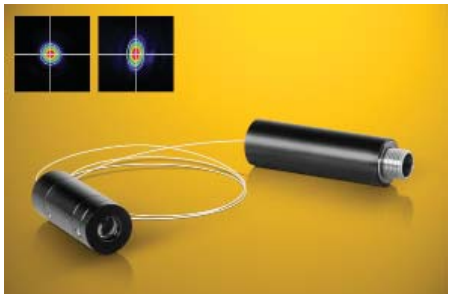
PHOTONICS NEWS

Company Newsletter of LASER COMPONENTS (UK) LTD

December 2016
Issue 56

FLEXPOINT® MVfiber Laser Module

The new FLEXPOINT® MVfiber laser module is set to revolutionise machine vision technologies. The MVfiber consists of a laser coupled to a single-mode fibre which can be connected to a variety of fibre laser heads. This separation of the laser and optical head reduces scattered laser light and prevents side modes, which results in precise laser projection for applications such as 3D measurements, bio-photonics, and medical applications. As the electrical components that would usually undergo thermal expansion are now separated from the optical head, the thermal drift is reduced nearly to zero, optimising the performance of the electro-optical system.



The MVfiber is already a popular choice for OEM system integrators as the compact design and remote beam delivery allow builders to isolate, position, and heat sink the active laser component and feed the optimised laser light to where it is required. The optical head is available with different beam profiles, such as homogeneous lines, Gaussian lines, dot projections, and more than 60 different DOE optics that produce parallel lines, dot matrices and circles.

Webcode: UK56-0740

SEEPOS PSD Signal Processing System

The SEEPOS PSD Signal Processing System is our newest position sensing detector (PSD) technology which provides a simple and intuitive software environment where the performance of a PSD can be evaluated in real-time, and the data saved for later processing.

The SEEPOS system includes the hardware, cables, and software required to connect the unit to your PC, where the software interface is simple and clear and provides you with the capability to alter and manipulate features such as data sampling, bias voltage, and modulation settings, including a trigger source for laser modules! The SEEPOS is compatible with a range of PSDs which are pre-connected to a D-sub 9 connector, allowing for easy connection to the system.

The SEEPOS is ideal for users new to PSDs who prefer to use a software interface to evaluate the device performance before progressing to installing a PSD in their own product.

Webcode: UK56-0230

Athermal NIR Narrow Bandpass Filters

Narrow band NIR filters that remain stable spectrally over a wide range of temperatures are essential for a multitude of applications, especially laser communication and LIDAR. This is why we are proud to be able to supply Omega Optical's latest 4-cavity Fabry-Perot narrowband filters.

These have high thermal stability between -60°C and +80°C due to being fabricated from hard oxide materials and matched to their substrate. This additionally reduces angle sensitivity so the off-angle performance is improved but adjacent laser lines and ambient light are rejected due to steep edge slopes. We are able to provide this for custom wavelengths and sizes to suit your requirements.

Webcode: UK56-0850

IR Viewer

LASER COMPONENTS can now supply low cost mobile viewers, used to convert light sources in the IR or UV range to visible green light, which can be easily seen. An image is created in a converter tube in real time so there are no delays waiting for it to appear on a screen. These are battery operated with a handle (which is removable on some viewers) so can be comfortably held and used without issue in many applications.

There are several different objectives available that provide a working distance of 10cm, 20cm, 30cm and 50cm to infinity. The iris diaphragm can be used to adjust the intensity and bandpass filters block out surrounding light to give you the best possible view of the laser. All viewers come in a handy transport case.

Webcode: UK56-0511

Dear colleagues

As we draw to a close for 2016 the country has seen many surprises especially within the political arena whilst we wait to understand the effects of Brexit. LCUK isn't immune since our Group is a multi-national company using several currencies. Whilst our expertise lies with photonics we are less fortunate not having a crystal ball (except for the silica type we could manufacture perhaps). What is very encouraging is that we remain on track with our year end growth target, which I am pleased to say was the same last year and the year before that. I hope that our customer and supplier partners also close 2016 on a positive note and that 2017 brings new opportunities. Merry Christmas and enjoy the festive break.

