



OE-300 Series

The OE-300 photoreceiver consists of a premium quality photodiode followed by a high-end, variable gain transimpedance amplifier. The low noise performance (NEP) is outstanding and sets

a benchmark for wideband photoreceivers particularly in the high and mid-range gain settings. The relatively large sized detectors make optical alignment easy and also ensure a very high coupling efficiency when using the Si models together with the optionally available fibre optic adapters PRA-FC/SMA.

AC/DC coupling and the capability of manual and opto-isolated remote control by a PC make the OE-300 the most versatile wideband photoreceiver in its class.



The switchable gain from 10^2 to 10^8 V/A (decade increments) allows precise and reliable measurements within a very wide dynamic range from nanowatts up to 10 milliwatts optical power.

Applications include:

- all purpose low-noise photoreceiver (O/E converter) for the MHz range
- time resolved optical pulse and power measurements
- laser intensity noise measurements (RIN)
- optical front-end for oscilloscopes, spectrum analysers, A/D converters and RF lock-in amplifiers

Many additional features like switchable low-pass filters, offset adjustment, switchable

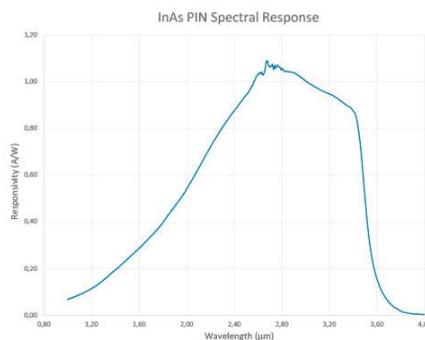
Webcode: [UK51-0620](#)

x-InGaAs and InAs Photodiodes - Now Expanded to MIR

LASER COMPONENTS Detector Group has announced two new IR detectors, the IG19 and IA35.

detector with a 0.5mm chip is designed specifically for uncooled operation and a spectral range of up to $3.5\mu\text{m}$ (20% cut-off).

IG19: the IG19 is a new x-InGaAs photodiode with a peak wavelength of $1.75\mu\text{m}$, making it ideal for applications that cannot be met spectrally with a regular InGaAs photodiode. The IG19X1000S4i with a 1mm chip diameter in a TO-46 housing is the standard product.



IA35: the IA35 is a heterostructure photodiode on an InAs substrate with a relatively wide peak at $2.8\mu\text{m}$. The curve of the spectral response can be seen in the image shown.

Bandpass Filters for Use in TO-39 Housings

We will be offering a range of low cost accessories to complement our pyroelectric detectors and lead salt detectors. The IR filter set for insertion into a TO-39 housing is now available.



The IA35S500S4i is available now. This

Webcode: [UK51-0280](#)

We have a range of fourteen standard bandpass filters including common gas lines. These are sawn hexagonally and integrated into pluggable filter mounts with an inner diameter of 8.5mm, and a free aperture of 6mm.

Dear colleagues

It is really exciting to introduce new products and in this issue there are many additions from lights sources, light transmission optics to light detectors. We also include our new light blocking screens.

a starter kit.

The filter wavelengths range from $3.33\mu\text{m}$ to $7.30\mu\text{m}$, with full width half maximum values from 60nm to 600nm.

Gas sensing customers now have even more choice with our range of IR detectors and IR NBP optical filters to select standard gases or specify custom IR NBP filters for more exacting requirements. We also offer

Last, but not least, do please join us at Photonex15, which is in the Ricoh Arena Coventry, and see our new booth.

Thirteen of the fourteen filters are angle optimised and all filters use a silicon substrate and block up to $10\mu\text{m}$.

Chris Varney
Managing Director

Webcode: [UK51-0330](#)



Low Cost OEM Crosshair Laser Module Diodes

To meet continued demand for low cost crosshair laser modules for alignment purposes LASER COMPONENTS is pleased to announce the LC-LMP series; a low cost, visible red crosshair and line laser module.

Using our low cost LC-LMD series and our pattern generating optics we have designed a low cost OEM laser pointer which can produce either a line or a crosshair, further enhancing the series' use as an alignment tool.

The module features an auto power control circuit providing surge current protection and low current consumption for prolonged use with batteries. The focus is also adjustable allowing the module to be used at multiple working distances.

With an operating temperature of 0 - 50°C this laser module is ideal for indoors and outdoors applications in large scale systems or hand-held devices.

