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MKS Instruments Announces Ophir® Ariel, Ultra-Compact Laser Power Meter for Measuring High Power Industrial Lasers in Confined Spaces

Andover, MA – January 27, 2021 – [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® Ariel**, a self-contained, ultra-compact laser power meter for measuring high power industrial lasers up to 8KW. Designed for OEM and end-user applications in closed and confined spaces, such as additive manufacturing, metal cutting, and welding, the Ariel power meter is a robust, battery-powered device that requires no water or fan cooling and is small enough to fit in the palm of your hand. The system measures laser powers from 200mW to 8KW, and a wide range of wavelengths, including 440-550nm green and blue lasers, increasingly popular in copper welding; 900-1100nm fiber lasers, used in most metal processing; 10.6µm CO₂ lasers; and 2.94µm medical lasers. Unlike competitive offerings, the Ariel power meter provides a range of features for more flexible measurement options: it measures a wider range of wavelengths; can be operated in continuous or short exposure mode; can be used with or without a diffuser for higher power densities; delivers 3 to 5 times faster reading times; and can be operated stand-alone or wirelessly.

"Accurately measuring laser power is critical for ensuring product quality, repeatability of operations, and process validation in manufacturing operations," said Reuven Silverman, General Manager Ophir Photonics. "But for high power lasers, this tends to require devices that are large and slow, making it



difficult to incorporate power measurement in OEM equipment and production operations with closed and confined spaces. The Ariel industrial power meter has been created for environments not suitable for human operators and where cables or separate display units are not allowed, such as additive manufacturing chambers. Its fast response time delivers measurements in 3 seconds."

The Ariel industrial power meter combines two modes of operation to deliver a large measurement range of 200mW to 8KW: (a) Measurement of the energy of a short time exposure for high power lasers up to 8KW, and (b) Longer CW power measurements for lower powers up to 500W. The system's high thermal capacity of 14kJ means it can measure several consecutive pulses with an accumulated energy of 14kJ before it needs to cool down. A detachable diffuser allows measurement of high power density beams.

The Ariel power meter is versatile and durable. It features a robust housing that is dust-proof, resistant to splashes of water, and easy to transport. Communication options include Bluetooth for passing readings from inside a closed machine to a mobile phone or laptop, and a USB-C interface. The power meter can also be operated in stand-alone mode with data displayed on a built-in 128x64 pixel LCD display or saved in internal memory.

Software support is provided by **Ophir StarViewer** or **Ophir StarLab**. StarViewer is an Android app that brings laser power measurements to smartphones and tablets. Data can be displayed in a variety of formats: time-based line graph, needle display, or large numeric display with statistics. StarLab is easy to use measurement software that turns a PC into a multi-channel laser power display station. Data can be displayed graphically as line plots, histograms, bar charts, and simulated analog needles. Advanced measurement processing functions include multi-channel comparisons and user-defined mathematical equations.

Availability

The **Ophir Ariel** industrial laser power meter is available now.

DATA SHEET: <http://ow.ly/9CGC50Dd5K4>

About MKS Instruments

MKS Instruments, Inc. (NASDAQ: MKSI), is a global provider of instruments, systems, 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, electronic control technology, reactive gas generation and delivery, power generation and delivery, vacuum technology, lasers, photonics, optics, precision motion control, vibration control and laser-based manufacturing systems 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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