

# ePulse: Laser Measurement News

The true measurement of laser performance



## ePulse: Laser Measurement News January 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

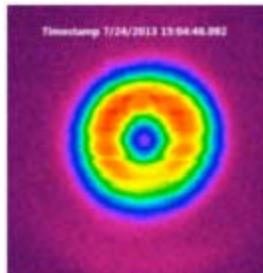
#### Deming Must Be Wrong

Deming said, "If you can't measure it, you can't control it." There are all kinds of lasers being used in manufacturing of high precision, high reliability parts that need consistency. But there's a disconnect. The first thing you learn about a laser beam is that its output is like a light bulb, constantly changing. Then why is it that manufacturers mistakenly assume they don't need to measure their beam? [Deming](#).

### Tutorial

#### The Importance of CO<sup>2</sup> Laser Optimization

Every laser user, along with their superiors, wants the laser system to operate optimally. When these systems aren't optimized, time and money is lost through lower cut speeds, increased dross on the edges of the cuts, and more frequent down-time due to maintenance. So, it might be surprising to learn that these same laser users often don't use the latest in measurement technologies to learn as much as they can about their laser system(s). [Laser Optimization](#).



## Photonics West 2014

#### Hands-On BeamGage Training

For those of you who already own our BeamGage laser beam profiling system and are going to be at Photonics West, we are going to be holding an informal, three-hour, hands-on training session. Bring your questions as the agenda will be tailored to your needs. Once there, you'll be registered to win an iPad Mini. [BeamGage Training](#).

#### Make the Most of Your Time at Photonics West

There's a lot of technology on display at Photonics West. Ophir alone has introduced more laser measurement products in 2013 than in any other year. So let us help you make the most of your valuable time. Tell us the day and time you'll be stopping by our Booth 1301 and we'll have

## Video of the Month

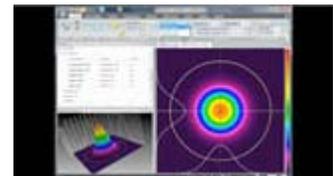
#### How to Measure Power of Very Low Power Pulsed Laser Beams

When using a photodiode laser power sensor to measure very low power pulsed beams (nW to mW), there are some issues you need to be aware of to ensure maximum accuracy. [Video: Very Low Power](#).



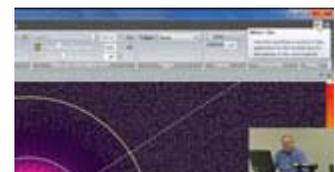
#### How to Design Your Perfect Laser Beam with BeamMaker

How to design your perfect beam profile in BeamMaker. Specify the mode, size, width, height, intensity, angle, and noise content. Then configure your laser to run as designed, and compare your actual beam to the theoretically derived measurements. [Video: BeamMaker](#).



#### BeamGage Tutorial: Help System

BeamGage contains a comprehensive context-sensitive online help system that makes learning how to get the most out of BeamGage easy. Learn how to quickly access information regarding any BeamGage feature in this short video tutorial. [Video: BeamGage](#).



a sales engineer ready. You'll then have a private session on what's new. Or we can discuss your specific application and help you configure the right measurement solution for your laser. [Photonics West Signup](#).

## Business News

**Top 20 Technology Picks for 2013: Ophir's 100K-W Power Meter**  
*Laser Focus World* Senior Editor John Wallace has named his top picks for the 20 most interesting photonics technology developments covered by the magazine in 2013. Coming in at #3, the most powerful lasers and how to measure them: Ophir's 100K-W Laser Power Meter. [Top Technology Picks #3](#).

**Top 10 of 2013: Understanding Beam Profiling Dynamic Range**  
The Year in Photonics and Optics is *PhotonicsOnline.com's* annual look at the news, articles, editorials, products, and downloads that readers clicked on the most. At #2 in the 2013 top 10 list is the article, "Understanding Beam Profiling Dynamic Range" by Ephraim Shafner, Ophir Photonics. Congrats, Ephraim! [Top 10 of 2013](#).

