ePulse: Laser Measurement News

May 2014

Welcome to **ePulse: Laser Measurement News**, a review of new developments in laser beam measurements, beam diagnostics, and beam profiling. Each issue contains industry news, product information, and technical tips to help you solve challenging laser measurement and spectral analysis requirements. Please forward to interested colleagues or have them subscribe.

Feature

Complex Technical Products in a Commodity World
The photonics market is all about designing, building, marketing, and servicing electro/optics and electro/mechanical devices that make our lives better, from surgical instruments to space exploration. The big question is, how well is the electro/optics industry evolving, not just on the technology side but on the business side, as well? Have we become an industry of commodity products? Technical Products.

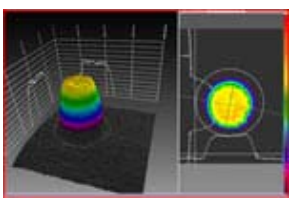
Tutorials

OEM Laser Energy Sensors: What Are the Options?
The beauty of integrating an OEM sensor into your laser system is that you get to call the shots. What matters to you the most? Accuracy? Size? Output type? Tell us what you need and we'll make it happen. Julian Marsden, the head of our electrical engineering department, shows you some of the OEM energy sensor options that are available in this white paper. OEM Energy.

Webinar: Matching Laser Beam Profiling to Your Laser Application
If you missed this *Laser Focus World* webinar, now you can watch it on-demand. We discuss the many characteristics of a laser beam and how to match the right laser-beam profiling techniques to your laser application. Topics include the many types of beam profilers available, profiling alignment procedures, focusing and collimation, measuring divergent sources, how to achieve high-power beam quality measurement, and uses of attenuation. Beam Profiling.

Applications

Lasers and Solar Cell Manufacturing

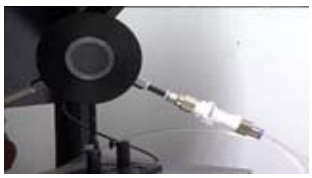


Solar technology has met with resistance due to its slow return on investment and the challenge of the efficiency of the material used. Reducing the cost of manufacturing solar cells is largely influenced by production efficiencies as well as the type of photovoltaic materials used. Lasers have proven their worth during the critical process of scribing the photovoltaic material on the individual cells. Solar Cell Manufacturing.

Videos of the Month

BeamGage Tutorial: Beam Attenuation
Find out how to properly attenuate your laser beam to avoid damage to the camera sensor. Video: Beam Attenuation.

Water Cooled Sensors
Learn about the critical issues you need to consider when using water cooling, such as water temperature, water flow rate, and corrosion prevention. Video: Water Cooled Sensors.



Laser Puzzle

We have something new for you...a Kriss Kross puzzle. Kriss Kross puzzles are not like regular crosswords. You have the words, you just have to figure out where they go in the grid. Try it out, then send us your completed puzzle.

All entries will receive a 4GB pen drive and the new Ophir Laser Measurement Poster. The grand prize winner will receive a 16GB iPad. E-mail answers to sales@us.ophiropt.com. Need a hint? E-mail kevin.kirkham@us.ophiropt.com

Here are the answers to the last issue's puzzle. The winner of last issue's puzzle was **Donald Guan, PD Engineer, Eagle Picher Energy Products.** "We are a medical power manufacturer so quality is always the first priority. The most critical process here is laser welding. The first daily check

Business News

ISO/IEC 17025 Accreditation: Why Yet Another Certification?
Kristen Winterton, Calibration Technician at Ophir-Spiricon, discusses what an ISO/IEC 17025 accredited laboratory offers that is not provided by ISO 9001 or other certification. ISO/IEC 17025.

Technical Tips

Power/Energy Meters

BC20 Photodiode Sensor for Low-Level Beams
For scanning low-level beams, such as bar code scanners, the Ophir special photodiode sensor model BC20 is the recommended choice. Read the Tech Tip.

Beam Profiling

Stacking ND Filters: The Right Way and the Wrong Way
ND filters are a great way to get your laser down to a manageable power for beam profiling. But what's the best way to physically attach the filters to your beam profiler? Read the Tech Tip.

Issues to Consider When Purchasing an M^2 System
There are a number of issues to consider when measuring M^2: minimum measurable spot size, communications interface, sensors, and more. Read the Tech Tip.

