

Фотометры/колориметры LumiTop X150

Технические характеристики

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LumiTop X150 Subpixel - Imaging Colorimeter

Ultra-high resolution display tests at pixel level



Introduction

LumiTop X150 – Ultra-high resolution 2D imaging colorimeter, precise and fast

The new ultra-high resolution LumiTop X 150 combines a 150-megapixel camera and a flicker diode with a high-end spectroradiometer of the CAS 140 series. The extremely accurate data for spectrometer measurement is used as a live reference for 2D measurement and guarantees spectroradiometric precision for each camera pixel. The innovative LumiTop concept permits complete display characterization at pixel level in a single shot. In addition to the development of new display technologies, the new LumiTop model X150 is thus perfectly suited to fast, subpixel-precise quality control of OLEDs and μ LED displays in the production line. A wide variety of test applications can be performed at a measuring station, e.g. determination of homogeneity and mura effects, evaluation of white balance, color space or contrast ratio. Combined with a fast photometer, the measurement of flicker and luminance modulation is also possible.

Main fields of application

The LumiTop X150 is mainly used in subpixel metrology. In particular, new photometric challenges are posed by μ LED innovations in the display industry that result in an increasing number of ever smaller pixels. With its new ultra-high-resolution version of the LumiTop, Instrument Systems has developed a measuring instrument for the pixel-accurate analysis and correction of high-resolution displays that offers extremely short measurement times with greater absolute measurement accuracy.

Features

- 2D measurements with the highest degree of precision and minimum measuring times
- Combination of a 2D-RGB sensor with a spectroradiometer and flicker diode

- 150-megapixel camera for subpixel analysis of up-to-date display variants
- Easy integration into production lines

Typical applications

μLED displays in the production line

The extremely high resolution of the LumiTop X150 of 150 megapixels enables complete display characterization at pixel level with spectroradiometric precision in a single shot. The measuring system easily integrated into production lines and thus ideal for extremely fast and subpixel-accurate quality control of OLEDs and μLED displays in production.

Mixed reality technologies (AR/VR)

For mixed-reality technologies (AR/VR) the LumiTop X150 is an optimal laboratory instrument in R&D. These innovative display applications feature ever smaller and more densely packed pixels. Luminance and color deviations between pixels and subpixels are likely, and have a strong impact on the visual quality of the display. Because augmented reality glasses or virtual reality headsets sit close to the wearer's eye, image artifacts and irregularities are particularly disturbing. Instrument Systems developed the LumiTop X150 for the analysis of pixel defects and pixel-accurate correction of deviations. An integral pixel-shift mechanism suppresses demosaicing artifacts by true color measurement and increases the resolution to up to 600 megapixels per color channel.

Specifications

LumiTop X150	
Measurands	
2D	Luminance, color
Spot	Spectrum, luminance, color, flicker
Camera specifications	
Resolution	~14192 x 10640 pixels (151 megapixels)
Pixel size	3.76 μm x 3.76 μm
Dark current	4 e-
Dynamic range	80.8 dB
CMOS sensor size	66.7 mm diagonal
General specifications	
Interface to CAS 140D	USB 2.0, PCIe, Ethernet
Interface to camera	Quad CoaXPress (4 x 6.25 Gbit/s)
Operating system	Windows 10 (64 bit)

LumiTop X150	
Dimensions (L x W x H)	approx. 365 mm x 230 mm x 160 mm
Weight (without CAS)	approx. 11 kg
Power supply	24 V
Operating conditions	15–35 °C
Additional functionalities	
Pixel shifter	
Motorized focusing	

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Accessories

LumiTop accessories for display analyses

- Array spectroradiometers of the CAS series
- LumiSuite analysis software for display characterization
- SpecWin Pro software for the evaluation of spectral measurement data
- SDK programming interface

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