### Recalibration and Repair: Your Most Cost-Effective Calibration Solution

To help you minimize the costs of maintaining equipment, we have put into place many features of our services to support your goals: static recalibration pricing, Perpetual Lifetime Warranty, caps on repair costs, and a customer education program. Find out more. [Recalibration and Repair](#).

## Technical Tips

### Power/Energy Meters

#### Pyroelectric Damage Test Slide

When measuring the energy of a pulsed laser setup with a pyroelectric energy sensor for the first time or after changing a setup, use the pyroelectric damage test slide provided. [Read the Tech Tip](#).

### Beam Profiling

#### BeamGage File Types

BeamGage produces five different types of files. All use industry standard formats. Find out more. [Read the Tech Tip](#).

#### What is Convolution, or How Small a Beam Can I Measure?

A CCD profiler can measure a beam of approximately 40-50 $\mu$ m. A scanning slit profiler is known for being able to measure smaller beams...but just how small? [Read the Tech Tip](#).

## FAQs

### Beam Profiling

How can I tell how much total power I have in a specific region of my beam? [Read the FAQ](#).

How small can the step size be set for the scanhead position on the NanoModeScan or RailScan system through the on-screen software or remotely? [Read the FAQ](#).

### Power/Energy Meters

The sensor specification sheet states accuracy is  $\pm 3\%$ . Is that  $\pm 3\%$  of the full scale reading or simply  $\pm 3\%$  of any given reading? [Read the FAQ](#).

## 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 **Tracy McLane, Engineering Machine Technician, Mitsubishi Electric Automotive America, Inc.** "We will be using the laser equipment on continuous wave and will be taking measurements at full power. The system is a CO2 gas laser oscillator." -- Tracy McLane

## From the Blog

### Measuring Laser Position & Pointing Stability

Generally, laser position or beam pointing stability measurements are made simply by placing the beam profiler at a given distance from the laser source and aligning the beam until it points to the ideal target. But that isn't always the case. Find out more. [Laser Position](#).

## 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<sup>2</sup> laser measurement equipment across the U.S.

## Trade Shows

[Photonics West](#)  
February 4-6, 2014

Why is there reference to "-SH" in the name description of a particular sensor part number in some instances and not in others? [Read the FAQ.](#)

## What's New

### IR Phosphor Viewer Card: 1st 10 Replies Get One FREE

We offer a glass IR phosphor card that allows you to see NIR lasers from 810 – 860 nm, 900-1100 nm, and 1500-1600 nm. The card does not require charging before use. It's excellent for beam alignment and has a large damage threshold compared to others: 1 KW/cm<sup>2</sup> or .5 J/cm<sup>2</sup>. We will award one card to the first ten (10) customers who reply. Order part number 7F01235A. Cost is \$75 each, after the first ten are given out. E-mail: [kenneth.ferree@us.ophiropt.com](mailto:kenneth.ferree@us.ophiropt.com)



### Pyroelectric Energy Sensor Measures Lowest Laser Energy Levels at High Repetition Rates

The PE9-ES-C High Sensitivity Pyroelectric Laser Energy Sensor is part of Ophir's PE-C line of compact, pyroelectric pulsed laser sensors. The new high sensitivity sensor measures the lowest laser energies in the industry -- as low as 50nJ. The sensor also accurately measures at high repetition rates, up to 10kHz. It features a broad spectral range operating from 150nm to 12µm. [PE9-ES-C Sensor.](#)



San Francisco, CA  
Booth 1301

[MD&M West](#)  
February 11-13, 2014  
Anaheim, CA  
Booth 573

[Laser Additive Manufacturing](#)  
February 12-13, 2014  
Houston, TX

## 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](mailto:kevin.kirkham@us.ophiropt.com)

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### Social Media



### Blog

[The Ophir Laser Measurement Group](#)

### Web

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

## 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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