

ePulse: Laser Measurement News

The true measurement of laser performance



ePulse: Laser Measurement News March 2011

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.

Tutorials

How to Properly Select a Laser Power or Energy Sensor

The selection of a sensor to accurately measure the power of a laser or energy of a pulsed laser can seem like a simple and easy procedure. However, many times the selection process leaves out several essential criteria of the laser specifications. Without their consideration, the wrong sensor can be selected, the laser can be measured inaccurately, and the sensor is likely to fail prematurely. Follow these three steps to sensors selection. [Read the article.](#)

Just a Moment in Time: Old Acrylic Blocks are a Thing of the Past

If you have been in the laser cutting business long enough you eventually will have one of those days when, no matter what you do, the laser will not cut your parts cleanly ... if at all. Most checks and verifications are really just a moment in time using acrylic blocks; but the moment in time that you check may not be the same moment in time when the problem arises. In these situations, a laser beam profiler is invaluable. [Read the article.](#)

Applications

Image Profile of a Lens or Optical System Using NanoScan

Using a NanoScan and standard optical accessories, acceptance testing and final system performance of a lens, lens assembly, optical subsystem, or overall system test may be measured. The NanoScan was developed to quickly and accurately evaluate real-time measurement of a spatial image. This is done by evaluating the energy distribution of the spatial profile and measuring the beam size. [Read the article.](#)

Technical Tips

Laser Measurement: How to Align an Invisible Laser Beam

Aligning an invisible laser beam with a visible pointer beam may sound simple but to do it right with everything lined up is not so obvious. [Here is how it is done.](#)

Videos of the Month

Industrial CO2 Profiling for Predictive Maintenance

If your laser is not performing like new, it's costing you money in quality, scrap, processing time, and setup time. A sales engineer can come to your plant, measure your laser, and provide a report card on its performance. These examinations have saved others thousands of dollars. [Learn more by watching the video.](#)



Fundamentals of Photonics: Laser Beam Characterization

In this webcast researchers and engineers will learn the fundamental techniques for successful measurement and analysis of the laser beam profile characteristics and receive recommendations about application-specific beam characterization, measurement standards and definitions. [View the webcast.](#)

Laser Puzzle

[Try your hand at this issue's Laser Puzzle.](#) All entries will receive a 2GB pen drive. The grand prize winner will receive an iPad 16GB WiFi. 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 was **Logan Chieffo, PhD, Dept. of Physics, Boston University**. "I received my PhD from Boston University in ultrafast mid-infrared spectroscopy. During my time at BU, I used an Ophir AN/2 power meter with an

Power Meters: The Zeroing Function and Recalibration

We occasionally receive meters and PC interface units (USB, Pulsar, Quasar, and Juno) for recalibration that indicate Calibration Accuracy Check Failed because of exceeding a particular scale test limit during the Before test report. Often, before returning the unit for recalibration, performing a zeroing function will avoid the Failed indication in the Before test report, avoiding quality system questions and required explanations.

[Read this FAQ on zeroing for further recommendations.](#)

Beam Profiling: Photodiode Trigger

With the introduction of BeamGage, the capability of using the built-in photodiode trigger in the SP camera series is now available. However, some customers may not know how to use it or that they even had this capability. [Read more.](#)

NanoScan Software Release

There is a new software release for NanoScan (v1.45) that fixes some issues we have seen with USB drivers. Contact your local rep for information on how to download the latest version of the software.

