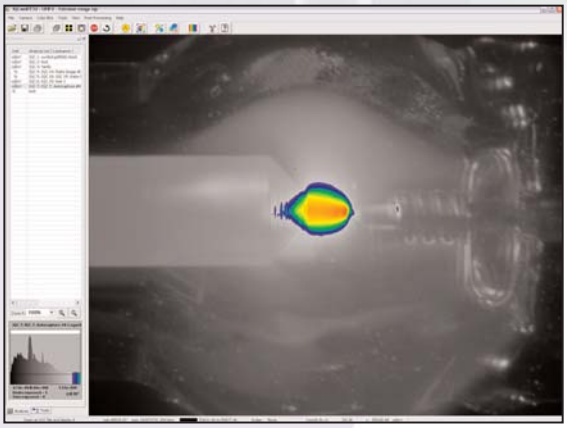
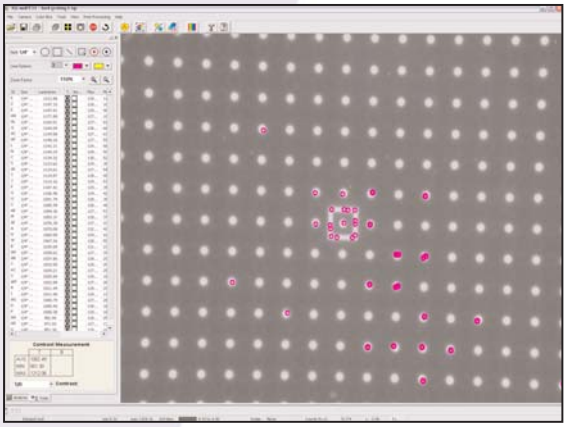
500A

CCD Imaging Photometer

- **Excellent Sensitivity and Low Noise**
- **Fast Measurements**
- **Highest Image Fidelity**



A 50W arc lamp scene shows luminance values of 1.5 x 10^9 cd/m^2 at the arc peak. Surrounding areas in the images are as low as 4.5 x 10^4 cd/m^2.



A CRT heads-up display test pattern is measured. The “HOTSPOT” tool in RT32 searches out the image for the most luminous spots. The maximum aperture reported is 1212 fL. The background is around 5 to 7fL.

The Lumetrix 500A Imaging Photometer is a 1.4 MegaPixel CCD instrument capable of measuring scene luminance from 0.0005 to over 100,000 cd/m^2 - without density filters. With appropriate calibrations and user input, the 500A also measures illuminance (lux) and luminous intensity (candela). Aside from the cooling fan, the system has no moving parts. Measurements are shuttered electronically and clocked at 20MHz for the most reliable measurements.

The system includes: Photopically corrected 1.4 MegaPixel CCD imaging sensor, low noise electronics, 12-bit A/D and Firewire control.

Software Options

- RT32 for fast scene luminance analyses replacing spot meter functionality and easy to use on the production floor.
- Photometrica™ is a more sophisticated Image analysis environment designed more for engineers and scientists wanting to compare or compute results from various images using more sophisticated object definitions and tools.

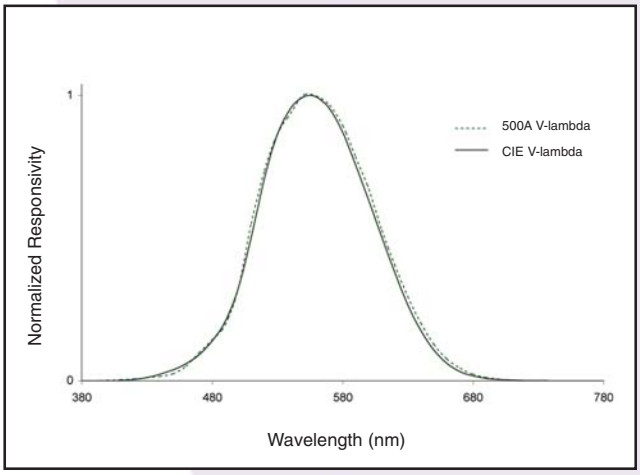
For automated applications, DLL and LabView drivers are available to automate all of the functionality of RT32 and Photometrica™.

Applications

- **Automotive Displays**
- **Automotive Exterior Lighting**
- **Automotive Interior Displays and Indicators for Luminance**
- **Avionic Displays**
- **Avionics CRT, LCD, PDP, LED, OLED and Backlight Luminance**
- **Glare Measurements**
- **Human Factors Evaluation**
- **Low Luminance Scenes**
- **NVIS Panel Final Inspection**
- **Roadway Lighting and Markings**
- **LCD, PDP, ELP, OLED, CRT, Digital Projectors**

Detailed Specifications

Measurement Capabilities Units	Luminance, illuminance, luminous intensity cd/m^2, lux, ftL, cd, user defined
Sensor Size	2/3 inch
Sensor Type	Sony ICX285AL Progressive Scan CCD with electronic shutter
Cooling	Optional TE cooling to 20°C below ambient
Binning[*1]	2 x 2, 4 x 4, 8 x8
Pixel Size	6.45 µm x 6.45 µm
Image Resolution	1392 x 1040 (HxV pixels) = approx. 1.4 MPixels
Image Digitization	12 bits
Wide Electronic Dynamic Range	Electronic range is extended by over 100,000X with exposure bracketing
Luminance Range[*2]	0.015 to 100,000 cd/m^2
Luminance Range with optional ND Filters	0.015 to >1E8 cd/m^2
Luminance Sensitivity[*3]	0.015 cd/m^2 (0.0005 for TE cooled system)
Integration Time at Lowest Sensitivity	10 s (5 min for TE cooled system)
Repeatability[*4]	0.3%
Accuracy[*4]	<3% typical, relative to illuminant A calibration standard
Exposure Timing Error	<50 ns
Total Measurment Time at 1 cd/m^2	<1 s, typical
Lenses Available	C- or F-mount lenses: zoom, micro, macro, fisheye and others
Dimensions (W x H x D)	3.0" x 2.5" x 5.2" (5.9" cooled), not icluding lens
Weight	660 g (960 g, cooled) plus lens
Mounting	Standard 1/4" x 20 mounting on side or bottom
Computer Interface	IEEE1394 (Firewire interface)
Power Requirements	12V, 7W (13W cooled) supplied by Firewire or from AC/DC converter
Electrical Compliance	CE / UL / CUL / FCC Certified
Software	IQCamRT32, Photometrica™
Warranty	2 years, parts and labor



*1. Requires separate calibration. All specifications are at native resolution.

*2. Typical values when used with zoom lens.

*3. Reliable measurement threshold level: luminance stimulus to produce a response 100 counts above the dark noise level of the photometer.

*4. Relative to calibration standard average, of 6 x 6 pixel area, median filtered, illuminant A, 5 to 1000 cd/m2, for all calibrated focus and zoom settings at F-5.6. Verified in center of each of 9 zones of the image. See our sample calibration reports for more information.

**Specifications are subject to change without notice.*

LUMETRIX

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