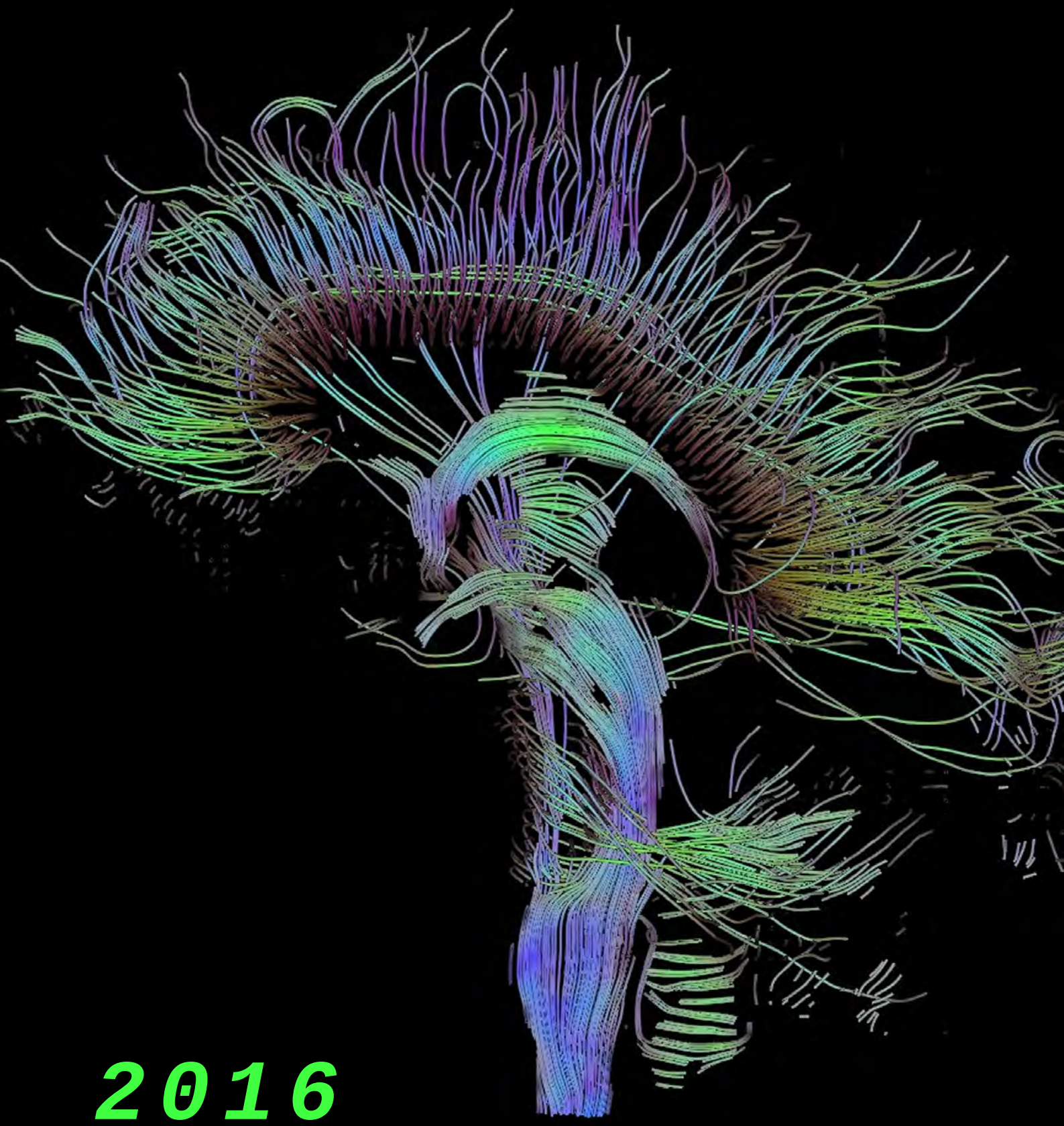
solution science

Elliot Scientific

for research and industry



2016 Newsletters

About us

Elliot Scientific serves the UK and Ireland's academic, industrial and research communities as a major supplier of equipment dedicated to the science of light.

Speciality optical fibre and custom optics, lasers and LEDs, positioning systems and opto-mechanics, cryogenic and magnetic instruments, sensors and systems are just some of the technologies we source from leading manufacturers.

We also design and build our own ranges that are marketed globally under the Elliot│Martock and Elliot Scientific brands. These include award-winning Optical Tweezers, world-renowned flexure stages, micropositioners, fibre positioning components, automated alignment systems, waveguide manipulators and many others.

All of our customers - from academic institutions and government agencies through to commercial researchers and industry - are provided with the highest levels of service backed up by solid technical support from our knowledgeable team.

Solution Science for Research and Industry

We pride ourselves in offering *Solution Science for Research and Industry*. We employ the best-qualified staff to help you sift through the multitude of options available to get the equipment and systems that match your needs.

Elliot Scientific's experienced scientists and engineers will assist you with your product search or application, and offer accurate and balanced advice. Many of the team have been with us for over a decade, bringing with them a huge amount of real-world know-how for you to tap into. That's Solution Science.

Our accounting and administration staff are also recruited from the best, ensuring that you have a high quality of service at all levels of the company.

Quality

For more than 20 years Elliot Scientific has understood the need for continual improvement in services and traceability, both in distribution and manufacture. After achieving BS EN ISO 9002 certification in 1993, Elliot Scientific progressed to its replacement - ISO 9001:2000 - in 2003. In the summer of 2016, we gained ISO 9001:2015 certification. Our commitment to quality always ensures our standards are the highest in our industry.

Elliot Scientific Limited

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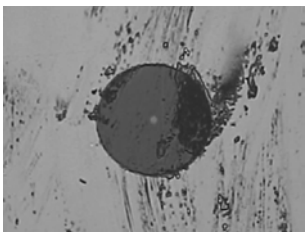
Elliot Scientific

solution science for research and industry

January 2016

Smarter optical fibre inspection with new probe range from EXFO

A dirty and/or damaged optical fibre is a common and avoidable problem, and EXFO's **intelligent fibre inspection solutions** are designed to simplify and speed this task. Proper connector inspection is an essential best practice.



The solution comprises an inspection probe linked to a display platform. The former provides a crisp magnified digital image of connector endfaces, over a Wi-Fi or USB connection, to a handheld test set with display for combined applications, a modular platform for advanced multitesting, a PC or laptop for labs, or even an Android™ smartphone or tablet for even more flexibility. Special analysis software helps ensure connectors and adaptors are clean and free of any defect, removing the risk of misinterpretation.

The EXFO FIP-400 series probes deliver a variety of functions depending on model chosen and display platform used. For more information on options and specifications, please **contact us**.

Smart control for the CryoLab via app from Kryoz Technologies

The **CryoLab Series** of plug-and-play desktop cooling systems can be remote controlled via a companion app and CryoVision software. All parameters can be seen at a glance in detail, and switching between user-defined set-points and saved programs can be made easily and quickly.

Designed for fully automated and rapid circuit or material characterisation measurements from ambient down to cryogenic temperatures, CryoLab delivers the results without the need for any experience or know-how of cryogenics, vacuum technology or thermodynamics from the user. Applications include:

- High Temperature Superconductors (HTS)
- Thin films & optical sensors
- Thermoelectrics - The Seebeck Effect
- Resistance & Hall coefficient measurements

An informative two minute **demo video can be seen here**, but for more information about **Kryoz Technologies** and their products, please **contact us**.

S.M.A.R.T. new RoadVista G7: Simple Measurement Acquisition for Retroreflective Technology

The **RoadVista Laserlux® G7** mobile retroreflectometer is a complete and sophisticated mobile highway retroreflectometer system that can be fitted to almost any vehicle and connected to any wireless device with a web browser via Wi-Fi.

Featuring proven optical head technology, the system objectively measures the retroreflectivity of road markings using a scanning laser source in real-time. Measurements are collected at the rate of 400 per second, and new high-speed data acquisition electronics and software along with precise angular settings of illumination and angle of observation ensure accuracy.

- 400 measurements/sec
- Versatile mount system
- Wi-Fi-enabled
- HD video recording
- Data overlay & maps
- USB data storage
- Self-calibrating

Laserlux® can be used either day or night at variable traffic speeds and provides both colour, contrast and retroreflectivity measurements. Data is logged together with GPS location data by the host vehicle's computer and stored on a USB memory stick. High definition video is also recorded with a data overlay, and clickable map files are generated as well.

For more information and detailed specifications, please **contact us**.

Latest Elliot Scientific publication uploaded to Issuu

If you missed any of them, our 2015 E-Newsletters are now available in a handy PDF *annual* (with built-in web links) that you can **download** or **read online**.

This publication adds to our ever expanding library of currently more than 90 documents available online via **Issuu**. Every e-newsletter, catalogue, and technical note we produce can be found as an easy to read or downloadable PDF there.

Gamma Scientific sharpens GS-1290 spectroradiometer specifications

GAMMA SCIENTIFIC
Light Measurement Solutions

The RadOMA™ range of advanced high-speed spectroradiometers manufactured by **Gamma Scientific**, deliver millisecond measurement speeds, exceptional low-light measurement capabilities, and superior blue-light region sensitivity. The latest versions of the **GS-1290** are now offering wavelength accuracies down to ±0.2 nm.

Multiple configurations cover a wide spectral range, from the ultraviolet to the near infrared:

- 200 to 890 nm (GS-1290-1)
- 200 to 1100 nm (GS-1290-2)
- 360 to 940 nm (GS-1290-3)

RadOMA™ spectroradiometers are ideally suited for testing retroreflected colour, reflectance and transmittance, LED colour and luminance, flat panel displays, and light sources.