Webcode: [UK51-0740](#)

Low Cost Green Laser Module Diodes

The Low Cost Laser Module Diode LC-LMD-525-120-01-A is a cost effective solution for your green laser requirements. With a body size of only $\varnothing 12 \times 38\text{mm}$ and 150mm trailing wires the LC-LMD-525-120-01-A can be easily integrated into industrial alignment systems or hand-held devices.

The crisp green 525nm wavelength is approximately seven times brighter to the human eye than that of a red laser of the same optical power. This laser module diode produces an eye-safe 1mW laser spot ideal for applications where eye exposure is a possibility and laser safety eyewear is not an option.

Operating at 3-6VDC and featuring an automatic power control circuit, operation of this laser module diode is as simple as connecting 4 AA batteries, and with a low current consumption of 180mA, use in battery powered products is ideal!

Webcode: [UK51-1740](#)

Input Coupling - Transmission - Output Coupling

From the input coupling of light using adjustable couplers to transmission via optical fibre assemblies to output coupling using focusable collimators - we can provide all of these capabilities.

Input couplers are used to couple collimated light into an optical fibre. The inner optic can be adjusted along three axes to allow laser beams with $\varnothing \leq 10\text{mm}$ to be focused on optical fibres with a core diameter between $100\mu\text{m}$ and $2000\mu\text{m}$.

The maximum power of the laser beam to be coupled is up to 150W. The optics are also coated for the best power transmission; in fact, three wavelength ranges between 400nm and 1300nm are available. The optical connection of the fibre is carried out using an SMA connector.

Laser fibres: optical fibres are used in the transmission of optical power. We can assemble optical fibres to your specification. Our product range comprises dual-clad fibres (quartz core/quartz cladding/hard clad/buffer) with fibre core diameters from $400\mu\text{m}$ to $1000\mu\text{m}$. Different protective tubes are available, including flexible metal jackets or PVC and PTFE tubes. The fibre lengths vary according to customer specifications.

An optical connection is also available: for example, SMA connectors with free-standing

fibres are available, either with ARCAP or copper ferrules. At $< 10\mu\text{m}$, the eccentricity of the fibre core to the ferrule's outer diameter is very low. We are also able to provide the fibre end faces with an AR coating.



Output coupling collimators: in output coupling, the collimation of divergent light out of the connected fibre is important. The output coupling collimator, which is connected via an SMA connector, is used for this purpose. The optics used are adjustable along the z-axis and are available in three types of coatings from 350nm to 1600nm. To achieve different beam diameters, the output coupling collimators are available in various focal lengths.

When multimode fibres are used, the efficiency of the collimator is more than 85%.

Webcode: [UK51-0110](#)

EVER-GUARD® Laser Protective Curtains Made of Metal

They really exist: curtains made of metal panels that are mounted to the ceiling, can be moved freely, and offer the extraordinary protection of metal screens.



The individual panels are approximately 25cm wide, are movable due to the hinges they are equipped with on both sides, and are available at any height requested, up to 8 feet.

The honeycomb-like surface structure absorbs and disperses laser radiation. This material is suited for all standard wavelengths

and certified according to DIN EN 12254.

By applying the same assembly material used in our SLC-250WB textile curtains, different configurations (L forms and U forms) can be implemented. Laser protective windows can also be integrated into the panels on an optional basis.

The protection levels of the EVER-GUARD® curtains correspond to those of the PT-EVG material used in metal screens:

Wavelength [nm]	Protection Level
190 - 315	D AB10 CE R AB4 CE
> 315 - 1400	D AB7 CE IR AB8 CE M AB7 CE
> 1400 - 11100	D AB5 CE R AB3 CE

The power density is $12\text{MW}/\text{m}^2$.

Webcode: [UK51-0540](#)



For Uncomplicated Decision Making

As we now offer an ever-increasing selection of IR detectors based on different technologies that partially overlap spectrally, customers are asking which configuration suits their application best, and how quickly can they get a response to this question?

LASER COMPONENTS is currently working on prototypes of a user kit for pyroelectric detectors and uncooled PbSe detectors including suitable radiation sources. This autonomous development kit is based on a single-board computer, as well as emitter and receiver modules.

The measurement results are displayed using a touchscreen which is also used to control



the device. Data can be stored on a memory card, and there is also an analogue output available for the amplified signal.

