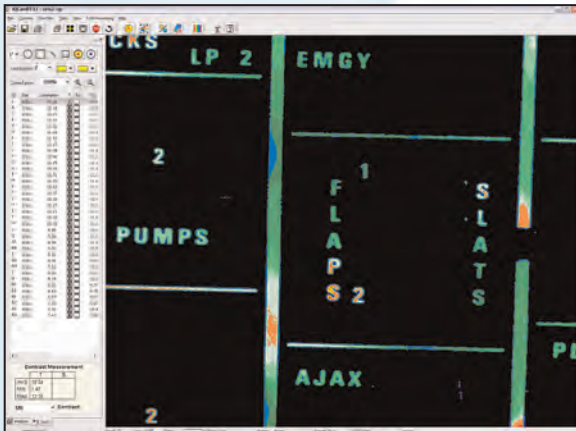


# 600A

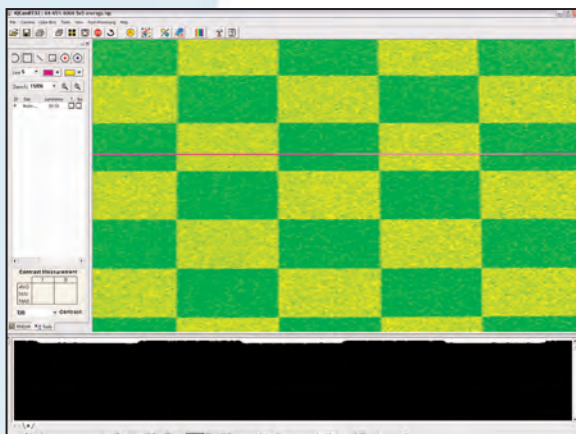
CCD Imaging Photometer



- ▶ **Fast Measurements**
- ▶ **High Sensitivity**
- ▶ **4.1 MegaPixel CCD**



An Avionics panel is Pass-Fail mapped. Areas which are within a user-defined tolerance are colored a shade of green, too dim areas are blue, and too bright areas are orange and red. The HOTSPOT/COLDSPOT tool automatically searches out the image for locations in the graphic where an aperture can be placed where the luminance is out of tolerance range.



Measurements of even subtle grayscale variations are clearly revealed. Here the contrast ratio measured is 1.03:1 for grayscale levels 65:64.

The Lumetrix 600A Imaging Photometer is a 4.1 MegaPixel CCD instrument capable of measuring scene luminance from 0.0001 to over 100,000 cd/m<sup>2</sup>-without density filters. With appropriate calibrations and user input, the 600A also measures luminance (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 readings..

The system includes: Photopically corrected 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 for engineers and scientists wanting to compare and/or compute results from various images using complex object definitions and tools.

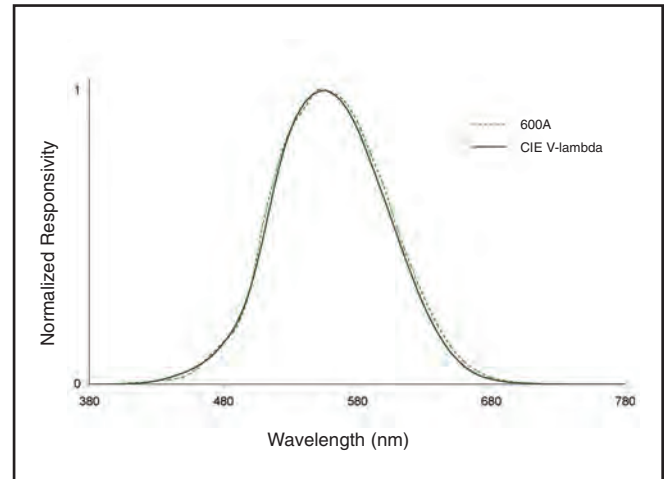
For automated applications, DLL and LabView drivers are available to automate all of the functionality of RT32 and Photometrica™.

## Applications

- LCD, PDP, ELP, OLED, CRT, Digital Projectors
- Automotive Interior Displays and Indicators for Luminance
- Avionic Displays
- NVIS Panel Final Inspection
- Object Visibility & Camouflage
- Low Luminance Scenes

## Detailed Specifications

<b>Measurement Capabilities Units</b>	Luminance, illuminance, luminous intensity cd/m <sup>2</sup> , lux, fL, cd, user defined
<b>Sensor Size</b>	21.43 mm diagonal
<b>Sensor Type</b>	Kodak Sensor KAI-4021
<b>Cooling</b>	Optional, 25°C below ambient
<b>Binning*<sup>1</sup></b>	2 x 2, 4 x 4, 8 x 8
<b>Pixel Size</b>	7.4 µm x 7.4 µm
<b>Image Resolution</b>	2048 x 2048 (HxV pixels) = approx. 4.19MPixels
<b>Image Digitization</b>	12 bits
<b>Wide Electronic Dynamic Range</b>	Electronic range is extended by over 100,000X with exposure bracketing
<b>Luminance Range*<sup>2</sup></b>	0.01 to 100,000 cd/m <sup>2</sup>
<b>Luminance Range with optional ND Filters</b>	0.01 to >1E8 cd/m <sup>2</sup>
<b>Luminance Sensitivity*<sup>3</sup></b>	0.01 cd/m <sup>2</sup> (0.003 for TE cooled system)
<b>Integration Time at Lowest Sensitivity</b>	10 s (5 min for TE cooled system)
<b>Repeatability*<sup>4</sup></b>	0.3%
<b>Accuracy*<sup>4</sup></b>	<3% typical
<b>Exposure Timing Error</b>	<50 ns
<b>Total Measurement Time at 1 cd/m<sup>2</sup></b>	<3 s, typical
<b>Lenses Available</b>	F-mount lenses: zoom, micro, macro, fisheye and others
<b>Dimensions (W x H x D)</b>	3.0" x 2.5" x 5.2" (5.9" cooled), not including lens
<b>Weight</b>	600 g (860 g, cooled) plus lens
<b>Mounting</b>	Standard 1/4 x 20 mounting on top and bottom
<b>Computer Interface</b>	IEEE1394 (Firewire interface)
<b>Power Requirements</b>	12 V, 7 W (13 W cooled) supplied by Firewire or from AC/DC converter
<b>Electrical Compliance</b>	CE
<b>Software</b>	IQCamRT32, Photometrica™
<b>Warranty</b>	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/m<sup>2</sup>, 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 valid for F-mount lenses and zoom lenses with fields of view less than 40 degrees.

\*Specifications are subject to change without notice.

