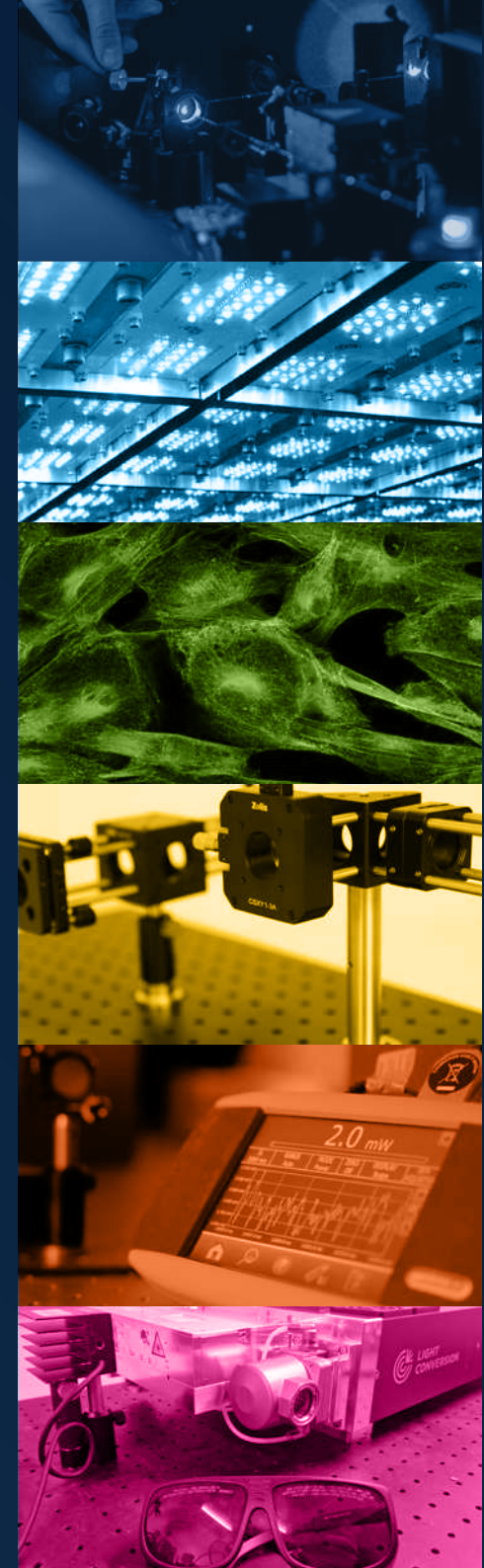
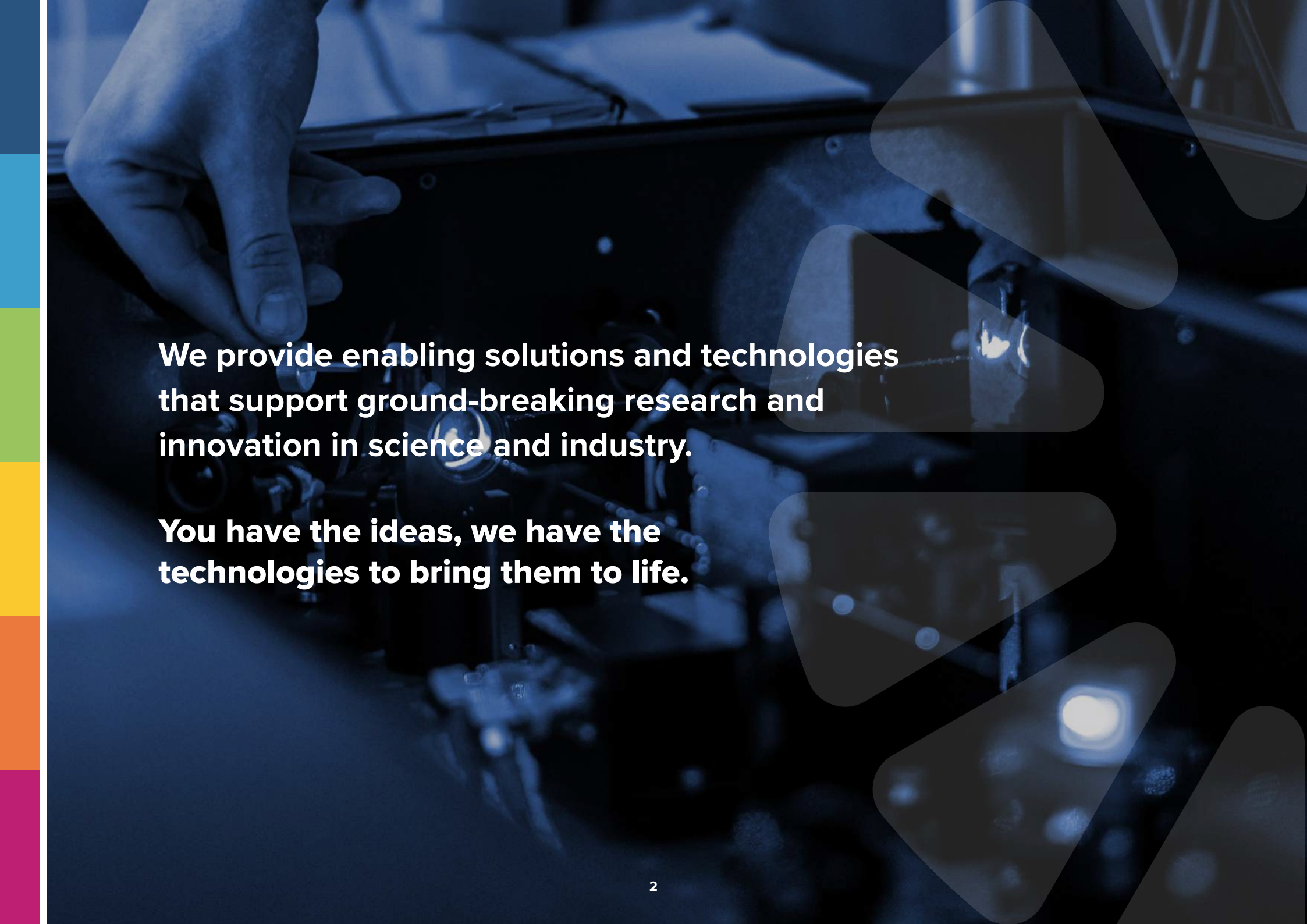




PRODUCT CATALOGUE

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**We provide enabling solutions and technologies
that support ground-breaking research and
innovation in science and industry.**

**You have the ideas, we have the
technologies to bring them to life.**



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About Us

Established in 1999, Photonic Solutions Ltd represents many of the world's leading manufacturers of laser systems, spectroscopy solutions, optical instruments, microscopy and imaging systems, together with optics, laser diagnostics and detectors for science and industry.

Our mission is to provide our customers with the best-in-class photonic products and the highest quality customer service and support.

We work with our customers to understand their objectives and help them achieve their goals together. With our expertise and knowledge, we are an extension of our manufacturing partners.

We provide a fully integrated service and have a team of highly skilled photonics specialists with years of experience across the photonics sector. Our service team is on hand to assist our customers in the field or at our head office facility.



Our Values



Customer Focused

We seek to add value to our customers through tailored solutions and support. We maintain a close relationship with our customers, working in partnership with them and collaborating through open and transparent communication.



Innovative

We ensure we keep up to date with the latest developments in the industries we serve, ensuring our knowledge and expertise evolves alongside advances in our customers' processes.



Quality

We strive to continually provide high-quality products and services that meet and exceed expectations and requirements of our customers.



Expertise

Our team of photonics specialists are highly qualified with a wealth of experience from years of working across multiple disciplines. This skill and expertise allows us to always offer our customers a wide range of enabling technologies across various applications.



**We Have the Products,
We Have the Technology,
We Have the Quality,
We Have the Expertise.**

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LASERS

LASERS Ultrafast Lasers

A Complete Laser Technology Portfolio

Our extensive laser portfolio positions us as a true one-stop supplier, with solutions spanning the full temporal and spectral domain. This breadth of capability enables us to address a diverse range of applications, from individual laser sources through to fully integrated manufacturing solutions.

Crucially, our expertise extends beyond the supply of laser sources. We design and deliver complete laser processing machines, combining laser technology, optical systems, process expertise and machine integration within a single offering.

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Light Conversion is the world's leading manufacturer of industrial femtosecond lasers and continuously tunable ultrafast light sources, offering unrivalled levels of reliability and long-term performance.

PHAROS and **CARBIDE** are a family of impressively robust and truly flexible femtosecond laser systems.

The industrialised **CARBIDE** design boasts a fully integrated laser head and power supply combined in a single ultra-compact unit.

The **PHAROS** is the market leader in key applications such as ultrafast spectroscopy and precision laser micromachining.



	PHAROS	CARBIDE
Max. Average Power (W)	20	120
Max. Pulse Energy (mJ)	5	2
Flexible Repetition Rate	Single Shot – 1MHz	Single Shot – 10 MHz
Tunable Pulse Duration	<100fs to >20ps	<190fs to 20ps

“The PHAROS is a workhorse in our facility and is in constant use. I am extremely impressed with its performance and the level of service from both Photonic Solutions and Light Conversion.”

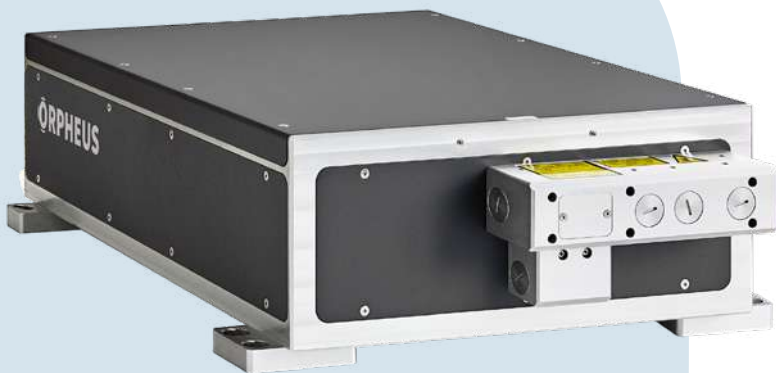
Dr. Julian Fells

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THE ORPHEUS FAMILY OF OPAs

Pumped by any PHAROS or CARBIDE laser system, the ORPHEUS series of high-energy OPAs offers easily tunable femtosecond pulses from the UV to the MIR.



OPA Model	Key Features
I-OPA	Integrates directly on to PHAROS or CARBIDE as a single-box solution
ORPHEUS-NEO	The next-generation OPA offering exceptional stability
ORPHEUS-MIR	Broad-bandwidth solution offering <100 fs across the MIR range
ORPHEUS	The cost-effective and classical solution
ORPHEUS-HE	High-energy OPA capable of up to 5 mJ pump energy
ORPHEUS-VIS	Broad-bandwidth solution offering <70 fs across the VIS range
ORPHEUS-N	Non-collinear OPA for the shortest pulses (<30fs)
ORPHEUS-PS	Narrow bandwidth, picosecond solution

	Max Pump	Tuning Range	Extended Range	Pulse Duration	Key Features
I-OPA	40W / 400μJ	640 - 4500 nm	320 - 640 nm 4500nm - 10,000 nm	<55fs to 300fs	Complete one-box solution
ORPHEUS-NEO	80W / 800μJ	640 – 2600 nm (HP)	320 – 2600 nm	120 - 250 fs	Exceptional stability. Continuous power monitoring and diagnostics.
		1350 – 4500 nm (ONE)	640 - 16,000 nm	100 - 300 fs	
ORPHEUS-MIR	80W / 2mJ	2500 - 10,000 nm	1350 – 16,000 nm	< 100 fs	Broad bandwidth Mid-IR
ORPHEUS	80W / 2mJ	630 – 2600 nm	190 – 16,000 nm	120 – 250 fs	Cost effective Fully automated
ORPHEUS-HE	80W / 5mJ	630 - 2600 nm	210 - 630 nm 2600 - 16,000 nm	100 - 400 fs	Higher pump energy limits
ORPHEUS-VIS	20W / 1mJ	320 - 900 nm	250 - 300 nm	<50fs	Sub-50fs pulses in the visible range
ORPHEUS-N	2W / 200μJ	650 – 900 nm (2H)	325 – 450 nm 650 – 900 nm	< 30 fs	Broad bandwidth UV/ VIS
		520 – 900 nm (3H)	260 - 450 nm 520 – 900 nm	< 30 fs	
ORPHEUS-PS	20W / 3.2mJ	640 – 2600 nm	210 – 4800 nm	1-3 ps	Narrow bandwidth



“The PHAROS laser is a rugged and flexible system which has been an excellent addition to our facility.

It is easy to use, reliable, and combines good beam quality with femtosecond pulses, all of which allow for great machining results in all materials.”

Dr. Nadeem Rizvi,
Laser Micromachining Ltd



THE CARBIDE CB5

The air-cooled CARBIDE CB5 is an ultra-stable, robust industrial laser system offering unprecedented performance - all in a single, compact housing.

The CARBIDE CB5 is the market leader in terms of highest pulse energy, shortest pulse duration, and power/energy stability.



	CB5	CB5-SP
Max. Average Power (W)	6	5
Max. Pulse Energy (μJ)	100	100
Repetition Rate (MHz)	Single Shot – 1MHz	Single Shot – 1MHz
Pulse Duration	<290fs to >20ps	<190fs to >20ps
Beam Quality	M ² <1.2	M ² <1.2
Pulse-to-Pulse Energy Stability (%)	<0.5	<0.5
Long-term Power Stability (%)	<0.5	<0.5

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EDGEWAVE

EdgeWave is a highly innovative provider of high-end laser beam sources and was the pioneer in the conception of InnoSlab technology and now lead the market in this area. InnoSlab lasers count among today's most efficient production tools, with a unique combination of high-power output, high pulse frequencies, beam quality, scalability in power and energy and tailorable beam profiles. They allow users to improve existing manufacturing processes and extend them to new types of products.

	FX SERIES
Beam Quality	$M^2 < 1.1$
Pulse Energy (μJ)	up to 100
Typical Pulse Length	600fs
Peak Power (MW)	up to 160
Pulse Repetition Rate (MHz)	up to 50
Average Power (W)	up to 200
Wavelength (nm)	1030, 515, 343, 257

FX-SERIES

FX-series is a femtosecond oscillator and amplifier system based on InnoSlab technology with medium to high power and pulse energy





Oxxius specialise in DPSS and laser diode modules across the UV, VIS and NIR spectra. Their solutions deliver exceptional optical performance in ultra-compact designs, making integration into instruments simple and efficient.



FlexxRay – CW and Modulated Lasers

The FlexxRay are a family of compact diode and DPSS lasers available across multiple wavelengths and power levels.

- Wavelengths 375-1064nm
- Powers from 40-1000mW
- TEM₀₀ beam
- Ultra-low noise <0.2% RMs
- Integrated control electronics
- Power stability +/-1%
- Direct modulation on laser diode modules
- Power control via motorised power attenuator or AOM on DPSS
- Digital modulation via AOM on DPSS lasers - <150ns rise time, 3MHz bandwidth
- SM, PM fibre delivery

StaxxBeam – Single Frequency Lasers

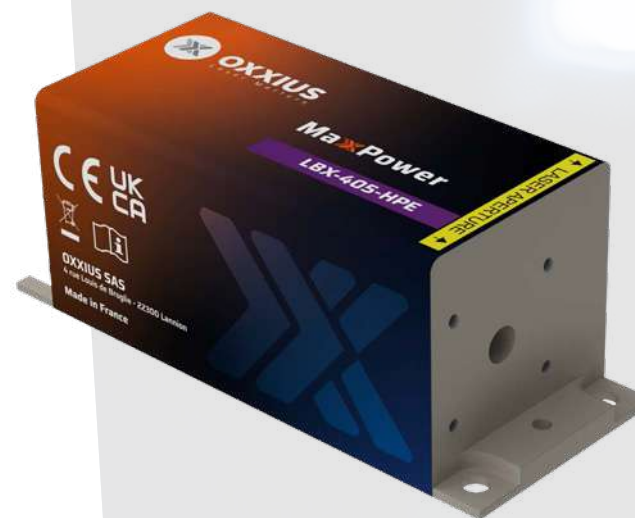
The StaxxBeam are high performance diode and DPSS lasers that deliver single-longitudinal mode operation with exceptional frequency stability.

- Wavelengths 473-1064nm
- Powers up to 800mW
- TEM₀₀ beam
- Linewidths <1MHz
- Coherence length >100m
- Wavelength stability down to 1pm
- Integrated control electronics
- Direct modulation on laser diode modules
- Power control via motorised power attenuator or AOM on DPSS
- Digital modulation via AOM on DPSS lasers - <150ns rise time, 3MHz bandwidth
- SM, PM fibre delivery

MaxxPower – High-Power Diode Modules

Oxxius's MaxxPower series brings together high power, reliability and flexibility in multimode beams, delivered free space or through optical fibres.

- Wavelengths 375-1064nm
- Powers up to 1100mW
- Elliptical collimated beam
- Power stability +/-1%
- Modulation up to 1MHz
- Integrated control electronics
- MM fibre delivery – 50mm or larger core



MixxWave – Wavelength combiners L4Cc and L6Cc

The most compact and flexible all-in-one multicolour laser source combining up to 6 stable wavelengths into one or two independent channels.

- Delivers co-linear multi-wavelength beams
- Configurable with extension modules providing up to 4 output ports
- FlexxRay configuration 375-1064nm, up to 1W power
- MaxxPower configuration 375-980nm, up to 1200mW
- StaxxBeam configuration 473-1064nm, up to 800mW
- Integrated electromechanical shutter
- Options include automatic neutral density filter, motorised power attenuators, optical isolators, speckle reducer, square or hexagonal shaped delivery fibres





Our Moglabs portfolio includes tunable Cateye and Littrow diode lasers, laser electronics, optical amplifiers, and wavemeters. With from years of active laboratory development by research students and scientists, they balance outstanding performance, superb features, high-quality design, excellent ergonomics, and moderate cost.

Tunable Littrow Lasers (LDL)

The MOGLabs LDL Enhanced Littrow External Cavity Diode Laser is a fourth-generation Littrow laser for advanced applications in atomic and quantum physics. With a monoblock chassis, there are no coil springs to vibrate. It's machined from a solid block of aluminium alloy making this laser compact, robust, and stable.

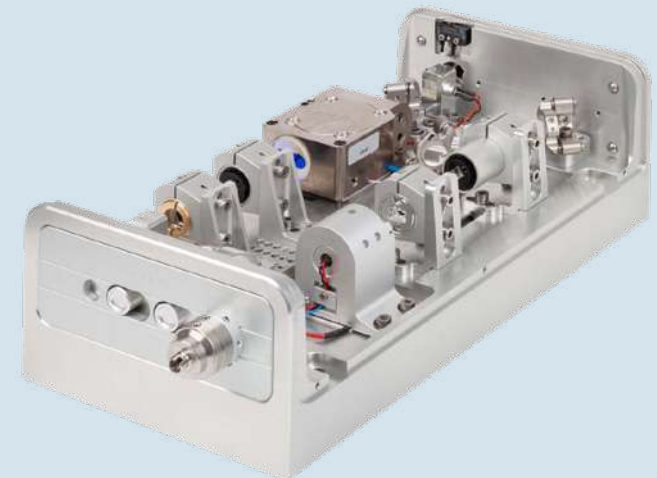
- Wavelengths from 368-1620nm
- Vibrationally inert
- Wide tuning range
- Decoupled grating rotation and tilt
- Wide mode-hop free scan range
- Narrow linewidth
- Fastest piezo feedback on the market
- Precision alignment controls, including focus
- High bandwidth low latency current modulation
- Simple and fast diode replacement



ILA Injection-Locked Amplified Laser system

The ILA injection-locked amplified laser system is a novel approach to high power narrow linewidth tunable lasers. Higher power, up to 1W, is available at critical wavelengths with no complex and expensive frequency doubling cavities. The ILA uses new MOGLabs' technology, giving a new class of UV, blue, green, and red amplified lasers offering a low cost and compact alternative to SHG systems.

- Wavelength 370-1080nm
- Output power up to 1W, depending on the wavelength
- High stability wire-cut flexure alignment with simple optimisation procedure
- User-replaceable amplifier diode
- Astigmatic correction



Seed + Amplifier + Linear Cavity SHG (MSHG)

The MOGLabs MSHG seed + amplifier + linear cavity SHG system is a compact, higher power alternative to our standalone linear cavity SHG system with external seed + amplifier offering. The MSHG combines our unique cateye seed laser with a high-power tapered amplifier and a linear enhancement cavity to generate ultra narrow linewidth, high power visible light from 370-665nm and 368–1612nm

- Fully integrated and complete SHG system
- Alignment-free linear optical cavity design
- No kinematic mounts: vibration inert
- High power, over 1.5W output
- Low amplitude noise
- Broad wavelength tunability
- High bandwidth piezo actuator (>30kHz)
- FM cavity locking built-in
- Hermetically sealed; gas purge optional
- Self-contained, SHG electronics included
- Precision temperature control
- Crystal displacement to increase lifetime
- User-changeable crystal
- Re-usable, re-configurable

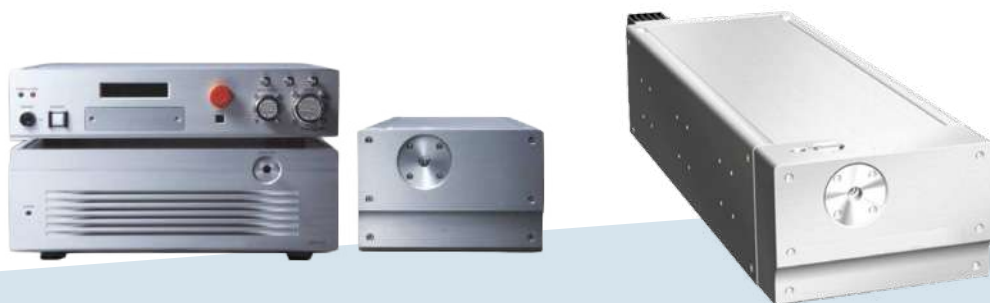


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OXIDE

OXIDE is a specialist manufacturer of ultraviolet (UV) and deep-ultraviolet (DUV) laser sources, with expertise in nonlinear optical materials, harmonic generation, and frequency conversion. Its laser portfolio includes Continuous Wave (CW) DUV modules, frequency-quadrupled (Frequad) systems, and Quasi-Continuous Wave (QCW) lasers, engineered for high wavelength purity, excellent power stability, and long operational lifetime.

OXIDE systems are designed with compact, air-cooled, OEM-ready architectures, enabling reliable continuous or quasi-continuous operation in demanding environments.



Model	Frequad-HP FQ50-20/-10	Frequad-M FQM-10/-07/-5/-03	Frequad-C FQC-50/-20	Frequad -W	Frequad -M57
Wavelength (nm)	266	266	266	213	257.5
Output power (W)	2.0/1.0	1.0/0.7/0.5/0.3	0.02	0.01/0.02	0.3-1
Linewidth (pm)	0.005	0.005	0.005	0.15	<0.005
Power Stability %/8hrs	<+/-1	<+/-1	<+/-1	<+/-1	<+/-1
Cooling	Air	Water	Air	Air	Water

Frequad CW DUV Series

This Continuous Wave, single-frequency Deep-Ultraviolet system offers output at 266nm. It comes in a range of power levels and configurations. Frequad CW DUV modules are engineered for ultra-stable wavelength conversion using proprietary high-purity BBO crystals and precision servo control to support reliable, long-term CW operation.

