Making Waves

Lambda Photometrics Newsletter Autumn 2008 | Issue 22

Lambda Photometrics continued success leads to expansion of core business

Adrian Harrison, Lambda Photometrics' Managing Director reflects on recent changes and the growth within Lambda's core business.

Welcome to the 22nd edition of our newsletter, *Making Waves*, which contains the latest product and application developments from some of our best known principals including **Stanford Research** (p6), **Prosilica** (p2), **Zygo** (p4) and **Quantel** (p9).

This year has also seen some exciting new developments at Lambda. As you may know, since 1977 Lambda has successfully maintained its position at the forefront of the technology distribution market. Due to the increased sales of high precision positioning equipment and vibration measurement systems achieved by Lambda, our two parent companies, PI GmbH and Polytec GmbH have launched their own UK operations, PI (Physik Instrumente) Ltd and Polytec Ltd based within Lambda House and working alongside Lambda Photometrics.

This is great news for you, the customer, as it means we can focus on our core business of sales and support of **Photonics, Fibre Optics, Machine Vision** and **Metrology** products, and continue to provide you with the highest levels of service and support.

I think you will find *Making Waves* interesting and informative reading. Each article is continued in depth on our website. Simply look for the link next to each article marked with the info symbol ⓘ.

Alternatively, give us a call and we will be more than happy to discuss your requirements.

Adrian Harrison
Managing Director

Lambda photometrics

Megapixel Resolution at 60 frames per second

GE1050 Specifications

Features:

- High resolution – 1 megapixel (1024 x 1024)
- Kodak KAI-01050 1/2" progressive scan CCD
- Global shutter (snapshot shutter)
- Fast frame rate – 60 fps
- Gigabit Ethernet interface
- GigE Vision compliant
- Long cables up to 100m on network cabling
- Region of interest readout (AOI partial scan)
- Binning modes
- Asynchronous external trigger and sync I/O
- 32MB resend buffer
- Screw-captivated power connection
- Software development kit – FREE

Applications:

- Industrial inspection
- Machine vision
- Medical imaging
- Ophthalmology
- Traffic imaging
- OEM applications

ⓘ **www.lambdaphoto.co.uk/news01**

The new GE1050 and GE1050C cameras feature 1k x 1k resolution, GigE Vision interface at frame rates of up to 60 frames per second.

Prosilica are well-known for designing and manufacturing high-performance digital Firewire and GigE cameras for industrial imaging and machine vision. They have recently expanded their range of high performance cameras with the **GE01050** megapixel 60fps camera.

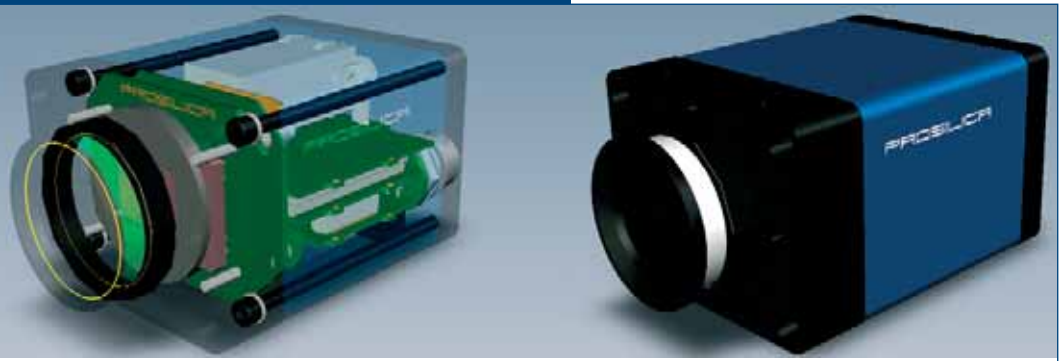
The **GE1050** is a fast, high-resolution, CCD camera with Gigabit Ethernet interface capable of running 60 fps at 1000x1000 resolution and even faster using Area of Interest Readout (AOI). The camera incorporates Kodak's new KAI-01050 megapixel, ½" optical format, progressive scan interline CCD sensor with low-noise architecture, excellent smear performance, and electronic shutter.

The economically priced **GE1050** is fitted with a C-Mount with adjustable back focus and is available in colour or monochrome models.

Thanks to its GigE Vision compliant Gigabit Ethernet interface, the **GE1050** is essentially plug-and-play and does not require a frame-grabber to operate. The interface also allows cable lengths of up to 100m (300ft) long using conventional Ethernet cabling (Cat5e/Cat6).

The progressive scan architecture and global electronic shutter provide excellent image quality for full motion video and still image capture. The **GE1050** incorporates an advanced set of camera features including snapshot/global shutter, pixel binning, area of interest readout, external trigger and sync I/O, RS-232 peripheral port, exposure, and gain controls, non-volatile configuration memory, event recorder capability, pre-trigger recording, programmable strobe functions, multicasting, configurable IP addresses, auto-exposure and auto-white balance controls.

