

Press Release

Display testing at high and low luminance levels

The new LumiTop X20 and X30 color measurement cameras are ideal for homogeneity measurements and error detection under special luminance conditions.

Munich, November 2023 – *Instrument Systems developed the new LumiTop X20 and LumiTop X30 imaging colorimeters especially for display production testing under special luminance conditions. The LumiTop X20 and X30 feature high camera resolution (20 MP and 31 MP respectively) and improved dynamic range from 10^{-3} to 10^6 cd/m². Both cameras are based on the spectrally optimized LumiTop principle, which has proven to be a powerful tool for quality assurance of displays. Using them, display manufacturers are able to perform tests at very high luminance in the range of several Mcd/m² as well as low luminance in the range of 0.001 cd/m² to 0.1 cd/m², taking into account the adaptation of the human eye to dark and bright lighting conditions.*

The human eye adapts easily to dark and bright lighting conditions. Modern displays take this into account by dimming their display to low luminance when needed to relieve the viewer's eyes. When designing and manufacturing displays, the luminance and color of the display must therefore be accurately tested, even at low luminance. Typically, these tests are performed at low luminance levels ranging from 0.001 cd/m² to 0.1 cd/m².

Instrument Systems has developed two new models of the proven LumiTop series especially for this application. The spectrally optimized LumiTop X20 and LumiTop X30 imaging colorimeters are ideal for homogeneity measurements and error detection under special luminance conditions. They are characterized by high camera resolutions of 20 MP and 31 MP respectively, as well as high flexibility in the field of view (high-precision motorized lens) and an improved dynamic range from 10^{-3} to 10^6 cd/m². The new flicker electronics are designed for frequencies between 1 Hz and 1 kHz. Both cameras are based on the proven LumiTop principle.

Instrument Systems developed the LumiTop series of luminance and imaging colorimeters in particular for display production tests. As the fastest, most reliable and most accurate system, LumiTop has become the reference for high performance testing in display production. The unique combination of a high-resolution camera, a flicker photodiode and extremely accurate spectroradiometer of the CAS series makes the LumiTop system an exceptionally powerful tool for quality assurance of displays, even under very low and very high luminance conditions.



Photo: The new LumiTop X20 and X30 systems are a combination of light-sensitive 2D-RGB camera with spectroradiometer and flicker sensor.

Text material and photos:

<https://instrumentsystems.owncloud.online/s/pEcHhEgFOm51zr3>

Company portrait Instrument Systems GmbH

Instrument Systems GmbH, founded in Munich in 1986, develops and produces high-end light measurement technology that is indispensable for the manufacturers of consumer electronics, (AR/VR) displays, μ LED wafers, VCSEL/laser systems, automotive lighting and LED/SSL modules. All solutions benefit from our CAS series of high-precision spectroradiometers that are recognized and in use all over the world. In combination with 2D imaging colorimeters, integrating spheres and goniometer systems, they enable high-precision and accurate measurements in the entire range from UV to IR, traceable to PTB or NIST. Today, Instrument Systems is one of the world's leading manufacturers of light measurement technology. At its Berlin facility, the "Optronik Line" of products is developed and marketed for the automotive industry and traffic technology. Our subsidiary in Korea supplements the product portfolio with the "Kimsoptec Line" for the Korean light & display market. Instrument Systems has been a wholly-owned subsidiary of the Konica Minolta Group since 2012.

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