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## MKS Announces Ophir® Laser Power Sensors with Very High Damage Threshold, Very Low Reflection

Munich, Germany – June 26, 2017 – [MKS Instruments, Inc.](http://www.mksinst.com) (NASDAQ: MKSI), a global provider of technologies that enable advanced processes and improve productivity, has announced a new line of high damage threshold laser power/energy sensors designed for CW lasers with high power densities, as well as long as for pulse lasers. The Ophir® **1000W-LP2-34**, **L1500W-LP2-50**, **5000W-LP2-50**, and **FL600A-LP2-65** feature a new LP2 coating that provides the highest damage threshold in the industry, 10kW/cm<sup>2</sup> at 1kW power. The coating also reduces reflection – absorbs 95% at most wavelengths and is totally spectrally flat  $\pm 1\%$  from 0.2 $\mu$ m to 1.1 $\mu$ m

The Ophir LP2 sensors cover a wide spectral range, from 0.35 – 2.2 $\mu$ m. In addition:

- The 1000W-LP2-34 has a 34mm aperture and can measure power from 5W to 1000W and energy from 400mJ to 300J. Maximum average power density is 20kW/cm<sup>2</sup> at 500W and 10kW/cm<sup>2</sup> at 1000W.
- The L1500W-LP2-50 has a 50mm aperture and can measure power from 15W to 1500W and energy from 500mJ to 200J. Maximum average power density is 10kW/cm<sup>2</sup> at 1000W and 5.5kW/cm<sup>2</sup> at 1500W.
- The 5000W-LP2-50 has a 50mm aperture and can measure power from 20W to 5000W. Maximum average



power density is 20kW/cm<sup>2</sup> at 500W and 5kW/cm<sup>2</sup> at 3000W and 2.5kW/cm<sup>2</sup> at 5000W.

- The FL600A-LP2-65 has a 65mm aperture and can measure power from 500mW to 600W and energy from 600mJ to 600J. Maximum average power density is 33kW/cm<sup>2</sup> at 150W and 11kW/cm<sup>2</sup> at 600W.

The new LP2 coating offers very high absorption, which reduces dangerous and often harmful back reflection. The coating also provides very low dependence on beam angle, allowing the sensors to measure divergent high power lasers, such as diode laser bars, as well as collimated beams.

The 1000W-LP2-34 sensor is designed so that the only materials in contact with the cooling water are either copper or nonmetallic. This eliminates the possibility of contaminating the water or corroding the sensor, improving the accuracy and reliability of the measurements.

All Ophir thermal sensors feature a “Smart Connector” interface that operates with the company’s **StarBright**, **Vega**, **Nova II**, and **StarLite** smart displays, and **Juno** compact USB PC interface. The display is automatically configured and calibrated when plugged into one of the company’s laser measurement heads.

#### Availability & Pricing

The 1000WP-LP2-34, L1500W-LP2-50, 5000W-LP2-50, and FL600A-LP2-65 laser power / energy sensors are available now. OEM prices available on request.

LP2 VIDEO: <http://ow.ly/eu0c30cK8GE>

DATA SHEETS:

- 1000W-LP2-34: <http://ow.ly/oB9D30ch9nn>
- L1500W-LP2-50: <http://ow.ly/EPDd30ch9pB>
- 5000W-LP2-50: <http://ow.ly/qTAD30ch9qU>
- FL600A-LP2-65: <http://ow.ly/hm2M30cK9ne>

#### 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](http://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, MKS, through its Ophir brand, 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 CO<sup>2</sup> 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. 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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