The Prosilica GigE sample viewer and the customer-acclaimed SDK are both available free of charge. The SDK supports Windows (2000, XP and Vista), Linux and QNX operating systems on both Intel and Power PC platforms and MAC OS X. For users that prefer third party imaging libraries and applications, Prosilica's GigE Vision cameras are compatible with industry-leading software from Matrox, National Instruments, Stemmer Imaging, Norpix, MVTec and others.



ⓘ **www.lambdaphoto.co.uk/news02** for Prosilica eDrawings

Norpix have released a suite of advanced digital video recording software to enable capture from multiple cameras for machine vision applications.

Advanced software
makes digital recording simple

Machine vision cameras typically produce uncompressed, high data rate video and require high performance software to handle this data. NorPix produce a suite of software solutions to record live uncompressed or compressed video directly to your computer's hard disk or RAM memory with minimal hardware requirements. Also capable of handling high specification cameras, Norpix software can accommodate up to 625 MB/s recording bandwidth.

TroublePix

TroublePix is an easy to use single camera solution with a user friendly graphical user interface for troubleshooting, monitoring and event capture. The interface includes full triplex functionality, via tabbed browsing, which enables simultaneous recording and playback of video images.

Its multiple event marker capability allows users to monitor multiple I/O sources, capture external events and mark the associated frames in the sequence whilst recording all the event markers in a notebook for review.

It also features a thumbnail view mode to enable the operator to view multiple, numbered frames on a single screen and is well suited to general purpose automated recording of multiple trigger events in factory, laboratory or outdoor applications.

StreamPix4

StreamPix is a multi-camera solution in a single application allowing the user to record up to 8 cameras per machine. It is the ideal application for recording multiple cameras from different manufacturers with different interfaces and image formats.

StreamPix can acquire video images in monochrome or colour, from IEEE1394 (Firewire), analog, digital, CameraLink and USB2 cameras as AVI movies, uncompressed or compressed with any Windows-compatible CODEC installed.

For network control and multiple camera acquisition, StreamNet Server is available as an add-on to StreamPix, and can connect several StreamPix applications via a single machine or a network of host computers to enable control from a single point.

TroublePix

Single camera recording software for troubleshooting and monitoring:

- GigE, Firewire and CameraLink compatibility
- Up to 1000 fps
- Up to 4K x 4K resolution
- Multiple event markers
- Designed for non technical operators

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StreamPix4

Multiple camera recording application for all camera and interface types:

- Real time video recording to PC hard disk
- Up to 650 MB/sec
- IEEE1394 (Firewire), analog, digital, CameraLink & USB2 cameras
- Export images as BMP, TIFF, multi-TIFF, JPEG, PNG, FITS or AVI
- Time lapse recording
- Bayer conversion
- Gamma correction
- Colour balance and image de-interlacing

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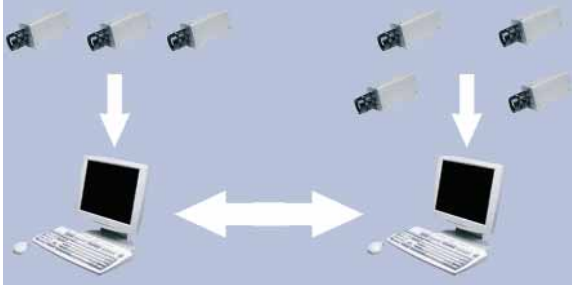


Applications:

- Motion analysis
- Medical imaging
- Image archiving
- Web inspection
- Flow analysis
- Astronomy

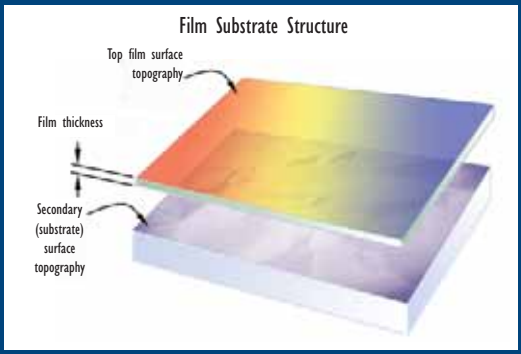
Streampix combines multiple PC/camera acquisition with high speed capture capability

Film Analysis Application

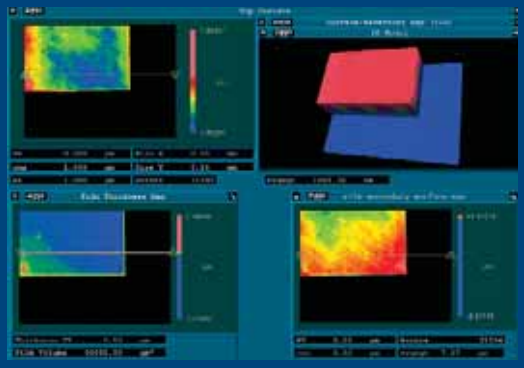
The Film Analysis application is designed to measure surfaces in the presence of films. It can provide results on the top surface topography and roughness, the thickness of the film, and surface topography and roughness of the lower or substrate surface.

