



Laser Safety Products from Kentek

LASER COMPONENTS is pleased to announce new distribution rights from Kentek. Laser protection is important; we are proud to announce the Kentek range of laser containment products certified in accordance with: ANSI Z136.1, Z136.7, EN 12254, EN 60825-4, and NFPA-701: 2010 TM2.

Laser curtains made of Flex-Guard™ fabric, colour: uniformly black.

D AB6 KTK >315 – 1050 CE, D AB5 KTK > 1050 – 1400 CE, D AB9 KTK 190 – 315 CE, IR AB7 KTK > 315 – 1400 CE, DR AB3 KTK > 1400 – 11100 CE, R AB3 KTK 190 – 315 CE, M AB7 KTK > 315 – 1400 CE and damage threshold rated up to 250W/cm², the vertical edges may be finished in a variety of means, the top edge is equipped with

steel non-reflective grommets, and all curtains include complete assembly materials for mounting to the ceiling, wall, floor, combination of wall/ceiling, or combination of wall/floor. Flex-Guard™ curtains are also easily integrated with safety interlock systems.

Portable, free-standing laser barrier/screens:

Made from either Flex-Guard™ or Ever-Guard®, depending upon your required level of protection, these barriers/screens have the following features:

- may be connected together sequentially, allowing for virtually any configuration to be realised
- feature locking swivel casters
- fluorescent yellow safety cross braces
- are cleanroom friendly



Webcode: [UK49-0540](#)

New Production Plant for PbS and PbSe Detectors

We have significantly expanded our R&D and production capabilities, increasing our range of IR components.

Located in Phoenix, Arizona, LASER COMPONENTS Detector Group (LCDG) has opened a development division and production plant for PbS and PbSe detectors, ensuring that it continues

facilities worldwide. As we offer IR detectors that implement different technologies, it is possible for our customers to always find their ideal solution. For example, gas measurement is possible with our InGaAs, PbS/PbSe and pyroelectric detectors. Depending on what exactly needs to be measured one technology is more ideal than the other. The advantage of individualised assistance can be offered by very few other manufacturers, we not only offer this help but also manufacture custom products.

Technology leader in PbS/PbSe manufacturing

Following preliminary testing by selected customers our PbS/PbSe detector's performance has been approved, with production starting immediately. Working together with Arizona State University (ASU) to produce inventive fabrication techniques, new detector designs and automated production processes are being developed. We are now an industry leader in PbS/PbSe manufacturing producing detectors with high sensitivity.

Webcode: [UK49-0311](#)

Dear Colleagues

Photonics West in San Francisco last month suggests a positive and optimistic year ahead with almost everyone reporting increased activity from customer demand through to shipped units.

With this comes additional supply line activity and it gives me great pleasure to announce new partners Kentek and ixFiber for laser containment and speciality fibres, see articles in this issue.

We also announced our new in-house production of lead salt detectors to add to the existing pyros (see last issue) and InGaAs, and stretched (2.6µm) photodiodes to form a leader in IR products! With both in-house and key partner suppliers we aim to be able to offer components of choice.

Contact us with your challenge!

Yours sincerely

Chris Varney
Managing Director



to establish itself as a world leading manufacturer of IR products.

Since the formation of the company in 1982 we have specialised in IR components. Using collective know-how, customers can now profit from our in-house production



Zoom Beam Expanders

There are many ways these can be used. Here are a few:

Increasing power density: each laser application requires a certain beam diameter from the laser used.

To achieve the largest possible power density at the focal point, the collimated beam is expanded to its maximum; incidentally, this reduces the divergence of the beam.

For high laser power: the beam expanders introduced here are designed using the principles of the Galileo telescope; they do not have an intermediate focus. This allows our beam expanders to function at a laser power of up to 100W. Standard expanders are available for the wavelengths 10.6 μ m (CO₂), 1064nm (Nd:YAG), 532nm, and 355nm.

Fixed and variable expanders: the working principle for variable expanders is that the distance between the lenses can be changed in order to compensate for the divergence of the input beam. The entire length of the system can vary by ± 3 mm; expanders with a fixed focal length do not allow these types of adjustments and are inexpensive.

Zoom expanders: these expanders allow a smooth magnification of 2x to 8x. These expanders are variable and have many advantages. Due to their flexibility, they are particularly well suited for laboratory applications.

Webcode: [UK49-0010](#)

Extreme Precision Metal Coated Optics

LASER COMPONENTS now provides extreme precision metal coated optics, with sub-micron flatness and parallelism better than arc-minutes.

Using a chemical polishing method, a better surface finish can be achieved than with traditional diamond turning techniques which can leave undesirable artefacts. The lapping method used can achieve surface roughness in the region of Angstroms for many metals (ferrous or non), even for custom shapes and sizes.

Webcode: [UK49-1010](#)

Detector Screens for Wavelengths from 1.5 μ m to 20 μ m

Making Invisible Laser Radiation Visible!

Invisible laser radiation can be 'visualised' using detector cards. They are ready for immediate use and do not have to be activated or optically charged.



