

Фотометры/колориметры LumiCam 2400B

Технические характеристики

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LumiCam 2400B Series

Imaging colorimeters for 2D light measurement

Solution for complex measurement requirements in aviation, automotive, general lighting or the display industry.



Introduction

LumiCam 2400B Series – colorimetric characterization of displays and automotive interior lighting

The 2D imaging colorimeter LumiCam features a precise determination of photometrical properties such as luminance and color distributions within seconds. Therefore, the camera has become an industry-leading light measurement system applied for quality assurance of dashboards, panel displays, widescreen cockpits or instrument clusters in research, product development as well as production.

The LumiCam is a high-resolution 2D luminance and color measurement device based on optical filters. Dependent on the LumiCam variant (Mono, Color, or Advanced) a sensor-adjusted filter is either permanently mounted between the lens and the sensor or a filter wheel allows for a successive pivoting of multiple spectral filters into the detection path. New vis-à-vis the predecessor models are the range of lenses with motorized focus and apertures

The LumiCam is supported with powerful diagnostic software for the investigation of photometric data. Software features such as polylines or sticking image are part of the functionalities.

Main fields of application

The imaging measurement system is perfect for versatile automotive test applications, e.g. measurement of luminance and color distributions of displays and control elements or uniformity analysis of flat panel display screens.

Features

LumiCam 2400B variants: Mono, Color, and Advanced

- High-resolution sensor up to five megapixels

- Range of lenses with motorized focus and apertures
- Up to 30% shorter measuring times
- Improved reproducibility of measurement results
- More compact design

LumiCam 4000B

- High-resolution sensor up to 12 megapixels

Fields of application:

Automotive interior measurement

With its high resolution of 5 megapixels, the LumiCam 2400B imaging colorimeter is optimized for the fast spatially resolved analysis of display symbols and control elements in vehicles and displays. In addition to the measurement of luminance and color distribution the homogeneity, contrast and mura of displays and flat panel displays can also be quickly and extremely accurately determined. In combination with the positioning system DTS and the new spectroradiometer CAS 140D it's a high-end turnkey solution for highly accurate colorimetric characterization of displays and automotive interior lighting.

Principal Specifications

Principal Specifications of the LumiCam 2400B Series

LumiCam 2400B	Mono	Color	Advanced
Quantities			
Photometric quantities	Luminance (cd/m ²), luminous intensity (cd), contrast		
Colorimetric quantities	-	Color coordinates (x,y), color coordinates (u',v'), tristimulus values (X, Y, Z), dominant wavelength (nm), color saturation, correlated color temperature CCT (K)	
Camera data			
Sensor	Sony IMX264LLR CMOS Sensor		
Sensor size	2/3", 11.1 mm diagonal		
Effective number of pixels (h x v)	2428 x 2028 (5 MP)		
Pixel size	3.45 μm x 3.45 μm		

AD converter	12 bit		
Exposure time	40 μs to 30 s		
Luminance measurement			
Measurement range	0.3 mcd/m² ... 2.5 mcd/m²		
Extended measurement range	2.5 x 1010 cd/m²		
Measurement time incl. data saving time (at 10 cd/m²)	1.9 s		
Measurement time incl. data saving time (at 100 cd/m²)	1.8 s		
Accuracy for std. illuminant A	±3 %		
Accuracy for LED color light	-	-	±2 %
Repeatability	±0.03 %		
Uniformity	±0.5 %		
Filter match	f1' < 3 %		
Color measurement			
Measurement time incl. data saving time (at 10 cd/m²)	-	10 s	16 s
Measurement time incl. data saving time (at 100 cd/m²)	-	8 s	12 s
Accuracy (x, y) for std. illuminant A	-	±0.003	±0.003
Accuracy (x, y) for color light	-	±0.010	±0.010
Accuracy (x, y) for LED color light	-	-	±0.005
Repeatability (x, y)	-	±0.0001	±0.0003
Uniformity (x, y)	-	±0.001	
Filter match	f1' (Y) < 3 %	f1' (Xb) < 6 %, f1' (Xr) < 6 %, f1' (Y) < 3 %, f1' (Z) < 4 %	
General			

Interface	Gigabit Ethernet	
Operating system	Windows 7 (32/64 bit), Windows 10 (64 bit)	
Dimensions incl. objective lens	210x105x100 mm	235x119x133 mm
Weight	1.5 kg	3 kg
Power supply	24 V external	
Operating conditions	10 to 40 °C, max. 70 % RH (non-condensing)	

Instrument Systems continuously endeavours to develop and improve all products. Any technical changes, errors or misprints do not form ground for compensation. The company's terms of delivery and payment apply in all other respects. If not otherwise stated explicitly, all specifications refer to the Nikon 50 mm lens with a 16 mm aperture. The detailed measurement conditions under which the specified values have been determined can be looked up in the data sheets and brochures or requested from us.

Accessories

LumiCam lenses and accessories

- Objective lenses (24,60,100 mm)
- Neutral density filter, optical density 2 or 4
- Adapter ring
- Manual XYZ positioning system

Software solutions

- LumiCam Software
- LumiSuite Software
- DLL driver program
- LabVIEW driver
- Black Mura Plug-in for LumiSuite

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