Key Features:

- **Measures single films from 1 µm to 50 µm thick**
- **Measures semi-transparent films and substrate simultaneously**
- **Films FDA (Frequency Domain Analysis) retains all modulation signals, and calculates multiple zero-order fringe locations in the scan. Traditional FDA modes ignore all but the strongest intensity modulation signal**
- **Provides graphics and results for the top (film) surface, secondary (substrate) surface, and thickness results**



MetroPro Films Analysis simultaneously provides data for the top surface, second surface (usually the substrate surface), and film thickness in one unified application. The following image shows a typical interface. Top surface is in the upper half with film thickness in the lower left and second surface in the lower right.



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Zygo develop new range of optical profilers

Zygo's NewView 7000 series of optical profilers has been expanded to include the 7200 production system and 7300 industrial system.

ZYGO's NewView series of optical profilers measure and quantify surface roughness, step height, critical dimensions, and surface topography, with an unmatched speed and precision.

Based on non-contact and patented scanning white light technology, the NewView delivers best-in class 3D surface metrology for applications in production, QC and leading research.

A full suite of 2D and 3D surface analysis tools are available for comprehensive data analysis, visualization and reporting.

Proven Reliability and Value

The **NewView 7200** delivers core performance, functionality and flexibility in a cost-effective and easy to use platform.

www.lambdaphoto.co.uk/news05

Industry leading speed, ultra-performance and capabilities

The **NewView 7300** is simply the most capable and powerful optical profiler available for demanding research and production applications.

www.lambdaphoto.co.uk/news06

…and for those on a limited budget…

Zygo's NewView 600s is perfect if you are looking for a feature rich entry-level optical profiling system.

The highly affordable **NewView 600s** provides fast, non-contact, three-dimensional inspection and quantitative surface topography measurement for both research and production applications.

The NewView 600s offers high-precision scanning, simplified operation, configuration flexibility, and advanced surface characterization including comprehensive surface texture, step-height, PSD analysis, and much more.

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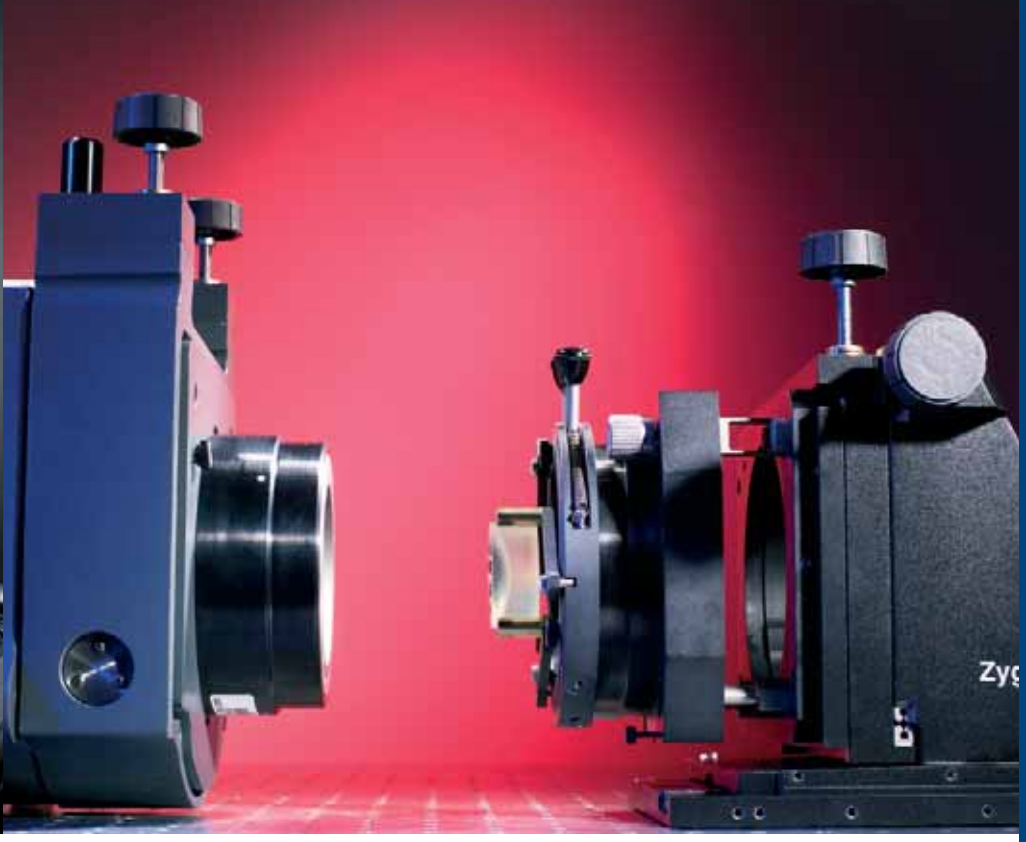

Laser Fizeau Interferometers from industry leader Zygo

Zygo has enhanced its comprehensive range of laser Fizeau interferometers to provide the most complete range of mainframes and accessories available.

The flagship range is the VeriFire series with 4" and 6" mainframes which are all phase measuring systems operating at 633nm as standard. Common enhancements across the range include a repeatable mechanical interface for Radius Scale accessories, wireless remote control capability, dual monitor high performance PC's and handles for easier transport.

