels), virtual projections (augmented reality and head-up displays), and lighting products.

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Specifications

Parameter	ProMetric Y16-G	ProMetric Y45	ProMetric Y61
Primary Application	Production, Display Testing, Pixel-level Measurement, Advanced Vision		
Sensor Pixel Resolution	5312 x 3032	8192 x 5460	9568 x 6380
Sensor Megapixels	16.1	44.7	61.0
Sensor Type	CMOS		
System Dynamic Range (single exposure, per pixel)	70 dB (1 x 1 binning)	66 dB (1 x 1 binning)	76 dB (1 x 1 binning)
Luminance (Minimum)*	0.0005 cd/m² Limit of Detection 0.0010 cd/m² @ SNR = 60 0.0015 cd/m² @ SNR = 100	0.0001 cd/m² Limit of Detection 0.0002 cd/m² @ SNR = 60 0.0005 cd/m² @ SNR = 100	0.0005 cd/m² Limit of Detection 0.0010 cd/m² @ SNR = 60 0.0015 cd/m² @ SNR = 100
Luminance (Maximum)	10^{10} cd/m² with optional ND filters		
System Accuracy**	Illuminance ± 3%; Luminance (Y) ± 3%		
Short-term Repeatability*	Illuminance ± 0.03%; Luminance (Y) ± 0.03%	Illuminance ± 0.04%; Luminance (Y) ± 0.04%	Illuminance ± 0.02%; Luminance (Y) ± 0.02%
Lens Type	Electronically controlled focus and aperture		
Focal Distances Available	35, 50, 100 mm	35, 50, 100, 200 mm	
Field of View (Full Angle, H x V degrees)	35 mm 24° x 14° 50 mm 17° x 10° 100 mm macro 8° x 5°	35 mm 40° x 27° 50 mm 29° x 19° 100 mm macro 15° x 10° 200 mm 8° x 5°	35 mm 55° x 37° 50 mm 40° x 28° 100 mm macro 20° x 14° 200 mm 11° x 7°
Minimum Measurement Time***	0.5 sec	0.7 sec	0.7 sec
Spatial Measurement Capabilities	Luminance, Radiance, Illuminance, Irradiance, Luminous Intensity, Radiant Intensity		
Units	foot-lambert, cd/m², nit, W/sr/m², foot-candles, lux, lux-s, W/m², W-s/m², candela, W/sr		
Communication Interface	Ethernet 1000	10 Gigabit Ethernet (10 GigE)	
Power	External AC / DC adapter, 100-240 V, 50-60 Hz, 60 Watts		
Dimensions (H x W x D)	86 mm x 86 mm x 170 mm	86 mm x 86 mm x 154 mm	86 mm x 86 mm x 170 mm
Weight	1.1 kg	1.4 kg	1.2 kg
Operating Temperature	5 - 35° C	15 - 35° C	5 - 35° C
Operating Humidity	20 - 70% non-condensing		

Specifications subject to change without notice.

* *Based on a virtual detector size of 100 x 100 pixels.*

** *Based on illuminant A or user calibration for specific spectra. Based on a virtual detector size of 100 x 100 pixels and a minimum exposure time of 10ms.*

*** *For 100 cd/m².*

ProMetric Y-series imaging photometers, and the electronically controlled lenses supplied with them, are factory-calibrated over all possible distances and two specific aperture settings. Because the lenses are electronically controllable for focus (working distance) and aperture, the photometer will automatically apply the appropriate flat-field correction.

Electronically Controlled Lens	Calibrated Apertures
24 mm	f/4.7 f/8
35 mm	f/2.3 or f/4.0† f/8
50 mm R	f/2.8 f/8
100 mm	f/3.3 f/8
200 mm	f/3.3 f/8

† f/4.0 for 61MP systems

System Specifications

- Intel® Core™ i7-8086 CPU @ 4.00 GHz
- 32 GB installed RAM

System Requirements

- Windows® 10, 64 bit
- Ethernet 100/1000
- Desktop: PCI-E x8 lane slot (Y45, Y61)
- Laptop: Thunderbolt 3 Port (Y45, Y61)

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