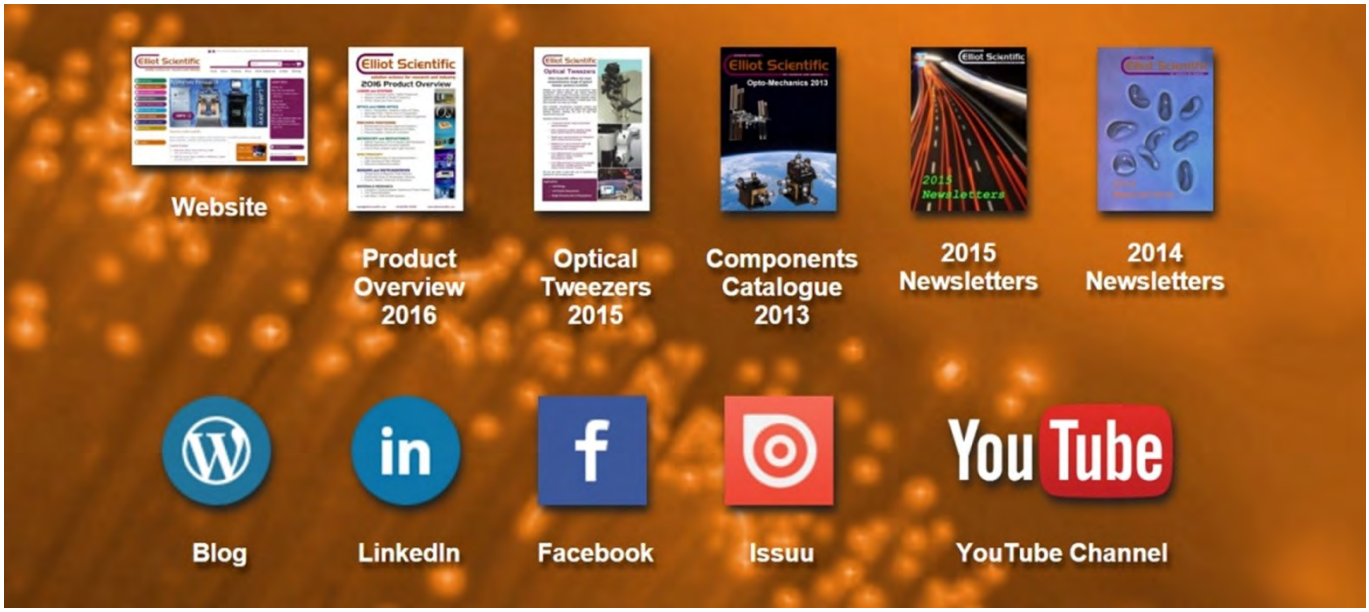
The systems are completely modular and interchangeable for easy upgrade or customisation, and can be self-calibrated by the user so they never have to be returned to the factory. For more information, please **contact us**.

Next month, meet Elliot Scientific at...

SPIE. PHOTONICS WEST

Photonics West

16th to 18th February 2016
Booth 4555 North Hall, Moscone Center, San Francisco



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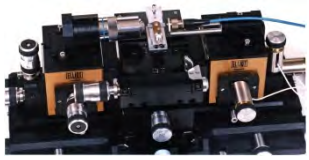
Photonex West Preview — February 2016

New DAli 3 delivers fast auto-alignment with precision via piezo-driven stages

E2300 DAli 3

E1100 Piezo Controller



Piezo-driven alignment

The **Elliot Scientific DAli 3** is the latest version of our popular automated photonic device alignment system for the following applications:

- Fibre-to-laser diode alignment
- Fibre-to-waveguide alignment
- Fibre-to-fibre coupling
- Fibre array-to-device alignment
- Compensation for epoxy drift during pigtailing
- Compensation for drift during long-term characterisation
- Simultaneous alignment of input & output fibres (or arrays) to waveguide device

A typical DAli 3 system now consists of our new 3-channel **E1100 piezo controller**, the USB-equipped DAli 3 interface, and a PC or laptop for driving the easy to use software.

Although designed to complement the piezo-driven versions of the Elliot Gold™ Series range of flexure stages, such as the **MDE123** and **MDE125**, it is also suited to other piezo devices working on 0 to 150 volts.

DAli 3 incorporates the latest in electronics and uses complex software algorithms to quickly deliver precision automated alignment. It does this by locating and optimising an optical feedback signal derived from the components being aligned. It then adjusts their relative position to optimise the signal and therefore their accurate alignment.

The software and hardware package includes many features to enhance use, while also providing the necessary flexibility to allow it to be incorporated into a wide range of photonic alignment tasks for development, test and production applications.

For more information, options and specifications, please **contact us**.

Elliot|Martock Gold Series Flexure Stages are of exceptional value to scientists and engineers

The **Gold Series Flexure Stages** are Elliot Scientific's greatest export. Scientists and engineers around the globe recognise that these high-resolution XYZ positioners outperform rivals and are of exceptional value - both in terms of price and usefulness.

Features

- 20 nm resolution with 2 mm travel per axis
- Excellent operation and superb long term stability
- Great versatility from a petite package

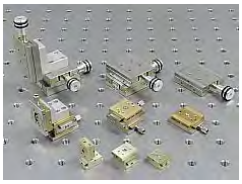
These precision engineered stages are highly adaptable for use in a multitude of situations.

Choose from systems preconfigured for **fibre launch**, such as free space light into photonic crystal fibres, or for alignment of other types of optical device. Note that we offer a number of left and/or right-handed ready-built configurations at lower cost when compared to purchasing individual parts.

The positioners can be purchased without adjusters, or select from simple thumbwheels, precision micrometers, and piezo driven actuators in any combination.

An extensive range of add-ons, accessories, and attachments ensure that most applications can be satisfied. If not, **contact us for a custom solution**.

Four decades of precision: Miniature slides from Elliot|Martock



Elliot Martock high-resolution (< 0.5 µm) **precision miniature dovetail slides** have been popular with scientists and OEMs for nearly 40 years.

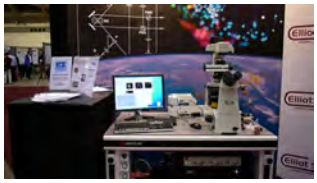
With a useful selection of Small, Very Small and Ultra Small models (with travels of 10, 5 and 3 mm respectively), the range satisfies many requirements for a stable and compact precision stage in both research and industry.

These market-leading micro-positioners offer single, dual and three axis configurations with a variety of adjustment options such as simple screws to precision micrometers. Small or very-small **rotary stages** with a variety of bore sizes complete the line-up.

Elliot Scientific also offers a range of accessories - such as the **MDE270 tilting stage** and various post adaptors - to complement each range and further enhance their flexibility of use.

For more information, please **contact us**.

Economic laser trapping with Elliot Scientific Optical Tweezers



Optical Tweezers have been around for a long time. Over 40 years have passed since Arthur Ashkin and his colleagues described the single-beam gradient force trap and sparked a realisation in many scientists that this novel instrument would be a powerful tool for use in the course of their research. However, the costs and complexities of building Optical Tweezers were often prohibitive.

With the development of easy to use 'straight out of the box' systems by Elliot Scientific, Optical Tweezers have come down from the heights of esoteric research and can be found in many labs around the world.

At Photonics West, Elliot Scientific will be showing how we economically add laser trapping to existing commercial research microscopes, and demonstrating the versatility of our Optical Tweezers with **video of real-life experiments**.

If you cannot get to the show, our latest **Optical Tweezers Brochure** describes all the systems we offer; from open architecture kits to complete computer-controlled multiple spot trapping systems with force detection and more.

From Tuesday, meet Elliot Scientific and some of the companies we represent at...

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CODIXX	#2023	**IPG Photonics**	#1523	**NoIR LaserShields**	#1301
Elliot Scientific	#4555	**Kinetic Systems**	#5428	**Nufern**	#4867
Energetiq	#4559	**Kozak Micro Adjusters**	#4435	**Optisource**	#300
Gamma Scientific	#5342	**Lambda Research Optics**	#416	**OZ Optics**	#4529
HOLOEYE	#2532	**Mad City Labs**	#532	**Prizmatix**	#5072
Integrated Optics	#2511	**Micro Laser Systems**	#902	**Vescent Photonics**	#4159

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Elliot Scientific

solution science for research and industry

March 2016

More eye protection from lasers: NoIR LaserShields expands range in UK

AG4 for 532 nm

YG5 for 1064 nm

RT filters for visual alignment

With the news of multiple high-profile incidents involving laser pens being pointed at passenger aircraft; Elliot Scientific welcomes the recent addition of four more CE-certified laser filters and several new stylish frames to our existing **NoIR LaserShields®** range. The filters are:

AG4 -blocks UV and 532 nm green light sources

YG5 - blocks IR lasers operating around 1064 nm

RT1 & RT2 - attenuate UV, 532 nm green and near-IR from about 800 to 1064 nm, making them ideal for visual alignment applications or laser pointer protection

Eyes can be permanently damaged by direct or reflected exposure to lasers, high-power LEDs and plasmas - arc welding for example.

NoIR safety eyewear is designed to absorb specific light energies, and must be selected by considering source wavelength(s) and peak irradiance, required optical density (OD), visual light transmittance, field of view, effects on natural colour rendition and frame comfort.

A number of frame styles are now also available in white, while an **extra small model** has been introduced for petite faces, adolescents and pre-teens. This will allow paediatric, medical and dental services involving laser treatments to offer better eye protection for children.

△👁👁 Your eyesight is important! Please **contact us** if you work with, or might be affected by, lasers or any other intense light source.

Elliot|Martock waveguide holders now with 'in copper' option

Elliot|Martock waveguide/device holders are now available manufactured from copper as a special order at additional cost. Any of the following **MDE74x range** can be supplied as such for applications requiring a heatsink capability.

- **MDE741** - Basic, plain mount for tape or adhesive clamping
- **MDE742** - Vacuum clamping
- **MDE743** - Mechanical clamping

The new holders are mainly for use with **Elliot Gold™ series flexure stages** and the **central workstations MDE881 and MDE883**, but can also be mounted on the **MDE147**, **MDE148** and **MDE149** brackets.

The **MDE744**, **MDE745**, and **MDE746** models are special versions of the MDE741 to MDE743 models for use with the **MDE717 and MDE718 fibre rotators**.

For more information, please **contact us.**

Mad City Labs introduce new Nano-LPMW low profile 3-axis positioner

Ideal for applications in optical trapping, microscopy, fluorescence imaging, single molecule spectroscopy and super resolution microscopy (SRM), the new **Nano-LPMW** from **Mad City Labs** is a unique 3-axis nanopositioning system designed to hold multiwell plates, slides, dishes and environmental chambers.