The new **VeriFire XP/D** replaces the GPI XP/D and includes the standard enhancements over its predecessor.

Next is the **VeriFire PE** (Production Environment) with high speed camera and Vibration Control software to produce 'ripple' free measurements in vibration prone production environments.

The **VeriFire AT+** is a step up from the previous VeriFire AT model. It still uses the 'Ring of Fire' method of reducing coherent artifacts and is the recommended for the highest precision measurements. It has been improved by providing a 1k x 1k camera as standard and includes encoded focus and 1-5x encoded zoom. This is the machine for the most repeatable measurements and the highest accuracy.

The **VeriFire MST** uses FTPSI (Fourier Transform Phase Shifting Interferometry) enabling it to measure three surface cavities such as parallel plates and four surface cavities to provide front and back surface flatness, thickness and homogeneity of samples with just two measurements!

Finally, there is the **VeriFire Asphere** system which is the peak of accuracy and flexibility for measuring rotationally symmetric aspherical parts. The VeriFire Asphere combines the capabilities of the VeriFire AT+ with Displacement Measuring Interferometry, automation and software algorithms to achieve the highest performing production system.

The GPI Series now consists of the non-phase shifting systems and includes the **GPI-LC** (no zoom or focus) low cost system for visual inspection only, the **GPI-ST** (1-6x zoom and focus) for visual inspection of spherical parts and the **GPI-FlashPhase** (1-6x zoom, focus and FlashPhase Measurement Software) which uses a Carrier Fringe technique to acquire 'phase' data with a single frame of fringe information.

FlashPhase itself is also available as an upgrade to older Zygo interferometers, such as the MarkII, or third party interferometers and provides access to the power of Zygo's MetroPro measurement and analysis software.

Zygo Laser Fizeau Interferometer Family

VeriFire series

Flagship phase measuring interferometers with 4" & 6" mainframes, includes XP/D, PE, AT+, MST and Asphere versions.

- **Form Uncertainty**
  - **≤ 30°: ≥ F/1.0 < 60 nm (λ/10)**
  - **≤ 45°: F/0.71 < 100 nm (λ/6)**
  - **≤ 60°: F/0.58 < 200 nm (λ/3)**
- **Semi-automated computer alignment**
- **≤ 3 nm (λ/200) RMS repeatability**
- **≤ 10 nm (λ/60) RMS wavefront repeatability**
- **0.08 nm height resolution**
- **<10 µm (~13 waves) departure from asphere**
- **~800 µm (>1200 waves) departure from vertex sphere R0**

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GPI series

World renowned industrial interferometers using either visual or carrier fringe measurement methods, includes LC, ST and Flashphase systems.

- **4" or 6" test beam diameter**
- **Quick Fringe Acquisition System**
- **>λ/8000 resolution**
- **180 fringes resolution**
- **λ/20 plano testing**
- **λ/10 spherical testing**

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PTI series

Entry level interferometers for measurement of surface form, transmitted wavefront, and radius of curvature.

- **λ/20 Plano testing measurement**
- **λ/500 (1σ) RMS precision**
- **λ/6000 (1σ) RMS repeatability**
- **25 mm test beam diameter**
- **±250 mm manual focus adjustment**
- **PZT driven PMI acquisition**

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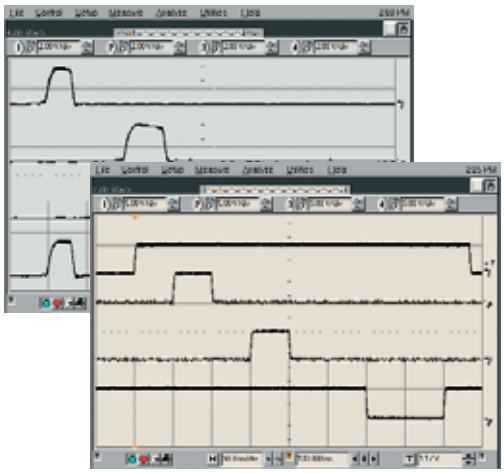
A new benchmark
in digital pulse/delay generation



Stanford Research's 8 channel DG645 digital delay/pulse generator supersedes the ubiquitous DG535.

The DG535 has been the benchmark digital delay generator for over 20 years and whilst most users are more than happy with their system, we often get asked for a delay generator with more output channels than the DG535 can offer. Due to this demand, SRS have now released their next generation delay generator – the **DG645**.

The **DG645** is a versatile digital delay/pulse generator that provides precisely defined pulses at repetition rates up to 10MHz. The instrument offers several improvements over older designs with a jitter of <25ps, higher accuracy, faster trigger rates, and four pulse outputs and an eight delay channel output option. It also features Ethernet, GPIB and RS-232 interfaces for computer or network control of the instrument.

The **DG645** eliminates timing indeterminacy by measuring the timing of triggers with respect to the internal clock and compensating the analog delays, which reduces the jitter by 100x and allows the internal rate generator to operate at any rate.

