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MKS Announces New Ophir® FluxGage™ Measurement System for Large-Size Street and Industrial LED Luminaires

Andover, MA – September 10, 2018 – [MKS Instruments, Inc.](http://www.mksinst.com) (NASDAQ: MKSI), a global provider of technologies that enable advanced processes and improve productivity, announces the **Ophir® FluxGage™ FG1500**, the newest member of the FluxGage family of compact measurement systems for LED luminaires. The FG1500 features an aperture size of 144 x 64cm, allowing for photometric measurement of large-size street and industrial luminaires, LED flat panels, and troffer lights. Photometric measurements include total luminous flux (up to 80,000 lm), spectrum and color parameters (CCT, CRI, TM-30), and flicker. The FG1500 will be demonstrated at LpS 2018 the LED professional Symposium + Expo in Bregenz, Austria, September 25-27, 2018.

The **FluxGage FG1500** performs fast, photometric measurements in 2π (two pi) geometry. This allows for quick and accurate quality control where measurements of the complete, assembled, large-size LED systems are needed, both during development and directly at the end-of-line in luminaire production.

“In the past, large LED luminaires could only be tested during the design phase or, once assembled, on a very small number of products,” said Isabelle Okashi, General Manager at Ophir. “The FG1500 system allows full end-of-line quality control of large LED luminaires at a form factor and cost previously unachievable with traditional solutions,



such as goniophotometers and integrating spheres. FluxGage is a whole new way to measure the light of LED luminaires. The system can be used during development, as well as in production for incoming inspection and quality control of finished goods.”

The **FluxGage** system uses solar panels as light detectors. The panels are arranged on the inside walls of the measurement cavity and are covered with a special black plastic layer with hundreds of transparent pinholes, creating the effect of many tiny radiometers. This design significantly reduces the reflectance of the solar panels, creating a measurement system resembling a goniophotometer in a dark room. Unlike an integrating sphere, the FluxGage is insensitive to reflections going back and forth between the measurement device and the luminaire under test.

The **FluxGage** system incorporates a spectrometer for measuring spectral flux and other color parameters (CCT: correlated color temperature, CRI: color rendering index, TM-30-15: fidelity and gamut index, Duv, and chromaticity). A fast photodiode sensor is used for measuring flicker.

Integrated application software simplifies set up and operation; all of the photometric data of the light source is displayed. The **FG1500** connects to a PC via a USB cable. The **Ophir FGC100**, a NIST-traceable, broadband LED calibration standard, is used for periodic calibration of the FluxGage system.

Availability

The **Ophir FluxGage FG1500** LED measurement system will be available Q4 2018.

FluxGage FG1500 data sheet: <http://ow.ly/qH0y30IDxh6>

About MKS Instruments

MKS Instruments, Inc. is a global provider of instruments, subsystems and process control solutions that measure, monitor, deliver, analyze, power and control critical parameters of advanced manufacturing processes to improve process performance and productivity for our customers. Our products are derived from our core competencies in pressure measurement and control, flow measurement and control, gas and vapor delivery, gas composition analysis, residual gas analysis, leak detection, control technology, ozone generation and delivery, power, reactive gas generation, vacuum technology, lasers, photonics, sub-micron positioning, vibration control and optics. We also provide services relating to the maintenance and repair of our products, installation services and training. Our primary served markets include the

semiconductor, industrial technologies, life and health sciences, research and defense.
Additional information can be found at www.mksinst.com.

About the Ophir Brand

Ophir is a brand within the MKS Instruments Light & Motion division. The Ophir product portfolio consists of laser and LED measurement products, including laser power and energy meters, laser beam profilers measuring femto-watt to hundred-kilowatt lasers, high-performance IR and visible optical elements, IR thermal imaging lenses and zoom lenses for defense and commercial applications, OEM and replacement high-quality optics and sub-assemblies for CO₂ and high-power fiber laser material processing applications. Ophir products enhance our customers' capabilities and productivity in the semiconductor, industrial technologies, life and health sciences, research and defense markets. For more information, visit www.ophiropt.com.

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