The Nano-LPMW has a low profile and extra-large centre aperture with 200 micron range of motion in all three axes. The low height of the Nano- LPMW Series allows it to be easily integrated into existing inverted optical microscopes and is compatible with a large range of microscope stages.

Like the related **Nano-LPS Series**, the Nano-LPMW is ideal for demanding microscopy applications which require long range travel, high stability, and three axes of motion.

The Nano-LPMW is the only 3-axis nanopositioning system which can hold multiwell plates and incubators, and deliver precise and repeatable motion. A function made possible through closed loop control combined with PicoQ® position sensors. For more information, please **contact us**.

EXFO's new CW tunable laser offers 10 pm resolution and 100 kHz linewidth in the C or L bands

The **EXFO FLS-2800** is a continuous wave (CW) tunable laser with a high-power output, narrow 100 kHz linewidth and 10 pm resolution tunability over the C or L band.

This laser offers a cost-effective and versatile solution for various applications, including coherent/orthogonal frequency-division multiplexing (OFDM) transmission and WDM network emulation. The FLS-2800 is available in single- or dual-laser configurations.

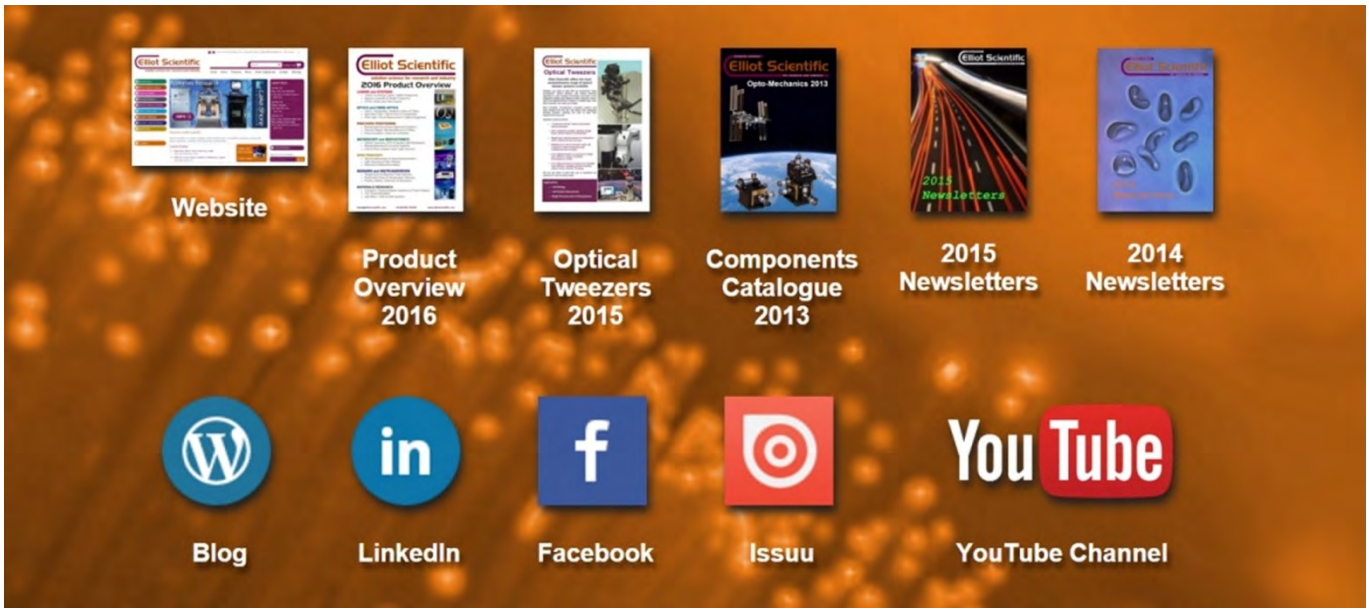
The FLS-2800 is easy to directly control using the knob on the front panel. Each laser is controlled separately, and both wavelength and power can be adjusted quickly and precisely. It is also possible to view the status of and control the FLS-2800 remotely via the USB or Ethernet ports by means of EXFO's TLM user interface.

For more information, please **contact us.**

Next month, Elliot Scientific will be exhibiting at the...

Photonex London Roadshow

11th April 2016
Imperial College
London



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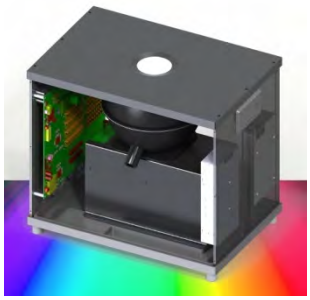
Gamma Scientific launches SpectralLED™ - the tunable LED light source



Typical programmed SpectralLED™ output profiles:

- Blackbody
- Daylight
- Fluorescent
- LED & CIE

GAMMA SCIENTIFIC Light Measurement Solutions

The new SpectralLED™ tunable light source from **Gamma Scientific** combines the output of 30 discrete LEDs - each having a different centre wavelength - to produce output that can be programmed to closely match virtually any illuminant source or the spectrum of any illuminant reflected by a target.

SpectralLED™ can sweep through wavelengths to simulate a scanning monochromator, but with the advantage of no moving parts. In addition to superior spectral resolution and accuracy, the SpectralLED™ also offers about 10x higher brightness than any competitive product. This allows measurements over a much larger, linear dynamic range, and is sufficient to illuminate virtually any detector at levels up to saturation.

A combination of DC constant current drivers, optical feedback, and thermoelectric cooling maintains the source's high luminance accuracy in real time, allowing brightness to be varied directly (through drive current), rather than by pulse width modulation (PWM). This eliminates any flicker.

The SpectralLED™ will allow sensor, camera and system manufacturers to perform a wide variety of calibration and testing functions with a single instrument. Applications include smartphones and tablets, DSLR cameras, cinematography camcorders, diagnostic medical imaging, technical and industrial photography, or any OEM camera, sensor or detector application. White balance, spatial uniformity, defects, linearity, dynamic range, signal-to-noise, responsivity and ISO speed are specific tests the SpectralLED™ is ideally suited for carrying out.

For more information, please **contact us.**

Latest Lake Shore 7400 VSM achieves over 3.4 Tesla

Lake Shore CRYOTRONICS

Lake Shore's 7400 series **Vibrating Sample Magnetometer** (VSM) is the most sensitive VSM available today. This VSM features a noise floor of:

- o 1.0×10^{-7} emu at 10 seconds per point sampling
- o 4.0×10^{-7} emu at 1.0 second per point and
- o 7.5×10^{-7} emu at 0.1 seconds per point

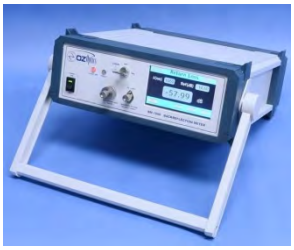
In addition to providing the lowest noise floor, the 7400's patented technology leads to a stability of 0.05% per day which surpasses the stability of any other commercial VSM.

Under full software automation it can measure and record hysteresis M(H) loops, torque curves, isothermal and DC demagnetisation remanence curves, and temperature dependent magnetic properties.

Models based on variable gap 4", 7" and 10" electromagnets are available, providing field strengths to above 3.4 T. While variable gap magnets allow for easy reconfiguration of the magnet gap to accommodate large samples of up to 1".

To discuss this product in more detail, please **contact us**.

Introducing benchtop test and measurement systems from OZ Optics



OZ Optics LIMITED — OZ Optics

OZ Optics is one of the leading fibre optic suppliers in the world, with an outstanding reputation as a manufacturer of quality components for use in telecommunications, laboratory, industrial, military and medical fields.

OZ Optics' **benchtop test instruments** offer touchscreen interfaces, built-in memory, and USB 2.0 interfaces to deliver functionality for streamlining and automating the measurement process. The unprecedented accuracy and superior performance, along with these premium features, make them ideal for component and device testing. Elliot Scientific offers a range of meters for two different applications:

Backreflection
Benchtop backreflection meters (BR) from OZ Optics utilise one or two broadband SLED sources for stability and sensitivity, and can work with single mode, polarisation maintaining, or multimode fibres. Operating wavelengths available include 1060, 830 and 650 nm, and industry-standard telecommunication bands.

Polarisation Extinction Ratio
The Polarisation Extinction Ratio meter (ER) analyses light from a fibre, and reports the polarisation extinction ratio of the light, in dB, as well as the orientation of the polarisation with respect to the connector key on the fibre. Extinction ratios of up to 50 dB can be measured, and the orientation can be determined with 0.3° resolution.

For specifications and pricing of these OZ Optics' products, please **contact us.**

CryoSpectra lowers the temperature with introduction of new K90 cryorefrigerator system

CryoSpectra deliver the simplest way to bring cryogenic temperatures into a vacuum chamber through their uniquely designed cryorefrigeration systems. Now available with base temperatures from 75 Kelvin , these high cooling capacity systems are easily the best way to cryogenically cool laser crystals via a very small cold head.

The CryoSpectra K Series of low acoustic noise cryorefrigerators are especially designed for work in the lab. The closed-loop cooling system ensures maintenance-free operation, while the super-compact cold head guarantees an ultra-low vibration (0.5 nm peak to peak - **see vibration data here**) chilled surface for inside the vacuum chambers of high power laser systems.

Features

- High cooling capacity
- Cool-down time 20 minutes
- Compact cold head
- Practically vibration-free
- Low maintenance
- Quiet operation

Applications

- Laser crystal cooling
- High power laser amplifiers
- CEP stabilised laser systems
- Ti:Sapphire amplifier systems
- Quantum Cascade Lasers
- Cryopumping

Over a dozen models delivering between 75 and 170 Kelvin are available, with each cryorefrigerator offering a particular cooling capacity dependent on compressor size and whether it is air or water-cooled.

The 38 or 50 mm diameter gold-plated and polished cold heads are available with CFF or KF flanges for easy attachment, eliminating the need for costly custom vacuum chambers. The unique, compact design also allows for a reduction in chamber size, leading to better vacuum conditions and the benefit of reduced pump down times. For more information, please **contact us**.

