

Together, we make light work

In this edition of our newsletter, we would like to tell you about our many new and innovative products and services. Further information can be found on our newly updated web site www.pro-lite.co.uk which contains a wealth of applications and technical reference material that we hope will help our customers get the most from their investment in photonics technology.

Pro-Lite's technical focus is in three areas of photonics: lasers and related equipment; instruments for measuring light and the optical properties of materials; and tools for enhancing photonic productivity.

Our business is to serve as a representative and value-added distributor for a select number of international manufacturers of photonics products. We are blessed with having suppliers whose reputation, technology and products are truly world-class.

We are celebrating our 5th birthday this year and would like to extend our sincere thanks to our customers and supplier partners without whom we would not have enjoyed the success we have.

See us at the following events:

October 14-15: Photonex 07 exhibition (National Agricultural Centre, Stoneleigh Park, Coventry).

www.photonex.org



November 1: Technical Seminar – Light Measurement and the Application of Integrating Spheres & CCD Spectrometers (Photonics Cluster, Birmingham).

www.pro-lite.co.uk/events



Coherent's new EnergyMax pulsed laser energy sensors and FieldMax II laser power & energy meter

SPOT-LITE: EnergyMax™ raises the pulse of laser energy measurement

Coherent's new EnergyMax pulsed laser energy sensors set new standards for demanding measurements from the UV to IR. That's because of the numerous technical innovations which deliver higher damage thresholds, expanded dynamic range and broader spectral response. Accuracy has also been enhanced with lower noise electronics, improved detector coatings and new, state-of-the-art calibration facilities. EnergyMax sensors provide:

- ▶ Superior damage resistance
- ▶ Higher rep rate operation
- ▶ Wider dynamic range
- ▶ Low noise & excellent linearity
- ▶ Large active area
- ▶ Spectral accuracy
- ▶ Temperature compensation

EnergyMax detectors are available in four types: general purpose; YAG & harmonics; high rep rate; and excimer. EnergyMax sensors are included in Coherent's industry-leading C24 programme. This means that our top 25 selling laser measurement products are guaranteed to be available for next day shipment.

www.pro-lite.co.uk/laser_test_overview

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SERVICE: from contract measurements to on-site training courses in LED photometry, Pro-Lite is at your service. [Page 6]

QPC diode lasers are the bright choice

QPC Lasers' BrightLase® technology delivers higher power per unit emitter area (i.e. brightness) and exceptional reliability. The company is also pioneering the use of internal gratings in their lasers. Spectral control from a monolithic QPC diode laser is achieved with an internal grating, thereby eliminating the need for temperamental external optical elements which reduces cost and increases overall device robustness. Compared with conventional high power diodes without the internal grating or diodes with an external grating, QPC's devices have a narrower linewidth (~ 0.2nm), much reduced wavelength temperature coefficient (0.08nm/°C) and improved centre wavelength accuracy (± 0.5nm). As a result, pumping efficiency is increased and system cooling requirements are relaxed leading to savings in size and weight and overall cost. www.pro-lite.co.uk/qpc_overview

STOP PRESS! Ultra high power fibre coupled modules just announced

QPC have just announced a series of ultra high power fibre coupled modules. Highlights are outputs at 795, 808, 976, 1064 as well as eye-safe IR wavelengths with powers of up to 350W from a 400µm core fibre in an air cooled package. The diodes are mounted on an integrated water cooling slab which avoids the need for microchannel cooling.



BrightLase® high power fibre coupled modules

QPC has introduced BrightLase® high power fibre coupled modules with 45-50 Watts output from a 100 micron fibre at 808 and 976nm and 25 watts at 1532nm from a 400 micron fibre. Spectral width is < 4, 5 & 2nm respectively. These modules feature industry-leading brightness and are designed for direct application and pumping fibre and solid-state lasers. In addition, fibre coupled mini-modules are available giving up to 15W from a 400µm fibre.



BrightLase® high power single emitters

QPC offers single emitter semiconductor lasers mounted on industry-standard conductively cooled C-mount and Q-mount heat sinks which are ideal for integration into high volume OEM applications. Manufactured with the QPC proprietary BrightLase® semiconductor technology, these single emitters offer industry-leading brightness, power, and reliability at wavelengths of 808, 976 & 1050nm. At 808nm, 5W is available from a 100µm emitter, or 8W from 200µm.



BrightLase® high power single mode emitters

These C-mount products operate at 976, 1040, 1064, and 1550nm. They feature industry-leading single mode power (up to 1.5W) from a diffraction limited, single frequency beam. To ensure the ruggedness of the product in the broad range of customer applications, QPC's products are manufactured with state-of-the-art hard solder processes and mounts having a coefficient of thermal expansion closely matched to the semiconductor laser die.