Frequad-W 213nm DUV CW Laser

The Frequad-W is a CW, single-frequency DUV laser emitting up to 20mW power at 213 nm – the shortest-wavelength CW laser in OXIDE's portfolio. The system employs OXIDE's proprietary, ultra-high-purity, nonlinear crystal technology, combined with precision frequency-conversion control to deliver stable CW output at 213nm. The conversion stage is optimised for low degradation, supporting extended crystal lifetime at deep-UV wavelengths without the need for water cooling. Frequad-W provides narrow linewidth emission and high beam quality, optimised for long-term, low-noise CW operation.

Frequad-M57 257.5 CW Laser

This single-frequency DUV laser emits up to 1W of power at 257.5nm. It is based on OXIDE's advanced wavelength conversion and nonlinear crystal technologies. This wavelength corresponds to the second harmonic of legacy argon ion gas lasers, delivering stable CW DUV output with reduced complexity relative to older gas-laser platforms.

The laser harnesses ultra-high-purity BBO conversion crystals engineered for prolonged CW use, enabling continuous operation over thousands of hours with minimal degradation and high beam quality.

OXIDE

QCW266

These Quasi-Continuous-Wave (QCW) 266 nm deep-UV lasers deliver up to 3W of power when operating at 100MHz repetition rate and <50ps pulses duration. The QCW266 is engineered to deliver significantly higher average power than conventional CW DUV sources by using a high repetition rate pulsed architecture that closely approximates continuous output. The QCW266 combines OXIDE's proprietary ultra-high-purity BBO crystals with advanced wavelength-conversion and amplification technologies developed over decades of nonlinear optics expertise.

The QCW266 source uses a high repetition frequency to generate low-peak-power pulses that minimise optical damage while enabling higher average output power — with units demonstrated at multi-watt continuous-equivalent levels. Output power levels in production and prototype configurations extend to several watts at 266 nm, with narrow linewidth and high beam quality.



Power Technology, Inc. manufacture custom laser solutions for large-scale production as well as R&D projects, prototypes and contract manufacturing.

Industrial Grade (PM Series).

The PM family of lasers offers a variety of industrial-grade laser modules designed for use in standard or rugged OEM environments and contains a precision current source ideal for applications demanding durability and stable output power.

- CW wavelength Range 390-2310nm
- PM fibre delivery or PM free space output

Instrument Quality (IQ Series)

The Instrument Quality (IQ) series of laser diode modules are designed specifically to address the needs of high-end OEM applications requiring superior optical quality and ultra-stable temperatures, wavelengths and output powers. All IQ lasers feature an ultra-precise operating current source and a PID temperature control loop that creates less excess heat within the laser module, increasing diode lifetime, efficiency and reliability. All IQ lasers are available at wavelengths from 390-2320nm.

- IQ1C-CW, Precision current and PID temperature control, fibre delivery option
- IQ2C – CW, Beam circularization via anamorphic prisms for improved beam profile
- IQ1A/2A - Up to ~30 MHz analogue modulation options, circular output by default, pulsed capability, fibre delivery option (IQ1A)
- IQ1H/IQ2H - High-speed TTL modulation up to ~150 MHz, pulsed capability, fibre delivery option (IQ1H)
- IQ6 – CW, Narrow spectral width <5MHz and long coherence length >15m



High Precision laser (CK Series)

The instrument quality CK laser module is designed to specifically address the needs of high-end OEM applications requiring superior optical quality, ultra-stable wavelength and output powers. The CK features an onboard microprocessor, allowing for advanced integration and user control. The mechanical design of the CK allows users to replace more expensive lasers without sacrificing performance.

- High-precision, microprocessor-controlled laser diode modules
- CW output; analogue and digital modulation supported
- Wavelengths 375nm to 1550nm
- Integrated current and temperature control; designed for high stability and OEM integration



3D Profiling and Line Generation Laser (PNF Series)

Power Technology's PNF Series are line-generator laser modules designed for 3D machine vision, profiling, and mapping applications. These lasers produce a uniform intensity line output with configurable focus and line thickness, and are tailored for stability and performance in structured-light optical systems.

- Features Unique Variable Focus™ technology - adjust line focus and fine-tune line generator
- CW output, wavelengths 405-1550nm
- Powers up to 150mW
- Optional digital (TTL) modulation up to ~500kHz



High Power Laser Module (Grande Series)

The Grande laser provides up to 20 Watts of optical power for demanding applications that require high output powers. Controlled by an internal micro-processor, the design features an LCD display, which provides users safety status as well as real time information on power current settings and internal temperature. Drive current and bias settings are user controllable with 12 bits of resolution (4096 steps). Input to the module is typically 5 VDC, while blue and green lasers require 8VDC.

- Wavelength 450-980nm
- Powers up to 20W
- Passive cooling for the laser and circuitry
- Optional low-speed TTL modulation





Laser Gain Modules

Laser resonator and laser amplifier modules are the engines that drive DPSS laser systems. With a variety of gain medium, rod diameter, rod length and diode bar count options, these gain modules have served as a workhorse for important applications.

	RBAT	REA
Rod Sizes (diameter, both CW and QCW pumped) (mm)	2-4	4-32
Max CW Power (W)	150	650
Long Pulsed Energy (J)	0.5	8
Material Type	YAG and YLF	YAG and YLF



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LASERS Nanosecond Pulsed Lasers

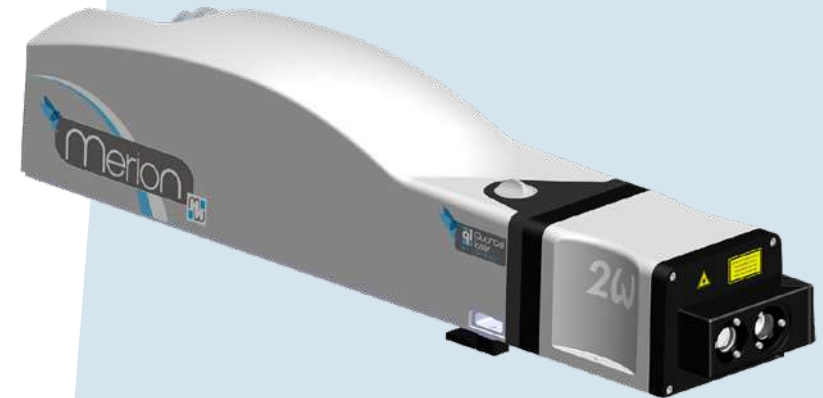


The Quantel laser range from Lumibird includes a wide range of pulsed solid-state lasers (Nd:YAG, Nd:YLF, Nd:Glass) designed for industrial, military, and scientific applications.

Merion

To meet the laser market's diverse needs with reliable, high-performance and competitive Solutions, Lumibird's product ranges are transitioning to an industrial platform model. Merion is the first platform model for diode-pumped solid-state lasers.

This modular and versatile laser platform has uses in almost any application, from environmental LiDARS to medical equipment and industrial instrumentation. The platform model enables Quantel to produce a highly diverse range of lasers with different power levels (100mJ to 1J), different frequencies (from a few dozen to 500Hz) and variable wavelengths



Merion MW

- Lightweight and compact design
- Repetition rates up to 200Hz
- Quick and easy access to 1064, 532, 355 and 266nm
- Plug and play harmonics with automatic phase-matching
- Quick-connect cables and cooling lines
- Single longitudinal mode option available
- No installation required
- Diode warranty 2 billion shots

Merion C

- Compact and portable
- Sealed laser head
- Industrial design, built to last
- Superior beam profile up to 400Hz
- Easy to integrate
- Plug-in and operate remotely
- Interchangeable laser head

Model		Merion MW 7-100	Merion MW 7-200	Merion MW 9-100	Merion C-S4	Merion C-G4
Repetition rate (Hz)		100	200	100	up to 400Hz	up to 400Hz
Energy (mj)	1064nm	300	200	650	100	100
	532nm	160	95	360	50	50
	355nm	90	60	200	30	30
Pulse duration (ns)	1064nm	5-9			<10	



Viron

The Viron is a DPSS Q-switched Nd:YAG laser specifically designed for high efficiency in a robust and compact package as required by instrumentation manufacturers.

- Air cooled, compact DPSS laser
- Laser head and control electronics integrated into one single housing
- Operation only requires an external 24VDC supply
- Sealed for operation in various environments
- Easy to integrate

Model	VRN20-30-G	VRN20-50-G
Repetition	20	20
Energy per pulse (mj) @ 1064 nm	30	50
Energy per pulse (mj) @ 532 nm	15	25
Pulse width (ns)	<8	



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Q Smart Series Flashlamp-Pumped Nd:YAG

The Q Smart 450 and 850 Series Flashlamp-Pumped Nd:YAG lasers are the benchmark for Lumibird's lasers. This family of lasers are the most flexible pulsed Nd:YAG laser systems in the world. Monolithic block construction and compact design features provides superior beam geometry in a compact package. The intuitive Q-touch screen interface makes this the smart choice for easy operation and their modularity, excellent beam quality and numerous options make this laser the ideal partner for all your applications.

- Quick and easy access to 1064, 532, 355, 266 and 213nm
- Repetition rates up to 20Hz
- Lightweight and compact design
- Quick-connect cables and cooling lines
- Innovative, hands-off phase matching
- Intuitive touch screen interface
- No installation required
- 100 million shot flashlamp lifetime
- 2-year warranty
- New : SLM (Single Longitudinal Mode)
- Highest energy at 532 and 355nm with a single doubling crystal



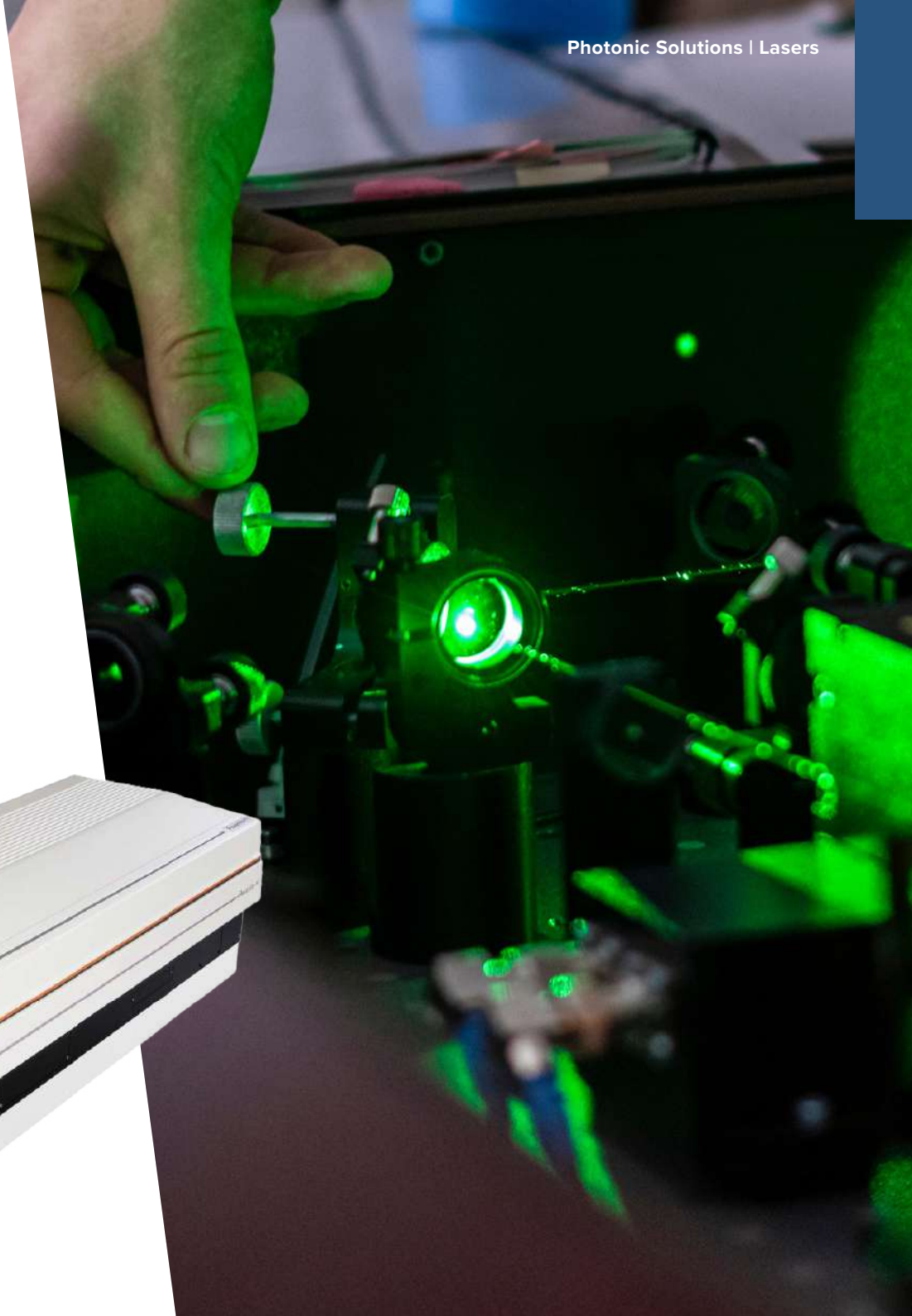
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Powerlite Series – High-Energy Pulsed Nd:YAG

The Powerlite series of pulsed Nd:YAG lasers offer excellent beam quality and Versatility for applications ranging from LiDAR, PLD, combustion to dye, OPO and Ti:sapphire pumping.

- Up to 3J@ 1064nm
- Repetition rates up to 50Hz
- Robust and field-proven technology
- Barium sulphate diffuser for improved beam uniformity and pump efficiency
- Flashlamp warranty up to 50 million shots for operation without downtime
- User-configurable harmonic modules for user-friendly wavelength switch
- Cables and cooling lines disconnectable for easy integration
- Intuitive GUI interface, laptop included
- SLM option (Single Longitudinal Mode) for long coherence length
- Optional chiller for use in any environment



EDGEWAVE

EdgeWave is a highly innovative provider of high-end laser beam sources and are the pioneers in the conception of InnoSlab technology. They now lead the market in this area.

InnoSlab lasers count among today's most efficient production tools, with a unique combination of high power output, high pulse frequencies, beam quality, scalability in power and energy and tailorable beam profiles. They allow users to improve existing manufacturing processes and extend them to new types of products.

Short Pulse Lasers

BX Series

An electro-optical Q-switched InnoSlab laser with low to medium power and pulse energy. Passively cooled diode lasers are used for increased reliability.

- Beam quality $M2 < 2$
- Pulse energy up to 8mJ
- Pulse length down to 4ns
- Peak power up to 1MW
- Pulse repetition rate up to 150kHz
- Average power up to 80W
- Wavelength 1064, 532, 355, 266nm



GX Series

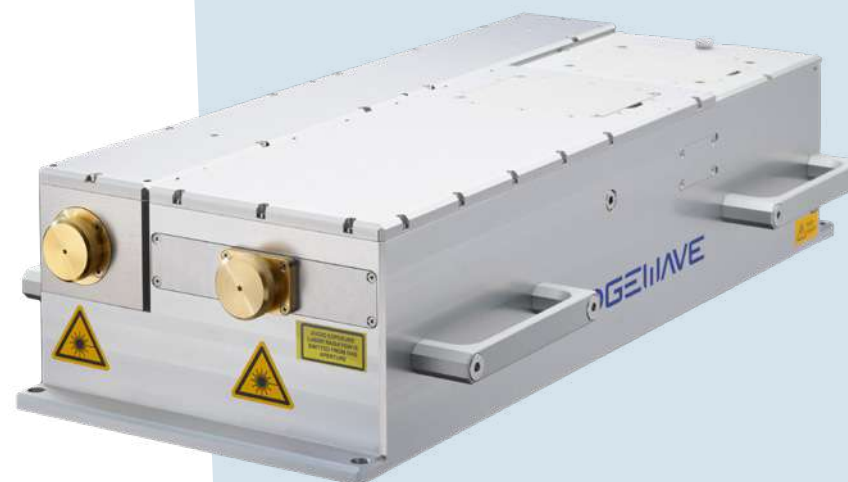
An electro-optical Q-switched InnoSlab laser with high power and pulse energy.

- Beam quality: $M^2 < 2$
- Pulse energy up to 120mJ
- Pulse length down to 1ns
- Peak power up to 10MW
- Pulse repetition rate up to 150kHz
- Average power up to 800W
- Wavelength 1064, 532, 355, 266nm

**IS Series**

An electro-optical Q-switched InnoSlab laser with medium to high power and pulse energy.

- Beam quality $M^2 < 2$
- Pulse energy up to 50mJ
- Pulse length down to 1ns
- Peak power up to 10MW
- Pulse repetition rate up to 150kHz
- Average power up to 400W
- Wavelength 1064, 532, 355, 266nm



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LASERS Sub-Nanosecond Pulsed Lasers



Teem Photonics is a world leader in passively Q-switched micro lasers for industrial use with a broad product offering covering wavelengths from 213-1535nm.

Single Longitudinal Mode Lasers

Teem Photonics offers a complete range of Single Longitudinal Mode (SLM) lasers with wavelengths from 1535nm down to 266nm. These products display the same high quality and long operational life as the other lasers in the range.

Various models at 1535, 1064, 532, 255 and 266nm,

- Sealed or unsealed packages
- Ultrashort pulses
- High peak power
- Air Cooled
- Excellent beam quality



PowerChip Series

The PowerChip passively Q-switched MicroChip lasers offer the highest peak powers and shortest pulses at kHz repetition rates with an excellent beam quality. They feature a completely integrated platform which includes the laser head, power supply and air cooling in a compact, rugged, and turnkey package.

- Peak power up to 200kW
- Pulse width down to 350ps
- 1064, 532, 355, 266 and 213nm
- Single shot to 5000Hz
- Excellent beam quality, TEM00 $M^2 < 1.3$
- Completely integrated compact platform, including laser
- head, power supply and air cooling



PicoOne Series

The PicoOne amplified laser series is based on a microchip seeder and an efficient MOFA (Master Oscillator Fibre Amplifier) amplification stage, this laser produces 650ps pulses at frequencies in excess of 100kHz with an average power reaching 1W at 532nm. The laser operates with a single emission frequency.

1064, 532, 355 and 266nm*

- Ultra-short pulses, down to 650ps at 100kHz
- Peak power >38kW at 1064nm
- Excellent beam quality – TEM00 $M^2 < 1.2$



PicoSpark

The PicoSpark series combine multi-watt output level with a high repetition rate and exceptional pulse characteristics to provide the best price/quality ratio for micromachining applications.

- 1064nm and 532nm
- Ultra-short pulses down to 500ps
- High Rep Rate up to 100kHz
- AOM option at 532nm
- Peak power over 200kW
- Excellent beam quality – TEM00 $M^2 < 1.2$
- Air Cooled
- Sealed package



* For detailed performance please get in touch.

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Cutting Edge Optonics (CEO) is a leading manufacturer of diode-pumped solid-state lasers (DPSSLs), high power laser diode arrays, and diode-pumped laser gain modules.

Gigashot, Pulsed Laser System

The Gigashot HE laser system is a high-energy, short pulse diode-pumped solid-state (DPSS) Nd:YLF laser system. High efficiency, ultra-long life quasi-continuous-wave (QCW) pump diodes allow the laser to operate for many billions of shots.



- 10J @ 1053nm
- 5J @ 527nm
- < 10nsec, 10Hz
- Diode pumped
- Low maintenance
- High efficiency
- Long life diode bars
- Output beam characteristics maintained over operating power range
- eDrive™ control electronics with digital remote control
- Near field flat top beam profile

PIV Laser System

The Patara-HP PIV dual oscillator diode pumped solid-state (DPSS) laser system is purpose built for Particle Image Velocimetry (PIV) applications. The independently controllable laser oscillators can be configured with Nd:YAG for high average power or Nd:YLF for high pulse energy applications.



- Dual independent oscillator design
- Optimized for PIV
- Up to 50mJ @ 1kHz, YLF 527nm per oscillator
- > 200W @ 10kHz, YAG 532nm per oscillator
- Superior pulse energy stability, matched for perfect correlation
- eDrive™ control electronics with digital remote control



Laser-Hub – Laser combiner integrating up to 4 laser lines

The Laser-Hub from Becker & Hickl can integrate up to four BDS-SM picosecond lasers of different wavelengths with one single-mode fibre output.

- Up to 4 BDS-SM ps diode laser combined on one single-mode output fibre
- Wavelengths from 405-640nm
- Pulse repetition rate 20, 50, 80MHz
- Fast ON/OFF multiplexing capability
- Simple +12V power supply



EDGEIIVE

PX Series

PX-series is a picosecond oscillator and amplifier system based on InnoSlab technology with medium to high power and pulse energy.

- Beam quality: $M^2 < 1.5$
- Pulse energy up to 1000μJ
- Typical pulse length 10ps
- Peak power up to 100MW
- Pulse repetition rate up to 50MHz
- Average power up to 400W
- Wavelength 1064, 532, 355, 266nm





Becker & Hickl design and manufacture picosecond diode lasers with wavelengths from the near-UV to the NIR. All bh pulsed diode lasers operate at high repetition rate with short pulse width, unprecedented timing and power stability, and extremely low electrical noise level. The complete driver electronics is integrated in the laser module. All bh diode laser modules are directly compatible with the bh TCSPC modules.

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BDU-SM USB-Controlled Picosecond Diode lasers

The BDU-SM picosecond diode lasers are fully controlled and powered via a USB interface so no external controller or power supply is needed. Available in wavelengths ranging from 375-780nm. The lasers are available circular free-beam output or with single-mode fibre output.

- Compact size 40mm x 80mm 120mm³
- Wavelengths from 375-785nm
- Pulse repetition rate 20, 50, 80MHz
- Pulse width down to 40ps FWHM
- Fast ON/OFF multiplexing capability
- Trigger input for synchronisation to external



BDS-SM Small Size Picosecond Diode lasers

The BDS-SM picosecond diode lasers are combined pulsed picosecond and CW diode lasers in a small industrial-size case. All the pulse driver and control circuitry is included in the laser head. All wavelength excluding 375nm are fibre pigtailed. The lasers are available circular free-beam output or with single-mode fibre output.

- Compact size 40mm x 40mm x 120mm³ or 40 x 70 x 120mm³
- Available wavelengths 375-1064nm
- Single transverse mode
- Pulse repetition rate 20, 50, 80MHz, CW (switchable)
- Pulse width down to 30ps FWHM
- Fast ON/OFF multiplexing capability
- Trigger input for synchronisation to external



BDS-SMY Small Size Picosecond Diode lasers

The BDS-SMY picosecond diode lasers close the gap in the spectrum of the picosecond diode laser in the 520 – 630nm range. The lasers are based on the QLD series laser modules from QD Laser Inc., Japan. These modules contain an IR laser diode, an amplifier diode and frequency doubler.

- Compact size 40mm x 40mm x 120mm³ or 40 x 70 x 120mm³
- Available wavelengths 532, 561 and 594nm
- Pulse repetition rate 20, 50MHz
- Pulse width down to 50ps FWHM / 18ps RMS
- Fast ON/OFF multiplexing capability
- Trigger input for synchronisation to external



BDS-MM Small Size High Power Picosecond Diode lasers

Multi-mode picosecond diode lasers offering powers up to 40/60mW.

