

# ePulse: Laser Measurement News

The true measurement of laser performance



## ePulse: Laser Measurement News September 2016

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](#).



### White Paper

#### Measuring Small-Beam MFD: Overcoming the Challenges

By Derrick Peterman, PhD, Ophir-Spiricon

Small beams are used in many critical applications, yet often are not directly profiled. While obtaining good beam profiling data on beams under 10µm has its challenges, they can be overcome with proven techniques. [Measuring MFD](#).

### Features

#### Integrating Sphere: Fundamentals and Applications

By Newport Corp.

An integrating sphere measures a divergent light source. Its diffuse reflective coating with small holes for entrance and exit ports produces a uniform scattering effect for measuring power. In this article, we take an inside look at optical sources, sphere materials, port sizes, and transmittance and reflectance measurement. [Integrating Sphere](#).

### Applications

#### Additive Manufacturing and 3D CAD

By Dick Rieley, Field Sales Engineer III, Mid-Atlantic Region, Ophir-Spiricon

Additive manufacturing and 3D CAD have restructured how prototype, development, and customized mechanical components are created and built. Now the landscape is changing again as direct metal laser melting (DMLM), selective laser sintering (SLS), aka metal 3D printing, are quickly becoming the standard for critical, customizable, and hard to fabricate constructs. [3D Printing](#).

#### Select the Right Laser Power Sensor by Asking the Right Questions

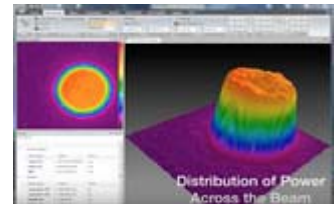
By Dick Rieley, Field Sales Engineer III, Mid-Atlantic Region, Ophir-Spiricon

The selection of an appropriate sensor to measure laser power seems to

### Videos of the Month

#### What is the Best Tool to Measure Your Laser Beam

What is the best tool to measure your laser beam? This video looks at the scanning slit profilers vs sensor array cameras. [Video: Measuring Lasers](#).



#### StarBright Playlist

This playlist for our StarBright laser power meter covers everything from setup to advanced functions. [Video: StarBright](#).



### Laser Puzzle

Try your hand at this month's [Laser Puzzle](#). All submissions will receive an 8GB USB pen drive. 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 **Daniel Farhner, Junior Firmware Engineer, B.E. Meyers & Co., Inc.** "B.E. Meyers & Co., Inc. designs opto-electronic solutions for military and law enforcement applications, ranging from weapon-mounted pointing and illumination

be a simple and straight-forward process. Yet more often than not, the sensor chosen produces inaccurate measurements and premature failure. Make sure you're asking the right questions before you choose. [Laser Power Sensors](#).

## Webinars

### Best Practices: How to Avoid Choosing the Wrong Power/Energy Sensor

*By Dick Rieley, Field Sales Engineer III, Mid-Atlantic Region, Ophir-Spiricon*

Sensors are critical for accurate laser measurement, yet are often selected based on the wrong criteria. Choosing solely on the measurable power range or aperture size is typical but insufficient. This *Photonics Spectra* hosted webinar focuses on key factors in the selection process, including beam diameter, beam density values, cooling requirements, and exposure duration. Live on Sept 27, 2016, 1pm eastern. [Register: Laser Measurement](#).

### A Practical Approach to Solving Laser Consistency Problems in Industrial Applications

*By Dan Ford, Southwest Sales Manager, Ophir-Spiricon*

This webinar takes a look at laser-based industrial applications and how others are using laser measurement to solve consistency problems, from cutting to curing polymers to 3D printing. This *Industrial Laser Systems* hosted webinar includes a discussion of a 3-step process for solving laser consistency issues by measuring laser power/energy, beam profiles, and temporal pulse shape. [On-Demand: Laser Consistency](#).

## Technical Tips

### Beam Profiling

#### "What's This" Function in BeamGage 6.8

The "What's This" feature only opens to the first page of the manual in Adobe Reader XI. Here's how to adjust the PDF handler. [Read the Tech Tip](#).

### Power/Energy Meters

#### Water Cooled Sensors: Flow and Corrosion

How to use Ophir's water cooled sensors and understand flow conditions and causes of corrosion. [Read the Tech Tip](#).

#### Water Cooled Sensors: Positioning Water Connectors

Customers occasionally have difficulty with the positions of the water connections in Ophir's water-cooled thermal sensors, such as the BB-50. [Read the Tech Tip](#).