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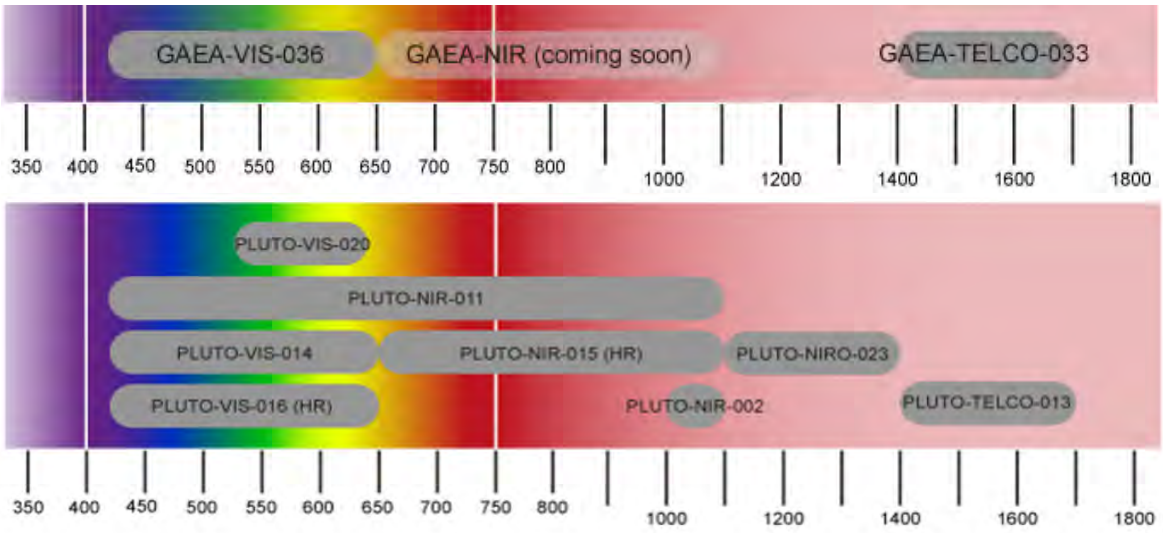
HOLOEYE introduces GAEA Ultra HD 10MP SLM; also improves PLUTO specifications

Spatial Light Modulator manufacturer **HOLOEYE Photonics** has just released a 4094 x 2464 pixel resolution SLM with the introduction of the **GAEA** range of Spatial Light Modulators (SLM). In addition, the **PLUTO** range of 1920 x 1080 pixel panels have recently been expanded with 8 models optimised for wavelength bands in the visible, infrared, or both.

The new GAEA phase only SLMs will be available in three models: TELCO (IR), NIR and VIS(ible). They will consist of a driver unit with HDMI digital video interface, and a phase only LCOS (Liquid Crystal on Silicon) 10 megapixel (4K) microdisplay panel with a 0.7″ active area as measured diagonally. The very small 3.74 µm pixel pitch will enable high diffraction angles.



Device	Wavelength Range	Fill Factor	Comment
PLUTO-VIS-014	420 – 650 nm	93 %	
PLUTO-VIS-016	420 – 650 nm	93 %	High Retardation Version
PLUTO-VIS-020	530 – 640 nm	93 %	
PLUTO-NIR-011	420 – 1100 nm	93 %	
PLUTO-NIR-015	650 – 1100 nm	93 %	High Retardation Version
PLUTO-NIR-002	1000 – 1100 nm	87 %	
PLUTO-NIRO-023	1000 – 1400 nm	93 %	
PLUTO-TELCO-013	1400 – 1700 nm	93 %	

Standard panels provide a phase modulation up to and above 2π, while *High Retardation* versions offer up to 4π or even up to 6π phase functions to be addressed. This can be beneficial for wavefront functions, as it enables higher slopes and reduced transition points compared to the usual 2π encoding.

For more information about these and other SLM products, please visit our **HOLOEYE pages** or **contact us** direct.

Mad City Labs introduce new low profile 3-axis nanopositioner

Nano-LPMW with re-entrant slide holder.

Ideal for applications in optical trapping, microscopy, fluorescence imaging, single molecule spectroscopy and super resolution microscopy (SRM), the new **Nano-LPMW** from **Mad City Labs** is a unique 3-axis nanopositioning system designed to hold multiwell plates, slides, dishes and environmental chambers.

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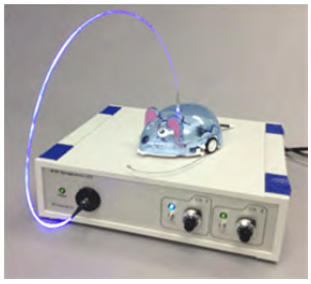
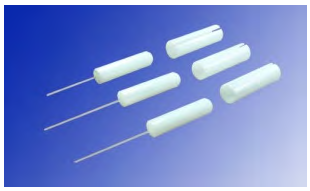
To discuss this or other **Mad City Labs'** products, please **contact us**.

In-vivo and In-vitro products for Optogenetics from Prizmatix





Prizmatix offer a full range of modules for in-vivo and in-vitro optogenetics. Starting from single wavelength plug-and-go Optogenetics-LED kits, to multi-wavelength systems in the same fibre for activation and silencing. From light sources to cannulae and everything in between, Prizmatix provides all the components necessary for researchers working in neuroscience, neurobiology, biochemistry and biophysics.

Fibre-coupled high-power Prizmatix **Optogenetics LED light sources** can be triggered by an external TTL input and are specially designed to provide violet, blue, green or red light for activation or silencing of various opsins such as Channelrhodopsin (ChR), Halorhodopsin (NpHR), Archaerhodopsin (ArchT) and many others.

With better than millisecond-scale temporal precision, Prizmatix has been the researcher's equipment choice in **over 200 published scientific papers**. For zebrafish larvae, Prizmatix also offer an Ultra High Power LED illumination system for microplate Optogenetic set-ups.

Visit our **Prizmatix product pages** or **contact us** for more details about this scientist-designed *Optogenetics Toolkit* range.

OZ Optics add to their component range

Variable Bandwidth Tunable Filter

OZ Optics has introduced a new tunable filter that has the ability to tune both the centre wavelength and the transmission bandwidth.

Two independently adjustable thin-film filters allow the setting of the lower and upper edges of the pass-band region. With this method, the pass-band can be tuned from 1 to 18 nm FWHM and the centre wavelength shifted by over 40 nm.

The transmission band features a flat-top profile, providing uniformly low losses and low PDL across the pass-band region, and high rejection ratios outside the pass-band. Devices can be custom made for wavelength regions of interest and can use either singlemode or polarisation maintaining fibres.

Two manual controllers to set the upper and lower pass-band regions, with an electrically controlled model due later this year. Applications include WDM testing, spectral filtering, spectral imaging or microscopy, and others.

Electronic Polarisation Controller/Scrambler

OZ Optics now offers a high speed electrically operated Polarisation Controller (EPC) that provides continuous polarisation control with negligible insertion and return losses in a compact, easy to operate package. Four birefringence transducers, each controlled by an analogue input signal, modify the polarisation in orthogonal directions. The device can be operated from 1260 to over 1650 nm (custom wavelengths available) with the response speed of each transducer surpassing 30 kHz.

The redundant transducer design allows continuous control of polarisation without having to *reset* voltages.

High Speed Polarisation Controllers are offered as base modules requiring external electrical signals to operate, OEM modules with driver electronics and control interface, or stand-alone benchtop test instruments.

Polarisation controller applications include:

- PDL control
- Polarisation scramblers
- PMD compensation modules

To discuss these or other **OZ Optics' components** in more detail, please **contact us**.

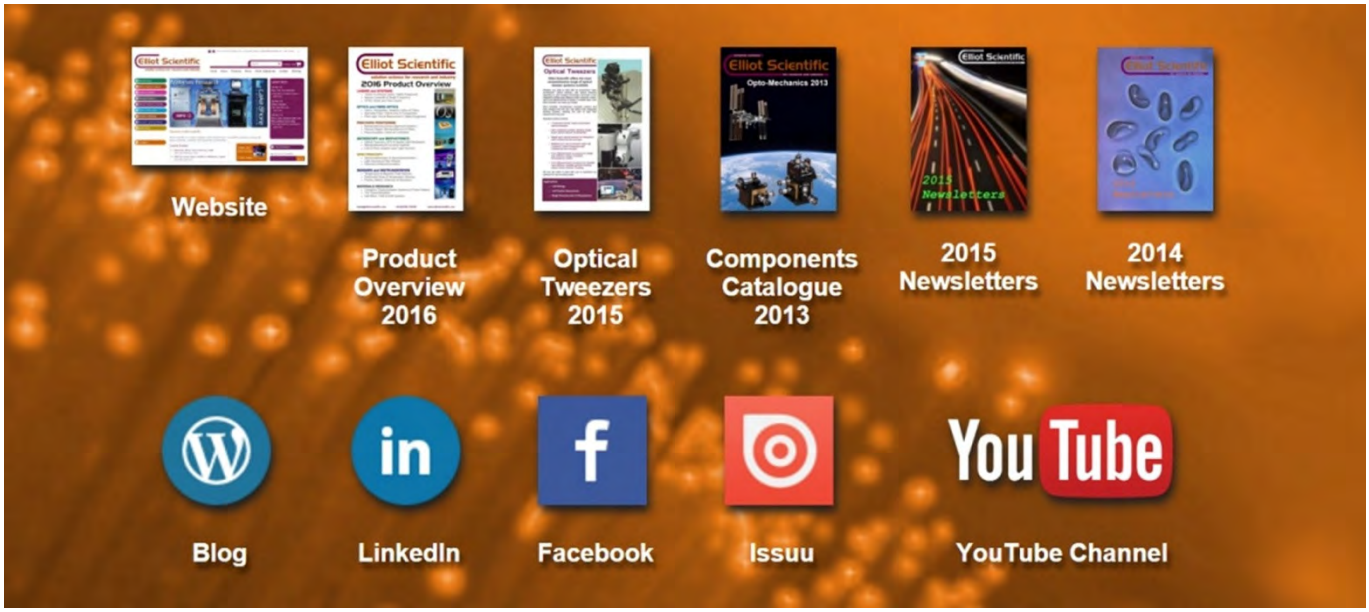
Elliot Scientific will be exhibiting this month alongside our Japanese distributor Autex, at...