- Free Beam or multi-mode fibre output
- Available wavelengths 405-915nm
- Pulse repetition rate 20, 50MHz
- Pulse width down to 65ps FWHM
- Fast ON/OFF multiplexing capability
- Trigger input for synchronisation to external

	BDU-SM Series	BDS-SMY Series	BDS-SM Series	BDS-MM Series
Rep Rate (mHz)	20, 50, 80 (Selected by USB)	20, 50 (Switchable by TTL)	20, 50, 80, CW (Switchable by TTL)	20, 50
Wavelengths (nm)	375-785	532, 561, 594	375-1064	405 -915
Pulse Width (ps) at Medium Power	30 - 90	40 - 80	30 – 90	65 – 120
Average Power (mW@MHz)	3-5 @80MHz	0.3-1 @80MHz	3-5 @80MHz	10-40 @80MHz





Leukos has been a prominent player in the field of photonics since 2006, offers a comprehensive portfolio of white light supercontinuum lasers that cover various wavelengths, including UV, visible, near-infrared, and mid-infrared ranges. All Leukos' supercontinuum lasers can be easily combined with their wavelength filtering solutions. Their products are designed to meet the needs of universities, research institutions and industries worldwide.

Scientific Grade Lasers

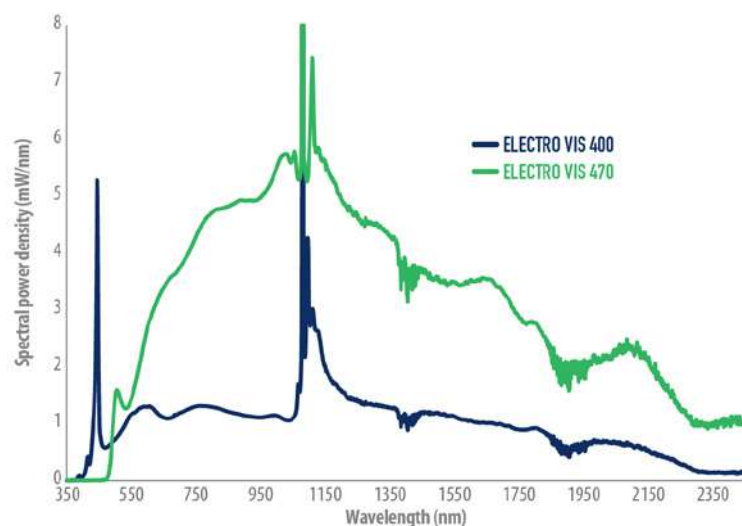
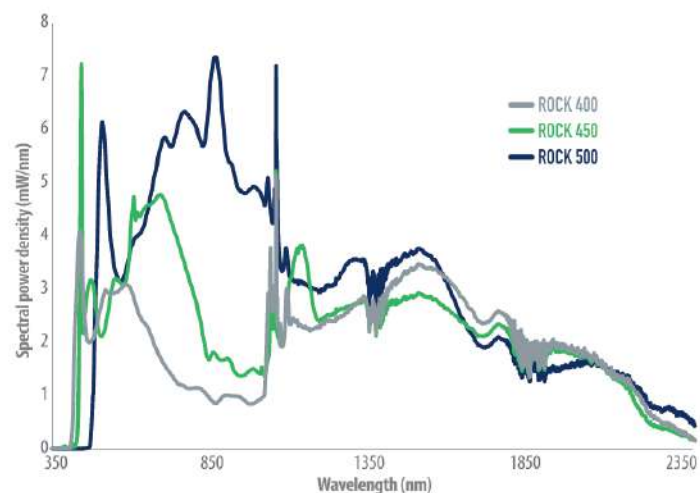
ROCK

The ROCK series of supercontinuum lasers are ideal for applications requiring short pulse excitation, high levels of average power and on-the-fly variability in repetition rate.

SAMBA

The SAMBA is an ideal replacement for broadband lamps, SLED and LEDs with broadband supercontinuum output from 350-2400nm, nanosecond pulse duration and total average power up to >200mW.





ELECTRO Series

The ELECTRO VIS series focuses on lifetime, power in the visible and ease of use. These mid-power systems integrate a high end, short pulse modulated diode that is the ideal starting point for supercontinuum generation where reliability and cost reduction are important. Like the ROCK, the ELECTRO VIS operates with picosecond pulse widths.

The ELECTRO VISIR and ELECTRO IR are a series of broadband lasers with unique spectral output. The VISIR models have a spike free spectrum below 1540nm, so have a conveniently balanced spectrum if you want to use the visible band or the near-infrared band. The IR models have a unique spectrum in the near-infrared from 1000-2700nm. Both VISIR and IR series can be externally triggered or internally triggered.

The ELECTRO MIR series of laser offer high brightness output from 700nm up to 4100nm or 4800nm. Based on the Fluoride fibre technology from Le Verre Fluore, these supercontinuum laser are the ideal solution for mid-infrared applications such as infrared spectrometry, counter measures (IRCM) and spectral fingerprinting. All Leukos supercontinuum lasers are fibre delivered with achromatic collimated output.

Model	Spectral Range (nm)	Repetition rate (MHz)	Pulse width (seed) ps	Average Power (W)	Variable Rep Rate	Externally Triggered (TTL)
ROCK 400	>400-2400	20, 40, 60, 80	6	2, 4, 5	X	
ROCK 450	>450-2400	20, 40, 60, 80	6	2, 4, 5	X	
ROCK 480	>480-2400	20, 40, 60, 80	6	2, 4, 5	X	
ELECTRO VIS 400	>400-2400	3	<100	>1.75		
ELECTRO VIS 470	>400-2400	10	<100	>5		
ELECTRO VISIR 100	<500-2400	0.1	<1000	>0.25		X
ELECTRO VISIR 250	<450-2400	0.25	<1000	>0.25		X
ELECTRO IR 100	>900-3000	2	<1000	>0.5		X
ELECTRO IR 250	>900-3000	0.25	<1000	>1.3		X
ELECTRO IR 2000	>900-2800	2	<100	>0.4		X
ELECTRO MIR 4.1	>900-4100	0.25	<100	>0.8		
ELECTRO MIR 4.8	>900-4800	0.25	<100	>0.5		
ELECTRO MIR 9	2500 - 9000	>0.1	<100	>0.012		
SAMBA UV	<340-1900nm	30KHz	0.7-1.3 ns	>0.1		
SAMBA W	<500-1900nm	30KHz	0.7-1.3 ns	>0.2		
SAMBA 450	<450-2400nm	30KHz	0.7-1.3 ns	>0.15		
SAMBA 400	<400-2400nm	30KHz	0.7-1.3 ns	>0.1		

Industrial Laser Solutions

OEM lasers based on Leukos' successful ROCK and SAMBA platforms. The **INDUS FORTE** delivers Watt levels of average powers at 10s of MHz with picosecond pulse duration, whereas the **INDUS PIANO** series delivers up to 200mW of broadband output with nanosecond pulse duration and nominal repetition rate of 30kHz. These lasers are super easy to integrate into a microscope, a flow cytometer or a metrological tool.



Wavelength Filtering Accessories

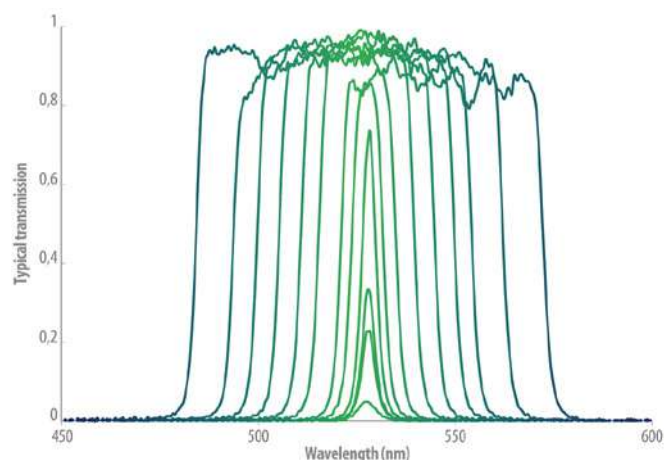
All Leukos wavelength filtering solutions are plug-and-play with their range of supercontinuum lasers. Choose from BEBOP for single band, variable bandpass filtering and the Tango for multiwavelength filtering across the full range of the supercontinuum spectrum.

BEBOP Single Band Filter

- Tuning range 350-850nm
- Bandwidth 7-100nm
- High Transmission up to 90%

Tango AOTF Tunable Filter

- Filtering from 350-4000nm
- Up to 8 wavelengths at a time from a crystal
- Up to two filter and two outputs available



LLTF CONTRAST™

Tunable Bandpass Filter, based on volume Bragg gratings.

5 models available: CONTRAST VIS, CONTRAST SWIR, CONTRAST EXT-III, CONTRAST EXT-IV, CONTRAST X (up to 5 gratings).

- Spectral ranges apply to each model listed above.
- Custom ranges available: 400–1000nm; 1000–2300nm (2500nm optional); 400–1700nm; 400–2300nm (2500nm optional). CONTRAST X – range depends on choice of gratings, see graph for available gratings
- Spectral Bandwidth 1.5 - 2.5nm, or 2.0 - 5.0nm ,or 0.15 - 0.9nm for CONTRAST X

Model	Spectral Range (nm)	Repetition rate (MHz)	Pulse width (seed) ps	Average Power (W)	Variable Rep Rate	Externally Triggered (TTL)
INDUS FORTE 400	>410-2300	20 - 60MHz	6	2, 4	X	
INDUS FORTE 450	>450-2300	20 - 60MHz	6	2, 4	X	
INDUS FORTE 500	>480-2300	20 - 60MHz	6	2, 4	X	
INDUS PIANO UV	>350-1900	0.01-0.2	<1000	0.1		
INDUS PIANO 400	>400-2400	0.01-0.2	<1000	0.1		
INDUS PIANO 450	<450-2400	0.01-0.2	<1000	0.15		X
INDUS PIANO W	<550-1900	0.01-0.2	<1000	0.2		X



Opotek is a leading manufacturer of tunable laser systems based on Optical Parametric Oscillator (OPO) and Optical Parametric Generator (OPG) technology. Their systems provide wide wavelength coverage from the UV-VIS-IR, making them ideal for applications requiring flexible, high-performance laser sources.

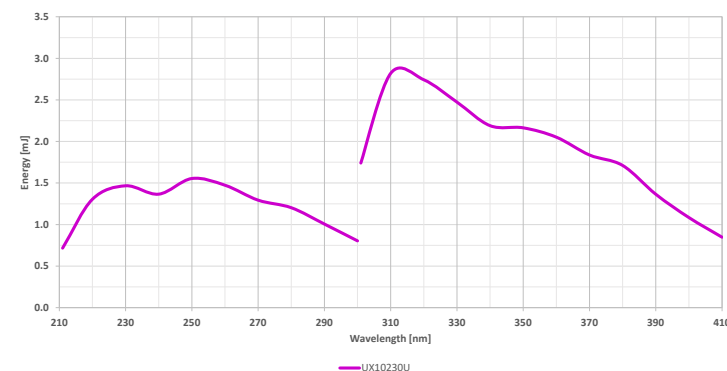
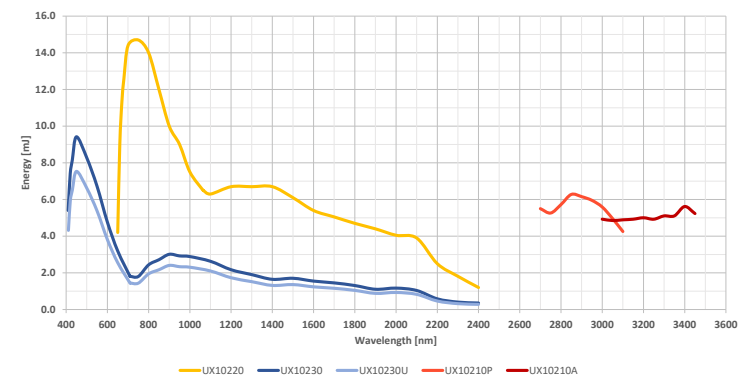


Opolette UX.

Small form-factor tunable laser providing broad, continuous wavelength tuning from the UV to the MIR.

For applications requiring even greater compactness and biological specificity, the Opolette UL offers an even smaller enclosed footprint and is optimised for wavelengths matched to water absorption. This makes it ideally suited for the desorption, capture, ionisation, and manipulation of biomolecules on the sub-millimetre scale, supporting advanced bioanalytical and life-science research.

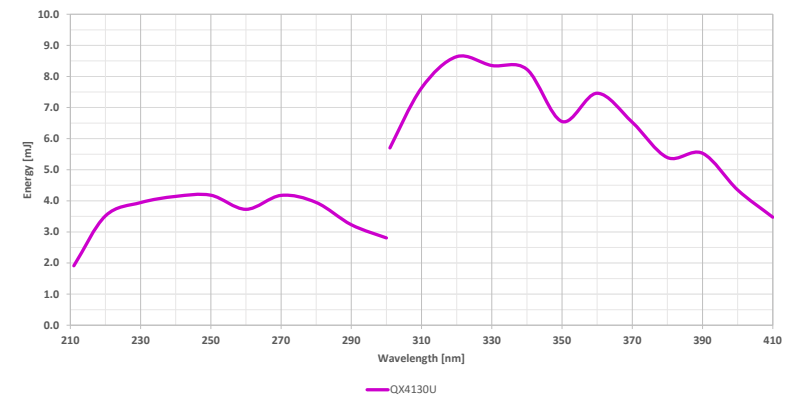
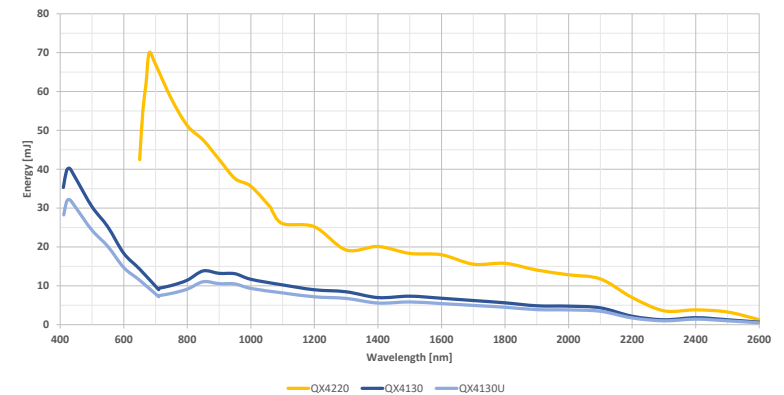
- Flashlamp lifetime: 50 million laser shots
- Flashlamp and/or Q-Switch external triggering
- Computer controlled via a single USB connection
- Access to 1064 nm, 532 nm and/ or 355 nm where applicable



Radiant QX

Industry-leading OPO with an improved mechanical design. The Radiant QX is now user-installable, reducing setup time and system costs. Configurable tuning ranges from Deep UV-MIR, the Radiant QX offers exceptional flexibility for a variety of applications.

- Flashlamp lifetime: 100 million laser shots
- Flashlamp and/or Q-Switch external triggering
- Computer controlled via a single USB connection
- Access to 1064nm and bump beam (532 or 355nm)



	Opolette				Radiant QX			
	UL10210PF	UX10210A	UX10220	UX10230	QX4220	QX8120	QX4130	QX8130
Tuning Range (nm)	2940	2300-4000	650-2400	410-240 (210-2400 w/UV Option)	650-2600	650-2600	410-2500 (210-2500 w/UV – QX4130U)	410-2500 (210-2500 w/UV – QX8130U) (193-2500 w/EUV QX8130E)
Repetition Rate (Hz)	20	20	20	20	20	10	10	10
Pulse Duration (ns)	7	7	7	7	6	6	6	6
Peak OPO Energy (mJ)	5.5	6.6	15	9.5	70	140	45	70



Opolucis Air

Ultra-compact and portable tunable laser system. This is a fully air-cooled, all in one optical platform solution. The Opolucis AIR provides broad tunability from UV to MIR with low RF noise operation.

- DPSS lifetime: 4 billion laser shots
- DPSS and/or Q-Switch external triggering
- End-user accessible alignment verification
- Access to higher energy 1064, 532, and 355nm beams
- UV Tunable add-on (210-410nm)
- UV-VIS Tunable add-on (330-650nm)



Opolucis C

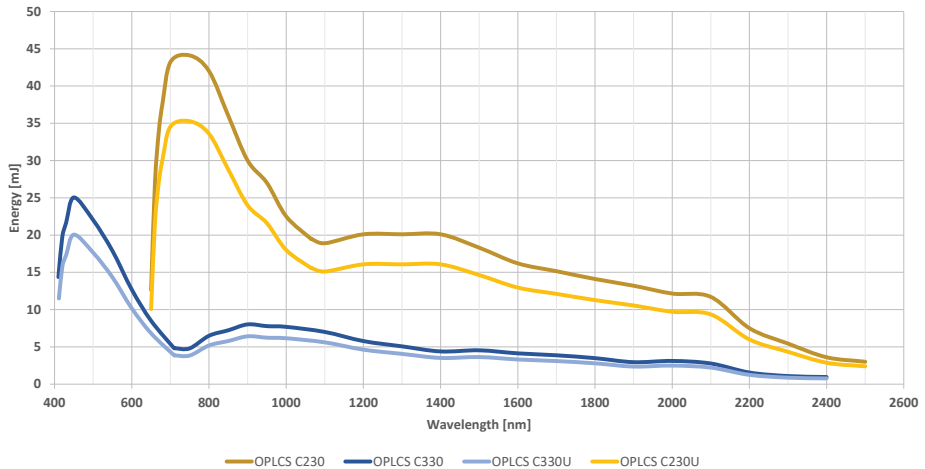
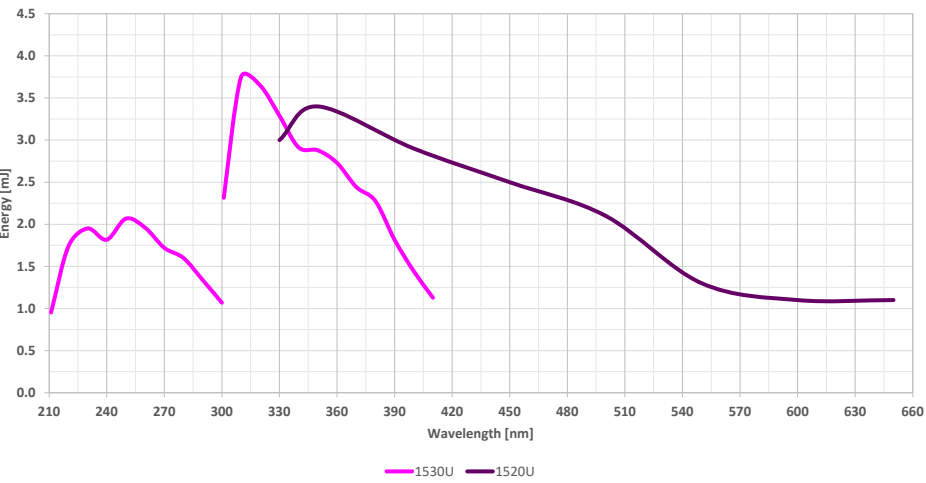
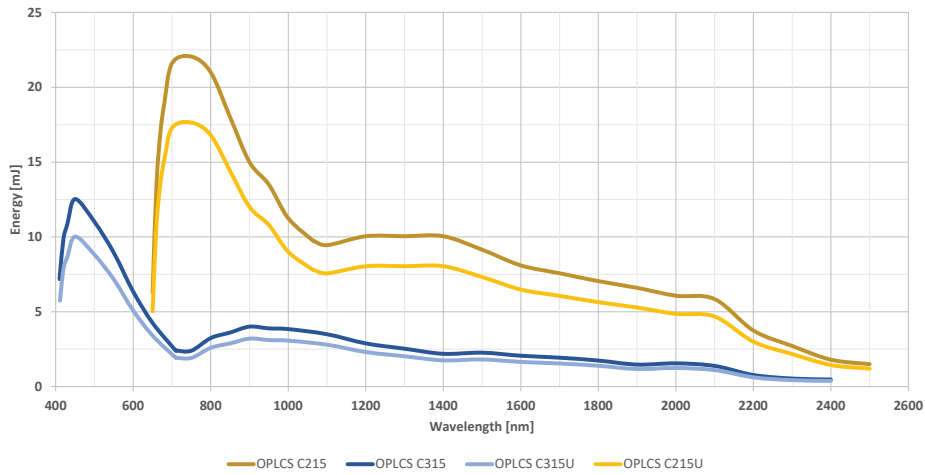
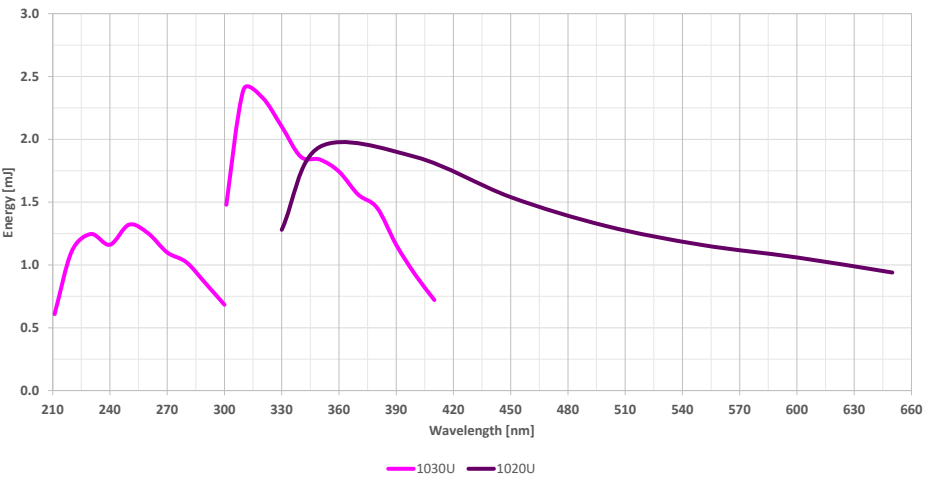
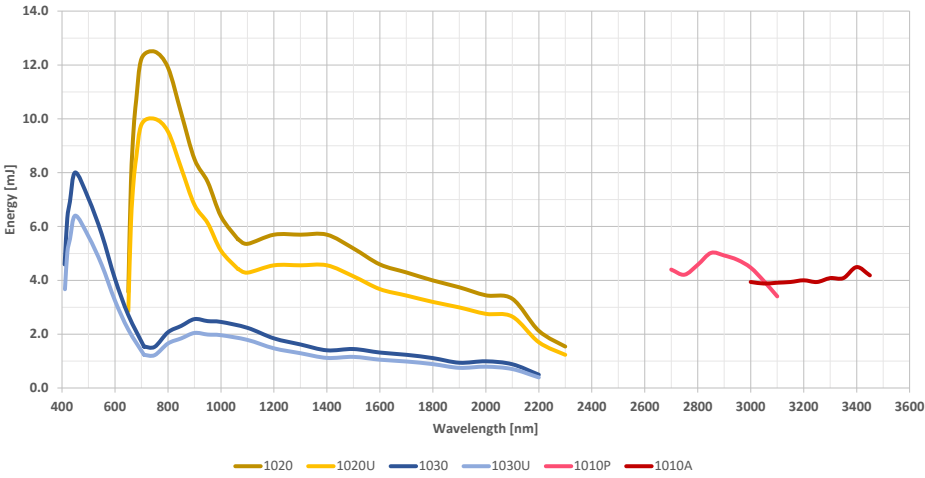
3rd generation high-energy tunable laser system based on OPO technology. Features a new precision tuning mechanism and DPSS laser to deliver up to ten times higher repetition rates while maintaining broad wavelength tunability from Deep UV to NIR.