#### Oscilloscope Adapter for Ophir Pyroelectric Sensors

Ophir pyroelectric heads operate up to 5,000Hz but the display can't always record energy up to the maximum rate of the head. With the Pyro Scope adapter you can look at the output of every single pulse on an oscilloscope. [Read the Tech Tip](#).

## FAQs

### Power/Energy Meters

Does measured power depend on distance? I'm measuring the power of a laser diode's beam and, though the beam is parallel and smaller than the

modules to hail and warning devices, emitting in both the visible and infrared spectrums. Because these use cases are so sensitive, exposing laser light to human eyes, we use Ophir-Spiricon products, including BeamMic, StarLab, and the SP620U, to analyze and refine our laser products to meet safety regulations while still creating quality systems."

## Social Media

### Question of the Week

Do you know the answer to our laser question of the week? Follow us on [Facebook](#) (easy) and [LinkedIn](#) (advanced) to see if you really know lasers. We post a new question each week. The first correct answer gets a prize. Have fun!

### Blog: How to Measure Laser Exposure/Dosage

Time is the most important parameter in certain applications, such as photolithography and UV curing. The instantaneous power of the CW beam is less important than the total exposure or dosage that the work piece receives. Let's look at total energy deposited over time. [Laser Exposure](#).

### Facebook Competition

Here are the results of our 40th Anniversary Facebook competition. [40th Anniversary](#).

## Catalogs: Power Meters & Beam Profiling

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

## Trade Shows

### [LANE 2016](#)

September 19-22, 2016  
Furth, Germany

### [LPS 2016](#)

September 20-22, 2016  
Bregenz, Austria

### [Laser World of Photonics India](#)

September 21-23, 2016

sensor's aperture, the power reading drops with distance. [Read the FAQ.](#)

Can Ophir sensors be used to measure an electron beam? [Read the FAQ.](#)

Can I connect an Ophir meter through the R232 cable and an RS-232-to-USB adapter to run StarLab? [Read the FAQ.](#)

What sensor should be used in place of a discontinued sensor? [Read the FAQ.](#)

### Beam Profiling

I just opened BeamGage and it's not finding my camera. What is wrong? [Read the FAQ.](#)

I think I have dust on my camera imager. What does it look like and how can I get it removed for the most accurate beam width measurements? [Read the FAQ.](#)

## What's New

### FluxGage, Compact, All-in-One LED Luminaire Measurement System

FluxGage is a compact, all-in-one LED luminaire measurement system that measures flux, color, and flicker, important quantities for evaluating the performance of LED-based products.



The patent-pending, all-in-one photometric test system is three times smaller and lower cost than equivalent integrating sphere products. It uses 2 $\pi$  (two pi) geometry and includes a spectrometer for color measurement of the spectrum, CCT, CRI, Duv, and chromaticity. There is also a fast photodetector for flicker measurements. [FluxGage.](#)

### Survey: Your Ideas, Our Laser Measurement Expertise

Please take this short, 3-question survey that will go directly to our R&D department. This will help ensure our new products reflect the needs and preferences of our loyal customers. As a thank you, you will receive a USB thumb drive and be entered into a drawing to win a \$100 gift card. (Terms and conditions apply). Your responses will remain strictly confidential and will only be used for the drawing. [Take Our Survey.](#)

New Delhi, India

#### [TCT Show 2016](#)

September 28-29, 2016  
Birmingham, UK

#### [Micro Photonics 2016](#)

October 11-13, 2016  
Berlin, Germany

#### [Photonex Conference](#)

October 12-13, 2016  
Coventry, UK

#### [ICALEO \(LIA\)](#)

October 16-20, 2016  
San Diego, CA

#### [ILOPE Beijing](#)

October 17-19, 2016  
Beijing, China

#### [Euroblech 2016](#)

October 25-29, 2016  
Hannover, Germany

#### [Jenaer Lasertagung](#)

October 27-28, 2016  
Jena, Germany

#### [Teknikka2016](#)

November 1-3, 2016  
Finland

#### [FABTECH \(SME/FMA\)](#)

November 16-18, 2016  
Las Vegas, NV

## 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.

## 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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[The Ophir Laser Measurement Group](#)

**Web**

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

## About Ophir-Spiricon, LLC

With over 40 years of experience, Ophir Photonics, a Newport Corporation company, 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 **R&D 100** 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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