Chris Varney
Managing Director

Laser Process Heads

LASER COMPONENTS alongside Haas Laser Technologies Inc. offer a wide range of beam delivery components, including process heads for delivery of the focussed laser beam to the workpiece. We are now pleased to offer laser process heads for use with fibre lasers. Fibre laser process heads act as a protective housing for focussing optics in materials processing applications.

Each head features nozzle tip standoff adjustment and X-Y focussing lens adjustment. Cover glass is removable and replaceable to ensure the best protection for the optics. An internal gas jet manifold is included for introducing assist gas to the work piece.

A range of standard focal lengths from 50mm to 150mm are available, alongside a number of fibre connector and fibre collimator options. Fibre process heads are offered as standard for use at 1064nm, with other wavelengths available.

Webcode: UK56-0010

Monochromators

Monochromators are used to separate a broadband light source into a narrow wavelength band of interest. We offer Optometrics' range of high performance, low cost monochromators for UV-VIS-NIR, ideal for use in spectroscopy due to their narrow wavelength bands and ability to target specific lines. Throughput, resolution, stray light and power handling are comparable to many larger, more expensive monochromators. This series is designed to minimise astigmatic aberrations, for high instrument resolution.

Manual and automated monochromators are available with optional digital wavelength readout. We also provide scanning monochromators in ranges from UV to NIR for applications where a wide variety of wavelengths are required to test a sample.

The advantages of using a diffraction grating over a prism in a monochromator are a high wavelength dependency on dispersion and a low temperature dependency. Our monochromators can be used with a comparator and reticule to form a hand held spectrometer.

Webcode: UK56-0852

850nm, 905nm and 1550nm Pulsed Laser Diodes

Working in accompaniment with our range of avalanche photodiodes, we are proud to provide a range of pulsed laser diodes at 850nm, 905nm and, as a solution in eye-safe range finding, 1550nm.

Readily producing pulse widths of 10s of ns and, depending on the wavelength, exhibiting peak output powers of up to 650W via a stacking arrangement, these pulsed laser diodes are perfect for range finding and surveying applications

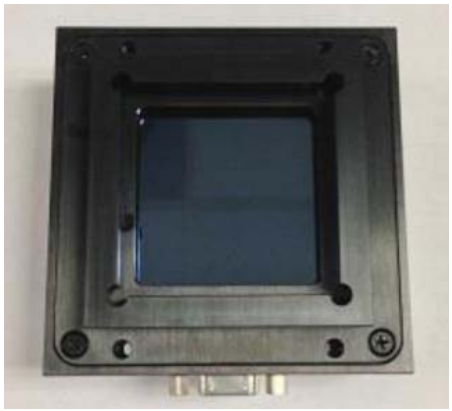
These PLDs also feature a proven InGaAs/GaAs high reliability structure and demonstrate excellent temperature stability.

A range of options is available to suit requirements for varying emitter stripe widths and package design.

Webcode: UK56-0410

OT-4040 RS45

To complement the OT-4040 laser alignment system we have developed a larger, 45x45mm reference target for a



greater range of measurement and motion compared to the standard reference targets. The OT-4040 RS45 is compatible with all current OT-4040 laser alignment systems and when used with the OT-4040 CPU the X-Y position of the laser spot from the OT-4040 LL Ultralign Laser will be instantly displayed.

The operational range of the OT-4040 system is up to 100m, boasting a resolution of 0.25µm. The laser line position can be read simultaneously by up to eight targets; one reference target and up to seven transparent targets. This position information can be read directly from the OT-4040 CPU's LED display, or saved to a computer using the RS-232 connector.

Webcode: UK56-0770

Blue Enhanced Single Photon Counting

Offering a unique combination of high quantum efficiency, wide dynamic range and ease of use for photon counting applications, the COUNT®BLUE provides everything needed for photon detection towards the blue end of the spectrum.