- Compact, truly integrated laser head
- Water-cooled DPSS, low RF noise pump laser
- DPSS lifetime: 4 billion laser shots
- DPSS and/or Q-Switch external triggering.



	Opolucis C				Opolucis C			
	OPLCS C215	OPLCS c230	OPLCS C315	OPLCS C330	1010A	1010P	1020	1030
Tuning Range (nm)	650-2500	650-2500 (w/UV option 330-2400 (C230U))	410-2400	(w/UV Option 210-2400 C330U)	3000-3450	2700-3100	650-2300	410-2200
Repetition Rate (Hz)	100	100	100	100	20	20	20	20
Pulse Duration (ns)	9	9	9	9	<9	<9	<9	<9
Peak OPO Energy (mj)	40	35	20	16	4.5	5	12.5	8

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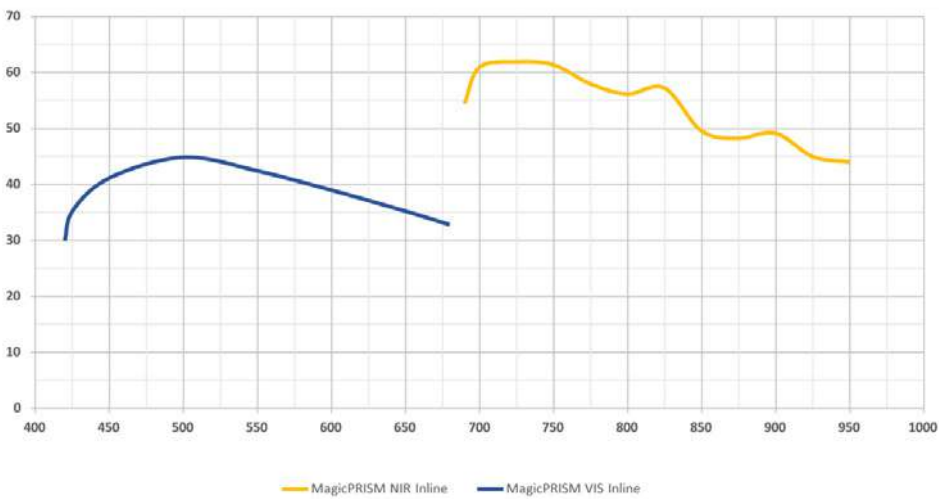
MagicPrism

A compact, motorised OPO module based on OPOTEK’s patented ring-cavity oscillator technology. Delivering conversion efficiencies of up to 40%, the MagicPRISM provides a cost-effective and powerful solution for transforming a fixed-wavelength Nd:YAG laser into a flexible tunable laser source, with wavelength coverage spanning the VIS-NIR ranges.

- Hand-size modular design
- Patented ring OPO cavity
- All tunable wavelengths output from a single port



	MagicPrism			
	NIR	VIS	NIR Inline	VIS Inline
Tuning Range (nm)	690-950	420-680	690-950	420-680
Repetition Rate (Hz)	-	-	20	10
Pulse Duration (ns)	-	-	5	5





Quantel Tunable OPO's from GWU

GWU-Lasertechnik is a specialist manufacturer of high-performance tunable laser systems based on optical parametric oscillator (OPO) technology. GWU-designed tunable systems provide broad wavelength coverage from the VIS to NIR and MIR (configuration dependent), with features such as shot-to-shot wavelength tuning, integrated wavelength monitoring, and turnkey operation.

Selected GWU tunable laser systems are offered globally under the Quantel / Lumibird product portfolio, where they are integrated with Quantel Nd:YAG pump lasers and supported through Lumibird's worldwide sales and service network. These systems combine GWU's advanced OPO technology with Quantel's proven solid-state laser platforms.

primoScan

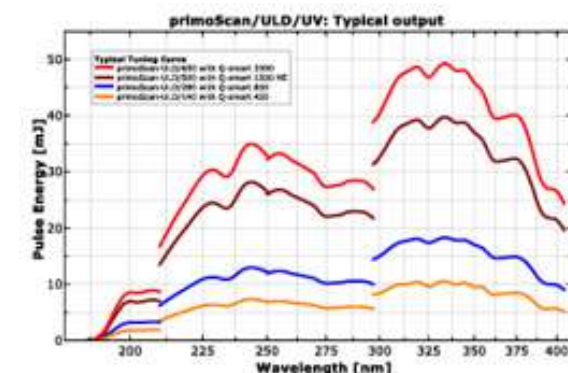
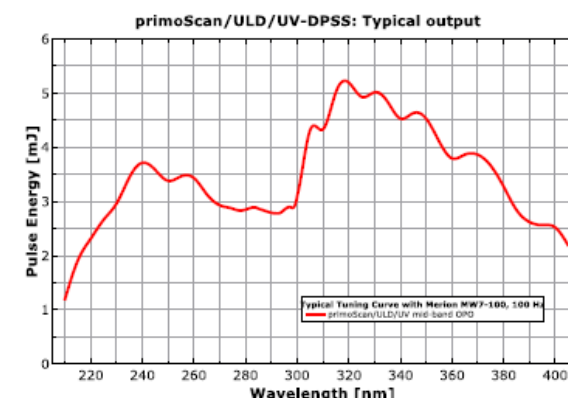
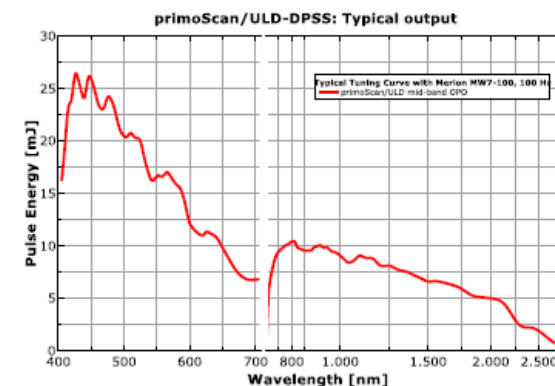
The primoScan is GWU's modular, high-end OPO-based tunable laser system, available in Broadband (BB) and Midband (ULD) configurations. Pumped at 355nm, it provides continuous, gap-free wavelength tuning from the ultraviolet through the visible and into the infrared, delivering high output energies across the full spectral range.

- Shot-to-shot wavelength switching with <100ms tuning times
- Delivers up to 205mJ output energy
- Is tunable from 405–2700nm (signal and idler)



	PrimoScan BroadBand BB
Tuning Range Signal (nm)	405-690
Tuning Range Idler (nm)	730-2700
Repetition Rate (Hz)	10-20
Pulse Duration (ns)	0-3
Peak OPO Energy @450nm (mJ)	320

	PrimoScan Midband ULD
Tuning Range OPO (nm)	405-2700
Tuning Range UV (nm)	190-405
Repetition Rate (Hz)	10
Pulse Duration (ns)	0-3
Peak OPO Energy @450nm (mJ)	190
UV Options @280nm	25





Peacock

The Peacock is a compact, single-box, fully integrated pulsed laser–OPO system combining state-of-the-art solid-state laser technology with GWU’s latest OPO design to deliver efficient tunable output in the near-infrared. The system is pumped by a rugged flash-lamp-pumped solid-state Nd:YAG laser, providing high-energy pulses at 532 nm with repetition rates of up to 30 Hz. In line with GWU’s design philosophy, the integrated OPO operates using a low-fluence soft-pumping scheme, maximising reliability and component lifetime.

- Integrated laser-OPO platform
- Continuous tuning 680 to 2200nm
- Pulse energies of up to 35mJ
- Fast, shot-to-shot wavelength timing
- Free-space operation or fibre delivery

Peacock XT

An extension on GWU’s Peacock series delivering high-energy nanosecond pulses with continuous VIS to IR wavelength coverage. Available in 355 and 532nm variants. Also available: Peacock XT-MW for higher throughput and increased repetition rates up to 200Hz.

- Integrated laser-OPO platform
- Fast, shot-to-shot wavelength timing
- Real-time OPO energy signals
- Fibre-delivery or freespace output

Q-OPO

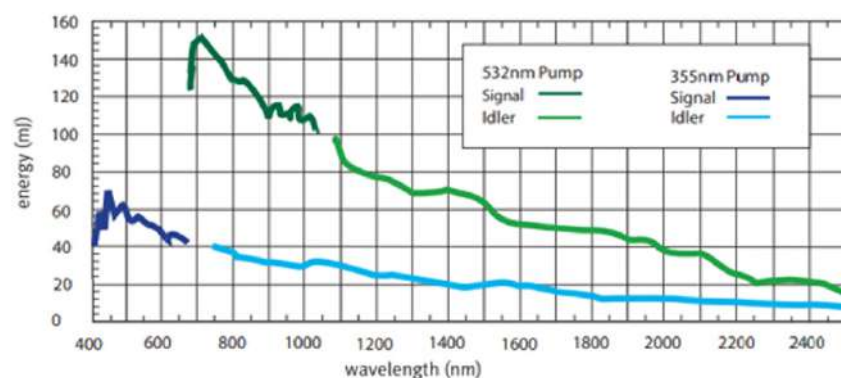
The Q-OPO is a nanosecond optical parametric oscillator (OPO) add-on module from Quantel / Lumibird, designed specifically for integration with Quantel Q-Smart Nd:YAG pump lasers. It provides a straightforward and cost-effective route to transform a fixed-wavelength Q-Smart laser into a broadly tunable laser source.

- 532 or 355nm pump configurations
- Continuous tuning 680-2500nm Q-OPO 532
- Continuous tuning 410-2500nm Q-OPO 355
- Repetition rate 10/20Hz
- Pulse energies of up to 125mJ at 10Hz

	Peacock	Peacock XT 355	Peacock XT 532
Tuning Range (nm)	660-2200	405-680 (Signal) 740-2630 (Idler)	680-980 (Signal) 1150-2200 (Idler)
Repetition Rate (Hz)	30	10-20	10-20
Pulse Duration (ns)	<9	<5	<5
Peak OPO Energy (mJ)	<35	<90	115

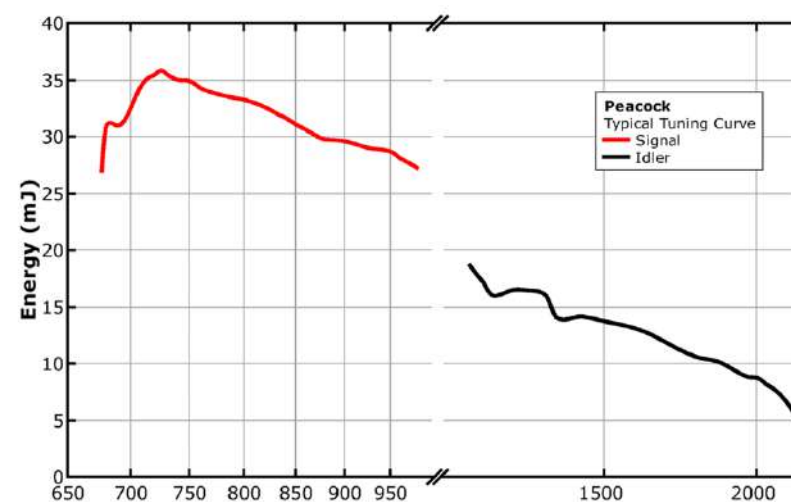
	Q-OPO 355	Q-OPO 532
Tuning Range (nm)	410-2500	660-2500
Repetition Rate (Hz)	10-20	10-20
Pulse Duration (ns)	3-5	3-5
Peak OPO Energy (mJ)	<70	<125

Typical tuning curve

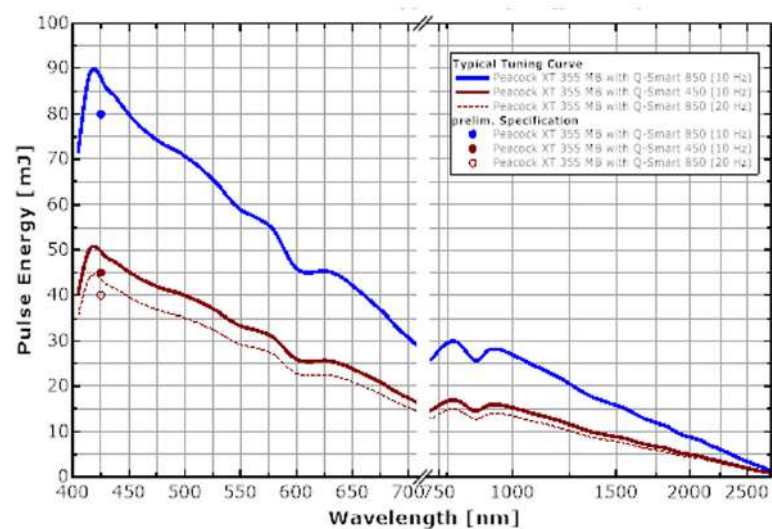


Pump energies: 350 mJ @ 532 nm, 200 mJ @ 355 nm, 10 Hz

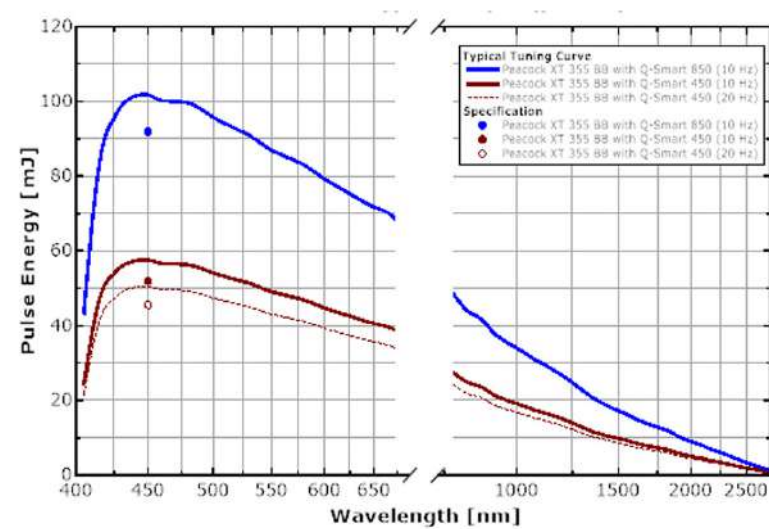
Typical tuning curve



Peacock XT 355 MB



Peacock XT 355 BB





APE offers a range of world-leading picosecond and femtosecond tunable OPOs, ultrashort laser pulse diagnostics and tunable wavelength conversion devices.

The portfolio includes complete Optical Parametric Oscillator (OPO) solutions, harmonic generators, pulse pickers, pulse slicers, autocorrelators and laser spectrum analysers. In addition, APE offers impressive OPO solutions for existing Ti:Sapphire pump lasers and single-box solutions for CARS and SRS applications.

Optical Parametric Oscillators

The Levante series of femtosecond and picosecond OPOs feature full automation with software-controlled tuning.

Both the Levante Emerald (pumped in the green) and Levante IR (pumped in the infrared) are extremely versatile OPOs offering dual-colour outputs with broad tunability.

In combination with wavelength converters from the APE HarmoniXX series, almost every wavelength from 190nm up to 15 μ m can be generated via SHG, THG, FHG, and DFG.

A range of fully qualified and recommended picosecond and femtosecond pump lasers are also available, allowing us to offer complete system solutions for every OPO.



picoEmerald-FT for CARS and SRS

The picoEmerald FT is APE's flagship one-box light source. Designed for best-in-class SRS imaging quality and tuning speed, it is an easy-to-use, push-button-tunable picosecond OPO with an integrated pump laser. Systems can be further customised using pulse pickers (pulseSelect) to reduce the repetition rate, spectral slicers (pulseSlicer) for bandwidth reduction, and optical delay lines (scanDelay).

The picoEmerald FT can also be used to pump a second OPO, generating independent, tunable, and synchronised pulses.

- 2ps pulses and 10cm⁻¹ bandwidth – ideal for Coherent Raman Imaging
- Tunable from 660-2300nm, with an optional 1032nm output
- Use a harmonic generator to extend down to 190nm
- Fast wavelength tuning: 1.5s for any tuning step
- Shot-noise-limited performance
- Power and delay control with active stabilisation
- Perfectly synchronised output pulses, overlapped in space and time
- Integrated spectrometer for precise wavelength tuning and stabilisation



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From simple broadband systems to ultra-narrow linewidth double grating designs, Sirah offers the broadest tuning range of pulsed dye lasers on the market - 190-1100nm. This highly modular design enables systems to be configured precisely to match your requirements. All systems feature replaceable dye cells, making for fast and simple dye changes. It is now possible to exchange resonator units quickly, giving you the key to a new world of dye laser applications.

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High Energy Pulse Lasers

Cobra

- Compact design
- Modular design
- Low amplified spontaneous emission (ASE)
- Up to 150mJ pump (grating) or 230mJ (prism)



Cobra Stretch

- Excellent long term stability
- Reduced sensitivity to environmental influences
- Touch panel remote control
- Up to 650mJ pump

Precision Scan

- Unique double wavelength pumping optics
- Replaceable dye cells allow fast and easy dye change
- Automatic grating exchange
- Touch panel remote control
- Free placement of pump laser on any side
- Up to 1.4J pump



Pulsed Dye Amplifier

- Ideal source for single-frequency laser pulses
- Seed input power 50–300 mW single frequency
- High peak powers while ultra-low amplified spontaneous emission (ASE)
- Optional SHG/THG frequency conversion or other non linear conversion processes can be used
- Either Ti:Sa or dye based CW systems can be used as seed for large wavelength ranges (also possible to use diode lasers with high isolation for smaller wavelength ranges)



High Repetition Rate Pulsed Lasers

Credo

- Solid-state high repetition rate
- Wide tuning range
- High pulse intensity with narrow linewidth



Gropius

- Synchronously pumped tunable
- picosecond dye laser.
- Wavelength 370-780nm
- Repetition rate 75-80MHz
- Pulsewidth 1-50ps
- Tunable





Fibre Lasers

Our Fibre Laser portfolio features Precilasers extensive range of narrow-linewidth, single-frequency fibre lasers. All Precilaser lasers are longitudinally single-mode with ultra-low phase and intensity noise. They are available in erbium, ytterbium, and thulium wavelength ranges, with frequency conversion to many other wavelengths.

Fibre DFB Seed Laser

- Available wavelengths 1012-1162nm, 1525-1610nm, 1695-2140nm
- Up to 10mW in Ytterbium and Thulium bands, 40mW in Erbium band
- Ultra-low phase noise, <1kHz linewidth
- Stable, single-frequency operation
- Thermal tuning >1nm
- Integrated fast wavelength modulation >3GHz
- Industrial OEM packaging

Low-noise Fibre Amplifiers

- Available wavelengths 976-1134nm, 1525-1625nm, 1695-2150nm
- Up to 200W in Ytterbium band, 40W in Erbium band, 50W in Thulium band
- Amplification of single-frequency or non-single frequency
- Amplification retains very low phase noise and intensity noise of seed source
- Stable single-frequency operation



Narrow Linewidth Lasers

Based on high-power, low-noise fibre amplification and frequency mixing technology (frequency doubling, sum-frequency generation, frequency difference) Precilaser can offer high-power, narrow linewidth lasers at an extensive range of wavelengths from 177nm up to 5000nm.



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Wavelength (nm)	Power (W)	Tuning Range	RIN (RMS %)	RIN (RMS %)
177-299	0.1, 0.5, 1.5	<20	>180GHz, / >240GHz	<0.08
302	0.1, 0.5, 1, 2	<60	>300GHz	-
300-383	0.3, 1, 2, 4	<40	0.12nm	-
382-392.5	0.04, 2, 4, 8	4/10	0.25nm	<0.3
405-506	0.3, 1, 2, 4, 8	4/10	>500MHz	<0.08
506-610	5, 10, 20, 30	6/20, 20/60	0.35nm, 10GHz	-
560-765	0.5, 2, 30	<40	>15GHz	<0.75
610-720	0.5, 2, 5, 8	<20	>0.2nm	<0.08
720-730	0.5, 2, 5, 8	<20	>0.2nm	<0.08
730-765	1.5, 5, 10, 15, 20	<20	>0.15nm	<0.08
765-798	0.2, 2, 6, 8, 15,	<2/5	>0.5nm	<0.08
799-811	0.1, 1, 3	<5/15	>15GHz	<0.06
811-880	2, 4, 6, 8, 10, 15, 25, 30	<20	>0.15nm	<0.05
813	30	<20	>0.15nm	<0.05
852.356	30	<20	>0.15nm	<0.05
880-1012	0.1, 0.2, 1, 2, 3, 5, 10	<20	>0.5nm	<0.08
1012-1080	2, 10, 30, 50, 100, 130, 160, 200	<3/5	>0.7nm	<0.03
1525-1570	1, 2, 10, 15, 20, 40	<1/2	>3GHz/10GHz	-
1695-2100	1, 2, 5, 10, 20, 30	<5/10	>1nm	-
2200-5000	0.1, 0.5, 1.5	<20	>180GHz, >240GHz	-

LASERS Quantum Cascade Lasers



mirSense manufactures ITAR-free, off-the-shelf and custom Industrial Quantum Cascade Lasers (QCL) and QCL-based spectrometer modules for Industrial and Defense applications. These high-power QCLs operate in the main atmospheric transmission bands (4.0 μ m, 4.6 μ m, 4.8 μ m, 9.x μ m, 10-17 μ m). These QCLs are narrow linewidth DFB sources operating in the quasi-CW regime.



PowerMir

The PowerMir ITAR-Free MIR High-Power QCL system emits in the two atmospheric transmission bands (MWIR: 3-5 μ m and LWIR: 8-12 μ m).

The QCL is a compact, lightweight, and robust solid-state laser source operating in the MIR.

- QCW operating mode for increased wall-plug efficiency and reduced thermal dissipation
- Reproducible specs manufacturing for series productions
- Circular beam (option) to reduce efforts made by clients to shape the beam

The powerMIR series of QCLs is available in three different formats:

- powerMir turnkey system
- powerMir POEM (powerMir OEM) stand-alone OEM system
- powerMir Quasi-CW HHL Laser Diode



UniMir QCL

Narrow linewidth series of QCLs. Perfect laser for gas detection applications.

- Wavelengths: 11.3 μ m, 13.4 μ m, 14 μ m, 14.9 μ m
- Up to 10mW CW
- Available in HHL and Turnkey configurations.

MultiSense Industrial Gas Analyser

OEM analyser designed to meet the expectations of integrators, gas system manufacturers, and gas system manufacturers.





Block Engineering develops and sells mid-infrared Quantum Cascade Lasers and QCL-based spectrometer chemical detection systems.

Their laser products family includes the LaserTune widely tunable mid-IR laser for researchers and scientists, as well as the MiniQCL Laser Modules for manufacturers.

Lasertune – S

Compact, turnkey, tunable QCL system with a single QCL emitter. Variety of output firing modes to allow incremental scanning, stepping and static output. Dynamic duty cycle and pulse length control.

Lasertune – M

Compact, turnkey, tunable QCL system with up to 4 QCL emitters. Capable of delivery gap free tuning from 5.4-12.8 μ m. Variety of output firing modes to allow incremental scanning, stepping, interleaving and static output. Dynamic duty cycle and pulse length control.

MiniQCL

OEM versions of Block Engineering's Lasertune-S and -M modules. Ideal for OEM product integration.