OPIE'16
18th to 20th May 2016
Pacifico Yokohama, Japan

...and on our own next month at...

Photonex Scotland Roadshow
8th June 2016
Heriot-Watt University
Edinburgh

SPIE Astronomical Telescopes & Instrumentation Expo
28th to 29th June 2016
Edinburgh International Conference Centre



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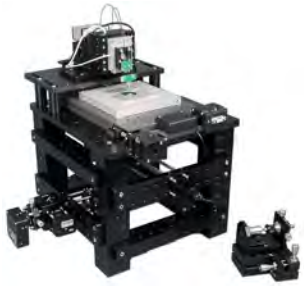
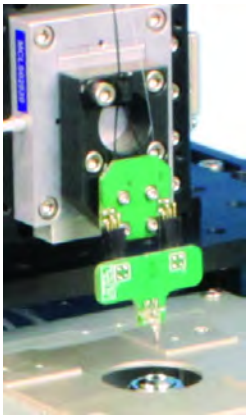
Near Field Scanning Optical Microscope is latest system from Mad City Labs





Mad City Labs' **Near Field Scanning Optical Microscope System (NSOM)** is based on their versatile **RM21™ microscope platform**. It offers NSOM, SPM, and fluorescence optical microscopy techniques in a single package.

The NSOM combines Mad City Labs' successful SPM resonant probe, the MadPLL® phase lock loop controller, and several of the company's precision positioning elements. For example, the NSOM includes six axes of motorised positioning for the sample and NSOM probe, and three axes of closed loop nanopositioning for exceptional position resolution and accuracy.

Other key items supplied are: a 635 nm laser excitation source with fibre launch, a 100x 1.25 N.A. oil immersion objective lens, an avalanche photodiode detector, a CMOS alignment camera, and various tuning fork probes (*image above*).

The microscope's versatile design allows researchers to configure the instrument for many different optical microscopy techniques such as:

- Aperture-less NSOM
- Resonant probe AFM
- Near field spectroscopy
- Fluorescence & epifluorescence microscopy

The NSOM operates in aperture mode, supporting illumination; collection; illumination and collection; reflection and reflection collection, with shear force feedback. Mad City Labs supply a LabVIEW™ based software package which automates the motion control features.

For details about this and other products from **Mad City Labs**, please **contact us**.

Energetiq's EQ-400 offers the highest radiance available in a broadband white light source

Continuing the development of the highly successful **Laser-Driven Light Source (LDLS)** technology, Energetiq's 5th generation EQ-400 offers the highest radiance and irradiance available in a truly broadband white light source.

- Radiance >100 mW/mm^2.sr.nm
- Extreme high brightness from DUV to NIR: 170-2100 nm
- Very low noise and excellent spatial stability
- Dual beam output, or higher-output single-beam

The **EQ-400** features a compact lamp house, with clean construction that ensures long life and the ultimate in stability. With a 170 to 2100 nm wavelength range, and a choice of source dual-beam output or a single-beam output with retro-reflector, the EQ-400 is flexible for a broad variety of applications.

For details about the EQ-400 and other LDLS light sources **Energetiq** manufacture, please **contact us**.

Non-contact Visible Fault Location in fibre added to OZ Optics range

OZ Optics has expanded its range of **Visible Fibre Optic Fault Locators** with the addition of a benchtop non-contact tester, the ideal solution for inspecting devices with no connectors on the fibre ends.

Visible Fibre Optic Fault Locators launch either 520 or 635 nm laser diode light into a fibre to enable discovery of breaks or sharp bends, which are revealed by the resulting scattered light emerging from the sides of the cable.

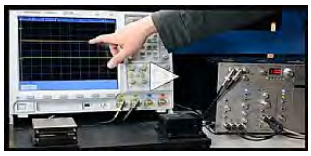
Fault locators are now available in four models: two benchtop and two portable...

- Benchtop Non-Contact, for CW and pulsed operation
- Benchtop CW High Power only
- Portable pen - CW only
- 'Pocket size' offering CW or pulsed output

Pulse modulation aids in locating faults under high ambient light conditions and improves battery life. 2 Hz modulation is easy to detect with the naked eye, while 270 Hz and 2 kHz pulse modulation modes are used for fibre identification by detectors. For more information, please **contact us**.

Laser Servo *Lock* technology demonstrated by Vescent

Lock robustness



Lock Guard™

Vescent Photonics have two videos demonstrating the robustness of their D2-125 servo-loop controller in maintaining lock.

The D2-125 Laser Servo is designed for low-noise servo control of lasers and other experimental systems. The PI^{2}D loop filter, with two-stage integral feedback, provides tight locking to cavities and atomic/molecular transitions. The D2-125 provides full user-control over the loop-filter parameters, enabling servo-loop optimisation for a wide variety of systems such as: acousto and electro-optic actuators, voice coils, piezo actuators, temperature controllers, and so on.

Lock Guard™ Option

Auto relocking is available for the D2-125 Laser Servo as an option. Lock Guard™ detects when the servo loop filter has gone out of lock and automatically recaptures it. When it detects an Unlock Point (a fast change in the servo output), it disengages the servo and holds the output at the last known valid value. Lock Guard™ then waits for a Hold Time before re-engaging the lock. If, during the Settle Time, it detects that the system is still out of lock it will try again. Lock Guard™ control parameters are all user adjustable for maximum flexibility.

If your delicate laser experiment keeps losing its lock, **contact us** for more information.

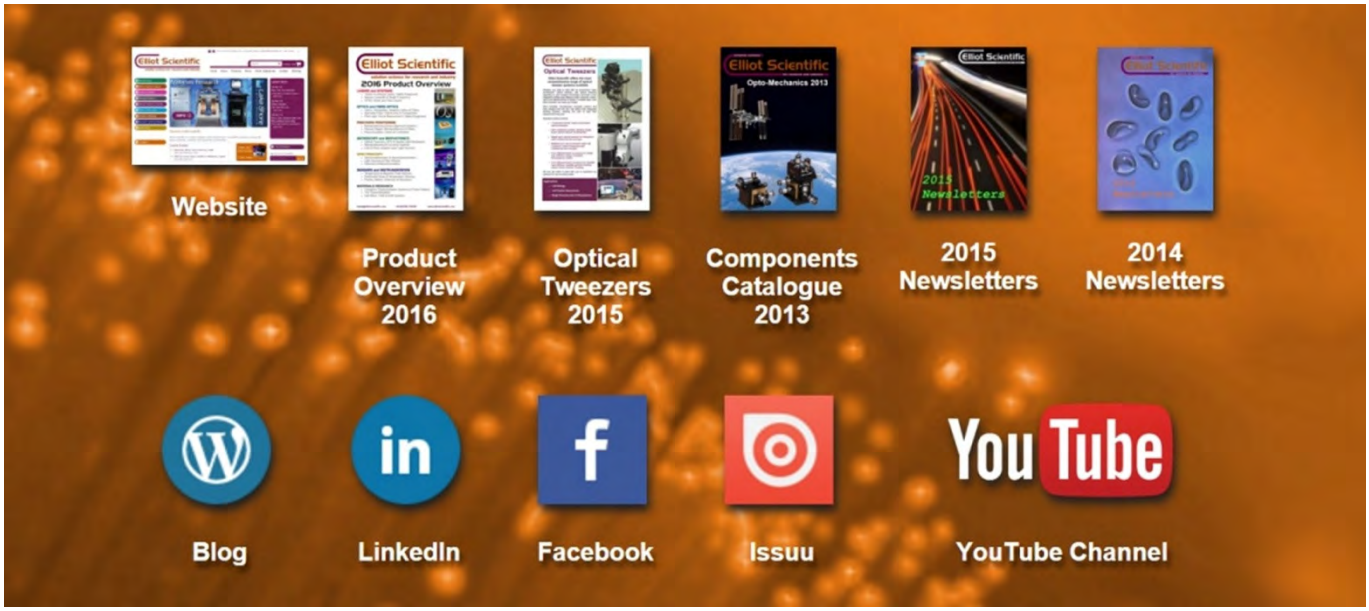
This month, Elliot Scientific will be exhibiting at...

Photonex Scotland Roadshow

8th June 2016
Heriot-Watt University
Edinburgh

SPIE Astronomical Telescopes & Instrumentation Expo

28th-29th June 2016
Edinburgh International Conference Centre



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Elliot Scientific

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July 2016

Elliot Scientific achieves latest ISO 9001:2015 certification

Every year Elliot Scientific is assessed for **ISO 9001** compliance. The company's methods and procedures are measured against a set of international quality management standards designed to ensure that customers get consistent, good quality products and services.

Last September, the International Organization for Standardization (ISO) ratified an update to the criteria of the ISO 9001:2008 quality management system and issued the new 2015 standard (video explanation **here**).

At the end of May, external auditors judged Elliot Scientific's existing quality management framework complied with ISO 9001:2015 *without any need for change*... a fitting testament to the company's ethos of understanding the need for continual improvement in services and traceability, and demonstrating our commitment to ensuring that our standards are always the highest in our industry.

New Product Guide from Lake Shore now in print and online

Lake Shore's latest 4-page guide to their range of products is now available from us. Printed copies are ready to be sent out on request to customers in the UK and Ireland, but the simplest and quickest way to receive a copy is to **download it**.

The mini-brochure covers the different sensors, instruments, and systems Lake Shore Cryotronics offer for particular applications. Categories include:

- **Temperature products**
- **Magnetic products**
- **Materials characterisation systems**

Please **contact us** if you would like the print version.

A versatile gauge against which others can be measured - Capacitance

Andeen-Hagerling have manufactured capacitance and capacitance/loss bridge test equipment for use in the lab and field for over thirty years. Their products can measure pressure, cryogenic temperatures, or fluid levels, and are also used in material characterisation and displacement/strain testing. The company offers a range of instrumentation that includes:

Capacitance and Loss Meters: The Andeen-Hagerling AH 2550A series measures capacitance and loss in medium and high impedance ranges.