Superior photon detection efficiencies of >60% are readily achieved in the blue range and >65% in the green and yellow, making these modules some of the most competitive on the market for shorter wavelength detection. These modules combine our ultra-low noise avalanche photodiodes with specially developed quenching and processing electronics to deliver a powerful solution to detecting single photons.

Finding application in confocal microscopy, particulate sizing, fluorescence analysis, LIDAR, astronomy and Raman spectroscopy, the COUNT®BLUE can be provided with an optional FC fibre connector for even greater versatility.

Webcode: UK56-0290

New ModBox-VNA series

We would like to introduce the new Photline ModBox-VNA series from iXBlue. The ModBox-VNA is a family of wide bandwidth up to 65GHz Optical Transmitters

designed to extend Vector Network Analysers applications into the optical domain. The new series features models for use at 850nm, in the O band and the C band.

When associated with a Vector Network Analyser, they make a high performance and easy to use piece of test equipment for the characterisation of photoreceivers or any high speed optoelectronic device. The Photline ModBox-VNA series incorporates a low noise laser source and a modulation stage based on a high bandwidth $LiNbO_3$ modulator with an automatic bias control circuit. Other models in the ModBox range provide reference transmitters for telecommunication, analogue (RFoF), and pulsed applications.

Webcode: UK56-0960

UV Fibre Laser

We now offer the PUFL series of UV fibre lasers from Keopsys. These are pulsed laser sources emitting at 355nm, delivering high peak power pulse in a very compact package. The PUFL UV laser series is based on the combination of a powerful 1.0µm fibre laser and a com-pact/efficient frequency converter to give a 355nm output with peak powers up to 2kW and pulse energies up to 2µJ. The output beam is near Gaussian and collimated.

The laser system is compact and rugged and is delivered with an easy to use interface for driving the laser and keeping the frequency converter at a constant temperature. This source is ideal for aerosol detection, wafer inspection, fluorescence and Raman spectroscopy, or applications in biophysics.

Webcode: UK56-0190

CW Driver for High Power Laser Diodes

Suitable across a wide range of applications, particularly medical owing to the large number of safety and interlock features, the LDP-CW 80-20 is a compact and efficient current supply for driving CW laser diodes.

The operating range does also allow for up to 2kHz analogue modulation as well as CW operation and, if required, a simmer current from 0% to 100% of the output current can be easily setup.

The LDP-CW 80-20 is ideal for high power laser diodes, supplying output currents from 2 - 80A and compliance voltages from 1 - 20V, i.e. maximum output powers of 1600W.

As with many of our drivers, optional bolt-on accessories are also available for each of interface and control.

Webcode: UK56-0550

Service-Right™ Portable Laser Barriers

With many companies investing in large laser systems to increase their production capacity the requirement for on-site engineers has increased dramatically over the last five years. One common problem during machine maintenance and repair, for safety reasons an entire floor needs to be free of personnel before work on the laser can commence. The Service-Right™ barrier system from Kentek was designed from the ground up to cater for on-site laser engineers. Instead of needing to close an entire workspace whilst servicing a laser machine the engineer can now erect a temporary laser barrier and complete their work without inconveniencing the customer. The Service-Right™ barrier can withstand up to 250W/cm² incident laser energy and consists of three 3'W x 6.5'H connected panels that can be collapsed into a travel ready bag.

Webcode: UK56-0540

LuxxMaster™ LML Series

The LuxxMaster™ LML series Raman Box combines an award-winning Volume Bragg Grating for unrivalled wavelength stability with a stable and high power laser source for demanding Raman applications!

Integrated into a small but rugged housing, these units are ideally suited for use in industrial, military and security applications. Narrow spectral linewidths of 0.1nm, wavelength stability of ±5pm and digital and analogue adjustable output power modes make these free space or fibre coupled modules ideally suited to Raman spectroscopy, metrology and, with modulation capability up to 10kHz, even LiDAR

For a powerful and stable Raman source, look no further than the BlackBoxx!

