

# ePulse: Laser Measurement News

The true measurement of laser performance



## ePulse: Laser Measurement News

December 2012

### Happy Holidays from the team at Ophir!

**ePulse: Laser Measurement News** is 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](#).



### Tutorials

#### Measuring Laser Position & Pointing Stability

Beam profilers are often used to verify the performance of lasers and optical systems. This avoids problems caused by bad alignment and streamlines the manufacturing process. But there is a lot to this measurement and a lot to be learned about a laser's performance. [Laser Position](#).

### Applications

#### Reducing Production Bottlenecks

The 1780 ModeScan determines  $M^2$  and other laser beam propagation parameters in real time. One customer recently used the system to analyze the astigmatism of their beam and significantly reduce a production bottleneck. [Beam Propagation](#).

#### Uncovering Cause of Bad Welds in Fiber Delivery System

Upon installation of new laser processing equipment, a customer suspected they had a bad fiber delivery system. But the laser manufacturer would not accept the customer's request for help until they sent images and data. The customer used the BeamCube laser measuring system and BeamGage software to take measurements. The laser manufacturer accepted these and sent a service tech the next day to replace the fiber. [Fiber Delivery System](#).

#### Designing Low Cost Inspection Process for LED's

A manufacturer of optical encoders that incorporate LED's and a collimating lens had been using a laser power meter to verify the LED's output wattage. They were also shining the beam on graph paper to verify beam size visually. They needed a more accurate but low cost inspection process to record data on batches of incoming LED's. [Measuring Beam Power](#).

### Webinars

#### Improving the Performance of Industrial Lasers

John McCauley of Ophir Photonics discusses the latest power and energy measurement and beam profiling tools, and how these technologies

### Video of the Month

#### Choosing a Laser Beam Profiling System

What are the four things you need to know when selecting a laser beam profiling system? Learn from Ophir-Spiricon's sales engineers - the experts in the field of measuring lasers - what you need to know to get the most out of your laser beam. [Read the white paper](#). [View the video](#).



### Laser Puzzle

[Try your hand at this month's Laser 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](mailto:sales@us.ophiropt.com). Need a hint? E-mail [kevin.kirkham@us.ophiropt.com](mailto:kevin.kirkham@us.ophiropt.com)

Here are the [answers to the last issue's puzzle](#). The winner of last issue's puzzle was **Michael Lawrence, Sr. Manufacturing Software Engineer**. "We use Ophir USB smart heads for various laser power/energy measurements. I use Spiricon cameras, such as the SPZ02527, for one of my test stations. The cameras are used for laser measurement, including alignment and divergence. Most of our stations in Manufacturing and Test Engineering are automated and controlled with LabVIEW. It is likely that we use other products throughout our factory." - Michael Lawrence

### From the Blog

#### Three Ways to Keep Track of Your Laser Beam's Divergence

Every laser has some

should be applied to industrial lasers. On-demand. (NOTE: You must be an SME member to view this content.) [Industrial Lasers Webinar](#).

### Photonics in Military and Defense

This informative webcast brings together different applications of photonics in the military and defense market, from directed energy lasers, to detection of IEDs using spectroscopy, and imaging techniques using SWIR. On-demand, hosted by Electro Optics. No charge. [Military and Defense](#).

## Business News

### Going to Great Lengths for Recalibration and Repair

A representative from aesthetic laser manufacturer Conbio stated, "Your customer service is excellent...effective, quick, responsive. You always help resolve any problems. Thank you." Find out more about Ophir's [Recalibration and Repair](#).

### Value vs Cost: A Question of Productivity

A laser beam profiler can seem expensive when compared with burn papers or power meters. Yet many manufacturers have found that a CCD beam profiler saves them considerable time and increases productivity dramatically. [Value vs Cost](#).

## Technical Tips

### Power Meters

#### Shortcut for Calculating Power Density of a Laser Beam

Calculating a laser's power density is often required to determine whether a beam will damage an optic or sensor. Here's a shortcut. [Power Density](#).