- Compact, custom footprint based on customer requirements
- Custom features/specifications
- Customisable to specific requirements



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Novette Series

The Novette 1500 is a series of Self Contained Helium-Neon Lasers with an integrated power supply and with a red (632nm) 0.5 or 0.8 mW HeNe laser tube. Ideal for applications where a small low-power laser is required such as alignment, inspection, or metrology.



Model	1508	1508P	1507	1507P
Power (mW)	0.5	0.5	0.8	0.8
Wavelength (nm)		623.8		
Beam Diameter (mm)		0.48		
Beam Divergence (mrad)		1.7		
Polarisation	n/a	500:1	n/a	500:1
Longitudinal Mode Spacing (MHz)		1090		
CDRH Class	II	II	3R	3R

Lumentum is a global laser manufacturer specialising in HeNe, Argon Ion, SDL laser diodes, CW and pulsed DPSS lasers, ultrafast lasers for micromachining, and fibre lasers.

Helium-Neon Lasers

1100 series

Industry standard cylindrical housing with power outputs up to 22.5mW, linear or randomly polarised. Choice of power supply module for 12VDC, 115/230VAC inputs, or CDRH approved laboratory type with a key switch and emission indicator.



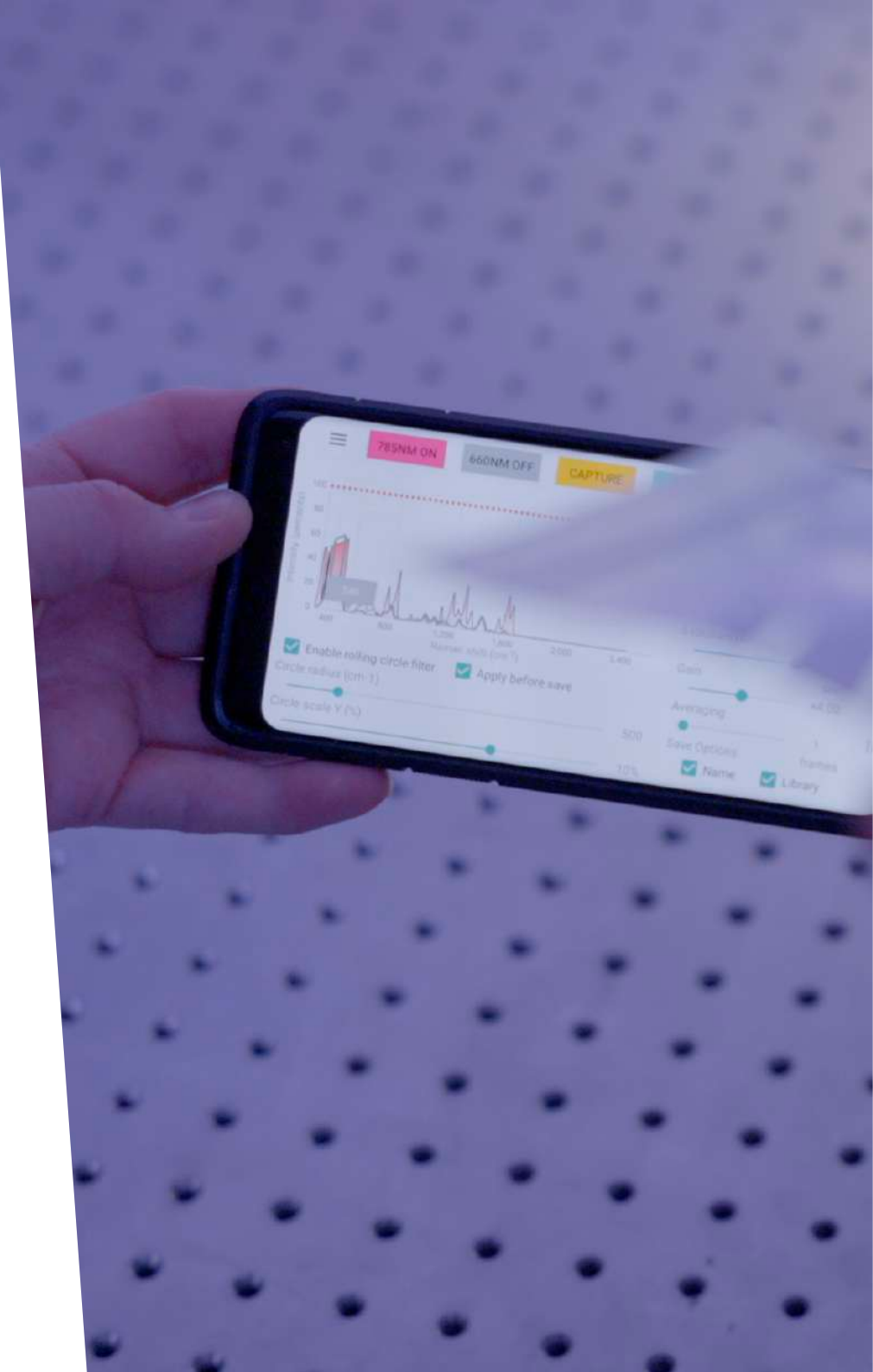
Model	1101/P	1103/P/H	1107/P	1108/P	1122/P	1125/P	1137/P	1135/P	1144/P	1145/P
Min. Output Power (mw)	1.5	2.0	0.8	0.5	2.0	5.0	7.0	10.0	15.0	22.5/21.0
Wavelength (nm)	632.8									
Mode purity (TEM00)					>95%					
Beam Diameter (mm)	0.63	0.63	0.48	0.48	0.63	0.81	0.81	0.68	0.7	0.7
Beam Divergence (mrad)	1.3	1.3	1.7	1.8	1.3	1	1	1.2	1.15	1.15
Polarisation Ratio	N.A./500:1									
Mode Spacing (MHz)	730	730	1090	1090	730	435	435	320	257	257
Overall Length (mm)	241	241	178	178	272	401	401	486	635	635
Diameter (mm)	31.6	31.6	31.6	31.6	44.2	44.2	44.2	44.2	44.2	44.2
Power Supplies										
12VDC OEM Power Supply	101T-1700	101T-1700	101T-1250	101T-1250	101T-1800	101T-2300	101T-2300	n/a	n/a	n/a
115/230VAC OEM Power Supply	314T-1700	314T-1700	314T-1250	314T-1250	314T-2300	314T-2300	314T-2300	380T-3100	380T-3100	380T-3100
Lab Type Power Supply	1201-2	1201-2	1205-2	1205-2	1206-2	1202-2	1202-2	1216-2	1218-2	1218-2



KIMMON

Kimmon specialises in the manufacture of HeCd lasers at 325, 442nm and dual wavelength (325/442) up to 180mW. Their reputation for reliability and quality is unmatched.

Wavelength (nm)	CW Power Available (mW)
325	Up to 100mW
442	Up to 180mW
325nm/442 (dual wavelength)	Up to 40/150mW





Experienced developers and manufacturers of modern laser technology, from the UV to the NIR range, LTB Lasertechnik provides appropriate tools for a wide range of scientific research and industrial applications.

MNL 100 Mini Nitrogen Laser

337nm compact pulsed UV laser with strong UV output for fluorescence excitation, spectroscopy and lab research.



Model	MNL X00	MNL 100	MNL 100 HP	qMNL 1000-355	qMNL 1000-336
Wavelength (nm)	337.1	337.1	337.1	355	335.3
Pulse Energy (μ J)	Up to 110	Up to 130	Up to 200	Up to 300	Up to 100
Pulse Repetition Rate (Hz)	Up to 150 (200 on Request)	Up to 60	Up to 60	Up to 1000	Up to 500
Pulse Halfwidth FWHM, Typ	3 (FWHM), 0.1nm	3ns (FWHM), 0.1nm	3ns (FWHM) 9.1nm	3.5ns	4.5ns
Pulses Warranty	Up to 400 million	60 million	60 million	60 million	60 million

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LASEA Group is a globally established designer and manufacturer of laser micromachining systems for high-precision research and industrial production. Using proprietary short- and ultra-short-pulse laser technologies, LASEA systems operate from UV to far-infrared, enabling precise micromachining of metals, polymers, glass, and advanced materials.

The group brings together LASEA, OPTEC, and Laser Cheval, combining expertise in custom system design, high-precision platforms, and advanced laser source integration. LASEA delivers tailored solutions for demanding sectors including medical technologies, electronics, and semiconductors.

LS-LAB

A flexible laser micromachining development platform designed for process research, feasibility studies, and prototyping. It combines programmable motion control with precise beam delivery and intuitive software, allowing users to rapidly explore and optimise micromachining parameters for cutting, drilling, surface structuring, and more.



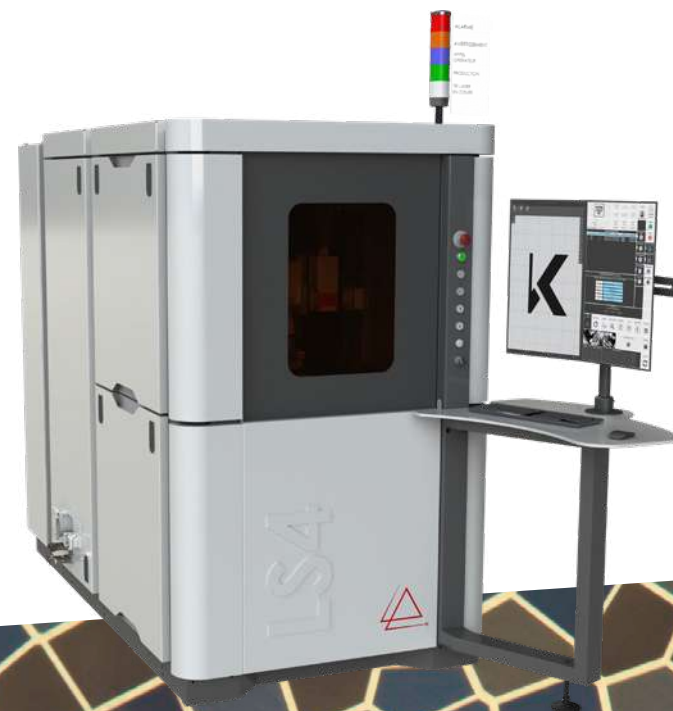
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LS4

Precision laser micromachining system based on ultrafast laser technology, engineered for high-accuracy material processing across metals, polymers, glass, and advanced composites. Its architecture delivers micron-scale feature control with low thermal impact, making LS4 a strong solution for fine cutting, hole drilling, and texturing in both research and industrial environments.

Hypostent

The Hypostent platform is a specialised laser micromachining system tailored for medical tube and stent manufacturing, enabling precise machining of complex, small-diameter components used in vascular, cardiac, and implantable applications. With controlled ultrafast laser pulses and dedicated part handling, Hypostent supports repeatable, high-accuracy processing of geometries central to modern medical device production.



SPECTROSCOPY

The Right Spectroscopy Solution For Your Application

Our comprehensive spectroscopy portfolio brings together advanced technologies for optical analysis, material characterisation and photonic measurement. From compact miniature and Raman spectrometers to high-performance FT-IR, hyperspectral and SWIR systems, we provide solutions spanning a broad range of spectral and temporal requirements.

Whether you require a standalone spectrometer, an integrated measurement system or an OEM-ready solution, Photonic Solutions provides the technology and expertise to deliver the right spectroscopy solution for your application.

- 59 ▶ Time Resolved Spectroscopy
- 60 ▶ Miniature Spectrometers
- 63 ▶ Interferometers
- 64 ▶ Raman Spectrometers
- 66 ▶ Continuous Solar Simulators
- 70 ▶ Flash Solar Simulators
- 72 ▶ Infrared and SWIR Cameras
- 74 ▶ OEM Hyperspectral Sensors
- 75 ▶ Quantum Efficiency Systems
- 76 ▶ Light Sources and Filters





Light Conversion has worldwide recognition for their femtosecond lasers, OPAs, and time-resolved spectrometers.

The comprehensive HARPIA spectroscopy system performs a variety of sophisticated time-resolved spectroscopic measurements in a compact footprint. They offer an intuitive user experience and easy maintenance to meet the needs of today's scientific applications.



HARPIA

- Market-leading sensitivity
- 330nm-24 μ m spectral range
- Probe delay ranges from 2-8ns
- Pump pulse energies down to nJ
- Cryostat and peristaltic pump support

HARPIA-TA	Flexible transient absorption spectrometer with numerous options such as TCSPC, Kerr-gating and fluorescence up-conversion.
HARPIA-Light	The all-in-one, single-box transient absorption spectroscopy system
HARPIA-TG	Transient grating spectrometer for direct optical measurement of diffusion coefficients, carrier lifetimes, and diffusion lengths.

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SPECTROSCOPY Miniature Spectrometers



Broadcom is based in San Jose, California, and is a global technology leader in semiconductor and infrastructure software solutions.

Its extensive product portfolio includes optical components, sensors and spectrometers. These spectrometers are compact, modular devices for UV-VIS-NIR measurements between 190 and 1700nm, and are particularly well suited for industrial applications thanks to their consistent performance. Broadcom's spectrometers are used in chemical and biomedical analysis, light and color analysis, environmental monitoring, food safety and pharmaceutical analysis, among others. In addition, they are often integrated into OEM processes due to their compact size.



QtubeSpectrometer – round process UV spectrometer

Mini process spectrometer module for tight integration directly in process pipes. Spectral range 190-1000nm in one device with optimized UV performance.



Qmini – Miniature VIS spectrometer

This miniature spectrometer is available in six wavelength configurations optimised for industrial integration and situations where integration space is tight. Spectral range UV-VIS-NIR 190-1100nm, resolution to 0.5nm.

Qwave – Compact VIS spectrometer

This compact spectrometer has the largest footprint of all Broadcom spectrometer and benefits from high optical performance, resolution and sensitivity.

Spectral range UV-VIS-NIR 190-1100nm, resolution to 0.3nm.

Qneo – NIR spectrometer

Pocket size NIR industrial spectrometer for PAT and POC.

Spectral range 950-1700nm



	Qwave UV	Qwave VIS	Qwave NIR	Qmini UV	Qmini VIS	Qmini NIR	Qmini WIDE- UV	Qmini WIDE- VIS	Qmini WIDE- VIS/NIR	Qtube	Qneo
Spectral Range (nm)	220-390	350-880	700-1030	220-400	370-750	730-1080	225-1000 (optimised at 300nm)	225-1000 (optimised at 500nm)	480-1100	190-1000	950-1700
Entrance Slit (µm)	20			20						20	30
Spectral Resolution (FWHM) nm	0.6	0.3	0.5	0.5	0.8	0.8	1.5	1.5	1.5	<2	8
Dynamic Range	2000:1			1300:1						1000:1	1200:1
NA	0:1			0:1						0.1	0.18
Detector	3648 pixel linear Si CCD			2500 pixel linear Si CCD						2500 pixel linear Si CCD	256 pixel uncooled linear InGaAs Sensor
Dimensions (mm)	89.5 x 68 x 19.5			64 x 42 x 14.5						35 x 70	60 x 50 x 19



Optosky has been manufacturing miniature spectrometers for over 20 years. They are committed to leading technological innovation in miniature spectroscopy, with particular emphasis on Raman applications.

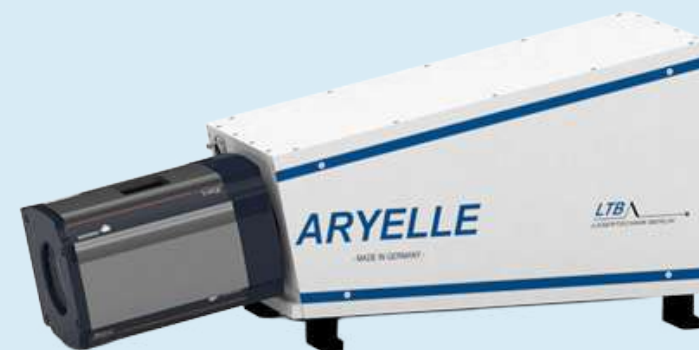


Series	Spectral Range (nm)	Detector	Resolution	Slit Width (μm)	Optical Resolution (slit and spectral range dependent) (nm)
ATP1010	200-1100	1204 px linear CMOS 512 px linear CMOS	16-bit ADC	5, 10, 25, 50, 100, 150, 200	0.2-5
ATP2000	200-1100	2048 px linear CMOS	16 bit, 2MHz (ATP2000P/ATP2002), 16 bit, 10MHz (ATP2000H)	5, 10, 25, 50, 100, 150, 200	0.1-3
ATP3000 High Sensi- tivity	180-1100	2048 px linear CCD (ATP3000), 4096 px linear CCD (ATP 3040)	16-bit ADC, 10MHZ	5, 10, 25, 50, 100, 150, 200	0.05-2
ATP5000 Deep UV	180-1100	Back thinned CCD	18-bit	5, 10, 25, 50, 100, 150, 200	0.07-3
ATP6500 Scientific Grade	180-1100	1024×64 px CCD or 2048 x128 px EMCCD	18 bit 570 KHz A/D converter	5, 10, 25, 50, 100, 200	0.1-3
ATP8000	900-2600 (custom ranges avail- able)	512/1024 px InGaAs array	18-bit ADC	5, 10, 25, 50, 100, 200	0.5-10



ARYELLE Spectrographs

LTB's ARYELLE spectrograph family are a series of compact and high-resolution echelle spectrographs operating in the range 190-1100nm with resolution down to 6pm (FWHM).





Nireos are a leading manufacturer of high-performance and innovative devices for spectroscopy.

The product portfolio includes FTIR interferometers and photodetectors providing the highest accuracy and sensitivity.

GEMINI Interferometer

Broadband spectroscopy with high throughput

The GEMINI interferometer is a novel and compact device that ensures very high robustness and stability between the two generated replicas of light. The device's exceptional performance can be used in a wide variety of applications, such as time- and frequency-resolved fluorescence, coherent Raman, pump-probe, two-dimensional spectroscopy, and studies on single molecules.

- High throughput that allows high sensitivities
- ≈ 1 attosecond stability between the two replicas of light
- Scan range selectable by the user
- Compact and low-cost
- Insensitive to vibrations

GEMINI-2D INTERFEROMETER

Two dimensional electronic spectroscopy made easy

The GEMINI-2D turns your transient absorption spectrometer into a state-of-the-art two-dimensional electronic spectroscopy setup. With unrivalled stability and robustness, it generates two collinear and phase-locked replicas of your femtosecond laser pulses.

- High throughput that allows high sensitivities
- ≈ 1 attosecond stability between the two replicas of light
- Scan range selectable by the user
- Compact and insensitive to vibrations





Lightnovo's vision is to become the leading developer and provider of Raman spectroscopy and Raman microscopy solutions for research-grade, industrial and consumer applications.

Established in 2019, Lightnovo have developed a patented mirrorless Raman technology that forms the core technology of all their instruments, and which allows for an automatic calibration of the unstabilised laser wavelength drift. This technology has allowed Lightnovo to produce and commercialise the World's smallest, handheld Raman spectrometer amongst other ground-breaking Raman instruments

miniRaman Spectrometer

The miniRaman is the World's smallest Raman spectrometer. Measuring only 105x50x45mm (LxWxH) and weighing only 360g, the spectrometer can integrate up to two lasers at 660 and 785nm.

The device is battery powered and can operate for up to 4 hours without charging. The Pro miniRaman extends Lightnovo's Raman capability below 70cm^{-1} into the low-frequency (terahertz) range, enabling the measurement of intermolecular and lattice vibrations.

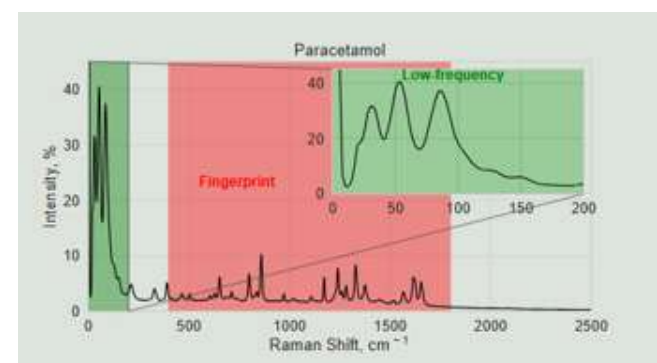
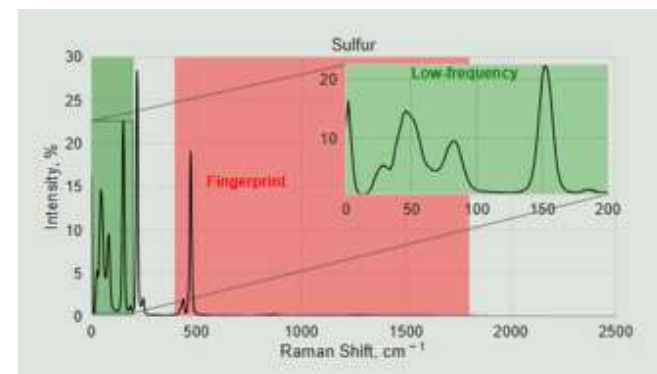


Feature versus model	miniRaman Standard	miniRaman SERS	miniRaman Dual	miniRaman Full Range Power	miniRaman Full Range SERS	miniRaman PRO 785	miniRaman PRO Dual 785/660	miniRaman PRO 830
Laser wavelength (nm)	785		660 and 785	660	660	785	660	830
Power on sample (mW)	5-50	1-15	5-45 (660) 5-50 (785)	10-80	1-15	5-400	785: 5-400 660: 5-60	5-400
Raman shift (cm^{-1})	300-3100		2700-3900 (660) 300-2500 (785)	270-3700	270-3700	100-3100	785: 100-3100 660: 2700-3700	80-2400
Spectral Resolution at 20/35/50mm slit sizes (cm^{-1})	0.25nm/px 7-10 / 9-12 / 11-14		785: 0.25nm/px, 7-10 / 9-12 / 11-14 660: 0.36nm/px, 12-15 / 13-17 / 15-18	0.36nm/px, 9-13 / 11-15 / 13-17	0.36nm/px, 9-13 / 11-15 / 13-17	0.25nm/px, 5-8 / 7-10 / 9-12	785: 0.25nm/px, 7-10 / 9-12 / 11-14 660: 0.36nm/px, 12-15 / 13-17 / 15-18	0.24nm/px, 6-9 / 7-11 / 9-12
Signal-to-noise ratio	500:1	100:1	785: 500:1 660: 600:1	500:1	100:1	2500:1	785: 2500:1 660: 600:1	2000:1

RG Spectrometer

RG Spectrometer is an extremely compact research-grade Raman spectrometer that is perfectly suited to demanding Raman spectroscopy applications that requires high spectral resolution, extremely stable laser power, high sensitivity and broad spectral range (from low frequency to high frequency Raman shift). There are four different models of RG Spectrometer depending on laser wavelength (405, 532, 633, 785 and 830nm).

The PRO RG spectrometer extends Lightnovo's Raman capability below 70cm^{-1} into the low-frequency (terahertz) range, enabling the measurement of intermolecular and lattice vibrations. This provides direct insight into crystal structure, phase transitions, and polymorphism within a compact, high-performance instrument. Below 200 cm^{-1} lies the structural fingerprint of materials — including lattice vibrations, phonon modes, and weak intermolecular forces that influence stability, crystallinity, and phase behavior. The PRO RG spectrometer opens access to this region, delivering a complete vibrational range from 25 to 4000cm^{-1} in a single scan.