The **DG645** has many trigger modes. An internal rate generator, with less than 100ps period jitter, may be set from 100 mHz to 10 MHz with 1μHz resolution. An external trigger input, with adjustable threshold and slope, can trigger a timing cycle, a burst of cycles, or a single shot. A single shot can be triggered with a key press and a line trigger operates synchronously with the AC mains. A rear-panel trigger inhibit input can disable the trigger or any of the pulse outputs during a timing cycle.

There are five front-panel outputs and the programmed delays (A, B, C, D, E, F, G and H) are set from 0s to 2000s, with 5 ps resolution, to control the timing of the leading and trailing edges of the four pulse outputs. Each front-panel output can drive a 50Ω load and output amplitudes can be set from 0.5 to 5.0 V.

Optional rear-panel outputs are available to support diverse applications.

Option 1 provides a T0 output and eight programmed delays at 5 V logic levels, with transition times less than 1ns.

Option 2 provides these same outputs but as 30V, 100ns pulses with less than 5ns transition times for timing distribution in high noise environments.

Option 3 provides eight combinatorial outputs which deliver one to four pulses at 5V logic levels with less than 1ns transition times.

DG645 Highlights

- **4 pulse outputs**
- **8 delay outputs (opt.)**
- **<25 ps rms jitter**
- **Trigger rates to 10 MHz**
- **Precision rate generator**
- **Fast transition times**
- **Ovenized crystal or rubidium timebase (opt.)**
- **Ethernet, GPIB and RS-232 interfaces**

www.lambdaphoto.co.uk/news12

DG645 back panel with 8 delay outputs

Why not contact us today and upgrade your DG535 to the cutting-edge DG645?

UGA Universal Gas Analyser

The **UGA** Series Universal Gas Analysers are state-of-the-art bench top mass spectrometers that operate from above atmospheric pressure to UHV. They are ideal for on-line monitoring and analysis of gas mixtures. Whether you are measuring trace-level contaminants, solvents, hydrocarbons, refrigerants or corrosive gases, the **UGA** analyzer is up to the task.

UGA applications include semiconductor exhaust gas monitoring, glove box analysis, fuel cell studies, Freon detection, pollution monitoring, fermentation studies and general R&D vacuum analysis. These analyzers are also simple to operate and maintain.

The chassis design allows the instrument to be operated vertically or horizontally, and both front-panel and computer operation are supported.

The **UGA** system uses a two-stage pressure reducing inlet to sample gases at atmospheric pressure. After the pressure is reduced to around 10^{-6} Torr, the gas stream is sent to a mass spectrometer (residual gas analyzer – RGA) which measures the concentration of each mass of interest. The **UGA** Windows software provides a graphical user interface for complex graphing and data analysis and allows remote control of the system's valves, heaters and pumps. An optional valve and inlet to the turbo pump's exhaust is available for users who wish to vent with dry nitrogen (or other inert gases). This keeps the pump free from water and other contaminants present in air.

www.lambdaphoto.co.uk/news14

& more from SRS

Stanford have been busy this year releasing a batch of new products including the UGA Universal Gas Analyser and LDC501 Laser Diode Controller.

LDC501

The **LDC501** Laser Diode Controller is a highly stable, low-noise current source, with an integrated temperature controller available at a very affordable price.

The unique feature of the **LDC501** is the dynamic transfer between constant current (CC) and constant power (CP) modes which means you do not have to shut down the laser to switch modes – simply press the Current/Power button.

With a low-noise current source that delivers up to 500 mA, a 36 W high-precision temperature controller, and standard computer interfaces including Ethernet, the **LDC501** is the right choice for your laser diode testing and control applications.

The **LDC501** has an intuitive user interface and many first time users will be able to operate the instrument without having to crack open the manual (although as with all our products, we do recommend reading the manual). Unlike competitive models, the **LDC501** has a dedicated front-panel display for parameter entry. You don't have to sacrifice monitoring temperature or current; simply change an instrument setting you have a separate two-line, blue alpha-numeric display for that. In addition, bright 5-digit green LED displays constantly monitor current and temperature, and are large enough to easily read from anywhere in the lab.

Remote operation of the **LDC501** is supported with GPIB, RS-232 and Ethernet interfaces and instrument functions can be controlled and read over any of the interfaces. Up to nine complete instrument configurations can be saved in non-volatile RAM and recalled at any time.

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SR470/SR474 Laser Shutter & Controller

- Ultra-low vibration shutter head
- True mechanical laser beam blocking
- >10M cycle lifetime
- Microprocessor controlled timing
- DC to 125 Hz (any duty cycle)
- Easy to align 3mm aperture
- GPIB, RS-232, Ethernet interfaces

www.lambdaphoto.co.uk/news13

PS300 Series High Voltage Power Supplies

- +20 kV, -20 kV, +10 kV, -10 kV, ±5 kV, ±2.5 kV, ±1.25 kV supplies
- 1 volt resolution
- 0.001% regulation
- 0.05% accuracy
- Programmable limits and trips
- 0.0015% ripple
- GPIB interface
- RS-232 interface (10 kV and 20 kV models)

www.lambdaphoto.co.uk/news15

PTC10 Temperature Controller

- Up to 16 input channels
- Up to 4 PID feedback control channels
- 50 Hz PID sampling
- 1 mK resolution
- Data logging on removable flash media
- USB, Ethernet, RS232 interfaces (std.)
- GPIB interface (opt.)

www.lambdaphoto.co.uk/news16

FS730/FS735 Distribution Amplifier

- 10MHz distribution amplifier
- 5MHz distribution amplifier
- CMOS logic distribution amplifier
- Broadband 50Ω distribution amplifier
- Broadband 75Ω distribution amplifier

www.lambdaphoto.co.uk/news18

Calmar Optcom

A leading light in fibre laser solutions

Calmar Optcom have added a new range of fibre lasers for materials processing, biomedical imaging and terahertz applications.