FAQs

Power/Energy Meters

I have a question on the dual channel LaserStar meter that I am using with two PD300 detectors. I am using the ratio mode A/B: A_range is 3uW and B_range is 30mW. There is no remote command to read the ratio but the LaserStar sends both A and B values simultaneously. So I then compute the value on my computer. This is fine except occasionally the meter's display reads a higher value than my program reads/calculates. [Read the FAQ.](#)

How does one know the minimum power that a power meter can measure? [Read the FAQ.](#)

What should I look for when checking laser power or energy meters for damage threshold? [Read the FAQ.](#)

How can I measure the energy of short pulses on a thermal detector when its response time is as slow as several seconds? [Read the FAQ.](#)

Beam Profiling

Which beam profiler software products are compatible with Windows Vista and Windows 7? [Read the FAQ.](#)

Can I get mechanical dimensions for the NanoScan to help in designing mounting hardware or fixtures? [Read the FAQ.](#)

Does NanoScan work with 64-bit Windows 7? [Read the FAQ.](#)

What's New

New Power/Energy Sensor Measures at THz Wavelengths

The **3A-P-THz THz Power/Energy Sensor** is designed to measure THz light sources from very low power to very high power, up to 3W, 30x the power levels of competing products. In addition, it is the only power/energy sensor on the market that is

Ophir thermal head every day. This single power meter was able to accurately measure the power of our beam line at any point in our system - from the output of our regenerative amplifier (7W at 800nm, peak power ~2x10¹¹W) to the mid-infrared beam (5mW at 500nm, peak power ~5x10⁷W)." - Logan Chieffo

Photonics West Treasure Hunt Winners

Congratulations to the winners of **Ophir's Photonics West 2011 Treasure Hunt**. The grand prize winners were: **Yaakov Soskind** from DHP Consultants, who won the 42-inch LCD flat screen monitor, and **Russell Schroder** from TopCon, who won the Apple iPad. Congrats also to all who submitted the correct answers and won an Ophir tie-dyed t-shirt.

Trade Shows

[SPIE Defense, Security+Sensing](#)
April 26-28, 2011
Orlando, FL

[CLEO:2011](#)
May 3-5, 2011
Baltimore, MD
Booth 1206

[Laser World of Photonics](#)
May 23-26, 2011
Munich, Germany

Free Laser Measurement Equipment

That's right. If you're an end user of our laser equipment, let's hear about it and how you use it in your application. You can write the whole article or you can collaborate with our talented writers. In exchange, we can negotiate you receiving one of our latest innovative instruments, detectors, or profiling cameras and software to use in your lab. For power/energy meters, e-mail burt.mooney@us.ophiropt.com and for beam profilers, e-mail kevin.kirkham@us.ophiropt.com. In a few nanoseconds, you'll be telling the laser world about your application using our equipment and a femtosecond or two later you'll be logging

traceable to standard laboratory calibration. [Find out more.](#)

BeamGage Adds Support for High Speed GigE Cameras

BeamGage, next generation laser beam analysis software, now supports GigE cameras for high-speed applications. GigE (Gigabit Ethernet) cameras are low cost, high performance devices. They provide high speed, up to 1 Gigabit/s transmission rates, in a robust, miniature package (34 x 34 x 69mm). Based on the widely used Ethernet interface, the cameras are able to leverage the benefits of industry standard technology - ready availability, broad compatibility, and lower cost. [Find out more.](#)

Industry's First Shock Absorber for Laser Power/Energy Sensors

The Shock Absorber is the industry's first mounting post designed to allow the operation of sensitive pyroelectric laser power/energy sensors in an environment with vibration. This special mount smoothes out vibration and eliminates false triggering, reducing the sensor's susceptibility to vibration from 2 to 10 times. [Find out more.](#)

2011 Power Meter & Beam Profiling Catalogs

Download the 2011 Ophir-Spiricon Laser Measurement Catalogs today. Tutorials and products in [Power Meters](#) and [Beam Profiling](#).

Fast Ship Program

Ophir-Spiricon's new [Fast Ship program](#) provides one-day shipment of the most popular power/energy, beam profiling, and M2 laser measurement equipment.



[Many products available next business day in US](#)

your data on our equipment like the Nova II, Vega, Quasar or BeamGage.

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About Ophir-Spiricon, LLC

Ophir-Spiricon is part of the Ophir Photonics Group. With over 30 years of experience, the Laser Measurement Group 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 Ultracal™, the baseline correction algorithm that helped establish the ISO 11146-3 standard for beam measurement accuracy. The recently acquired 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.

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