Feature versus model	RG Raman 405	RG Raman 532	RG Raman 638	RG Raman 785	RG Raman 830	RG PRO 532	RG PRO 785	RG PRO 830
Laser wavelength (nm)	405	532	638	785	830	532	785	830
Power on sample (mW)	10-70 /0.01-60(LPR)	10-100 /0.01-90(LPR)	5-75 /0.01-65(LPR)5-330 (Power)0.1-280 (Power LPR)	5-95 /0.01-80 (LPR)5-500 (Power)0.01-500 (Power LPR)	5-70 /0.01-65 (LPR)10-500 (Power)0.1-400 (Power LPR)	10-100 0.01-90 (LPR)	10-950.01-80 (LPR)5->500 (Power)0.01->500(Power LPR)	5-700.01-65 (LPR)10->500 (Power)0.1-400 (Power LPR)
Spectral Range (cm^{-1})	90-3900	80-3600 70-3700 (HR)	70-3700	70-2500	70-2400	8-370038-2040 (HR)	25 - 2500	40 - 2400
Spectral Resolution corresponding to slit sizes 20/35/50 μm (cm^{-1})	0.06nm/px, 3-5 / 4-6 / 5-7	0.1nm/px, 3-5/ 4-6/ 5-7	0.1nm/px, 3-5 / 4-6 / 5-7	0.15nm/px, 2-4 / 3-5 / 4-6	0.17nm/px, 2-4 / 3-5/ 4-6	4 / 5 / 62.3 / 3 / 3.7 (HR)	3 / 4 / 5	3 / 4 / 5
Signal-to-noise ratio	1000:1800:1 (LPR)	1200:1 1000:1 (LPR)	1000:1800:1 (LPR)2500:1 (Power)2000:1 (Power LPR)	1000:1800:1 (LPR)3000:1 (Power)2500:1 (Power LPR)	900:1800:12500:1 (Power)2000:1 (Power LPR)	1200:11000:1 (LPR)800:1 (HR)600:1 (HR LPR)	1000:1800:1 (LPR)3000:1 (Power)2500:1 (Power LPR)	900:1800:12500:1 (Power)2000:1 (Power LPR)



Sciencetech Inc.'s extensive range of steady state and flash solar simulators are regarded as best-in-class, offering standard and highly configurable instruments.

Solar Simulators

Solar simulators from Sciencetech closely match the characteristics of sunlight such as the spectral match, spatial non-uniformity, and temporal stability of the simulated output beam. Achieving Class A+A+A+ classification over 50mm x 50mm. Depending on the application, we can offer a variety of solar simulators with an illumination area and power that suits your needs. All models offer standard compliance with the most current standards from the ASTM, IEC and JIS.

- Spectral emission closest to the sun's spectrum
- High spatial uniformity
- High temporal stability
- Configurable orientations in illumination direction
- Variety of output collimation angles
- Variable illumination areas
- Easy to use, turn-key systems with full software control
- Multiple add-ons and accessories such as fibre optic cables, beam turning units, filters and more.

SciSun Small Area Solar Simulator

SciSun series is designed with a small footprint in mind, they are easy to use, economically priced and technically superior.

- Up to 2 suns (AM 1.5G)
- Class A+A+A+ uniformity over 50x50mm square
- Plug and play operation



Ultra High Efficiency (UHE) Solar Simulator

The UHE systems are capable of far more efficiency and power unit than previously possible. All this without sacrificing temporal stability, spatial uniformity, or spectral matching.

- Industry leading efficiency
- Spectral match: Class A
- Radiance angle of $\pm 1.5^\circ$ half angle
- Target size up to 300x300mm
- Turnkey operation



Highly Collimated Solar Simulator

This solar simulator series is based on a Fresnel lens to collimate the light beam from the arc lamp source to infinity, resulting in highly collimated illumination of the target spot.

- Highly collimated beam with a 0.5° half angle
- Illuminate targets of 1.8 x 1.5m with uniform solar illumination
- Class AAA configuration available





Large Area Solar Simulator

- Variable illumination areas up to 5 m × 5 m
- AM0, AM1.5G or other specialty spectral matches
- Various degrees of collimation, depending on customer requirements
- Stepwise/ continuous irradiance attenuation
- Multiple mounting options, in varying orientations, including ceiling-mounted

Custom Solar Simulators

We offer a range of Sciencetech's Speciality Solar Simulators that can be customised to your specifications:

Solar Light Pipe (SLP)

- Homogenised
- Collimated
- High Flux
- Large Area

Fiberised Solar Simulators

With the LightLine you can direct the class AAA solar light anywhere you wish with the standard-sized fibre. Now you can bring the solar simulator to your sample

- Up to 18 suns intensity
- Up to 50x50mm target area
- Easy-to-use touchscreen controls





G2V Optics is developing and building the most advanced LED solar simulation on the market. They continue to raise the bar with innovative features that enable better, faster solar testing of materials and devices.

Pico - Small Area LED Solar Simulator

Precisely replicate terrestrial or extra-terrestrial Solar Spectra with the click of a button. G2V Optics created the Pico LED small area solar simulator to provide truly controllable illumination.

- 350-1500nm spectral range
- 7cm working distance
- Class A Illumination area 2.5x2.5cm
- 1.1 suns max intensity
- Directed optics
- Class A Spectral Match
- Class A Spatial Uniformity
- Class A Temporal Stability



Sunbrick - Large Area LED Solar Simulator

A large area LED solar simulator fit for any space, harnessing high-precision solar simulation.

With its advanced LED-driven illumination, the Sunbrick makes solar simulation for large areas easy, quick, and cost-effective. LED technology eliminates the need for bulb replacement or field calibration.

Class A+A+A+ performance:

- Wavelength Range 350-1200nm
- Illumination Area: 15cm x 15cm
- Class A+A+A+ over 10cmx10cm area
- 0.1–1.5 Suns at AM1.5G





Sciencetech's Flash solar simulators use a flash lamp and spectral filter to deliver a pulse of light onto a target for a short period, with minimal heating of the sample and lower cost per target area.

Flash Solar Simulator Concentrator

Sciencetech's FSSC flash solar simulator is designed to illuminate small photovoltaic devices up to 5cm x 5cm in size with up to 4000 Suns peak intensity. The default spectral match is to ASTM AM1.5G. The flash is 500 μ s at 90% of peak intensity, and 2.5ms at 50% of peak intensity.

- Spectral match : Class A
- Spatial non-uniformity: Class A
- Temporal Instability : Class A
- Working distance: 3mm
- Non-collimated



Large Area Flash Solar Simulator

The PSS-Series of flash (pulsed) solar simulators are designed to illuminate large photovoltaic devices up to 2 x 2m with up to 1 sun irradiance, with spectral matching to terrestrial (AM1.5G) or space (AM0) conditions.

- Spectral match : up to Class A
- Spatial non-uniformity: up to Class A
- Target size up to 1.9 x 1.9m
- Non-collimated



SciPulseSpec Spectroradiometer

The SciPulseSpec is designed for 1 Sun solar spectrum measurements (1000 W/m²) over the spectral range 300-1050nm. It embeds fused silica optical fibre and collection optics. Linear CCD detector type.

- Integration time of 50-1000µs
- Spectral resolution 1.2nm
- Wavelength accuracy 0.5nm
- Spectral irradiance calibration included
- Automatic spectral irradiance calculation
- Calibrated to NIST-traceable irradiance source

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As a leading provider in hyperspectral and infrared imaging systems, Photon etc offers a wide range of products including infrared cameras, hyperspectral imaging systems, preclinical imagers, and tunable filters.

Choose from the extensive range of SWIR and IR cameras including high-end, Scientific-grade InGaAs cameras with resolutions of 640x512px, and affordable deep-cooled cameras.

ZephIR 1.7 Deep Cooled, InGaAs SWIR Camera

ZephIR 1.7 is Photon etc.'s near-infrared InGaAs low-noise camera, deep-cooled at -80°C and highly sensitive from 0.9-1.7 μ m.

ZephIR 2.5e

Affordable, deep-cooled SWIR camera sensitive from 900 to 2500nm. High frame-rates allow high speed image acquisition through USB 3.0 or cameralink.



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Alize 1.7 NIR InGaAs Camera

The Alizé 1.7 is a high-end, scientific grade, 640x512 pixels resolution, InGaAs camera that marries performance with reliability.

HypIRia

Wide aperture, image-space telecentric lenses precisely crafted to provide clear and bright images in the SWIR spectral range. A broadband anti-reflective coating on carefully selected glass delivers high throughput and low-aberration imaging between 1.0-2.9 μ m.



	Zephyr 1.7x	Zephyr 1.7s	Zephyr 2.5e	Alize 1.7x	Alize 1.7s
Focal Plane (FPA)	InGaAs	InGaAs	T2SL	InGaAs	InGaAs
FPA Size (px)	640 x 512	640 x 512	640 x 512	640 x 512	640 x 512
Pixel Size (μ m)	15	15	15	15	15
Spectral Range (nm) (QE > 10%)	500 -1700	900 - 1700	900 - 2500	500 - 1700	900 - 1700
Cooling Temp ($^{\circ}$ C) @ 20 $^{\circ}$ C ambient	-80	-80	-80	-60	-60
Frame Rate in USB 3.0 (fps)	High: 110 Low: 220	250	240	High: 110 Low: 220	250
Digitisation (bits)	13	14	14	13	14
Quantum Efficiency	>85%	>80%	>70%	>85%	>80%



SensIR is a leading manufacturer of robust, high performance and innovative spectroscopic imaging solutions. They produce OEM modules for VNIR, SWIR and MWIR applications, and real-time spectral imagers. They also provide turnkey solutions for mineral analysis.



SWIR – 1000nm to 2500nm



NIR – 900nm to 1700nm



VNIR – 350nm to 1000nm

Model	Spectral Range (nm)	Dispersion (nm/mm)	Spectral Sampling (px)	Spatial Sampling (px)	Spectral Resolution (nm, 50µm slit)	Image Size spectral x spatial (nm)	RMS Spot Size (µm)	F#	Slit Size (mm)	Optical Input	Grating Efficiency
VNIR	400-1000	165	1.15	700	6	3.6x5.0	RMS spot size <10 µm	2	6x.05	Telecentric	85% @ 600nm
NIR	900-1700	112	3.36	300	6	7.6x9.6	RMS spot size <10 µm	2	9x.05	Telecentric	85% @ 1300nm
SWIR	1000-2500	156	2.34	500	7	9.6	RMS spot size <10 µm	2	7x.05	Telecentric	85% @ 1750nm



PHOTOVOLTAIC TESTING EQUIPMENT

Quantum Efficiency/IPCE Measurement Systems

With the PTS family of Quantum Efficiency Systems, researchers can measure Current Voltage characteristics (IV), Internal Quantum Efficiency (IQE) and External Quantum Efficiency (EQE) for any photovoltaic device. These systems are uniquely configured for Terrestrial PV testing, Extra-terrestrial PV testing and Concentrated photovoltaic (CPV). A variety of accessory modules are available to provide positive sample positioning, temperature control, and electrical probing capabilities.

- Current-Voltage (I-V) Testing. VOC , ISC, Rshunt, Pmax, efficiency %, and fill factor
- Spectral Response (SR): 250-2500nm or 300-5000nm range
- External Quantum Efficiency (EQE) | (IPCE)
- Internal Quantum Efficiency (IQE Test)
- Reflectance and transmittance measurements



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The Mountain Instruments hyperchromator has been specially developed and optimised for the laser-pumped light sources of the XWS series from ISTEQ.

The extremely high luminance of these light sources is particularly well suited for generating monochromatic light in the wavelength range of 200-2200nm (UV/VIS/ NIR). Bandwidths from 1-20nm are possible. The light is collected directly from the lamp's plasma with an aperture of f/1.5, without using an additional entrance slit. This makes this tunable light source very efficient.



Optical Input	ISTEQ light source XWS-30, XWS-65 or XWC-R directly coupled
Optical Output	Optical quartz fibre, SMA (standard) or FC, 100-1000µm core diameter
Wavelength range (nm)	190-2200
Aperture	f/1.5
Bandwidth (nm)	1-20 FWHM
Output power	Up to 800µW (grating at blaze wavelength, 6nm bandwidth and 400µm fibre)
Reproducibility	Typ. 0.1nm
Scanning speed	40-100nm/s
Control Interface	USB/RS-232, LabVIEW™ - Based GUI, various external control options
Dimensions and weight	46.3x35.3x18.7cm – 13kg



ScienceTech offers Lamp Sources from UV to Infrared for industrial and research applications.

- Xenon Arc Lamps 200nm-2.5 μ m
- Quartz Tungsten Halogen (QTH) 300nm-2.7 μ m
- Deuterium and Dual Deuterium Tungsten, emissions below 180nm

ARC LAMP SOURCES

- Continuous Arc Lamp Sources

Research Xenon (Xe) Arc Lamps

- 230-2500nm
- 75-7000W sources
- Focused or collimated beam
- Adjustable power supply with touch screen interface

Quartz Tungsten Halogen (QTH) Lamps

- Broadband smooth emission – 350-4000nm
- 50-1000W sources
- Long-life and cost-effective



Tunable Light Sources

Computer-controlled tunable light sources from Sciencetech provide monochromatic light from 300nm to 1800nm (extended ranges from 180nm to 10 μ m available with customisations). Depending on your application requirements, all components, including the light source and monochromator, can be changed to suit the desired wavelength range, optical resolution and power level.

- Touch screen power supply
- Six-position filter wheel
- Software Controlled
- Optical resolution from 20-0.2nm



MICROSCOPY

Application Focused Microscopy and Imaging Solutions

Our comprehensive microscopy and imaging portfolio brings together advanced technologies for high-performance optical imaging, spectroscopy and biological research. We provide solutions that enable researchers to extract both spatial and spectral information with exceptional sensitivity and precision.

Our portfolio includes modular FLIM and TCSPC systems, confocal Raman microscopes, hyperspectral and SWIR imaging platforms, high-performance scientific cameras, and an extensive range of specialised laser sources for multiphoton microscopy, optogenetics, CARS and SRS.

- 79 ▶ CMOS Cameras
- 80 ▶ Fluorescence Lifetime Imaging
- 82 ▶ Lasers for Microscopy
- 86 ▶ TCSPC/FLIM/Time Taggers
- 88 ▶ Hyperspectral and SWIR Imaging
- 92 ▶ Raman Microscopy



HAMAMATSU

PHOTON IS OUR BUSINESS

Hamamatsu CMOS (qCMOS/sCMOS) cameras offer unprecedented sensitivity with minimal pixel gain variation and fast frame rate. The combination of high sensitivity and low noise ensures this range of CMOS cameras offer high signal-to-noise ratio during low-light imaging. They also benefit from very fast readout speed while keeping the readout noise very low.

qCMOS

The qCMOS camera achieves the ultimate in quantitative imaging by photon number resolving through the use of the qCMOS® image sensor developed using Hamamatsu's unique design technology and the latest manufacturing techniques. Two models are available - ORCA-Quest 2 and ORCA-Quest-IQ. The ORCA-Quest IQ offers all the excellent features of the ORCA-Quest 2 but with the addition of camera link output.



sCMOS

The sCMOS camera portfolio from Hamamatsu is significant, with a camera available to fit almost any budget or application. All sCMOS models feature Hamamatsu's unique and patented Lightsheet Readout Mode. This mode of operation significantly improves signal to noise ratios in lightsheet microscopy.

	ORCA-Quest 2	ORCA-Quest IQ	ORCA Halo	ORCA Fire	ORCA Fusion	ORCA Fusion BT	ORCA Flash 4.0 V3	ORCA Flash 4.0 LT3	ORCA Spark	X-Ray
Effective no. of pixels (H x V)	4096 x 2304	4096 x 2304	3000 X 3000	4432 x 2368	2304 x 2304	2048 x 2048	2048 x 2048	2048 x 2048	1920 x 1200	2048 x 2048
Sensor	qCMOS	qCMOS	Back-Illuminated sCMOS	Back-Thinned sCMOS	Gen III sCMOS	Back-Thinned sCMOS	sCMOS	sCMOS	sCMOS	sCMOS
Pixel Size (μm)	4.6 x 4.6	4.6 x 4.6	3.76 x 3.76	4.6 x 4.6	6.5 x 6.5	6.5 x 6.5	6.5 x 6.5	6.5 x 6.5	5.86 x 5.86	6.5 x 6.5
Effective Imaging Area (mm)	18.841 x 10.598	18.841 x 10.598	11.28 x 11.28	20.387 x 10.892	14.976 x 14.976	14.976 x 14.976	13.312 x 13.312	13.312 x 13.312	11.25 x 7.03	13.312 x 13.312
Readout speed (fps)	120	120	18.2	115	89.1	89.1	100	40	65	30
Readout noise (electrons)	0.43	0.43	1.6	1.0	0.7	0.7	1.4	1.9	6.6	2.3
Dynamic Range	23000:1	23000:1	12000	20000:1	21400:1	21400:1	37000:1	33000:1	5000:1	18000:1



Becker & Hickl's DCS-120 is a complete laser scanning microscope for fluorescence lifetime imaging (FLIM). The systems use bh's multi-dimensional TCSPC FLIM technology in combination with fast laser scanning and confocal detection or multi-photon excitation. DCS-120 systems are available for inverted and upright microscopes and can be used to upgrade any conventional microscope with scanning and FLIM recording. Three models of DCS-120 are available.

DCS-120 – complete confocal FLIM system

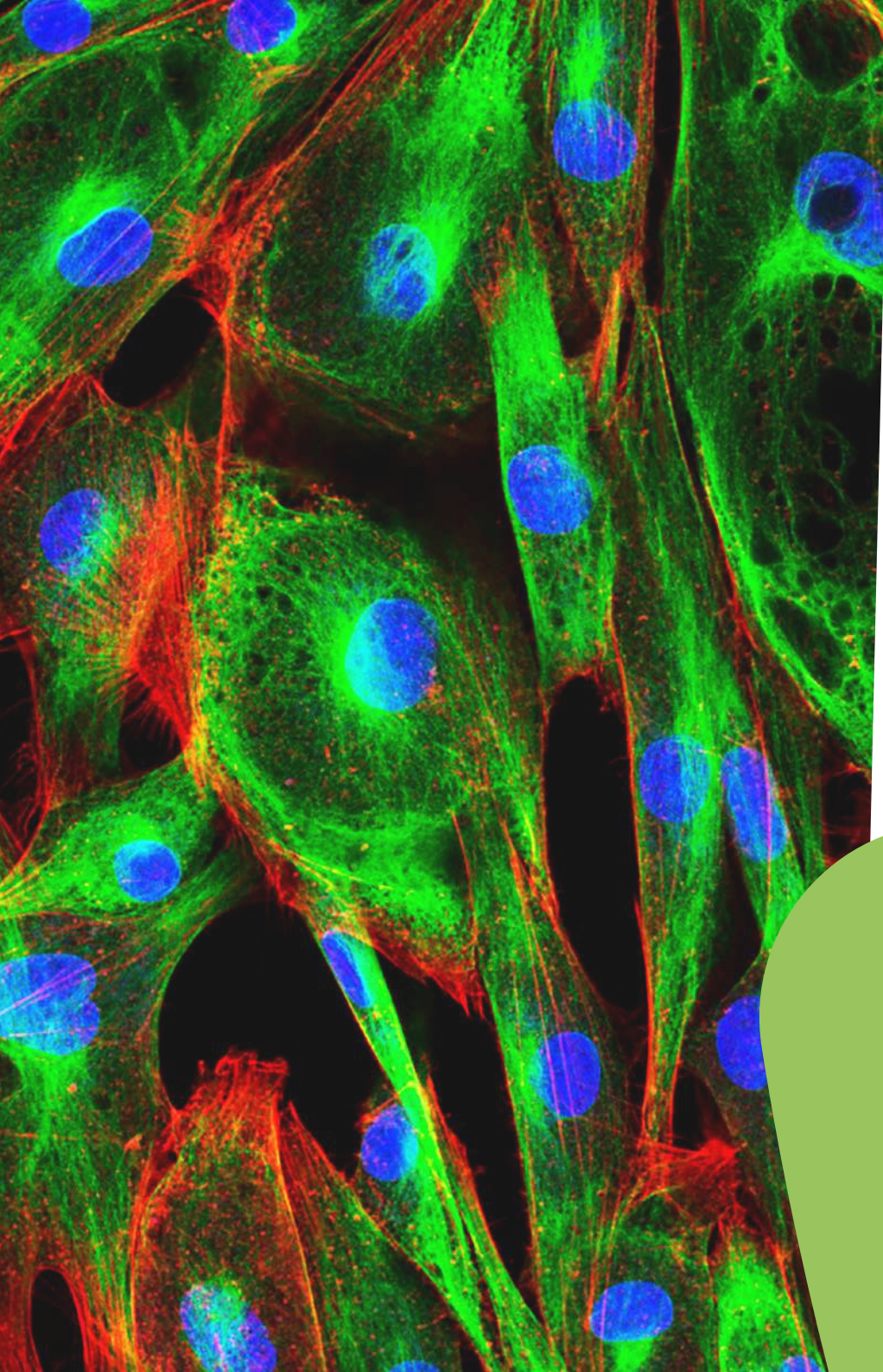
- Includes microscope and up to two ps diode lasers
- Scanning by fast galvanometer mirrors
- Two confocal detection channels
- Two fully parallel TCSPC FLIM channels
- Time channel width down to 405fs
- Detection of lifetime <25ps

DCS-120 MACRO

- Available for FLIM of centimetre-size objects
- Scan field up to 15mm diameter
- UV enhanced optics,
- Tunable excitation by supercontinuum laser with AOTF



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DCS-120 MP

For multiphoton excitation with Ti:Sa lasers and femtosecond fibre lasers, featuring two non-descanned detection channels and full laser control integrated in systems software. The system also works with tuneable excitation sources

FLIM upgrade kits for LSMs

As technology leader in equipment and techniques for single photon counting, Becker & Hickl offers a wide range of high-grade Fluorescence Lifetime Imaging (FLIM) systems for laser scanning microscopes since 1998. FLIM systems for Zeiss, Nikon, Evident and Leica LSMs along with FLIM upgrades to piezo-scanning systems and STED microscopes.



Light Conversion's microscopy-dedicated femtosecond laser sources cover applications in functional neuroimaging, optogenetics, and deep imaging using three-photon and two-photon imaging.

CRONUS-2P

A tunable laser with watt-level output and high repetition rate for 2P excitation of a wide range of fluorescent probes and opsins, as well as CARS or SRS. One or two tunable and one fixed output for simultaneous multibeam excitation. at 1025nm and is accessible in parallel.

- Up to three multi-Watt level outputs with a high repetition rate
- Fully integrated and automated GDD control
- Beam steering and power locking
- Industrial-grade design
- Superior output stability



	CRONUS-2P		CRONUS-2P-XR	
CRONUS-2P	Tunable	Fixed	Tunable	Fixed
Tuning range (nm)	700-1100	1025 +/- 10	680 - 1300	1025 +/- 10
Output power (W)	>2.5	>1.5	> 1.5	>2
Pulse duration (fs)	<120	<130	<100	<130
Beam quality	M2 < 1.2			
Repetition Rate (MHz)	80			
Long-term power stability	< 1%			

CRONUS-2P-DUAL	Tunable A	Tunable B	Fixed
Tuning range (nm)	680-960	940-1300	1025 +/-10
Output power (W)	>3	>2.5	> 2.5
Pulse duration (fs)	<160		
Beam quality	M2 < 1.2		
Repetition Rate (MHz)	77 +/-1		
Long-term power stability	< 1%		

CRONUS-3P

Is a femtosecond laser for advanced nonlinear microscopy, provides μJ -level pulses down to 50fs at repetition rates from single-shot, 1 or 2MHz.