Fibre lasers have evolved from telecommunications light sources into powerful tools for materials processing and biomedical imaging. Following this growth, Calmar Optcom have introduced a new high power femtosecond pulsed fibre laser, the **FPL-05** series, to the market.

The **FPL-05** provides up to 5 Watts average power and 1MW peak power in either 1550nm or 1064nm wavelengths. The system consists of a master laser source and a free-space based pulse compressor. It is passively mode locked and generates optical pulses of less than 0.3 picoseconds user-selectable repetition rates of 10~50 MHz. Furthermore, it is turnkey based and extremely intuitive and easy to use. It requires no external RF source or warm-up and requires no external cooling.

There is a synchronization output option that provides a signal frequency of the fundamental or harmonics of the repetition rate of the laser. In addition, the laser pulses can be phase-locked to an external RF clock or another laser source with very low timing jitter by implementing Calmar's proprietary PLL technology.

In summary the **FPL-05** is a versatile laser source ideally suited to materials processing, biomedical imaging, terahertz applications or as a seed laser for ultra high output power lasers.

Another development from Calmar is a Fibre Laser-based Chirped Pulse Amplification system, the **FLCPA**. This system provides a versatile optical source for photonic applications where high pulse energy is required.

The **FPLCPA-02** generates >3μJ per pulse in 500 femtoseconds and brings the benefits of fibre lasers to CPA technology as it is light-weight and compact, maintenance free and a cost effective CPA solution.

Finally, Calmar Optcom has also introduced the Femtosecond Pulsed Laser Module series, **FPL**. These provide up to 20mW power at 1μm wavelength and are the perfect seed laser source. The **FPL** series are extremely compact, air-cooled and shock-proof. They can be used either as stand-alone laser sources with a +5VDC power supply or as OEM modules, and Calmar can customize the interface to allow direct system integration with no requirement for adjustments. The modules are passively mode-locked with no warm-up time and no RF-source required.

The **FPL** is available in pulse widths of 0.4 to 10 picoseconds, with a selectable central wavelength of between 1030–1070nm and a spectral width of 5–20nm. The standard repetition rate is 40MHz, although rates of 20–100MHz are possible.

FPL-05

High power femtosecond fibre laser

- **Up to 5W output**
- **1550nm or 1064nm wavelength**
- **10–50 MHz repetition rate**
- **<300 femtosecond pulse width**

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FLCPA

Fibre laser-based chirped pulse amplification system

- **1–3 μJ pulse energy**
- **1550nm or 1064nm wavelengths**
- **Up to 800kHz repetition rates**
- **500 femtosecond pulse width**
- **4mm free-space beam diameter**

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FPL

Femtosecond pulsed laser modules

- **Up to 20mW average power**
- **1030–1070nm wavelengths**
- **40 MHz repetition rates**
- **0.4–10 picoosecond pulse width**
- **5–20nm spectral width**

www.lambdaphoto.co.uk/news21

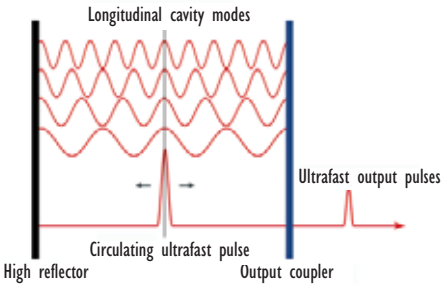
Quantel's new Pizzicato picosecond Nd:YAG laser features an all solid state mode-locking system providing high pulse to pulse stability and synchronisation capability.

Quantel Pizzicato hits all the right notes

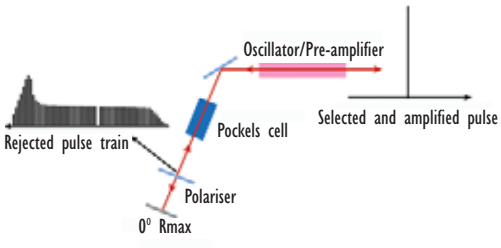
Quantel have been at the forefront of innovation in the field of Nd:YAG laser technology for over 35 years. This month sees the release of the Pizzicato, an all-solid state, mode-locked picosecond Nd:YAG laser providing up to 100mJ in a 35ps pulse at 1064nm.

Based on a unique design, the Pizzicato features low jitter, high pulse-to-pulse stability with synchronization capability. The all solid state design is free from the constraints of previous designs that used liquid saturatable absorbers whilst maintaining short pulse durations of 35ps.