We are pleased to announce a new range covering wavelengths from 1.5 μ m to 5 μ m and 5 μ m to 20 μ m; these are designed for alignment of common laser sources such

as Hol:YAG, Er:YAG, and CO₂. There are two versions available for each wavelength range:

High power version: the high power versions have an active area of 40mm x 52mm and can be used with laser powers of up to 120W/cm² for 1.5-5 μ m and 50W/cm² over 5-20 μ m.

High power/low power version: two active areas, each of which measures 40mm x 25mm in size, are integrated into these converter cards. The low-power side is designed for powers up to 8W/cm², whereas the high-power side is identical to that of the high power version mentioned above.

Webcode: [UK49-0510](#)

G-06 Laser Safety Eyewear

Our G-06 frame style provides unmatched safety. Its comfort features make this the perfect laser protective eyewear to fit over a prescription spectacle or as a stand-alone spectacle.

This frame style presents a universal laser eyewear solution: a removable ultra-soft and flexible nosepiece allows this frame to fit almost every facial profile comfortably. The temples have a wire core, which enable the user to adjust the temples to their individual preferences.

Available with polymer or glass filters, and certified to EN 207:2009 and EN 208:2009, LASER COMPONENTS' range of laser safety eyewear will protect against most common lasers on the market today.

G-06



To assist you with selecting the correct filter to use with your preferred frame styles we provide a complete filter specification service, allowing you to submit your laser parameters and review what frame styles are available for an appropriate selection of filters.

Webcode: [UK49-0520](#)

Achieving the Perfect Measurement Beam

When monitoring laser beams, any measurements must be carried out during the laser process without affecting the beam. It is imperative that the measurement beam is absolutely identical to the processing beam to ensure a realistic reading.

One innovative option is the use of a diffractive beam sampler to separate a small fraction of the main beam's energy. The benefit is that the beams that are coupled out are a perfect copy of the original beam. Multiple beams allow power measurements and beam profile measurements to be carried out simultaneously.

How it works: the diffractive optical element (DOE) is inserted into the path of the collimated beam. Approximately 99% of the main beam is transmitted through the DOE without changing; the other 1% of the beam intensity is split into higher orders for measurement purposes. The majority of this will go to the first order at a specified angle with subsequent orders receiving smaller fractions at wider angles.

The sampled beams are special as the intensity does not depend on the polarisation of the laser; therefore the samples are completely identical to the main beam.

Product range: large selection of standard elements available, as well as custom or 'semi-standard' designs for the wavelength range 193nm - 10.6 μ m.

Webcode: [UK49-0031](#)



Speciality Fibre from ixFiber - PZ Series Fibres

We are pleased to announce the partnership between LASER COMPONENTS (UK) Ltd., and ixFiber with the supply of their speciality optical fibre.

In this article we focus on polarisation maintaining (PM) fibre, the PZ series, which is designed such that only one state of polarisation is guided along the fibre. Any other state of polarisation will be lost rapidly thus yielding a high built-in polarisation



NIR-MX1060nm

NEW Photline NIR-MX-LN Intensity Modulator comes with 3dB Insertion Loss and 30dB contrast.

The proven NIR-MX 1060nm band intensity modulator now comes with reduced insertion loss while preserving an unparalleled extinction ratio and high power handling.

Together with the Extinction Ratio (ER), the Insertion Loss (IL) is the highest ranked optical parameter for users when working with Mach-Zehnder Intensity Modulators. In addition, it must be said that the two Y waveguide junctions of the Mach-Zehnder modulator account for the main part of the IL. The Photline patented low-loss Y junction is now implemented with the NIR-MX intensity modulator. This enables us to offer the modulator with a reduced IL (3dB typ.) while retaining the same high extinction ratio (30dB) and 100mW continuous power handling.

NIR-MX series are intensity modulators used to modulate 1030nm, 1053nm, 1064nm laser sources, especially to generate highly contrasted and custom-shaped optical pulses that are then amplified. They are mostly used in short pulse fibre lasers, seeders with intense laser facilities and are widely operated in research laboratories all over the world. Specific space compatible versions have been designed to operate in Laser Communication Terminals for inter-satellite communication.

* patent n° US2008193077

Webcode: [UK49-1110](#)

extinction ratio. This particular mechanism is obtained through a specific waveguide design and a careful optimisation of the glass composition resulting in both high birefringence and leakage behaviour.

PZ fibres are available at different wavelengths with a broad polarising window (typically larger than 100nm), low attenuation and high extinction ratio ($\geq 30\text{dB}$), that can be tuned by coiling the correct fibre length at the appropriate coil diameter. Contrary to in-line polarisers, the PZ fibre based polariser is an 'all-fibre' solution offering superior polarisation extinction ratio, low loss and excellent stability over temperature. ixFiber is also offering customised solutions including connectors, patch-cords and cables.