- High-power version offering >2W at 1300nm
- High pulse energy and fast repetition rate
- 1250-1800nm tuning range
- <50fs pulse duration
- Fully integrated and automated GDD control
- Industrial-grade design from one single supplier
- Superior output stability



CRONUS-3P	CRONUS-3P		CRONUS-3P-HP	
Power Control	No	Yes	No	Yes
Tuning range (nm)	1250-1800			
Output power (mW)	>1100 @1300 >800 @1700	>1000 @1300 >700 @1700	>2000 @1300 >1500 @1700	>1900 @1300 >1400 @1700
Pulse duration (fs)	<50 @1300 <65 @1700		<55 @1300 <80 @1700	
Beam quality	M2 < 1.2			
Repetition Rate (MHz)	Single-shot – 1 or 2			
Long-term power stability	< 1%			

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APE offers a range of world-leading picosecond and femtosecond OPOs, ultrashort laser pulse diagnostics and tunable wavelength conversion devices.

The portfolio includes OPO systems, harmonic generation (HarmoniXX series), autocorrelators for pulse width measurements and spectrometers, measuring and characterising femtosecond and picosecond laser pulses.



picoEmerald-FT for CARS and SRS

The picoEmerald FT is APE's flagship one-box light source. Designed for best-in-class SRS imaging quality and tuning speed, it is an easy-to-use, push-button-tunable picosecond OPO with an integrated pump laser. Systems can be further customised using pulse pickers (pulseSelect) to reduce the repetition rate, spectral slicers (pulseSlicer) for bandwidth reduction, and optical delay lines (scanDelay).

The picoEmerald FT can also be used to pump a second OPO, generating independent, tunable, and synchronised pulses.

- 2ps pulses and 10 cm⁻¹ bandwidth – ideal for Coherent Raman Imaging
- Tunable from 660-2300nm, with an optional 1032nm output
- Use a harmonic generator to extend down to 190nm
- Fast wavelength tuning: 1.5s for any tuning step
- Shot-noise-limited performance
- Power and delay control with active stabilisation
- Perfectly synchronised output pulses, overlapped in space and time
- Integrated spectrometer for precise wavelength tuning and stabilisation



Carpe Microscopy Autocorrelator

The Carpe autocorrelator measures the pulse duration at both the sample location and the input of the microscope. A comparison of these two measurements enables you to calculate the pulse broadening effect of the microscope's dispersion.

The Carpe is placed in the beam between the laser and microscope. It requires no changes in the optical setup and does not interfere with the measuring beam.

- Pulseswidth measurement directly at sample position
- Easy alignment and operation
- Option for power measurement



MixxWave – Wavelength combiners L4Cc and L6Cc

The most compact and flexible all-in-one multicolour laser source combining up to 6 stable wavelengths into one or two independent channels. Built on a modular architecture compatible with Oxxius FlexxRay, StaxxBeam and MaxxPower lasers, it spans 375 to 1064 nm and scales from standard fluorescence setups to advanced microscopy.

- Up to 1000mW per wavelength
- Integrated control electronics
- Delivers collinear multi-wavelength beams
- Integrated control electronics
- Direct modulation on each source
- Acousto-Optic modulator (AOM) with linearised output
- Extension modules for broadband beam splitter, beam switching, controlled optical density and multi-channel modulation





Becker & Hickl are the technology leaders in Photon Counting. Their TCSPC products are complemented by picosecond diode lasers, detector modules, multi-spectral detector assemblies and experiment control modules. All B&H TCSPC modules use a multi-dimensional TCSPC process and all the SPC modules can be used for classic fluorescence decay applications as well as for fluorescence lifetime imaging (FLIM), multi-wavelength FLIM, simultaneous fluorescence and phosphorescence.

TCSPC Cards

All B&H TCSPC modules use a multidimensional TCSPC process as well as a high-speed high-resolution AC/ADC principle. The SPC modules can be used for classic fluorescence decay applications as well as for fluorescence lifetime imaging, multi-wavelength FLIM, simultaneous fluorescence and phosphorous lifetime and time-tagging. The SPCM operating and measurement software is included with all SPC series modules. SPCM provides online calculation and display (2D, 3D) of data (decay curves, FCS, FCCS) acquired in multiple operation modes.



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	SPC-130IN	SPC-130INX	SPC-130INXX	SPC-180N	SPC-180NX	SPC-180NXX	SPC-QC-104	SPC-QC-004	SPC-QC-106	SPC-QC-008
TCSPC Channels Per Module	1						3 (4)	3 (4)	5 (6)	7 (8)
Use For	Fluor. Decay, NIRS, Phot. Correl. Sing. Molec. FCS			Fluor. Decay FLIM, PLIM, Phot. Corel. Sing. Molec. FCS			Fluor. DecayFLIM, PLIMPhot. Correl. Sing. Molec. FCS	Fluor. DecayNIRS-Phot. Correl.Sing. Molec.FCS, Quantum-Optics and -Cryptography	Fluor. Decay-FLIM, PLIMPhot. Correl.Sing. Molec. FCS	Fluor. De-cayNIRSPhot. Correl.Sing. Molec.FCS, Quantum-Optics and -Cryptog-raphy
Internal Timing (Jitter, RMS) (ps)	2.5	1.6	1.1	2.5	1.6	1.1	16	16	17	14
Timing Precision/ $\sqrt{2}$	1.8	1.1	0.8	1.8	1.1	0.8	11	11	11	9.9
Min. Bin, Width (fs)	813	405	203	813	405	203	4ps	4ps	4ps	1ps
Abs Timing Stability (RMS) (ps)	<0.5			<5			<5	<5	<5	<5
Peak Count Rate (MHz)	10						120	120 per channel	120	500 per channel
General Recording Modes	Classic TCSPC, FCS, HBT, Time Tag			Classic TCSPC, FLIM, FCS, HBT, Time Tag			Classic TCSPC, FLIM, FCS,	Classic TCSPC, FCS, HBT, Time Tag	Classic TCSPC, FLIM, FCS, HBT, Time Tag	Classic TCSPC, FCS, HBT, Time Tag
Detectors Per Channel	Up to 16						Up to 16	Up to 16	Up to 16	1
Parallel Modules	Up to 4 or 32						1	1	1	Up to 4
Multi-Module Packages	SPC-132IN SPC-133IN SPC-134IN			SPC-182N SPC-183N SPC-184N			-	-	-	-

MICROSCOPY Hyperspectral and SWIR Imaging



Photon etc.'s two decades of innovation in the field of optics has established the company as a key player in the field of hyperspectral imaging. All their hyperspectral imagers are based on unique Bragg Tunable Filter technology.

Within their portfolio of hyperspectral imagers, you will find solutions for global hyperspectral microscopy, delivering spectral and spatial information in the VIS to SWIR spectral ranges.

IMA Global hyperspectral microscope

IMA is a hyperspectral global microscope delivering spectral and spatial information in the VIS, NIR and/or SWIR spectral ranges (400-1620nm). This system rapidly produces large maps (up to 1x1mm and even more) of photoluminescence, fluorescence and electroluminescence, reflectance, and transmittance. Based on high throughput global-imaging filters, IMA is faster and more efficient than standard point-by-point or line-scan based systems.

HyperCube

The HyperCube hyperspectral filter is continuously tunable in the VIS, NIR and SWIR spectral ranges. It is designed to fit commercial upright or inverted microscopes and couples with standard cameras and excitation modules.

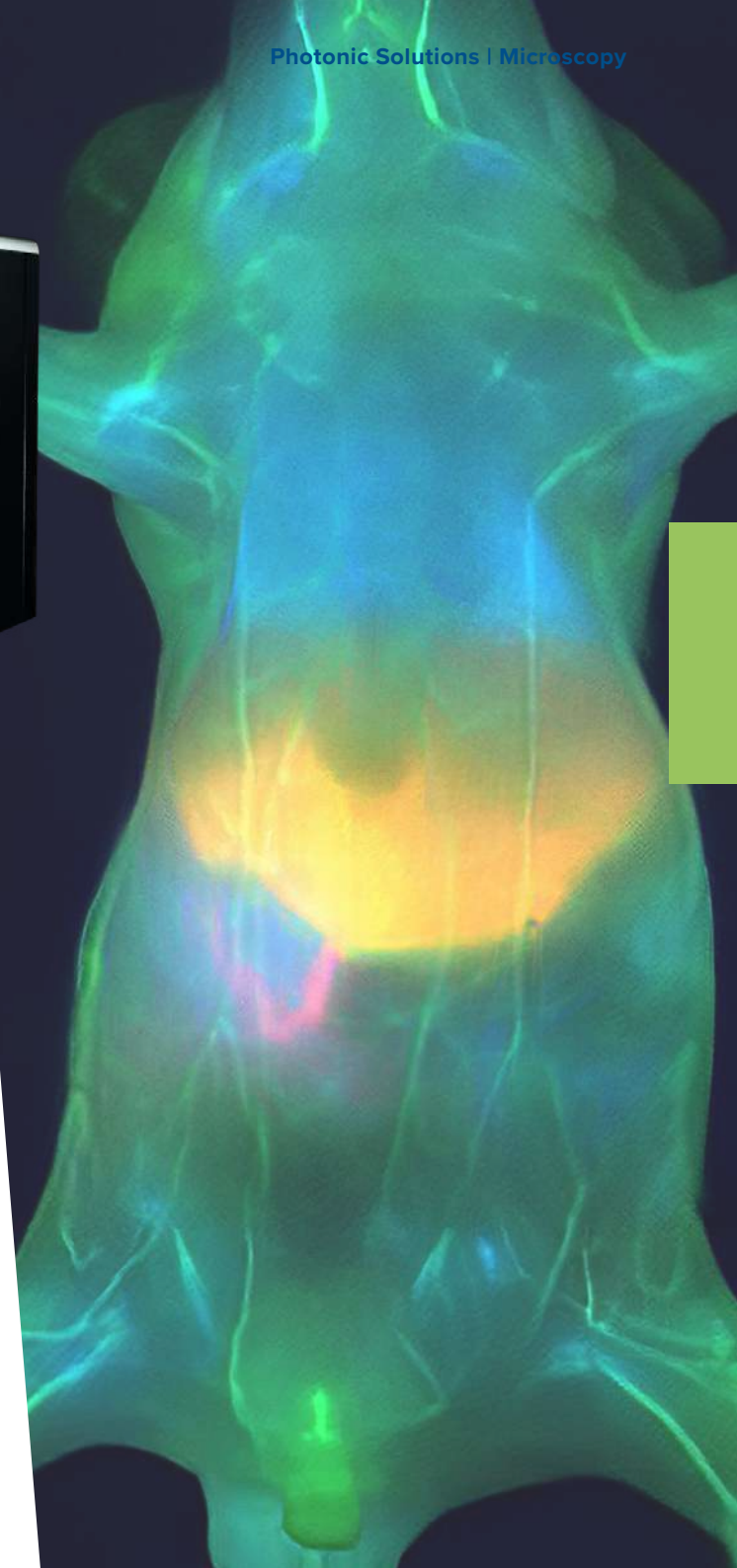


Photon etc. offer a unique turnkey commercial hyperspectral imaging system that covers the second biological window (the NIR-II region, 850-1600nm) in the IR VIVO family.

IR VIVO

IR VIVO is an infrared multi and hyperspectral wide-field imager for small animal studies that benefits from reduced light scattering, absorption and auto-fluorescence by using a detection system in the near and shortwave infrared.

- Use with ultra-low-noise InGaAs camera (Alike 1.7 or ZephIR 1.7)
- Homogenous illumination and powerful analytical software
- Fast, high-resolution deep-imaging

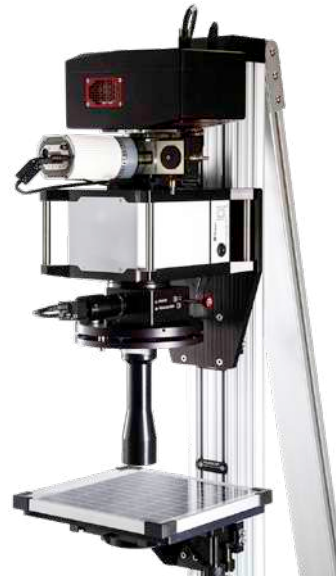


	IR VIVO	Essence	SynIRgy
Spectral Range (nm)	900-1600	900-1600	400-1000 (VIS) 900-1600 (NIR-II)
Filtering	Filter wheel with up to 6 emission channels	Filter wheel with up to 6 emission channels	Filter wheel with up to 6 emission channels
Illumination Source	Laser at 670, 760, 808 and 890nm and	Laser at 808 and 890nm and adjustable power density	Laser at 465, 520, 670, and 808nm and adjustable power density
Lens	50mm f/1.4 lens	50mm f/1.4 lens	VIS: 35mm f/0.95 NIR-II: 50mm f/1.4
Field of View	80 x 64mm to 50 x 40mm variable FOV for 1 mouse or individual organ view	Fixed FOV for 1 mouse imaging: 80 x 64mm	80 x 64mm to 50 x 40mm variable FOV for 1 mouse or individual organ view
Stage	Manual XY and motorised Z	Fixed sample stage	Motorised XYZ
Dimensions (L x W x H) (cm)	77 x 60 x 98	77 x 60 x 98	92 x 76 x 110
Camera Type	InGaAs (Alike 1.7)	InGaAs (Alike 1.7)	EMCCD and InGaAs (Alike 1.7)



GRAND-EOS

GRAND-EOS is a global hyperspectral camera that is continuously tunable from 400 to 1650 nm. This system combines micro and macro modalities. It provides non-polarised wavelength selection with high throughput and efficiency. This is made possible by Photon etc.'s patented filtering technology based on volume Bragg grating. GRAND-EOS generates a hyperspectral data-cube with spatial information along the X-Y axes and spectral information along the Z-axis. Photon etc.'s global-imaging technology extracts a data-cube from a handful of monochromatic images and without the need for image reconstruction. GRAND-EOS is designed for reflectance, transmittance and luminescence imaging and is well suited for both fundamental research and industrial applications.



L-EOS Push broom hyperspectral scanner

Using a totally reflective spectrometer at its core, it has fewer interfaces, therefore less light losses, no chromatism and very low aberrations. It is combined with Photon etc.'s scientific-grade infrared cameras and objective lenses specifically designed for infrared spectroscopy.



	GRAND-EOS		S-EOS 2.5
	V-EOS	S-EOS 1.7	
Spectral Range (nm)	400-1000	900-1620	900-2500
Spectral Resolution (nm)	<2	<4	<5
Camera	sCMOS	InGaAs Zephir or Alize	Zephir 2.5e
Spectral Channels	Continuously Tunable		
Standard Field of View	20x20 to 160x160 mm (other FOV available on request)		



Gemini-X

GEMINI-X Interferometer is the high aperture evolution of the GEMINI Interferometer, specifically designed for hyperspectral imaging in microscopy.

With its 20 mm clear aperture, GEMINI X ensures seamless coupling with large area 2D sensors and is compatible with any microscope camera port. It supports multiple imaging modes, including: transmission, reflectance, and photo and electro luminescence (PL and EL) hyperspectral imaging.

GEMINI X also inherits the full capabilities of the original GEMINI. It can be combined with single pixel detectors and TCSPC cards for time and frequency resolved measurements, as well as Pump Probe, Raman spectroscopy and quantum applications.

- 400-1700nm spectral range
- <1nm spectral resolution
- Ø 20mm clear aperture
- 500g lightweight



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Lightnovo's range of Raman microscopes incorporates their patented in-built reference channel technology that is integrated into their Raman spectrometers. This patented technology ensures that their microscopes have very high throughput, perfect wavenumber accuracy and automatic Raman intensity calibration.

miniRaman Microscope

The miniRaman microscope is the world's smallest confocal Raman microscope. Each microscope integrates the miniRaman spectrometer, which performs Raman shift and Raman intensity calibration during every spectrum acquisition. The miniRaman microscope can be used in upright and inverted microscopy configurations and are equipped for white light microscopy with simultaneous visualisation of the laser spot and Raman acquisition.

- Compatible with miniRaman spectrometers 660, 785nm laser wavelengths and miniRaman Pro 660, 785nm, 830nm laser wavelengths
- Lateral resolution 800-900nm, axial resolution 2.5-3mm
- Available with motorised or manual stages
- Motorised mapping travel range (mm) 30 x 30 x 30mm
- PC (Windows 7, 10) and smartphone (Android)
- Weight under 12kg





RG Raman Microscope

Premium, research-grade, confocal Raman microscope for chemical and structural analysis. The RG Raman Microscope is perfectly suited to demanding Raman microscopy applications that require high spectral and spatial resolution, long mapping range, extremely stable laser power, high sensitivity, and broad spectral range (from low frequency to high-frequency Raman shift). The RG Raman microscope can be equipped with either the miniRaman spectrometer or the RG Raman spectrometer. The high resolution, especially in the low wavenumber range, makes them ideal for elucidation of structures, as well as intermolecular processes of organic materials in these low frequency ranges.

- Compatible with miniRaman, miniRaman Pro spectrometers, RG and RG Pro spectrometers 405, 532, 638, 785, 830nm laser wavelengths
- Lateral resolution 200-420nm, axial resolution 700nm - 2.5mm
- Available with motorised or manual stages
- Motorised mapping travel range (mm) 102 x 102 x 25mm
- miniRaman Microscope PC (Windows 7, 10) and smartphone (Android), weight under 12kg
- RG Raman Microscope PC (Windows 7, 10) and smartphone (Android), weight under 45kg

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OPTOMECHANICS AND OPTICS

OPTOMECHANICS AND OPTICS Optical Mounts

Optomechanics and Optics To Support Your Complete Optical System

Our comprehensive optomechanics and optics portfolio provides the precision components and optical infrastructure required to build, align and control high-performance photonic systems. From laser optics, optical filters, mounts and cage systems to precision motion control, optical tables and vibration isolation, we offer solutions for both laboratory and integrated OEM applications.

- 95 ▶ Optical Mounts
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- 101 ▶ Periodically Poled Crystals and Modules
- 102 ▶ Laser Optics
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- 111 ▶ Optical Tables





Zolix Instruments offers a comprehensive range of optical mounts and opto-mechanical hardware covering precision kinematic adjustment, fixed mounts, beam steering, lens positioning, and modular post systems. The portfolio is designed to support laboratory R&D, laser systems, OEM integration, and industrial photonics, with options spanning aluminium and stainless-steel constructions, compact footprints, and high-stability designs.

Zolix mounts are characterised by fine-pitch adjustment (typically 0.2–0.25 mm), robust spring-loaded kinematic structures, and broad compatibility with standard optical tables and post systems. Optic sizes range from Ø8 mm to Ø101.6 mm, enabling everything from compact beam paths to high-power laser cavities.

Core Products

- NMHS Kinematic Mirror Mount
- Optic sizes: Ø12.7 mm to Ø101.6 mm
- Fine 0.2 mm pitch adjustment screws
- Four-spring kinematic design for stability
- Black anodised aluminium, compact footprint
- Locking versions available



	SUS Series Stainless Steel Kinematic Mirror Mounts	AUS Series Kinematic Mirror Mounts	NMHS Series Kinematic Mirror Mounts	NRAM Series Right-Angle Kinematic Mirror Mounts	NMM Series Kinematic Mirror Mounts	NMC Series Centre Kinematic Mirror Mounts	NMV Series Vertical Drive Kinematic Mirror Mounts	NMVG Series Top Adjust Gimbal Mirror Mounts	NMGC Series Eccentric Kinematic Mirror Mounts	OMUS Series Stainless Steel Kinematic Mirror Mounts	OMHS General Purpose Kinematic Mirror Mounts	OMMB Series Coplanar Kinematic Mirror Mounts	NMUM Series 5-Axis Kinematic Mirror Mounts
Optic Size (mm)	Ø12.5-Ø50.8	Ø12.5-Ø50.8	Ø12.5-Ø101.6	Ø12.5-Ø50.8	Ø 8-Ø12.7	Ø12.5-Ø50.8	Ø12.5-Ø50.8	Ø25-Ø50.8	Ø12.5- Ø50.8	Ø12.5-Ø50.8	Ø12.5-Ø50.8	Ø50- Ø102	Ø25.4/ Ø50.8
Optic Edge Thickness (mm)	3~8	3~8	3~12	4~10	2~8	4~20	2~6	3~10	3~5	3~5	3~5/4~8		<20
Angular Range (°)	±3	±3	±3	±3	±3	±3	±3	±3	±3	±3	±3	±2.5	±5 (Øx, Øy)
Clear Aperture (mm)	Ø11.5- Ø48.5	Ø11.5- Ø48.5	Ø11.7- Ø96	Ø9.5- Ø42	Ø7- Ø11.7	Ø10- Ø47	Ø11.5- Ø47	Ø23/ Ø47	Ø11- Ø47	Ø 11- Ø 47	Ø11- Ø47	Ø48-Ø97	Ø23/Ø47
Optic Centre Height (mm)	15-35	15-35	15-70 (Axis Height)	15-38 (Axis Height)	10-14 (Axis Height)	15-40 (Axis Height)	17-35 (Axis Height)	35/47 (Axis Height)	25.5-47 (Axis Height)	14-35 (Axis Height)	25-35 (Axis Height)	60-86 (Axis Height)	61.5-73.5 (Axis Height)
Mounting Hole	M4/M6, Ø8 sink hole	M4, M6, Ø8 sink hole	M4, M6, Counter Bore Ø8	M3, M4, M6	M4, Ø6 Counter Bore	M4, M6, Ø8 Counter Bore	M4, M6, 2xM4	M6, 2xM4	M4, Ø6 counter bore/ M6, Ø8 Counter Bore	M4, M6, Ø8 Counter Bore	M6, Ø8 Counter Bore	M6, Ø7.5 Counter Bore, 2x Ø11 Counter Bore	M4, M6

	NPMV Series Prism Kinematic Mounts	OMHS-PM Series Prism Kinematic Mounts	NPM Series Prism Kinematic Mounts	NCM Series V Clamp Kine- matic Mounts	NCC Series V Clamp Kinematic Mounts	PHLM Series Cylinder Laser Tube Kinematic Mounts	NMHS Series Special Kinematic Mounts	OMHS Series Special Kinematic Mount	OMxA Multi- Axis Kinematic Mount	NMDM Series Large Kinematic Mounts
Optic Size (mm)			Ø62/ Ø70 (Plate Form Size)	Ø6~ Ø20/ Ø10~ Ø40	Ø2~ Ø10/ Ø5~ Ø20/ Ø15~ Ø50	Ø5/ Ø60/ Ø25~ Ø45	25 (Axis Height)		16 (Fixed Plate Thickness)	Ø150/ Ø200/ Ø250
Max. Mounting Height (mm)	30/50	30/60	30/60	57.5/79	33.5/47/81	150/62/72	50	25	31/35	
Angular Range (°)	±3	±3	±3	±3		±5/±3	±3	±3		±5
Resolution: Angular Adjustment per Revolution (°)	≈0.36/≈0.23	≈0.39/≈0.25	Tilt(°): ≈0.76/≈0.39 Tilt(°): ≈0.76/≈0.45 Rotation (°): ≈0.82/≈0.57	≈0.32/≈0.2		Tilt(°): ≈0.8/≈0.23 Tilt(°): ≈0.36/≈0.24	≈0.33	Tilt(°): ≈0.39 Tilt(°): ≈0.39	Tilt(°): ≈0.31/≈0.27 Tilt(°): ≈0.31/≈0.27	≈0.155/≈0.125/ ≈0.105