### Heat Sinking Guidelines

A power sensor absorbs laser power while measuring it. How does one make sure a sensor has the proper heat sinking? [Heat Sinking](#).

### Measuring Power of Divergent Beams with Integrating Spheres

Measuring the power of divergent beams usually calls for an integrating sphere. Learn how Ophir's 3A-IS Series integrating spheres work. [Integrating spheres](#).

### LABVIEW and Ophir Power Meters or PC Interfaces

For LabVIEW to work with an Ophir power meter or PC interface, you must first install StarLab. We've created a special COM object control to help with integration. [LabVIEW](#).

### Beam Profiling

#### Camera Driver Installation

BeamGage beam profiling software includes the actual software program. Additional drivers are required for the camera source being used. [BeamGage](#).

### NanoScan: Smaller Aperture Scan Heads

When using NanoModeScan systems, the smaller aperture NanoScan scan heads should not be used. The smaller input aperture limits the max allowable input beam size. [NanoModeScan](#).

## FAQs

### Beam Profiling

How do I display BeamGage spatial results in a non-scientific notation format? [Read the FAQ](#).

How can I use the BeamGage power meter option in a 64-bit PC after installing StarLab software? [Read the FAQ](#).

divergence. Controlling the divergence can determine whether a part passes or fails; it can even determine the success of medical procedures, depending on your laser application. [Beam Divergence](#).

## Catalogs: Power Meter & Beam Profiling

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

## Trade Shows

### [SPIE Photonics West 2013](#)

February 5-7, 2013  
San Francisco, CA  
Booth 1301

### [MD&M West](#)

February 12-14, 2013  
Anaheim, CA

### [OSA OFC/NFOEC](#)

March 19-21, 2013  
Anaheim, CA

## Fast Ship Program

Ophir-Spiricon's [Fast Ship program](#) provides one-day shipment of the most popular power/energy, beam profiling, and M<sup>2</sup> laser measurement equipment across the U.S.

## Free Laser Measurement Equipment

If you're an end user of our laser equipment, let's hear about 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. E-mail [kevin.kirkham@us.ophiropt.com](mailto: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 your data on our equipment like the Nova II, Vega, Quasar or BeamGage.

## Follow Us Online

### Social Media



## Power/Energy Meters

Can I use a third party sensor with the Ophir power/energy meters? [Read the FAQ.](#)

Will my Quasar work with my Android device? [Read the FAQ.](#)

## What's New

### The Great Photonics Race: All Roads at Photonics West Lead to an iPad!

Start Photonics West in Booth 1301 and enter the Great Photonics Race. We're giving away an iPad each day of the show! In addition, see the exciting products from the Ophir, Spiricon, and Photon brands -- the new NanoScan software interface and direct USB2 connectivity, NanoModeScan M<sup>2</sup> with integrated software, Pyrocam® IV, Starlite power meter, and the R&D 100 award-winning BeamTrack power meters. Ophir at [Photonics West](#).

### Fast Axial Thermal Laser Sensors for OEMs

The Fast Axial OEM Sensor is based on a novel thermopile design that provides significantly faster response times and higher power levels. Response times are up to 20 times that of traditional thermopile sensors; power and energy levels are up to 2000J for single pulses and over 20KW average power. Handles laser beam sizes from 20mm to 180x180mm. [Fast Axial Thermal Sensor.](#)



### Pyroelectric Laser Sensors Feature Widest Dynamic Range, Highest Damage Thresholds

The PE50BF-DIFH-C and the PE100BF-DIF-C are part of Ophir's PE-C line of pyroelectric pulsed sensors - compact devices that provide the industry's lowest measurable energy, longest measurable pulse width, and highest accuracy. The new sensors feature an innovative BF coating and diffuser that deliver the highest damage thresholds: up to 6J/cm<sup>2</sup> for nanosecond pulses. [Pyroelectric Laser Energy Sensors.](#)

## Blog

[The Ophir Laser Measurement Group](#)

## Web

[www.ophiropt.com/photonics](http://www.ophiropt.com/photonics)

## 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 Ophir-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.

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