Webcode: UK56-0854

1064nm Narrow Linewidth Single Frequency Laser

LASER COMPONENTS offers a high performance narrow linewidth single frequency 1064nm laser. This External Cavity Laser (ECL) is based on RIO's proprietary planar technology - PLANEX™. The PLANEX laser consists of a gain chip and a planar lightwave circuit (PLC) that includes a Bragg grating. The coupling of these components forms a cavity with significant benefits: with up to 20mW output power, very low RIN, low phase noise and narrow linewidth, and very low wavelength sensitivity to bias current and temperature. The industry-standard, 14-pin butterfly package, make this laser an easy drop-in replacement for existing designs. RIO's PLANEX lasers are the next generation of optical solutions - combining the high performance of long cavity fibre lasers with the low cost, simplicity and Telcordia GR-468 reliability qualified technology platform semiconductor lasers.

The 1064nm PLANEX's higher output power, low noise and narrow linewidth ideally position this semiconductor optical solution for applications where absolute accuracy, lifetime reliability over demanding field conditions, and high resolution are vital, such as seeding of fibre and solid state lasers, Second harmonic Generation (SHG), Optical Parametric Oscillators (OPO), laser spectroscopy, LiDAR and other precision metrology applications.

Webcode: UK56-0830

LG Innotek UV LEDs

Whilst emitters in UVB wavelengths (280-315nm) are primarily used in medical technology, applications of UVC LEDs (200-280nm) include:

- sterilisation
- water decontamination
- odour control
- food preservation
- phototherapy
- fluorescence spectroscopy
- counterfeit sensing

The RoHS compliant UVC LEDs are presented in "6060 1in1" packages, measuring 6.0mm x 6.0mm and consist of 1 emitter within the 1 package. There are 2mW, 10mW and 30mW LEDs, referred to as LEUVA66B00HF00, LEUVA66G00HF00 and LEUVA66G00HV00 respectively.

The LEDs are static sensitive (class 2) and include Zener diode protection against supply polarity error. A rear heatsink allows for easy heat dissipation, which is important to maintain the lifetime of these devices. The typical viewing angle is approximately 110-130°, with a peak emission wavelength

between 275nm and 285nm and with a spectral bandwidth of approximately +/- 8nm at FWHP.

Higher optical power emissions are possible by connecting these UV LEDs in parallel, although each LED must include its own series resistor. The LEDs are operated in forward bias as reverse bias can cause damage.

Webcode: UK56-0810

High-Temperature Plastic Optical Fibre for -55°C to +105°C

Communication links based on plastic optical fibres can be pushed to their limit in high-temperature environments. This

is because, in addition to affecting the other components, the transmission of the fibres is reduced at high temperatures. Our partner Toray has helped remedy this situation by introducing a high-temperature POF onto the market that can withstand a temperature range of -55°C to +105°C.

This fibre is available in a cabled version with a fibre diameter of 500µm or 1000µm. A PA or PE jacket serves as protection. Customers may choose between two different outer diameters: 1.5mm or 2.2mm. The numerical aperture is 0.58.

This fibre was developed for industrial and automotive applications.

Webcode: UK56-0130

PbS/PbSe Multiple Channel Detectors

Two or four single lead-salt detector elements are assembled within a single TO-39 or TO-8 housing each with its own IR optical filter, supplied from either one of many LASER COMPONENTS' standard optical filters or a custom designed optical filter. Free issue filters or windows can also be used. The popular detector element of choice measures 1mm x 1mm square. Single channel detectors usually employ 2mm x 2mm square elements.

With a spectral response from 1 - 5.2µm these high detectivity detectors are ideal for non-dispersive infrared (NDIR) simultaneous gas sensing. Popular gases include CO_2, CO, HC and a reference channel typically at 4µm.

For increased signal to noise, thermal electric coolers (TECs) with one, two, three or even four stages can also be included.

Due to their high response speed, typically exhibiting a 200µs time constant, these detectors are ideal for fast events, such as the detection of hot spots in train wheels, car engine combustion efficiency, electro-mechanical converters, and incinerator efficiency for example.

Webcode: UK56-0311

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Photonex West
January 31 - February 02, 2017
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Booth 2023

LASER COMPONENTS

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