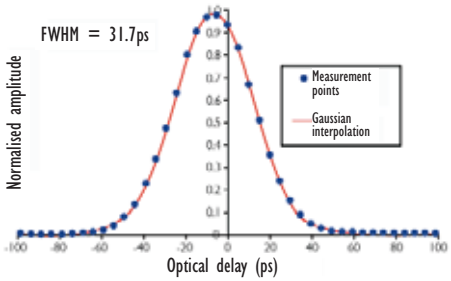
The Pizzicato's mode-locking device forces all the longitudinal modes of the laser cavity to oscillate in phase, allowing the resonator to generate ultrafast (picosecond) pulses.



The picosecond pulses result from the rotation of the polarization by frequency back conversion in a non-linear crystal. This totally passive device produces a wave train made up of several ultrafast pulses and is combined with a double-pass Pockels cell pulse picker system.



Together these components produce stabilized ultrafast pulses precisely separated by a few nanoseconds.



The pulse picker generates a synchronization signal allowing the laser to be synchronized with other apparatus and produces excellent energy stability, whilst the second pass increases the energy, power contrast and aids stability and reproducibility.

Only the highest quality mechanical, electronic, and optical components have been used in the Pizzicato to ensure high performance, trouble-free operation and ease of use throughout the laser's lifetime. These include a carbon fibre resonator support structure with floating fasteners to efficiently absorb any differential expansion and an optical isolator situated between the preamplifier and amplifier to protect the oscillator and mode-locking module against back reflections.

Specifications

Energy per pulse:	
1064nm:	**100mJ**
532nm:	**50mJ**
355nm:	**17mJ**
266nm:	**10mJ**
213nm:	**On request**
Energy stability:	**<3%**
Power drift:	**±4%**
Pulse duration:	**35ps**
Jitter:	**250ps**
Pointing stability:	**<30 µrad**
Divergence:	**<0.5 mrad**
Beam diameter:	**6 or 9mm**
Spatial profile:	**>0.7 near field**
	>0.9 far field

Applications

- **Acoustic waveform generation**
- **Time-resolved spectroscopy**
- **Laser-matter interaction**
- **Pump probe experiments**
- **Pulsed Laser Deposition**

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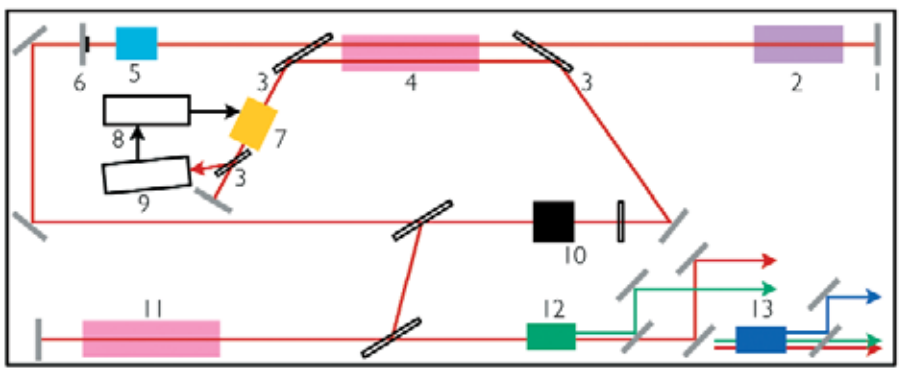


1 Mirror Rmax @532nm
2 Mode-locking module
3 Polarisers
4 Oscillator/preamplifier
5 Acousto-optic modulator
6 Output coupler
7 Pulse selector
8 Monitoring of the Pockels cell
9 Electronic delay
10 Optical isolator
11 Amplifier
12 2nd harmonic generator
13 3rd or 4th harmonic generator

Custom LED lighting solutions from LATAB

LATAB can manufacture a vast range of standard and customised LED lighting solutions for machine vision applications.

LAT electronic AB are experts at designing and manufacturing LED lighting solutions for a vast array of machine vision applications. As well as their standard range of LED ring lights, dome lights, line lights and back lights, LATAB are seeing a growing demand for customized LED lighting solutions including high power spotlights based on 3W Luxeon LEDs and so called tunnel lights which combine the best features of dome lights and ring lights.

Recently they have also developed a 'drum' light (right) for use in a particular application that required a highly shadow-free illumination area combined with the need to avoid reflections from reflective surfaces being illuminated. The drum light also incorporated three camera viewing ports.

If you have a machine vision application that has specific lighting requirements, please contact us today to find out how we can help.

www.lambdaphoto.co.uk/news23

Zygo ZMI enables high resolution displacement measurements

Zygo has updated its ZMI series of Stage Metrology interferometers.

The new ZMI-2400 series are backward compatible with the ZMI-2000 series, offer improved specifications and better immunity to electrical noise. The ZMI-4100C measurement board has been added to the ZMI-4000 series, which accepts a minimum optical power of only 0.07µW and can correct for cyclic error due to alignment issues.

