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MKS Announces Ophir® FluxGage™ System for Fast, Reliable Measurement of LED Luminaires with Low Total Luminous Flux

Andover, MA – June 10, 2019 – [MKS Instruments, Inc.](http://www.mksinst.com) (NASDAQ: MKSI), a global provider of technologies that enable advanced processes and improve productivity, has announced the **Ophir® FluxGage™ FG600/100LM-HR**, the newest member of the FluxGage family of compact measurement systems for LED luminaires. The new FluxGage system features an integrated high-resolution CCD spectrometer that delivers fast photometric measurement of LED luminaires with low total flux. Measurements include total luminous flux (down to 20 lm), spectrum and color parameters (CCT, CRI, TM-30-15), and flicker. Total luminous flux of colored LED light sources can be accurately measured, as well. The FG600/100LM-HR is designed for use in applications where low total luminous flux measurements are needed, such as automotive, traffic lighting, life sciences, and medical.

The **FluxGage FG600/100LM-HR** performs photometric measurements in 2π (two pi) geometry. This allows for quick and accurate quality control of light of the complete, assembled LED systems and LED modules with lens arrays, both during development and directly at the end-of-line in luminaire production.

“The FG600/100LM-HR system allows light quality measurements of small to large size LED luminaires with relatively low flux outputs at a form factor and cost previously unachievable with traditional solutions,” said Dr. Efi Rotem, Chief Technical Officer for the Ophir brand. “The system



provides fast, accurate, and thermally stable measurements that support efficient, high quality processes. It can be used during development, as well as in production for incoming inspection and quality control of finished goods.”

All **FluxGage** systems use a unique patent pending technology that 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 system 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 **FG600/100LM-HR** 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 FG600/100LM-HR** LED measurement system is available now.

FG600/100LM-HR data sheet: <https://www.ophiropt.com/led/product/>

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, optics and laser-based manufacturing solutions. We also provide services relating to the maintenance and repair of our products, installation services and training. Our primary served markets include 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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