



2 Tech Drive, Suite 201
Andover MA 01810
www.mksinst.com

Contact:
Bill Casey
bill_casey@mksinst.com

MKS' Ophir® Business Unit Announces High Accuracy M² Laser Beam Propagation System for Continuous Use Applications

San Francisco, CA, January 31, 2017 – [MKS Instruments, Inc.](http://www.mksinst.com) (NASDAQ: MKSI), a global provider of technologies that enable advanced processes and improve productivity, announces BeamSquared™, a new M² laser beam propagation system from Ophir® that measures the quality of the beam to optimize performance. BeamSquared is a compact, portable device that provides automated measurements of the propagation characteristics of CW and pulsed lasers in under one minute. It is durable and operationally robust, ensuring reliable, high accuracy measurements of lasers. Users can run the system in automated mode from UV to NIR, and telecom wavelengths, and in manual mode for terahertz and CO² laser beams.

BeamSquared is designed for continuous use applications, from scientific research to rapid prototyping to fabrication and machining. The system includes the BeamSquared M² software; a high accuracy CCD, InGaAs, or pyroelectric array camera; and an optical train. The software measures beam propagation characteristics on both the X and Y axes, including waist diameters, full angle divergences, waist locations, Rayleigh lengths, M² or K and BPP factors, astigmatism, and asymmetry. 2D or 3D beam profiles can also be displayed for visual verification of beam profile behavior through focus.

Gary Wagner, General Manager, Ophir (U.S.) said, "BeamSquared quickly and accurately measures laser quality, helping users get the best performance possible. The system combines a longer optical train with our patented Ultracal™ calibration algorithm to deliver highly accurate measurements and full ISO 11146 compliance. The system is fast, producing a full array of beam measurements in less than one minute. Plus it's robust, able to run continuously, three shifts a day, seven days a week."

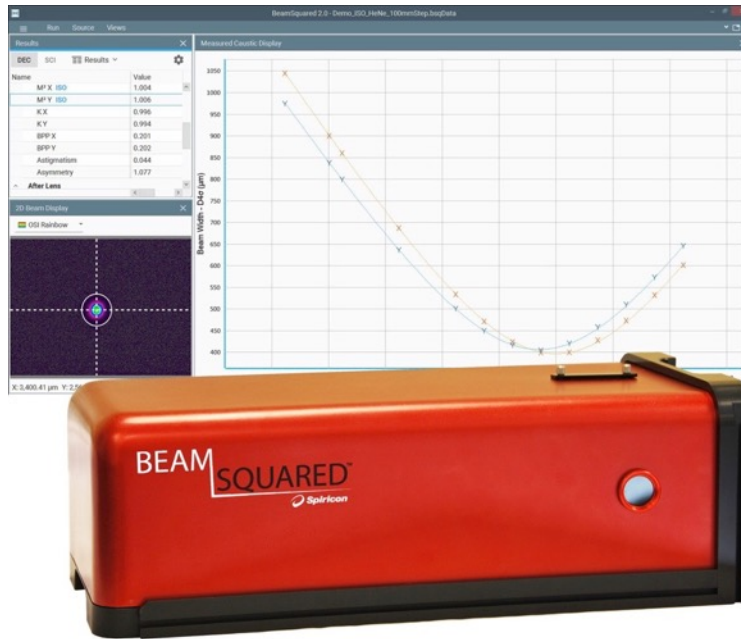


Image Caption – BeamSquared M² Laser Beam Propagation System from Ophir.

BeamSquared is a camera-based laser measurement system. Users choose the appropriate camera for their application:

- Ophir's SP300 silicon CCD camera accurately captures and analyzes wavelengths from 190nm - 1100nm. It features a compact design, wide dynamic range, unparalleled signal to noise ratio, and reduced blooming
- Ophir's Xeva XC-130 high resolution InGaAs camera accurately captures and analyzes wavelengths from 900nm - 1700nm. It features operation at room temperature, a wide dynamic range, a fast data capture rate, and a large array that makes it ideal for large beam NIR laser and telecom mode field analysis.
- Ophir's Pyrocam pyroelectric array camera accurately captures and analyzes wavelengths from 1.06µm - >3000µm. Available in two versions: Pyrocam IVs, a 25.6 X 25.6mm active array and Pyrocam IIIHR, a smaller-format OEM version with a 12.8 X 12.8mm array.

Availability & Pricing

The BeamSquared M² Beam Propagation system is available now. OEM prices available on request.

Video: <https://www.youtube.com/watch?v=eTAqIHZoJeg>

Data Sheet: <http://ow.ly/7ABu308jTl7>

About MKS

[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, materials delivery, gas composition analysis, control and information technology, power and reactive gas generation, vacuum technology, photonics, optics, lasers and motion control. Our primary served markets are manufacturers of capital equipment for electronic thin film, process manufacturing, environmental monitoring and life sciences, as well as government and research.

About Ophir Business Unit

With over 40 years of experience, [Ophir](#) provides 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's Ultracal™, the baseline correction algorithm that helped establish the ISO 11146-3 standard for beam measurement accuracy. The Photon family of products includes NanoScan scanning-slit technology, which is capable of measuring beam size and position to sub-micron resolution. The company is ISO/IEC 17025:2005 accredited for calibration of laser measurement instruments. Their 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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Sales Inquiries: sales@us.ophiropt.com

For more information, contact:

Gary Wagner, General Manager
Ophir Business Unit (U.S.)
3050 North 300 West
North Logan, UT 84341
Tel: +1 435-753-3729
E-mail: gary.wagner@us.ophiropt.com
Web: www.ophiropt.com/photonics

PR Office:

Shari Worthington
Telesian Technology
49 Midgley Lane
Worcester, MA 01604
Tel: +1 508-755-5242
E-mail: sharilee@telesian.com