Capacitance Standards: The Andeen-Hagerling AH 1100 capacitance standard frame contains up to four AH 11A fused-silica capacitance standards, and provides reference capacitors of unexcelled stability.

Multi-frequency Capacitance/Loss Bridges: The AH 2700 series offers unparalleled stability, resolution, linearity and accuracy in a multi-frequency capacitance/loss bridge.

For in-depth information about these products and their applications, **contact us** now.

Tristan Technologies deliver sensitive magnetometry for physics and the biological sciences

Tristan Technologies manufacture superior SQUID sensors for use in magnetic sensing applications such as materials analysis and biomagnetism. Tristan's range of sensors, instrumentation and electronics deliver benefits to a number of sectors that include manufacturing, engineering, and the medical sciences.

The high-performance iMAG series of SQUID components includes microprocessor-based multichannel control electronics and advanced fibre optic linked flux-locked loop circuits. Tristan manufactures SQUID systems based on either low-temperature or high-temperature technology. For more information, please **contact us**.

Best seller from Neoptix: OmniFlex 2

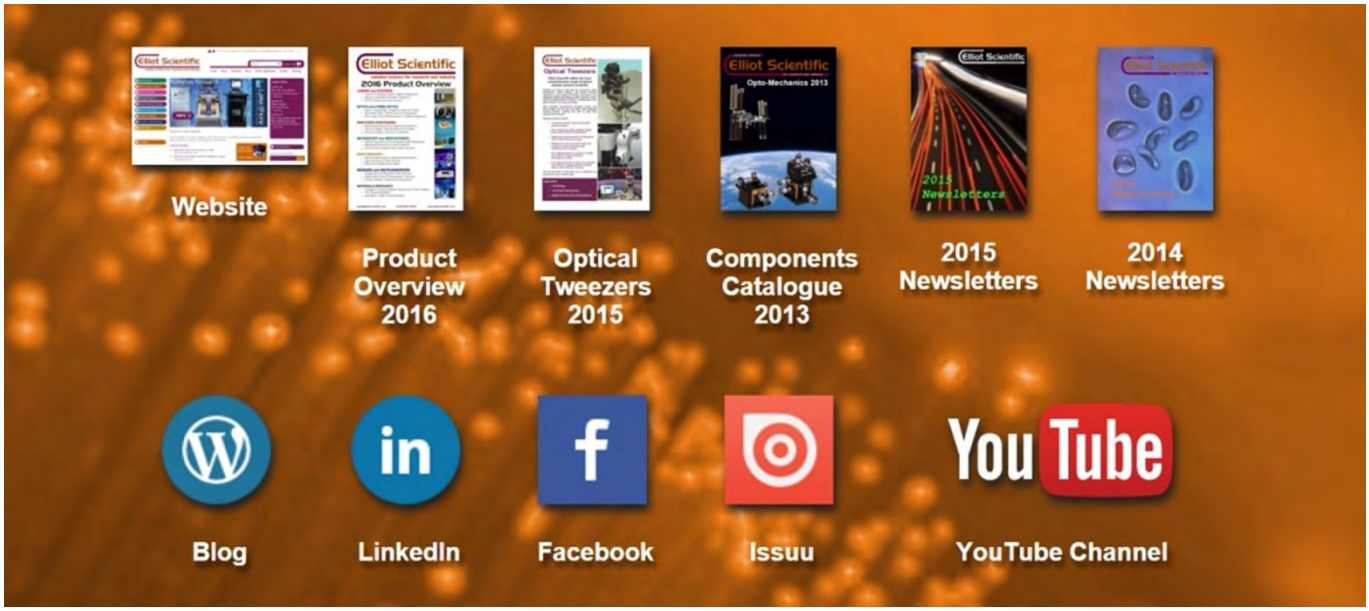
The **OmniFlex™ 2 System**, a multi-channel temperature monitor field upgradeable to as many as 104 channels, has proved to be a best seller here for **Neoptix** in the past few months since it was added to their fibre optic temperature measurement range.

The OmniFlex 2 System allows use of several types of plug-in OmniModules in the same chassis. These modules can easily be mixed and matched to meet the needs of specific test projects. Current OmniModules are:

- 4-channel direct measurement module operating at 10 Hz/channel
- 4-channel multiplexed module operating at 250 ms/channel
- 8-channel multiplexed module operating at 250 ms/channel
- 16-channel 0-10 V analogue output module

The basic OmniFlex 2 chassis is a standard 3U in height that can accomodate up to 6 OmniModules, while a 6U version can be fitted with a total of 13. Additional chassis can be cascaded by linking them via a router.

The unit can be controlled by its onboard colour touchscreen, or remotely using a web browser via Ethernet. The latter method is more comprehensive, as it enables remote module configuration, data-logging capabilities, full electrical isolation, and optional WiFi connectivity. For more information, please **contact us**.



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August 2016

New Lake Shore 240 Series precisely monitors distributed cryogenic temperature sensors

- 2 or 8 inputs
- 1 to 800 K
- Integral OLED display
- USB & PROFIBUS-DP
- Broad range of sensors

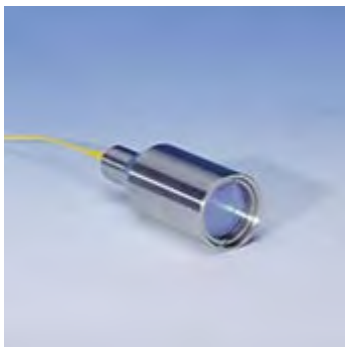
Lake Shore's new **240 Series** offers a convenient, modular input solution for precision monitoring of cryogenic temperature sensors in large-scale applications employing distributed PLC-based control. Conversion of sensor resistance/voltages to calibrated temperature units is performed automatically by the module and reported digitally to the controller via PROFIBUS-DP or Modbus.

Lake Shore's benchtop cryogenic instruments are trusted throughout the world for precision measurement. Now that same measurement performance can be achieved in widely distributed *big physics* applications like particle accelerators and fusion reactors, as well as other large industrial sites.

HR (High Reliability) Sensors are a family of off-the-shelf sensors that have already undergone extreme testing for mission-critical applications. Maglev systems, space telescopes, research satellites, supercolliders, and fusion reactors are just some of the projects that would benefit from installing them.

Register your interest in these products now.

New collimators expand already broad range from Micro Laser Systems



Fixed Wavelength

The FCX20 series is based on the standard FC20 Fibre Collimator but fixed at one wavelength. They offer a highly collimated, Gaussian beam with low wavefront error and are readily available in several popular wavelengths. The FCX20 comes with a 3 mm cable terminated with an FC or FC/APC connector.

Fused Silica

The FC5S and FC10S Fused Silica versions are of a multi-element design that delivers a highly collimated, Gaussian beam with low wavefront error. The lockable adjustable focus feature enables focusing a very tight spot at a great distance, or expansion of the beam to illuminate an area.

Contact us for more info about these and other **Micro Laser Systems**' products, or download the **fibre collimators overview here**.

New Nano-ZL ideal for high-speed multiwell plate imaging, says Mad City Labs

Watch closely...
500 microns of travel in action

The **Mad City Labs**' Nano-ZL Series are long range, Z-axis nanopositioners specifically designed to hold multiwell plates used in biomedical research. High-throughput single cell fluorescence microscopy and high speed, high resolution confocal imaging can be accomplished while simultaneously adjusting the Z-axis position to remove the effects of multiwell plate irregularities.

The **Nano-ZL Series** has true flexure guided motion and contains internal position sensing for a resolution of better than 1 nm over the full 500 µm travel range, and sub-nanometer for the shorter 100 µm travel range. In addition to high resolution spatial imaging, the Nano-ZL step response allows entire Z-section acquisitions with minimal photo bleaching. For more information, please **contact us**.

New EXFO benchtop optical power meter delivers industry-leading performance

By combining the FTB-1750 power meter module with the Windows-based LTB-1 platform, EXFO's new **LTK-1** delivers a high-performance benchtop power meter solution to the lab engineer, or the production manager looking for a small, cost-effective easily automated solution.

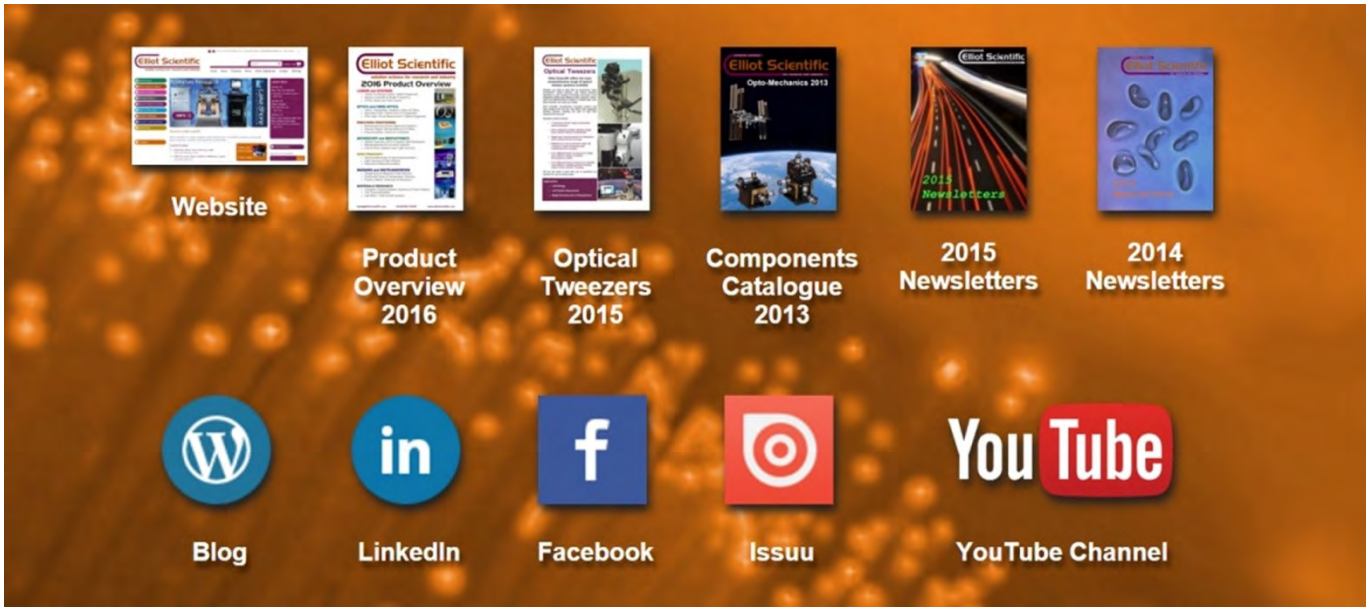
EXFO designed the LTK-1 for performance from the outset, giving it an 85 dB range, fast stabilisation times, and the ability to simultaneously measure high and low signals on up to four channels. In addition, the instrument benefits from Ethernet connectivity and is the only one on the market to offer a touchscreen display. EXFO's industry-leading **FIP-400B inspection probe** is also available as an LTK-1 optional extra.

