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MKS' Ophir® Business Unit Announces Large Array Laser Beam Profiling Camera with Quick and Easy USB Interfacing

Andover, MA, May 31, 2017 – [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® **Pyrocam™ IV USB**, a laser beam profiling camera that allows users to see their laser beam for dynamic alignment and proper operation. The camera features a 320 x 320 pixel pyroelectric array that can profile beams up to 1 inch (25 mm) without the need for reduction optics. It also includes a new USB 3.0 interface that provides a quick and easy connection to PCs for beam analysis, 2D and 3D beam display, as well as trending, data logging, and storage.

The Pyrocam IV measures both pulsed and CW (continuous wave) lasers, from 13 to 355 nm and 1.06 to >3000 μm . The compact device includes an integral focal plane chopper for CW beams and thermal imaging. The plug-and-play USB interface can be quickly and easily connected to a PC for further analysis of the beam. For those with a network connection, the Pyrocam IV is optionally available with a Gigabit Ethernet interface.

Stated Gary Wagner, General Manager, Ophir-Spiricon (U.S.), "Pyrocam cameras are the only devices that allow 3D viewing of laser beams at IR or longer wavelengths. These cameras are being used in rapidly expanding applications in the 3-5 μm Mid-IR region. Lasers that produce 3-5 μm light are typically Quantum Cascade Lasers (QCL), which are now being used for military IR countermeasures, nanotechnology, and some new biotechnology and medical applications."

The Pyrocam IV ensures alignment and proper operation of CO₂ and telecom NIR lasers, as well as infrared sources out to the Far IR THz range. A 16-bit A/D converter provides reliable measurement and analysis



of both large signals and low level signals in the wings of the laser beam. A signal to noise ratio of 1000:1 means beams of 30 mW/cm² are easily visible. The company's patented **Ultracal**[®] baseline algorithm allows multiple frames to be summed, enabling views of beams as low as 1 to 2 mW/cm².

The Pyrocam IV works with Ophir **BeamGage**[®], the industry's most advanced laser beam analysis software. It includes all the algorithms and calculations needed to make accurate, ISO approved laser beam measurements. The software provides 2D and 3D viewing, advanced image processing features, NIST traceable power measurements, trend charting, data logging, pass/fail production testing, and multilingual support for English, Japanese, and Chinese.

Availability & Pricing

The Pyrocam[™] IV USB laser beam profiling camera is available now. OEM prices available on request.

DATA SHEET: <http://ow.ly/WwbF30bWI8E>

About MKS Instruments

MKS Instruments, Inc. (NASDAQ: MKSI) is a global provider of instruments, subsystems and process control solutions that measure, control, power, monitor, and analyze critical parameters of advanced manufacturing processes to improve process performance and productivity. 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 and information technology, ozone generation and delivery, RF & DC power, reactive gas generation, vacuum technology, photonics, sub-micron positioning, vibration isolation and optics. Our primary served markets include semiconductor capital equipment, general industrial, life sciences and research. Additional information can be found at www.mksinst.com.

About the Ophir Brand

With over 40 years of experience, the Ophir brand comprises a complete line of instrumentation, including power and energy meters and beam profilers. Dedicated to continuous innovation in laser and LED measurement, the company holds a number of patents, including the R&D 100 award-winning BeamTrack power/position/size meters; BeamWatch[®], the industry's first non-contact, focus spot size and position monitor for lasers in material processing; and Spiricon Ultracal[™], the baseline correction algorithm that helped establish the ISO 11146-3 standard for beam measurement accuracy. The NanoScan family of scanning-slit technology products are capable of measuring beam size and position to sub-micron resolution. The Ophir Optics

products include high performance IR thermal lenses and optical elements for the defense, security, and commercial markets, as well as high quality optics for high power CO² lasers and 1 micron lasers for cutting, welding, drilling, and 3D printing systems. Ophir is ISO/IEC 17025:2005 accredited for calibration of laser measurement instruments. The company's modular, customizable solutions serve manufacturing, medical, military, and research industries throughout the world. For more information, visit <http://www.ophiropt.com/>.

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