Internal grating fibre-coupled modules

QPC Lasers offers internal grating fibre coupled laser modules which are ideal for integration into high volume OEM applications such as fibre and solid-state laser pumping. Manufactured with QPC's proprietary internal grating semiconductor technology, these fibre coupled laser modules emit up to 25W from a 400µm fibre at 808, 976 and 1532nm.



News in brief

Pro-Lite appointed distributor for Frankfurt Laser Company

In addition to our existing range of high beam quality VPSL laser diode modules from Blue Sky Research, Pro-Lite has joined forces with Frankfurt Laser Co. As a result, we are now able to offer probably the widest choice of visible and IR laser diodes, diode modules, DPSS lasers as well as collimators and diffractive optics.

www.flaserco.com
www.pro-lite.co.uk/laser_overview

Aston University chooses ultra-fast laser from Amplitude Systèmes...

We are pleased to report that Dr Kate Sugden of Aston University has taken delivery of a Pro-Lite ultra-fast laser system manufactured by Amplitude Systèmes (Bordeaux, France). The S-Pulse is an amplified diode pumped femtosecond oscillator that generates 300fs pulses at 100kHz at 1030nm and 515nm. Dr Sugden will use the laser to investigate the femtosecond microfabrication of photonic devices for use in biophotonics.

www.ee.aston.ac.uk
www.pro-lite.co.uk/laser_overview

... meanwhile the University of Cambridge decides on a GWU tunable OPO laser

Dr Oliver Haderer of the Centre of Molecular Materials for Photonics and Electronics (CMMPE) at the University of Cambridge has taken delivery of an OPO laser system from Pro-Lite. Comprising a versaScan mid band OPO from GWU (Cologne, Germany) which is pumped by the third harmonic output of a Spillight 600 Nd:YAG from InnoLas (Munich, Germany), the laser provides widely tunable pulsed radiation between 410 and 2500nm. Dr Haderer and his colleagues will use the OPO in the development of liquid crystal lasers for applications in optical communication, sensing and medicine.

www.eng.cam.ac.uk/~oh209/
www.pro-lite.co.uk/laser_overview

Coherent continues to set the standard in laser test & measurement

The performance of many laser-based processes in industry, biomedicine and research are critically dependent upon laser beam parameters. These include power, energy, beam shape, intensity profile, propagation characteristics, mode structure, spectrum and wavelength. Coherent provides precision laser beam analysis instruments to measure and characterise all of these parameters. www.pro-lite.co.uk/laser_test_overview

We have the power to measure your laser

Coherent offers the broadest line of laser power and energy meters available anywhere. Thermal, pyroelectric and optical (photodiode) detector heads provide for power and energy measurements with CW, pulsed or ultra-fast lasers from 150nm to 11µm, from nW to 10kW and from nJ to Joules at up to 10kHz.

LabMax your measurements

LabMax is Coherent's new performance laser power and energy meter. LabMax is compatible with all of Coherent's optical, thermal and pyroelectric sensor heads. What sets LabMax apart is its ability to capture and report every pulse at kHz rep rates, multiple interface options and compatibility with LM-series quadrant thermopiles for beam power and position analysis.



The everywhere meter

FieldMax II is Coherent's all-round performance star. Small enough for field service, but smart and versatile enough for use in the lab, FieldMax is available in three models compatible with thermal and optical heads (FieldMax TO), pyroelectric sensors (FieldMax P) or all three (FieldMax TOP). A USB interface, LabView library and ability to measure every pulse at up to 300Hz complete the picture.



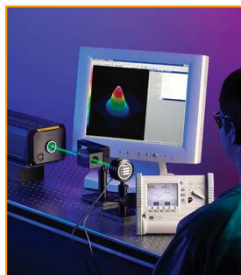
Small price, big performance

FieldMate is Coherent's value champion. Small in price but big on performance, FieldMate is compatible with all Coherent's optical and thermal heads. Measure the power from pulsed and CW lasers from the UV to far infrared, from nW to 10kW. The easy-to-use analogue needle display responds faster and with less overshoot than most digital meters, enabling rapid, precise laser adjustment.



Top hat or tails?

The Coherent LaserCam HR laser beam profiler combines the speed and ease of use of a USB 2.0 computer interface with the power of the acclaimed BeamView Analyser PC beam diagnostic software. Featuring a 1.3 Megapixel CMOS sensor, the LaserCam HR can measure focussed as well as collimated beams from 270µm to 6mm diameter, and still pick up detail that less sensitive profilers would miss. LaserCam measures the beam diameter, divergence, focussed spot size, fit-to-Gaussian (and many other parameters) of almost any laser in the 300-1100nm range, both pulsed and CW. The BeamMaster is a scanning knife-edge profiler with 0.1µm resolution for CW beams in the range 190-1800nm from 3µm to 9mm diameter.