Zygo also offers four laser sources for the ZMI systems. The 7705, dedicated to the ZMI-501A board based systems, are designed for OEM stage metrology applications. Three other sources can be used with the ZMI-2400 Series and ZMI-4000 series. The 7702 is typically used for applications with less than six measurement axes. The 7714 and 7722/7724 are water cooled and designed for tens of measurement axes. The 7222/7724 system has a separate laser head and can feed up to two delivery modules, particularly useful for multi-level multi-axis and vacuum applications.

www.lambdaphoto.co.uk/news24

Beam profiling comes of age

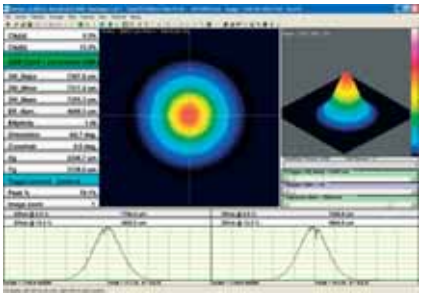
The Beamage laser beam profiler from Gentec Electro-Optics provides next generation features in a compact package.

Whether you are working in a laboratory environment, laser manufacturing or quality assurance, fast and accurate measurement of your laser beam is essential. Gentec-Electro Optics new **Beamage** family of compact, portable CCD/CMOS profilers represent the state of the art in laser beam measurements.

Beamage is feature packed, with USB2.0 connectivity, 4MB image buffer and on-board microprocessor. Measuring only 29mm deep, it can easily fit in the tightest of spaces.

There are several versions available; the 14-Bit high resolution CCD version with either a ½-inch (**Beamage-CCD12**) or ⅔ inch (**Beamage-CCD23**) chip, and the 10-Bit high speed-CMOS version optimized for pulsed lasers (**Beamage-SPEED**).

There is also an M^2 measurement accessory, the M2DU, a compact and portable device that converts any Beamage into a fully ISO 11146 compliant measurement system for quick and reliable determination of M^2.



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Beamage powerful software package features:

- **Beam wander and logging**
- **Gaussian and top hat fits**
- **Logarithmic profile**
- **Auto-inclusion region**
- **Relative power and fluence**
- **Auto or external trigger modes**

XL fiberTOOLS - a handy piece of kit

Greenlee's XL Fibre Tools range are perfect for trouble-shooting, installation and maintenance of fibre-optic cable networks.

Greenlee are renowned for manufacturing rugged, easy to use kit for use in the field. Their **XL fiberTOOLS** are no different and are designed for technicians and field service engineers who need to perform installation and maintenance measurements on fibre optic cabling networks.

The instrument family consists of individual instruments (optical power meters, 850/1300nm LED sources, 1310/1550nm laser sources, visual fault locator) and complete Insertion Loss Test Sets.

These full-feature general purpose fibre optic instruments are easy to operate, economically priced and are designed to accurately measure optical power levels and link loss on multimode and single mode cabling networks.

The units are hand-held with a removable rubber boot, making them rugged, splash-proof and perfectly suited for use in harsh environments.

The **560XL**, **570XL** and **580XL** all feature snap-on connector interfaces to adapt to FC, SC and ST connectors, making them highly versatile.

The **560XL** power meter also features a very useful multi-wavelength storage feature, which enables the user to store and recall reference power levels making power measurements fast and efficient.

Combined with a long battery life, ease of use and a range of accessories, the **XL fiberTOOLS** should be part of any telecomm service engineers tool kit.

www.lambdaphoto.co.uk/news26

XL fibreTools Instruments

- **560XL FiberOptic power meter**
- **570XL 850/1300nm LED source**
- **580XL 1310/1550nm laser source**
- **170XL visual fault finder**

Late News

Zeiss release 18mm and 21mm wide angle lenses for machine vision applications

ⓘ **www.lambdaphoto.co.uk/news27**

Zygo introduce the UltraSphere (λ/50) Transmission Sphere for its laser Fizeau interferometer systems.

ⓘ **www.lambdaphoto.co.uk/news28**

Gentec-Electro Optics release 500W laser power head.

ⓘ **www.lambdaphoto.co.uk/news29**

Recruitment

We are currently looking for an experienced Service Engineer to join our Service Department.

ⓘ **www.lambdaphoto.co.uk/news30**

Events

- **26 November 08**
  Lambda Roadshow
  Imperial College, London
- **25 – 26 March 09**
  VTX Vision Technology
  NEC, Birmingham
- **30 June 09**
  Lamdamap
  Brunel University, Uxbridge

ⓘ **www.lambdaphoto.co.uk/news31**

A selection of the companies we represent ...

As you can see above we represent a large number of world-class manufacturers offering a vast array of products. When you buy from Lambda Photometrics you can be sure we'll offer you only the best cutting edge technology. As standard we provide our customers with:

Expertise

Our Product Specialists and Service Engineers are qualified scientists and engineers who will work closely with you to determine the best solution for your needs and provide the highest levels of service and support.

Experience

Founded in 1977, we have over thirty years experience of working with customers in Scientific, Industrial, Military and Medical sectors.

Efficiency

We are always on hand to answer your questions and queries and will respond quickly to your request.

Contact us today!

01582 764334

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