Webcode: [UK51-0311](#)

Alluxa - Ultra-Narrowband Optical Bandpass Filters

LASER COMPONENTS is pleased to announce ultra-narrowband filters from Alluxa. These offer the narrowest and "squares" filter profiles in the visible and NIR



with very high transmission levels typically greater than 96%.

Unlike narrowband filters made with other deposition technologies, these ultra-narrowband filters offer wide and deep blocking performance at levels up to and beyond OD6 without sacrificing transmission performance. This is a result of the sophisticated monitoring and deposition methods, which produce a hard coating with temperature stability and out of band blocking, far superior to that of legacy soft coatings. Narrowband filters are now fully customisable and able to achieve exceedingly narrow bandwidths at very discrete wavelengths of light.

Webcode: [UK51-0850](#)

Optical Fibre Switches - Laser Measurement Technology

Designed for the most demanding applications, these optical fibre switches are compact and reliable with millisecond switching times over a long 100M cycle lifetime. Covering VIS (400-690nm), NIR (700-1100nm) and IR (1260-1360nm, 1480-1630nm) spectral bands, as well as the polarisation maintaining PM (1310-1550nm) band, these optical switches can be tailored to suit a wide range of optical communication technologies, for both single mode or multi-mode fibre.

This patented micro-optical/micro-mechanical technology includes:

- < -60dB channel crosstalk
- < -60dB return loss
- < 0.005dB repeatability
- 100mW optical power
- RS232, TTL or USB interface

A range of cross connections is possible

including 1x2, 1x4, 1x8, 1x16, 2x4 and 2x8 channels. 19" rack mount options are available and multi-channel shutters.



Applications include multi-channel laser sources, and detectors, multiple sensor monitoring, laser scanning microscopy, SPAD arrays and micro-optics, and spectroscopy.

Webcode: [UK51-0145](#)

Solid State IR Emitters "Outshines all Others"

HelioWorks manufactures a unique range of steady state black body infrared emitters in industry standard TO packages, e.g. TO-5 and TO-8. Using a kanthal (FeCrAl alloy) filament with an emissivity of 0.7 and proprietary assembly techniques these IREs safely operate at 900°C in CW/steady state mode, consuming 2.4W at either 1.4V (max) or 1.75A into 0.8Ohms.

Optional gold coated parabolic reflectors are available and a choice of calcium fluoride, sapphire, zinc selenide or no windows as standard or other IR materials for custom applications.

Also available are pulsable IR emitters using NiCr or tungsten filaments offering large temperature modulation and desirable signal to noise ratio.

Webcode: [UK51-0310](#)

FLEXPOINT® Laser Modules with Fibre Connection

LASER COMPONENTS' popular range of FLEXPOINT® laser diode modules are available with SMA or FC fibre connectors for high efficiency coupling of green, red, or blue multimode laser light into optical fibres.

Users have frequently commented how useful having a fibre connector on the end of their FLEXPOINT® is when installing a light source in to a confined space, or where attaching a free-space laser would be unsuitable (i.e. water, dust, heat, electrical fields). Separating the laser source from these hazards extends the life and provides easy access to the module.

This also adds a benefit of being able to switch laser sources quickly and easily if you need to change wavelength or operating power.

Webcode: [UK51-2740](#)

SLM-632

PD-LD has released an inexpensive alternative to HeNe lasers, the SLM-632.

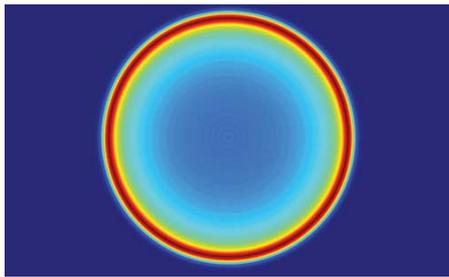
These laser modules provide high-power illumination with a stabilised wavelength. The SLM-632 module offers up to 50mW at a wavelength of 632.8nm and is a viable alternative to conventional HeNe lasers, in a compact design.

Webcode: [UK51-0854](#)



M-Shaper: Exceeding the Scanning Performance of a Top-Hat Element

Until now, many customers have used round Top-Hat elements as DOEs in order to produce a homogeneous line using a dot laser. This method however leads to a decrease in the intensity distribution at the edge, across the width of the line.