Are we on the same wavelength?

The Coherent Laser Spectrum Analyser can examine the fine details of the line spectra of CW lasers, which are usually due to the laser operating in more than one longitudinal or transverse mode. The WaveMaster™ measures the wavelength of both CW and pulsed lasers of any repetition rate. The wavelength can be displayed in GHz, wavenumbers, or nm with vacuum and air readings available. WaveMate™ offers a low-cost, compact solution for wavelength measurement of pulsed and CW laser sources from 450-1000nm.



Other innovations

LaserCheck – the pocket-sized laser power meter is now in stock

Coherent's LaserCheck™ is an affordable, pocket-sized laser power meter for CW laser powers from 0.5µW to 1W, at 400 to 1064nm. At higher powers the silicon sensor is protected from saturation with a built-in optical attenuator, and all measurements are displayed on a 3-digit LCD screen. LaserCheck is microprocessor-controlled with wavelength correction, auto-ranging (µW or mW displayed), optical attenuator, power overload warning and automatic shut off. Best of all, we have LaserChecks in stock for next day delivery.



What about "difficult to measure" lasers?

Labsphere's LPMS series of Integrating sphere radiometers are perfect for testing "difficult to measure" light sources. The integrating sphere provides an accurate and repeatable measurement of a laser regardless of the beam size, divergence, direction and any dynamic beam displacement, and is an ideal means of measuring laser diode bars and arrays. Also available is the new SC-6000 integrating sphere system controller which doubles as a precision radiometer and photometer.

www.pro-lite.co.uk/laser_test_overview



LaserVision – the company with its eye on laser safety

LaserVision continues to lead the way in technologically-advanced laser safety products that satisfy the requirements of BS EN 207 and 208. LaserVision offers absorbing mineral glass, high visibility coated filters as well as polymer lenses to give you just the right combination of protection, clear vision and light weight. Protection against all laser types is available – call Pro-Lite for selection advice for your laser. The following new products were displayed for the first time at Laser World of Photonics in Munich, June 2007.

www.pro-lite.co.uk/laser_safety_overview

The L-02K ALL STAR goggle

LaserVision's L-02K ALL STAR is the new top of the range goggle with reinforced frame for use with high power lasers. A head strap and malleable temples ensure all-day comfort. An optional Rx insert allows the ALL STAR to be used by those who wear prescription glasses.



Build your own laser safety enclosure with LaserVision's LaserBarrier

The LaserBarrier is a versatile and inexpensive laser safety system that allows you to design and build your own laser enclosure from a standard sheet size of 2050 x 980mm. An optional aluminium frame system makes it easy to construct individually tailored enclosures. Testing has shown this material is resistant to 10MW/cm² from YAG and CO₂ lasers.



Other frame styles



Pro-Lite to supply infrared detectors from GPD Optoelectronics

GPD has been a manufacturer of power and high speed Germanium transistors and diodes since 1973 and a manufacturer of infrared photodetectors since 1985. GPD offers Ge, p-n, p-i-n, APD and InGaAs p-i-n high speed and large area photodetectors for radiation detection, laser measurement and telecommunication applications. Our range comprises:

- ▶ Large area InGaAs
- ▶ High speed InGaAs
- ▶ Avalanche Ge
- ▶ Small area Ge
- ▶ Large area Ge

GPD welcomes requests for non-standard packages and windows, including dual-colour (silicon/germanium) detectors.

www.pro-lite.co.uk/detector_overview



Archer OpTx appoints Pro-Lite as its representative

Pro-Lite has been appointed to represent Texas-based lens manufacturer Archer OpTx. Archer OpTx supplies the finest quality, high precision moulded lenses at globally competitive prices. Archer moulded lenses are produced using the PerfectLens™ technology platform. This proprietary technology produces high-yield, long-life moulds, which are free of the high-frequency surface defects commonly found on many moulded lenses due to single-point diamond turning of the moulds. These high-frequency defects can produce troublesome diffraction effects, particularly in visible light applications.

www.pro-lite.co.uk/optics_overview

A full spectrum of accurate LED measurements from Labsphere

Labsphere sets the standard in the field of integrating sphere measurements of light sources. Labsphere has now released an expanded line-up of modular photometers which provides a complete solution for making accurate and repeatable measurements of LEDs.