Contact us now for details about the LTK-1 and other EXFO instruments.

Elliot Scientific will be exhibiting next month at...

Photon 16
6th to 7th September 2016
University of Leeds

Future Photonics Industry Day 2016
13th September 2016
University of Southampton



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solution science for research and industry

September 2016

Introducing Single Crystal Fibre Laser Systems - New products from Fibercryst

Elliot Scientific is pleased to introduce **Fibercryst**, the only manufacturer of short pulse lasers and amplifiers utilising the innovative Single Crystal Fibre technology (SCF).

Originally developed from a series of University research programs, the SCF technology has been refined and commercialised by Fibercryst and patented jointly with the Institut d'Optique, and offers significant performance advantages over existing technologies.

The products range from a full featured femtosecond micromachining laser, through a stand-alone commercial amplifier, to individual amplifier modules:

FEMTO

Fibercryst's laser system for the end user or laser micromachining product developer

A powerful industrial femtosecond pulse width laser offering output powers up to 25 W for high throughput, high quality micromachining. Delivering pulse energies in excess of 80 µJ (@ 100 kHz) in pulse widths of less than 900 fs, and with repetition rates selectable between 100 kHz and 2 MHz, FEMTO is ideal for:

- Cutting and drilling of hard materials
- Cold machining of polymers and composites
- Micromachining and structuring of surfaces, for example medical devices and semiconductors

Taranis Amplifier Systems

A stand-alone add-on Amplifier for the developer looking to increase the power and energy output of an existing installation

Taranis technology is incorporated into Fibercryst's standalone amplifier. Designed for a wide range of seed lasers providing either fibre coupled or free propagation mode inputs, the Taranis amplifier boosts a laser's high average power, high peak power (up to 30 MW) and high pulse energy to free space.

Taranis Laser Gain Module

For the researcher, a revolutionary gain module to develop or configure an individual amplifier design, from femtoseconds to CW

Taranis is the name for a unique solution to provide high peak power and high energy amplification using a simple and compact design. By using a single-crystal with a long length and a small diameter, short pulse amplification delivering a high intensity, linearly polarised laser light with superb beam quality and adjustable repetition rate can be achieved. Taranis SCF amplifier modules offer:

- Preservation of seed laser signal quality, M^2 and polarisation
- fs to ns pulse widths
- Yb:YAG fibre for 1030 nm, Nd:YAG for 1064 nm
- Peak power: **30 MW** | Average power: **250 W** | Energy: **5 mJ**

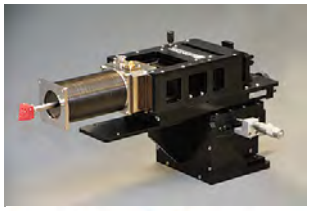
Taranis laser gain modules are water-cooled and can be used with one or two pump diodes, and in single or double-pass geometries. The inherent pump light guiding property of Taranis also makes it ideal for end-pumping configurations.

Sub-nanosecond mJ laser

Fibercryst also offers an affordable, unique 1064 nm sub-ns laser system delivering more than 3 MW of peak power for use in research and test labs. Designed using MOPA architecture as a standalone unit combining a commercial 500 ps seed laser with the Fibercryst Taranis amplifier, it takes full advantage of the technology to provide a polarised beam, TEM_{00} output and 2 mJ of pulse energy for applications in LIBS, LIDAR & nonlinear optics; Supercontinuum, OPO, THz generation; and the biosciences.

Register your interest in these products now.

New THz Arm for Lake Shore Cryogenic Probe Stations



Lake Shore Cryotronics is now taking advanced orders for their unique terahertz-frequency probe arm option compatible with the CPX, CPX-VF, CRX-4K, and CRX-VF **cryogenic probe stations**. The arm enables precise probing and measurement of millimetre-wave devices at 75 to 110 GHz or 140 to 220 GHz within a tightly controlled cryogenic test environment.

When used with compatible probes, frequency extenders, and signal analysers, the probe arm allows for calibrated S-parameter and other high-frequency measurements as a function of low temperature and high magnetic field. This THz probe arm solution offers particular value to researchers developing next-generation electronics such as new MMIC, MEMS, LNA, and THz detector devices, and components for radio astronomy and 5G wireless applications. Please **contact us** for more details.

Seebeck measurements using CryoLab: Demo video from Kryoz

The Seebeck effect is the direct conversion of temperature differences to electric voltage and vice versa. A thermoelectric device creates voltage when there is a different temperature on each side. Conversely, when a voltage is applied to it, it creates a temperature difference.

By using the **CryoLab from Kryoz**, it is possible to measure the Seebeck coefficient of a material sample, wire or thin film from 373 Kelvin down to cryogenic temperatures. In this informative **video**, Kryoz demonstrate how such measurements are made using their equipment. For more information, please **contact us**.

Elliot Scientific Optics: Superior quality laser mirrors and waveplates from stock

Elliot Scientific Optics are a select range of superior quality laser optics in standard sizes that we offer from stock for next working-day delivery in the UK, along with made to order low-cost high-quality dyed glass, ND and dichroic filters.

The Elliot Scientific range of **high power, high performance Nd:YAG mirrors** are intended for laser beam steering applications. Hard e-beam deposited dielectrics on BK7 ensures excellent power handling; abrasion, moisture and laboratory solvent resistance.

Our range of **high power zero order waveplates** have the damage threshold of an optically contacted interface, the mechanical strength of a solid component, and the price tag of multiple-order waveplates thanks to cement-free Molecular Fusion™ manufacturing.

Elliot Scientific's **filter catalogue** is available in ½″ or 1″ diameters, or as 2″ squares of genuine Schott® glass. Our dichroic and ND filter ranges are also offered in the same formats, but do **contact us** about custom sizes and other **specialist optics** we supply.

Elliot Scientific will be exhibiting next month at...

Photonex 16
12th to 13th October 2016
Coventry

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Photonex Edition — October 2016

Photonex
Technology of Light
12th & 13th October 2016
Ricoh Arena Coventry · UK

Tomorrow, the UK's premier show dedicated to the technology of light opens for two days of talks and networking plus a major exhibition by leading manufacturers and distributors. **Photonex** brings together all aspects of industry and academia, helps develop strong business relationships, and allows visitors to discover how photonics can help research or manufacturing projects.

Elliot Scientific will be on **Stand B10** with a selection of demonstration equipment from the top companies we represent within the key technology areas below. We will also be offering our *solution science* know-how, based on decades of experience, to assist you with your product search or application.

NEW PRODUCTS

Several recently introduced products will also be highlighted by us at Photonex, among them being:

- **Energetiq Technologies' EQ-77** - a new high brightness Laser Driven Light Source
- **IPG Photonics' RLR Raman Fibre Laser** - 30 W of power at 1620 nm
- **Mad City Labs' MadMotor™** - a UHV-compatible piezo-driven micropositioning system

These new products will be covered in detail in the next newsletter

fibercryst

LASERS and SYSTEMS

- Visible to Infrared Lasers
- Diode, Fibre & Raman Lasers
- Free-space and Fibre-coupled
- Laser-driven Light Sources
- Laser-crystal Cooling Systems
- Safety Equipment

IPG PHOTONICS

ENERGETIQ

OPTICS and FIBRE-OPTICS

- Bespoke Optics, Mirrors, Prisms & Windows
- Optics for Lasers: Collimators & Focusers
- Filters & Polarisers
- Speciality Optical Fibre & Patchcords
- Test & Measurement Equipment
- CO_2 *Snow* Cleaning Equipment

µLS Micro Laser Systems

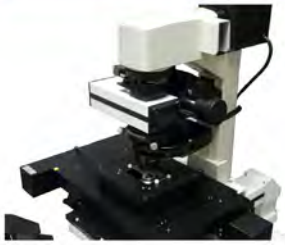
MCL
MAD CITY LABS INC.

PRECISION POSITIONING

- Pico & Nanopositioning Equipment
- Auto-alignment Systems
- Flexure Stages, Micropositioners & Slides
- Kinematic Mounts with Fine Adjustment
- Piezo Actuators & Stepper Motors
- Micro Adjuster Screw Sets

HOLOEYE

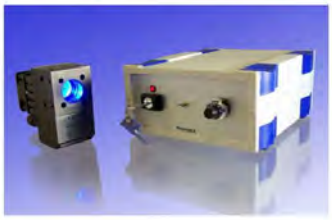
Elliot Scientific



MICROSCOPY and BIOPHOTONICS

- Optical Tweezers - Add-ons or Systems
- Atomic Force Microscopy Kits
- Spatial Light Modulators
- Picopositioning & Focusing Systems
- LED & Fibre-coupled Laser Light Sources
- Accessories for Optogenetic Experiments

Prizmatix



GAMMA SCIENTIFIC
Light Measurement Solutions

SPECTROSCOPY

- Spectroradiometers & Spectrophotometers
- Photometers & Colourimeters
- Integrating Spheres & Reflectometers
- Light Sources & Filter Wheels
- Detectors & Monochromators
- Raman Microspectrometers

CRAIC TECHNOLOGIES

AH

SENSORS and INSTRUMENTATION

- Precision Capacitance Measurement
- Temperature Sensors
- Magnetic Field Probes
- DSTM Systems & Fibre Test Equipment
- Laser Driver Modules
- Meters, Controllers, Detectors & Receivers

KRYOZ technologies

Lake Shore
CRYOTRONICS

MATERIALS RESEARCH

- Cryogenic Characterisation Systems
- THz Characterisation Systems
- Hall Effect, VSM & AGM Systems
- Cryogenic Circuit Characterisation Systems
- Probe Stations
- SQUID Sensors & Magnetometers

Tristan Technologies, Inc.