The M-shaper, however, is different! It is perfectly suited for a high homogeneity in all directions. This diffractive optical element modifies your laser beam in such a way that the intensity at the edge is higher than at the centre of the element. The cross section of the intensity distribution resembles the capital letter M, giving this product its name. Using the M-shaper to scan across a line will produce the beam quality of a Top-Hat element in both the length and the width, resulting in optimal scanning performance. These results could not be achieved using either refractive or reflective elements.

We have a range of standard, semi standard and custom designs available to ensure that your specifications are met.

Webcode: **UK51-0031**

Photline-iXBlue - New Facility

This Summer 2015 Photline combined a vacation closure with moving into a brand new building for Photline-iXBlue.

Photline Technologies is a leading supplier of optical modulation solutions. The company masters the entire chain of LiNbO₃ modulators production from computer-assisted design to final characterisation, through wafer processing, and supplying drivers and ModBoxes.

Pulsed Laser Diodes with a Homogeneous Beam Profile

Pulsed laser diodes are becoming more and more efficient and powerful, and so they represent a viable alternative to large and expensive laser systems.

One advantage of solid-state lasers is the excellent beam profile. Achieving this with semiconductor laser diodes requires the use of external beam-shaping elements or homogenisers.

Diffusing lenses, diffractive elements, or long optical fibres can be used, however, this always results in either a loss of power or the mechanical effort is too great.

Our developers in Canada have been successful in connecting powerful, multi-junction PLDs to a special fibre structure, and so allowing a homogeneous beam profile to be achieved after just a few centimetres.

Image 1 shows the near-field distribution of a pulsed laser diode with three epitaxially-integrated emitters. After just 13mm (see image 2), a significantly more homogeneous beam profile is visible. Image 3 shows the beam profile after 55cm.

The advantage of this assembly is that it is compact and robust and exhibits low losses at the same time as a higher peak power.

Prototypes are currently being built. If you are interested, we are still able to include any desired changes.

Webcode: **UK51-0410**



We look forward to offering an improved service from mid-September when their new facility will be operational.

Webcode: **UK51-0960**

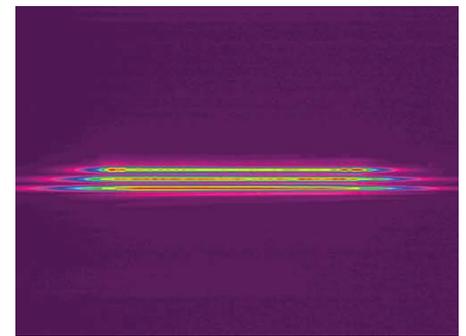


Image 1

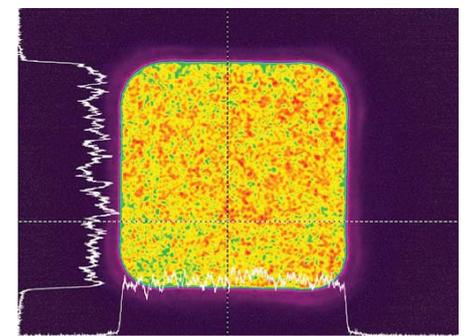


Image 2

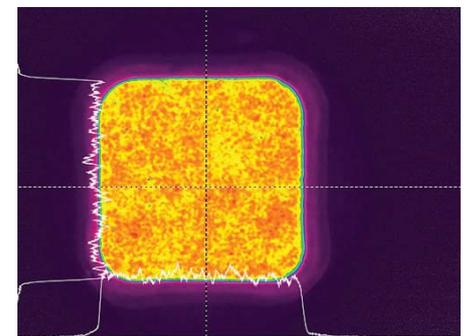


Image 3

See us at

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



We make every effort to ensure the information printed is correct, however, we cannot accept any liability for the accuracy or any consequential loss that might be incurred by using this information. Unless otherwise specified, prices are ex Chelmsford, whilst stock is last.

LASER COMPONENTS (UK) LTD
Goldlay House
114 Parkway
Chelmsford
Essex CM2 7PR

Tel: 01245 491499
Fax: 01245 491801

Managing Director: Chris Varney
Registered Company 2835714

Editor: Kay Cable

Photonics News including all contributions and illustrations are copyright protected. Using any content without LASER COMPONENTS' consent is prohibited.

Attempts are made to ensure accuracy, however, LASER COMPONENTS does not accept any liability for the information or data provided.

www.lasercomponents.co.uk

© 2015. All rights reserved