At the heart of each photometer is a CCD spectrometer: entry-level VALUE systems feature the CDS-500 & -510; performance-orientated CHOICE solutions employ the CDS-1100 & -2100 with a cooled and back-thinned CCD for greater sensitivity and a wider dynamic range.

Total flux measurements are made using an LED measurement integrating sphere with diameters of 6, 10, 20, 40, 65 or 76 inches. Intensity heads perform candela measurements in compliance with CIE 127 condition A & B while a cosine-corrected receiver provides for spectral irradiance and lux measurements. A motorised goniometer measures the variation of intensity and colour with angle. Each LED test system is furnished with our advanced LightMTRX LED measurement software with flexible ActiveX API.

www.pro-lite.co.uk/led

Labsphere's family of LED test equipment now measures flux, spectrum, intensity, irradiance, view angle & colour (chromaticity, dominant wavelength, colour temperature & colour rendering)



- 1 LSA-3000 goniometer
- 2 CDS-1100 CCD spectrometer
- 3 IES-1000 irradiance receiver
- 4 I-2000 intensity receiver
- 5 LMS-100 25cm integrating sphere receiver
- 6 LightMTRX software

Expanded range of ProMetric® CCD imaging photometers launched

Radiant Imaging ProMetric® photometers are powerful, CCD-based light and colour measurement instruments that provide for vastly increased productivity compared with traditional 'spot' photometers. A simple spot meter only measures brightness at one point on a display or light source at a time; a CCD-based ProMetric photometer can measure millions of points simultaneously. Moreover, because the ProMetric camera views the whole light source at once, localised luminance and colour differences can be easily detected – artefacts that simple spot meters would probably miss.

Radiant Imaging has completely revamped its family of ProMetric CCD photometers and colorimeters in the past 12 months. Our range now comprises the following models:

- ▶ PM-1000 10-bit entry-level camera with interline CCD and photopic or RGB response
- ▶ PM-1200 12-bit camera with interline CCD and CIE tristimulus response
- ▶ PM-1400F 14-bit camera with choice of full-frame CCD sensors, CIE response and TE cooling
- ▶ PM-1600F 16-bit camera with choice of full-frame CCD sensors, CIE response and TE cooling

ProMetric® version 9.0 software has also been released. ProMetric 9.0 is a complete rewrite within the Windows .Net environment. Designed to provide users with the ultimate in convenience, utility and quality, ProMetric 9.0 provides improved measurement accuracy, more analysis capability and many user-friendly features designed to make your job easier. With .Net controls, users can build their own custom test and analysis sequences in Visual Studio 2005 or other .Net compatible programming languages. For ActiveX programmers there is also a limited set of ActiveX controls.

www.pro-lite.co.uk/prometric



Other news

NPL purchases Imaging Sphere

Ken Vassie at the National Physical Laboratory (NPL) has just taken delivery of an Imaging Sphere from Radiant Imaging. The Imaging Sphere provides for near-instantaneous capture of the full hemispherical angular luminous intensity and colour distribution from LEDs, the view angle performance of displays and the BRDF scatter and appearance performance of materials. Ken said "The ProMetric CCD imaging colorimeter and Imaging Sphere will add considerably to our display measurement capabilities; from our daylight legibility assessment work in our Ambient Illumination Laboratory to our display modelling work using the SPEOS CAD illumination tool."

www.npl.co.uk
www.pro-lite.co.uk/imaging_sphere

Pro-Lite now offers spectrometers from Ocean Optics

Pro-Lite is now a value-added reseller for the Ocean Optics range of miniature, fibre optic spectrometers. Pro-Lite's expertise in the field of integrating spheres and light source measurements means we will now be able to offer complete spectral measurement solutions for testing of light sources and the optical properties of materials.

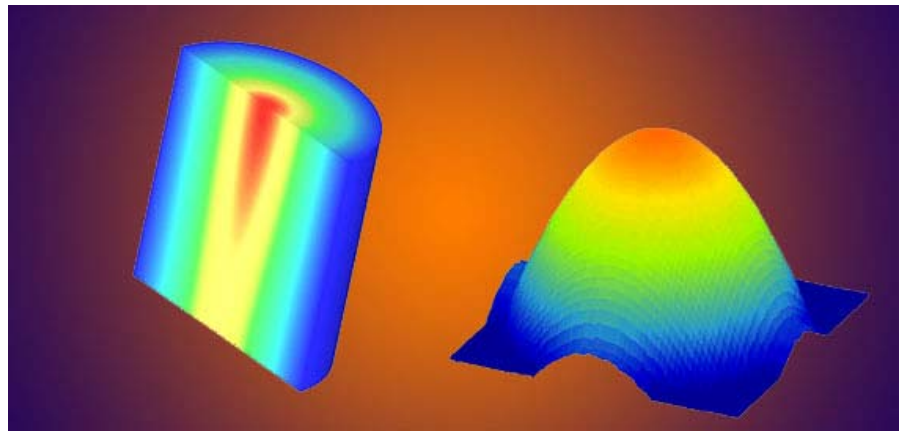
www.pro-lite.co.uk/spectrometer_overview