Vescent PHOTONICS

ELLIOT MARTOCK

KINETIC SYSTEMS INC.

CryoSpectra®
Cryogenics is our passion.

Blog | LinkedIn | Twitter | Facebook | Issuu | YouTube Channel

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Energetiq Technologies' EQ-77 - a new high brightness Laser Driven Light Source

Energetiq Technologies has released details of their new **EQ-77**, an extremely bright and broadband - from 170 nm through to visible and beyond - light source.

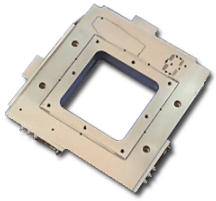
The EQ-77 offers the highest radiance and irradiance available (Up to 4x that of the current **EQ-99** model) in a truly broadband white light source with a choice of dual-beam output or a single-beam output with retro-reflector.

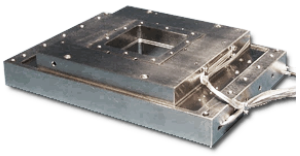
Specifically designed for critical spectroscopy and imaging applications, the EQ-77's superior spatial and power stability ensures highly repeatable measurements are delivered by a variety of applications in the life and materials sciences.

The proprietary laser-driven bulb technology developed by Energetiq is known as LDLS™ - short for Laser-Driven Light Source. This enables the extreme high brightness and offers lifetimes an order of magnitude longer than traditional multi-lamp systems.

Please **contact us** for more details.

MadMotor™ and the Mad City Labs Nano-UHV Series





The **Mad City Labs**' engineering team understands the rigorous requirements of the ultra high vacuum environment, and so they ensure their designs always deliver robust and reliable operation. Mad City Labs offers a selection of positioning stages for use under UHV conditions as follows:

MadMotor™-UHV

For heavy-duty movement, the MadMotor™-UHV is an aluminium micropositioning system driven by piezo motors that offers high precision alignment of up to 6 kg over a 10 mm travel range at temperatures up to 150 °C. Systems can be supplied with 1, 2 or 3-axes, and all are provided with a matching Mad-Drive™ controller.

Nano-UHV Series

The Nano-UHV50 and Nano-UHV100 are dual-axis XY nanopositioning systems constructed from vacuum compatible materials. They offer 50 and 100 micron ranges respectively.

The Nano-UHV200 is a 3-axis XYZ system, delivering 200 microns of travel in each direction. Unlike the smaller models, it is constructed from non-magnetic titanium and 316 stainless steel.

All of these stages are equipped with internal position sensors to provide absolute and repeatable position measurement with picometre accuracy, all are bakeable at up to 100 °C, and all have apertures for access or an optical pathway.

For more information, please **contact us**.

New RLR Raman Fibre Lasers from IPG Photonics

IPG Photonics makes a number of fibre laser systems available specifically to the research community. Latest among the models on offer are a series of Raman fibre lasers.

CW Raman Fibre Lasers

The RLR series of Raman fibre lasers incorporate IPG's high power pump diodes to offer a superior pump source over other techniques such as frequency multiplexed single-mode laser diode combiners. The lasers operate over a wide temperature range without requiring thermoelectric coolers (TEC), delivering proven high reliability, efficiency and powers up to 100 W.

Based on a Ytterbium fibre laser and a Raman wavelength shifter, the initial IPG YLP single-mode fibre laser outputs wavelengths between 1050 and 1120 nm, while the cascaded Raman resonator utilising Bragg fiber gratings efficiently converts this to the chosen output wavelength. For example, 1064 nm converts to 1480 nm. The output is single-mode and randomly polarised.

For more information about these or other lasers IPG offers through Elliot Scientific, please **contact us**.

Fibre-optic temperature measurement system is immune to RF and microwave interference

neoptix
FIBER OPTIC TEMPERATURE SENSORS

Sensor immunity to electromagnetic interference and harsh environments makes the **Neoptix™ Reflex™** ideal in many manufacturing, power generation or research applications where multi-channel temperature measurement is required.

With its 4-channel capability, the fibre optic system based on proven GaAs technology ensures several 'hot spots' can be measured simultaneously. This allows for better temperature mapping on industrial processes or scientific experiments. The sensors used non-conductive and immune to electrical interference.

The standard Reflex™ measures over a temperature range of -80 to 250 °C with a resolution of 0.1 °C. Lower starting points, or higher end points, can be ordered on request.

For more about Reflex™ or other products from **Neoptix™**, please **contact us**.

Products 2016

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Opto-Mechanics 2013

October Newsletter

2015 Newsletters

2014 Newsletters

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New Vibrating Sample Magnetometers from Lake Shore Cryotronics

From 2017, Lake Shore's new 8600 VSM will be the most sensitive commercial instrument available

The new 8600 Series VSM from **Lake Shore Cryotronics** raises the bar for magnetometer performance and convenience by combining high sensitivity, rapid measurement speeds, and ease of operation for faster and more accurate measurements.

The entire **8600 Series** system has been conceived with a focus on a clean, ergonomic design that simplifies the researcher's interaction with the system. For example, a motorised head brings the sample to a comfortable height for easy, one-handed exchange of the sample rods.

Temperature options include a cryostat, high-temperature oven, and single stage variable temperature insert. The combined temperature range of the options is 4.2 to 1273 K, and all three options quickly slide into place and are auto-detected by the system's software - **video demonstration**.

Lake Shore VSMs are designed by scientists for scientists

8600 Series Features

- 0.33 x 10^{-7} emu noise floor at 10 sec/point
- 10 ms/pt data acquisition rate
- 5000 Oe/s field ramp rate
- Rapid, repeatable temperature option exchange
- High stability of ±0.05% per day
- Fields to 3.26 T
- Widest temperature range: 4.2 K to 1273 K

The magnet poles are also easily adjusted with a specially designed indexed positioning system that allows the pole gap to be set at one of six repeatable positions, eliminating the need to recalibrate after each change.

Lake Shore's new entry-level 7400-S VSM features variable gap electromagnets providing field strengths up to 3.42 T

7400-S Series

Available in three different variable gap electromagnet configurations providing fields up to 3.42 T, Lake Shore's new entry-level systems are sensitive, low-noise floor electromagnet-based VSMs that feature a broad temperature range capability of -269 to 1000 °C. Able to measure a wide range of sample types, the 7400-S is an ideal tool for materials research applications or magnetic material quality control.

An assortment of options, including low temperature cryostats, a high temperature oven, a single stage variable temperature assembly, vector coils, autorotation, and an MR probe can expand the system's functionality.

Please **contact us** for more details.

More CE-certified laser filters from NoIR LaserShields

NoIR LaserShields continues to expand their range of CE-approved filters for laser safety. Recent additions include the CT2 for use in the **visible**, and CTR, HYG and YGH filters for the **infrared** region of the spectrum.

NoIR have been manufacturing high-quality internationally-certified safety eyewear for the protection of laser users in a broad range of fields and applications for many years now, offering protection from:

- UV, visible, and IR lasers and other ultra-bright light sources
- Multiple waveband devices
- Therapeutic and cosmetic treatments (Patients and clinicians)
- Laser pens (For pilots and the emergency services)

Elliot Scientific's expert advice will guide you to the best in cost-effective laser safety. Academics, beauticians, clinicians et al, we can protect your eyes from laser mishaps.

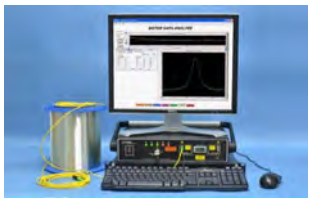
Contact us with details of your laser or ultra-bright light source application and we will be happy to help you choose the correct filters for spectacle frames or goggles.

NuSENSOR™ fibres are available with Polyimide, Carbon/Acrylate, or Carbon/Polyimide sheathing

The NuSENSOR™ product line, from **Nufern**, features graded index multimode (MM) fibres designed for Distributed Temperature Sensing (DTS), and single-mode (SM) fibres designed for Distributed Temperature and Strain Sensing (DTSS) and Fiber Bragg Grating (FBG) based sensors. Both the MM and SM fibres are available with polyimide coverings and either pure silica or germanium doped core glass compositions.

Nufern also offers these fibres with composite coatings: carbon/acrylate for temperatures up to 150 °C, or carbon/polyimide for up to 300 °C, making them also ideal for H_2 rich environments. Details about the NuSENSOR™ range can be obtained by **contacting us**.

Brillouin Optical Time Domain Reflectometry advances Foresight™ from OZ Optics



The addition of BOTDR (Brillouin Optical Time Domain Reflectometry) single-ended fibre measurement to the **Foresight™** Distributed Strain and Temperature Sensor (DSTS) from **OZ Optics** has given the company a strategic lead in construction, energy, and security applications.

Utilising Brillouin scattering in an optical fibre, the system can simultaneously sense changes in both temperature and strain along the length of a simple fibre, or the rapid detection and location of a major disturbance within a second, up to 70 km away.

- Live measurement of strain and temperature
- BOTDA and OTDR, and/or BOTDR
- Fibre configuration:
  - Loop - Up to 100 km round trip
  - Single-ended - Up to 70 km
- Multiple channel monitoring
- Real-time fault point detection
- High spatial strain and temperature resolution

For more information about Foresight™ and BOTDR, download the **datasheet**, or **contact us** directly.

Winter Holiday Schedule

Elliot Scientific's offices will be closed from end of business on:

*** Friday, December 23rd. 2016**

We re-open at 08:30 GMT on:

*** Tuesday, January 3rd. 2017**

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