Webcode: [UK49-0110](#)

UV Photodiodes, 2mm² Active Area

We are pleased to announce IFW's addition of these large area 4H n-type silicon carbide, SiC, photodiodes, with 'anode on top', hence the 'A' in the series JEA2, JEA2S and JEA2SS.

Offering a spectral range between 215nm to 355nm, SiC is optically blind in the visible spectrum.

These JEA2 series photodiodes offer high UV responsivity at 0.15A/W within a hermetically sealed TO package, together with an



isolation (I) option, for standard TO39, TO18 or TO52 housings.

Applications include sterilisation in food preparation, water systems, operating theatres as well as in curing UV adhesives and forensic analysis.

Webcode: [UK49-0380](#)

Ultra-Compact Kilowatt Laser Diode Driver

LASER COMPONENTS' laser driver partner PicoLAS GmbH has developed a kilowatt laser diode driver in a half-brick-size (35cm²). It is very cost-effective, energy efficient and has many features. This CW-driver LDP-CW 20-50 can operate serially connected diode lasers with a continuous load featuring voltages of up to 48V and adjustable currents of up to 20A (~1kW). There is the option to set the current via analogue or digital input with analogue modulation available. The output voltage will be adjusted automatically whether one or 24 lasers are operated as a load.

Moreover, the driver has a very small ripple current of less than 1%. With an effective current measurement and subsequent error correction feature in the microcontroller the offset between the real value and the set value is very small at less than 0.5%. The LDP-CW 20-50, as with many of the drivers in the LDP-CW range, has several protective features necessary for laser system design and function including:

- innovative current regulation concept actively prevents the laser diode from overshoots
- integration soft start
- over-temperature shutdown
- enable/disable input
- protection of the laser diode against reverse currents

A control interface and a break-out-board (BOB) are available to help with development.

Webcode: [UK49-0550](#)

OEM Laser Modules now with Integrated Cables

Our range of OEM LC-LMD laser modules are a space efficient and cost effective laser solution for hand held to industrial products and are ideal thanks to their two-pin connection to be easily integrated into circuit boards. For other applications we can now provide some of the LC-LMD series with 100m trailing wires for ease of connection into your system. The connector cables are available for the following models:

LC-LMD-650-01-01-A-C
LC-LMD-650-03-01-A-C
LC-LMD-650-05-01-A-C
LC-LMD-650-07-01-A-C
LC-LML-635-01-03-A-C

Webcode: [UK49-0740](#)



With Great Power Comes Great Stability

If you require an exceptionally power stable laser for your next project then look no further than the NEW range of PLM (PD-LD Laser Module) Series laser modules presented by LASER COMPONENTS, manufactured by PD-LD. The PLM series maintains the same popular form factor and performance of the LuxxMaster and SLM series without wavelength locking.



Available in blue, green, red, and NIR wavelengths (405nm, 450nm, 488nm, 415nm, 520nm, 633nm, 637nm, 660nm, and 785nm) the PLM series provides <2% power stability and RMS noise of 0.2% over 8 hours in APC operation. Available in free space, SMF, MMF, and PMF modules and ideal for many applications such as flow cytometry, semiconductor processing, process control, and metrology.

Webcode: **UK49-0854**

See us at

Photonex Southampton Roadshow
March 09, 2015, University of Southampton
Booth S14



Long Wavelength Single-Mode Fibre Optic TX and RX Modules "Sugar Cubes"

The PLD-1315 and PLD-23XX Series manufactured by PD-LD are a transmitter-receiver in a "sugar cube" form-factor. The series is an ideal cost-effective



fibre-optic communication solution for 150Mb/s over short and long-range. The sugar cube form-factor allows designers to offer single-mode fibre performance in applications which currently use short wavelength (850nm) components in identical form-factor packages. A link upgrade from multi-mode to single-mode fibre can be achieved by simply replacing the optical components on the circuit board.

The PLD-1315 transmitter consists of a 1300nm Edge Emitting LED (ELED). Such ELEDs efficiently couple their optical output into single-mode optical fibre. The drive

circuit for the ELED can be the same circuitry that is used with multi-mode LED based components, versus LASER based emitters which require optical feedback.

The PLD-23XX receiver consists of a 75µm diameter InGaAs PIN photodiode and a trans-impedance amplifier (TIA) with the option of with or without Automatic Gain Control (AGC). The PIN photodiode is optimised for high response in the 1300nm wavelength region and is matched with a low-noise TIA. The optical signals are detected by the PIN and converted to an analogue voltage output with a very low input noise current contribution.

The Automatic Gain Control feature decreases the light to voltage conversion factor when the average incident optical power is relatively high. The receiver has a sensitivity of -36dBm at 100MHz and, with filtering, a minimum overload value of 0dBm. This dynamic range makes the pair ideal for both short and long-range applications. A number of pin-outs are available to match other components on the market.

Webcode: **UK49-0420**

See us at

Photonex Scotland Roadshow
June 03, 2015, University of Strathclyde
Booth S1



See us at

Photonex, October 14 - 15, 2015
Ricoh Arena, Coventry
Booth D15



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