LAS-CAD laser cavity design software

Like building a Stradivarius violin, design of a laser resonator is a work of art. Similar to the vibrations of sound in a violin, the vibration modes of light in a laser cavity are controlled by a complex interaction of material properties and technical design. LASCAD software provides a quantitative understanding of this interaction, and assists the engineer in evaluating and improving design concepts for laser resonators.

LASCAD functions as an optical work-bench on a PC, saving potentially weeks of laboratory trials and thousands of Pounds. This means your products come to market more quickly and at lower cost. If you are designing lamp or diode pumped solid state lasers, we invite you to trial the demonstration version of LAS-CAD. Can you afford not to?

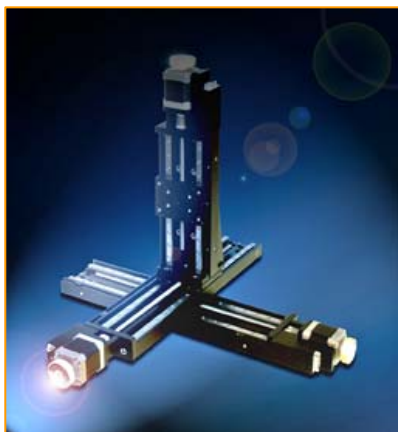
www.pro-lite.co.uk/las-cad_software



- ▶ Thermal and Structural Finite Element Analysis (FEA) of thermal effects in laser crystals,
- ▶ ABCD Gaussian Beam Propagation taking into account thermal lensing effects, gain guiding etc.
- ▶ 3D Wave Optics Beam Propagation Code including diffraction, gain saturation etc.
- ▶ Numerical Eigenmode Analysis.
- ▶ Beam Propagation outside the laser cavity

Affordable, precision opto-mechanics for beam handling & positioning

OWIS is a German manufacturer of affordable, optical beam handling and positioning systems. The company name is synonymous with quality, precision and perfection. The extensive OWIS product line includes:



- ▶ Optical beam handling systems
- ▶ Optical components (holders, mounts, stages)
- ▶ Manual positioning systems (linear, elevator, rotary stages)
- ▶ Motorised positioning systems
- ▶ Nano positioning systems

New products for 2007 include:

Multi-Axis Motion Controllers

The PS 30 is a high performance, 3-axis PCI card motion controller while the PS 90 is a modular, stand-alone position controller for up to 9 axes. Both models can control stepper as well as DC motors.

OWISoft Motion Control Software

The PS 30 & 90 are supplied with OWISoft software that provides simultaneous control of up to 12 axes of movement.

LTM-120 Linear Translation Stage

The LTM-120 is an affordable, motorised linear translation stage. This model offers up to 395mm travel and is available with bellows to protect the system from dirt. All OWIS translation stages can be easily combined into multi-axis motion control systems.

www.pro-lite.co.uk/opto-mechanics_overview

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Pro-Lite Technology LLP, Innovation Centre, University Way, Cranfield, MK43 0BT, United Kingdom
Tel: +44 (0) 1234 436110 Fax: +44 (0) 1234 436111 info@pro-lite.co.uk www.pro-lite.co.uk

At your service

Contract measurements

Pro-Lite offers cost-effective contract measurement services in two areas. 2D luminance and colour measurements of displays, LED clusters, illumination systems and signage are provided using our Radiant Imaging Pro-Metric CCD imaging photometer. Meanwhile, spectral flux and colour measurements on LEDs and other small light sources are made using our Labsphere SLMS LED 1050 integrating sphere spectroradiometer.

www.pro-lite.co.uk/service_overview

Training courses

For those working with LEDs, learn how to speak "LED", measure accurately and ease the pain of communicating specifications to your supply chain. Our one-day Introduction to Photometry & Colorimetry Course has been universally praised for making the science of light measurements accessible and has been delivered to more than 120 people since 2005. This course is delivered through the Photonics Cluster in Birmingham, although bespoke, on-site courses can be provided.

For those working with sunscreens and the Labsphere UV-1000, we offer a master class seminar on the science of in-vitro sunscreen SPF determination and how to get the most out of your instrument.

www.pro-lite.co.uk/training_overview