The Focal Length Divergence Measurement Method
The focal length divergence measurement method provides a means for finding the far-field beam divergence at any point in the beam propagation path. The measurement is based upon the beam width of a focused beam's spot size and the focal length of the focusing optic. The calculation is simple, but the optical setup must be done with great care. Read the Tech Tip.

FAQs

Beam Profiling
I've damaged the ND filters that came with my camera. Can I order replacements? Read the FAQ.

I've damaged the imager in my camera. Can it be replaced? Read the FAQ.

Power/Energy Meters
I'm missing the Certificate of Calibration for my Ophir power/energy meter. How can I get a copy? Read the FAQ.

How do I use the OFFSET function for a dual-channel LaserStar with two sensors attached? Read the FAQ.

Can the SH-to-BNC Adapter be used to see analog outputs from pyroelectric sensors? Read the FAQ.

How can I order spare parts like chargers or batteries for my Ophir power/energy meters? Read the FAQ.

What's New

Sensor Finder Updated
Ophir has just released the 2014 version of the Sensor Finder program. In this version, all the new 2014 products are now available to help you

point is to ensure the laser is in good condition and delivering the right energy. We are very impressed by the robustness and consistency of the Ophir power meters. To improve the process, we introduced Beamgage to analyze beam profiles. We found one of our laser systems had a defective optical fiber. After replacing it, the welding process became more stable and process downtime was reduced. Without this tool, we couldn't diagnosis this kind of failure. We realize how important it is to invest in equipment and people." -- Donald Guan

From the Blog

How to Measure Laser Beam Width Regardless of Power Density
A typical concern when using a laser cutting machine is how to be sure the laser is optimized for the most efficient process. Is the laser power high enough? Is it focused down well enough? Is it focusing at the proper place (above, at, or below the material)? You won't know until you measure. Now you can measure the width of the focused laser beam even when its power density is hundreds of kilowatts per square centimeter. Laser Optimization.

2014 Catalogs: Power Meters & Beam Profiling

Download the Ophir-Spiricon Laser Measurement Catalogs today. Tutorials and product specifications for Power Meters and Beam Profiling. New Beam Profiling Magalog includes application notes, technology articles, and reference algorithms.

Fast Ship Program

Ophir-Spiricon's Fast Ship program provides one-day shipment of the most popular power/energy, beam profiling, and M^2 laser measurement equipment across the U.S.

Trade Shows

OPTO Taiwan
June 17-19, 2014
Taipei City, Taiwan

23rd Annual International Laser Physics Workshop
July 14-18, 2014
Sofia, Bulgaria

find the sensor that best suits your application. Download and use offline or online. Sensor Finder.

Laser Sensors Now Measure Power, Position, Size to 1000W
The new, high power 1000W-BB-34-Quad laser sensor measures power and position up to 1000W. The new sensor is part of the BeamTrack series of compact, multi-function thermal detectors that measure laser power, energy, beam position, and in some models beam size, in one device. The BeamTrack family includes the 1000W detector and the previously announced 3W, 10W, 50W, 150W, and 250W models. 1000W Laser Sensor.

SPIE Optics + Photonics 2014
August 19-21, 2014
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Booth 514

How to Get a 15% Discount

If you're an end user of our laser equipment, we'd like to know more about how you use it. Provide us with 500 words and a few images. In exchange, we will give you a 15% discount on your Ophir-Spiricon laser measurement equipment. Here's a sample application article to get you started. We'll showcase your application in our ePulse newsletter and you'll get recognition by the industry for your commitment to providing high quality laser services. And you'll get the discount! E-mail kevin.kirkham@us.ophiropt.com

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About Ophir-Spiricon, LLC

With over 30 years of experience, Ophir Photonics, a Newport Corporation brand, provides a complete line of instrumentation including power and energy meters, beam profilers, spectrum analyzers, and goniometric radiometers. Dedicated to continuous innovation in laser measurement, the company holds a number of patents, including the award-winning **BeamTrack** power/position/size meters 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's modular, customizable solutions serve manufacturing, medical, military, and research industries throughout the world.

An ISO 9001:2008 Registered Company. ISO/IEC 17025:2005 accredited for calibration of laser measurement instruments.

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