NLB Series Fixed Lens and Mirror Mounts

- Optic sizes: Ø10 mm to Ø50.8 mm
- No adjustment – rigid, repeatable positioning
- Teflon retaining ring for optic protection
- Compact and cost-effective

PHK Series – Post and Post Holder Kits

- Matched post + base combinations
- Available in Ø6 mm, Ø12 mm, Ø20 mm, Ø25 mm
- High rigidity with simple height adjustment
- Fully compatible with Zolix mirror and lens mounts

	NL Series Kinematic Lens Mounts	NLB Series Lens Mounts	OMLS Series Self-Centring Lens Mounts	OMLH Series Lens Mounts	OMLH-Z Series Optical Mount for Cylindrical Lens	NMPO Series Kinematic Mount for Polarisation Components	NF Series Filter Mounts	NFH Series Filter Mounts	OMxA Multi-Axis Kinematic Mount	MFW Series Filter Wheel
Optic Size (mm)	Ø12.5- Ø25.4	Ø10- Ø50.8	Ø5~ Ø102	Ø10~ Ø100/ Ø5~ Ø75/ Ø5~ Ø50		Ø12.7- Ø30	Ø25.4 or 25.4x25.4/ Ø50.8 or 50.8x50.8		0.0~1.0/ 0.0~2.0/ 0.0~3.0	Ø25/ Ø25.4
Optics Thickness (mm)	3~14	3~5/3~8/3~10	19-30	≤6	1~6/1~10	2~6/2~8	1~5/1~10	≤15	26.5	1~6
Translation Range (mm)	±2				±3					
Clear Aperture	Ø10-Ø46	Ø7- Ø46	Ø46- Ø100			Ø11/ Ø23/ Ø27		22		Ø22
Optic Centre Height (mm)	10-40	14-35	34.5-69.5	100-151		52/58/62/67	18/32		65	50
Mounting Hole	M6, 2M4	M6	M6	M4, 2M6	M6, Sink Hile Ø8	M6, Counter Bore Ø8	M4, M6	M6, Counter Bore Ø8	M6	2xM4, M6, 2xM4

	Ø6mm Posts and Post Holders		Ø12mm Posts and Post Holders					Ø20mm Posts and Post Holders		Ø12.7mm Imperial Posts and Post Holders		
	PHSP6 Series Mini Posts	NMPH Series Mini Post Holder with Base	PHSP12 Series Posts	NPH Series Post Holder with Base	PHSH Series Post Holders	PHRP Series Rotation Post Holder	PHVP Series Translating Post Holder	PHSP20 Series Posts	PHSH20 Series Post Holders	PEP Series Imperial Standard Posts	NIPH Series Imperial Standard Post Holder with Base	PEH Series Imperial Standard Post Holder
Optic Size (mm)		6			12		50-102			50-102		
Diameter (mm)	Ø6		Ø12					Ø20		Ø12.7		
Overall Height (mm)	20-200	20-75	25-300	25-150	25-150		72~120	50-200 (Length)	25-100		25-150	50-102 (Length)
Middle Hole Height (mm)	10-50	13-67	8-100	18-142 (Thumb Screw Height)			15-25 (Fine Tuning Height)			20-35 (Through Hole Height)	18-142 (Thumb Screw Height)	



Cage Systems

Zolix Instruments offers a modular optical cage system platform designed for rapid, rigid, and repeatable opto-mechanical assembly. The cage systems are available in 16 mm, 30 mm, and 60 mm formats, supporting applications ranging from compact optoelectronic modules to large-aperture laser and imaging systems.

Across all sizes, Zolix cage systems are built around precision Ø6 mm stainless steel cage rods, black-anodised aluminium mounting components, and SM-threaded interfaces, ensuring optical alignment stability while maintaining flexibility for system reconfiguration.

The 30 mm cage system forms the core of the portfolio, with the widest selection of plates, cubes, mounts, translators, filters, and adaptors. 16 mm systems support compact and space-constrained builds, while 60 mm systems are optimised for larger optics, higher beam heights, and mechanically robust assemblies.

Cage System Size Options

16 mm Cage System

- Compact footprint for space-limited optical assemblies
- Ideal for optoelectronics, sensors, and small laser modules
- Lightweight construction with full modular compatibility

30 mm Cage System (Core Platform)

- Most extensive Zolix cage ecosystem
- Designed for Ø25.4 mm optics and SM1-based assemblies
- Supports precision alignment, motion, and beam conditioning
- Broadest range of adaptors, cubes, translators, and accessories.

60 mm Cage System

- Supports larger optics and increased beam heights
- Higher mechanical stiffness for industrial and imaging systems
- Fully compatible with 30 mm systems via dedicated adaptor plates.

30mm Cage Plates

Standard Cage plates

- 9mm thick, suitable for ø25.4mm Optics
- 9mm thick, suitable for SM1 Lens Tubes
- 9mm Thick, RMS Internal Thread
- 30mm Rotating Cage Segment Plate Cage Cubes (2 variants)
- 30mm Cage Cube with M3 Threaded Bores on 4 Sides
- 30mm Cage Cube with ø6mm Through-Holes on Front and Back
- 30mm Cage Cover

Cage System Optical Mounts

XY Translation Mounts

- XY Translation Mount ±1mm Travel
- XY Translation Mounts ±3mm Travel

XYZ Translation Mount

Rotary Quick-Release 30mm Cage Mount

Cylindrical Lens Mount

Cage System Filter Mount w/Sliding Inserts

- Filter Mount with Sliding Modular Inserts
- Sliding Filter Inserts

Rotation Mounts

Kinematic Mirror Mount

Right Angle Kinematic

Mirror Mounts

	30mm Cage Plates			
	9mm Thick, Suitable for ø25.4mm Optics	9mm Thick, Suitable for SM1 Lens Tubes	9mm Thick, RMS Internal Thread	30mm Rotating Cage Segment Plate
	CSP1-25.4	CSP1-SM1	CSP1-RMS	CSP1R-SM1
Plate Thickness (mm)	9	9	9	ø25.4 (Optic Diameter)
Acceptable Optic Thickness (mm)	5	30.6 (Centred Hole Diameter)	RMS (0.008°-36) (Inner Bore)	21

	Cage Cube		
	30mm Cage Cube, with M3 Threaded Bores on Four Sides	30mm Cage Cube, with ø6mm Through-Holes on Front and Back	30mm Cage Cube Cover
	CSC1-M3	CSC1-T6	CSC1-CP
Side Plate Thread Type	SM1 and M3	Left and Right Plates are SM1 and Front and Back Plates are ø6mm Through Holes	M4/SM1 (Inner Bore)
Up and Down Plate Thread Type	M4 and M3/M4andM3 SM1andM3/SM1andM3 SM1andM3/M4andM3	M4andM3.M4andM3 SM1andM3/SM1andM3 SM1andM3/M4andM3	

	XY Translation Mounts, ±1mm Travel	XY Translation Mounts, ±3mm Travel	XYZ Translation Mounts	Rotary Quick-Release 30mm Cage Mount	Cylindrical Lens Mount	Filter Mounts with Sliding Inserts	Rotation Mounts	Kinematic Mirror Mounts	Right-Angle Kinematic Mirror Mounts
	CSXY1-1x	CSXY1-3x	CSXYZ1-1.5	CSM1-F	CSM1-CL	CSM1	CSMR1-AS	CSHS1-S	CSRA1-x
Optic Diameter (mm)			Ø12.7	25.4	4-17 (Optic Height)	Ø25.4	ø25.4	ø25.4	25.4
Acceptable Optic Thickness (mm)	10	12.2	8	7.4		6	9.4	At least 3	3
Travel Range (mm)	±1	±3	±1.5						
Post Mounting	M4 Tapped Hole	Adjuster Screw/Micrometre (Actuator)				M4			Tapped Hole/Smooth Bore Hole

Accessories

- Iris Diaphragm
- Cage Plate Mounting Base
- Coaxial-Post Adapter
- Cage Plate Gasket
- SM1 Lens Tube
- Guide Rods
- Fixed 90° bracket
- Rod Adapters
- Right-Angle Adapter Plates
- 30-60mm Cage Adapter
- Vertical Mounting Plate
- Cage Positioner
- Alignment Disk

	Accessories		
CSAD1-20 Iris Diaphragm	Ø1.5~Ø22mm Continuous Adjustment Range		
CSBP1 Cage Plate Mounting Base	2pcs M6 Slots, 1 pc M4 Counterbore Installation Hole		
CSMAD-10 Coaxial-Post Adapter	10mm Distance Between Post centre and Front Panel		
CSMAD-20 Coaxial-Post Adapter	20mm Distance Between Post Centre and Front Panel		
CSSW1 Cage Plate Gasket	6mm Thickness	Ø31mm Through Hole Diameter	
CSSM1-xx Series SM1 Lens Tubes, External and Internal Thread	8-100mm Size	1-2 Qty of SM1R	
CSSM1-xx Series SM1 Lens Tubes, Internal Thread for Both Ends	8-50mm Size	2 Qty SM1R	
CSSM1-xx Series SM1 Lens Tube, External Thread for Both Ends	8-15mm Size		
CSSP-xx Series Ø6mm Guide Rods	6.5-500mm Size	1-4 Qty	
CSNSP-xx-xx Ø6mm Integrated Guide Rods	5.6-12.5mm Size	M3*2.5/4-40*2.2 Thread Stud	M3 Internal Thread
CSSP90 Fixed 90° Bracket	90° Fixed Angle		
CSACS-xx Series Rod Adapters	M3/4-40 Thread		
CSCP-30	Right-Angle Adapters for 30-30mm Cage System		
CSCP-60	Right-Angle Adapters for 30-60mm Cage System		
CSAB-2	30-60mm Cage Adapter	Ø23mm Aperture	
CSABV-2	Vertical Mounting Plate for Cage Systems	6061 Aluminium Alloy	
CSCP-6C Cage Positioner	Ø6mm Clamping Diameter	3.5mm Thickness	
CSAT1 Alignment Disk	Ø0.9mm Through Hole Diameter		

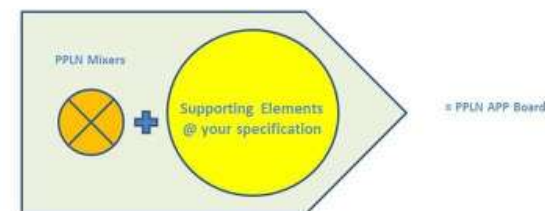
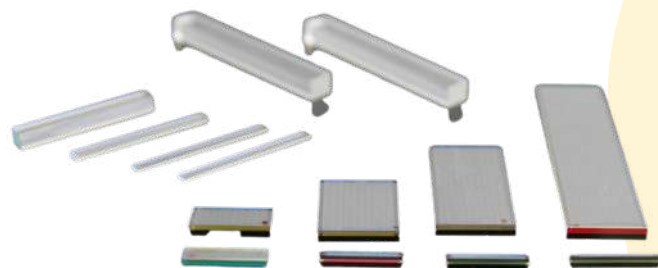
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HC Photonics is the pioneer and technology leader of periodic poling (pp) technology. Specialising in commercial volume production of periodically-poled nonlinear crystals and the fibre pigtailed mixers for various laser applications from UV to Mid-IR (355nm-5m).

PPXX (PPMgO:LN, PPMgO:LT) chips

PPXX (periodically poling lithium niobate/tantalate) technology is an efficient laser wavelength conversion technology, which enables the generation and conversion of new laser wavelengths via a material's nonlinearity.



PPXX Bulk and Waveguide Mixers

Plug-and-play PPXX (PPLN,PPLT) waveguide mixers for various wavelength conversion applications. Devices can be designed to operate in continuous wave (CW) or quasi-CW configurations in wavelength ranges from the UV to mid IR.

- High conversion efficiency
- Excellent beam quality
- Fibre delivery
- Compact and robust
- Original design
- Manufacture (ODM) for volume production



CASIX

CASIX Designs, grows, manufactures, and supplies high-quality crystals and precision optical products, lenses, coatings and precision glass solutions for optical communications, instrumentation, surveying, and scientific and medical markets.



Crystal Products

- Laser Crystals – Nd:YVO4, Nd:YAG, Nd:GdVO4, Cr:YAG
- Non linear optical crystals – KTP, LBO, BBO, LiNbO3
- Birefringent Crystals – YVO4, a-BBO, Calcite
- Infra Red Crystals – Si, Ge
- Waveguide Crystals – PP-MgSLT • Diode pumped laser microchips – Nd:YVO4/KTP

Laser Optics

- Laser Grade prisms
- Output Couplers
- Laser Mirrors
- Waveplates
- Polarisers
- Singlet Lenses
- Achromatic Lenses
- Cylindrical Lenses
- Laser Beam Expanders
- Windows
- Beamsplitters

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Alluxa is an ISO9001 certified ITAR registered manufacturer of high-performance optical filters and thin film coatings with their advanced SIRRUS Plasma Deposition process.

ULTRA and ULTRA Narrow series bandpass filters

Alluxa is the world leader in ultra-narrowband filters. They remain unchallenged in terms of achieving greater than 90% transmission along with sub-nanometre bandwidths, wide range out-of-band blocking and steep edges.

Notch Filters

The deep blocking, tight wavelength control, steep edges, and wide range transmission of ULTRA Series thin-film notch filters all allow for precision blocking of lasers or other light sources, without sacrificing the quality of target signals.

Dichroic Filters and Beamsplitter

The steep edges, maximum transmission, and maximum reflection of ULTRA Series thin film dichroic filters all translate into minimal loss of light intensity and optical instrument performance. Each ULTRA Series dichroic filter, polychroic filter, dichroic beamsplitter or beam combiner is resistant to laser damage and can be designed to work at any angle.

Custom Coatings

Together with Alluxa's engineering team, we will work with you to design custom optical filters and thin film coatings for your OEM system.

Dielectric Mirrors

The ULTRA series of high-reflectivity dielectric mirrors provide close to 100% reflection over a broad or precise range of wavelengths. Each hard-coated, thin film dielectric mirror is resistant to laser damage and all will boost instrument performance by preserving light source intensity.

Visit our webshop
www.photonicshop.co.uk
to view the full range



Zolix Instruments offers a comprehensive motion control portfolio covering manual, motorised, and multi-axis positioning stages for optical alignment, automation, precision measurement, and laser system integration. The range spans compact laboratory stages through to long-travel, high-load motorised platforms, with consistent mechanical quality and modular compatibility across the range.

Zolix motion stages are built around precision ball screws, crossed-roller or linear-slider guides, and rigid anodised aluminium or stainless-steel bodies. Motorised stages are available in open-loop or closed-loop configurations, with stepper or servo motor options, and are compatible with Zolix controllers (USB, standalone, and multi-axis).

	AK13(A)-4020(xx)	AK13(A)-6020(xx)	AK25(A)-6520(xx)	AK25(A)-8020(xx)	AK25(A)-10020(xx)
Travel Range (mm)	13	13	25	25	25
Stage Surface Size (mm)	40x40	60x60	65x65	80x80	100x100
Thickness (mm)	20				
Guide Mechanism	Crossed-Roller Guide				
Drive Type	Screw (Default) A: Micrometre				
Drive Location	C: center, SR: right, SL: left, CZ: central and vertical, RZ: right and vertical, LZ: left and vertical				
Weight	0.12	0.25	0.28	0.5	0.7
Sensitivity (μm)	≤2				
Minimum Reading of Micrometre (mm)	0.01				
Dynamic Parallelism (μm)	≤10				
Straightness (μm)	≤3				
Pitch (")	≤25				
Yaw (")	≤15				
Horizontal Load (Kg)	2	5	6	10	15
Vertical Load (Kg)	1	2	2.5	5	7

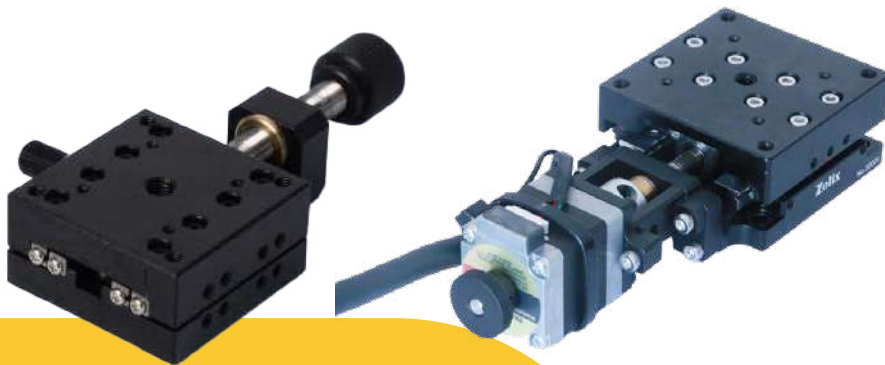
Core Motion Products

AK Series – Aluminium Crossed-Roller Manual Linear Stage

- Travel ranges: typically 25–100 mm
- Crossed-roller bearing guides for high straightness and rigidity
- Micrometer-driven fine adjustment
- Compact anodised aluminium body

LAK Series – Sub-Micron Motorised Linear Stage

- Travel range: typically 20 mm
- Ball screw drive with linear-slider guides
- Minimum incremental motion down to 1 µm
- Compact footprint with integrated limit and home sensors



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	LAK20-60	
Mechanical Specifications	Travel Range (mm)	20
	Stage Surface Size (mm)	60x60
	Transmission Mechanism	Imported C3 Ball Screw, ø6x1
	Guide Mechanism	Linear-Slider Guides
	Main Body Material, Surface Treatment	Black Anodised Aluminium Alloy
	Weight (Kg)	0.58
	Shaft Coupling (OD – OD1 – OD2)(mm)	16-03-05
Accuracy Specifications	Resolution (Step/half-step)(µm)	2/1
	20-Fine-Subdivision Resolution (µm)	0.1
	Highest Speed (mm/s)	20
	Single-Direction Positioning Accuracy (µm)	≤20
	Repositioning Accuracy (µm)	≤±1
	Backlash (µm)	≤1
	Static Parallelism	≤0.05
	Dynamic Straightness (µm)	≤10
	Dynamic Parallelism (µm)	≤10
	Yaw (")	≤25
	Pitch (")	≤30
Speciality Specifications	Minimum Incremental Motion (µm)	≤1
Allowable Torque Load	Up and Down Swing (N.m)	9.31
	Left and Right Swing (N.m)	9.8
	Axial Rotation (N.m)	9.31
Torque Rigidity	Up and Down Swing (µm/90N. cm)	≤6
	Left and Right Swing (µm/90N. cm)	≤6
Maximum Load Capacity	Horizontal Direction (Kg)	8
	Vertical Direction (Kg)	3
	Inverted Direction (Kg)	4

Motorised Linear Stages	MAR Ultra-Precision Linear Stages	uKSA Ultra-Precision Linear Stages	KSAXXX-11/12-X Stepper Motor	KSAXXX-13-X Stepper Motor	PSAXXX-11-X Stepper Motor	PSAXXX-113P-X 3 Phase Stepper Motor	PSAXXX-11AS-X Servo Motor	PSAXXX-13-X Stepper Motor	TSAXXX-C Stepper Motor	TSAXX-B (F) Stepper Motor	TSAXX 1000X100-XY Integrated 2D Linear Stage	MScope Motorised Microscope Stage
Travel (mm)	±5/±10 /±25/±50	50/100 /150/200	50/100 /150/200 /300/400	50/100/200 /300/400	50/100/150 /200/300/400	50/100/150 /200/300/400	50/100/150 /200/300/400	50/100/200 /300/400	30/50	50/100/150/200 /300/400/500 /600/800/1000	100x100 (X*Y)	50x50
Pitch (mm)	1	4	4/5	4/5	4/5	4/5	4/5	4/5	1	4/5	4	1
Load (Kg)	3/5/8/10	30	30/50		30/50	50	20/30	50/70	10	30/50	20	5

Motorised XYZ Integrated Stage (XY + Z Stack / All-in-One Series)

- Integrated X, Y, and Z motion in a single assembly
- Stepper-motor driven axes with high repeatability
- Simplifies multi-axis alignment and automation
- Compatible with Zolix controllers and software

Motorised vertical-motion stages

- High load capacity
- Long stroke type.



Motorised Goniometers

- Highly precise worm gear/worm
- Arc V-shaped guides provide High strength, high load capability and better durability
- Standard two-phase stepping motors for stability and reliability



Motorised Vertical Stages	KSAV Series Ultra-High Precision Stage	PSAXXX-11-Z Stepper Motor	PSAV Series High Precision Motorised Vertical Stages
Travel (mm)	10/30	5/10	50/100/200/300/400
Pitch (mm)	1		5
Max Speed (mm/Sec)	6/6/5	40/50	12.5
Load Capacity (Kg)	10/20		200

Motorised Rotation Stages	TBRU Series High-Precision Closed-Loop	TBR Series Motorised Rotation Stages	TBRF Series Motorised Rotation Series	RSA Series
Table Size (mm)	Φ102/Φ196	Φ60/Φ59/Φ102/Φ196	Φ60/Φ75	60/100/200 /300/400
Resolution	0.000152027 /0.0000762712	0.00125°	0.00125°	0.0025°
Max Speed (Deg./Seg)	20	25	25	50
Load Capacity (Kg)	20/40	5/20/40	10/15	30/50/60/80
Motor	Stepper Motor			

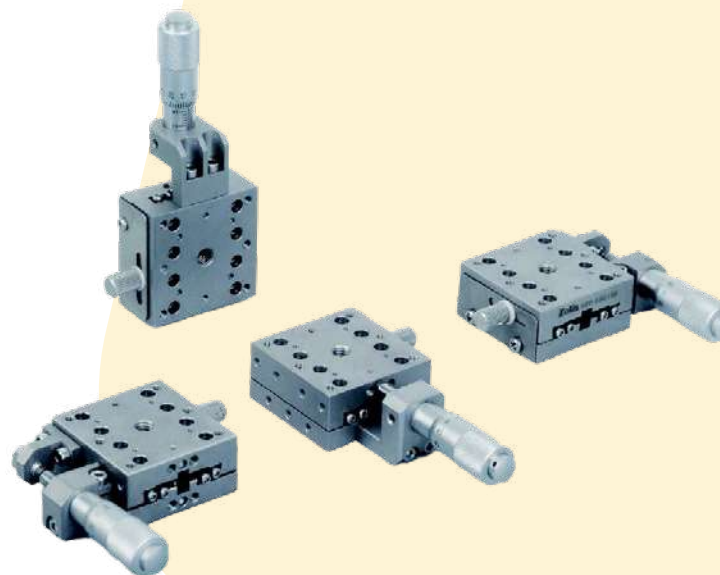
Motorised Goniometers	PSAG High Precision Series	PSAG High Precision Series	TSAG Precision Series
Angle (°)	±15	±15/±15	±10°/±15°
Table Dimensions (mm)	120x130/120x180	250x250/340x250	65x65
Height of Axis (mm)	130/195	250/370	75/70
Max. Centre Load (Kg)	20	50	4

High-sensitivity Fibre Alignment Stages

- Sturdy materials
- X,Y,Z, $\theta_x, \theta_y, \theta_z$ axes of travel
- Smooth running rotation mechanisms

Highly sensitive manual linear stages

- Smooth running
- High stability
- Precision adjustments for load and motion
- Can be used in vacuum environments.

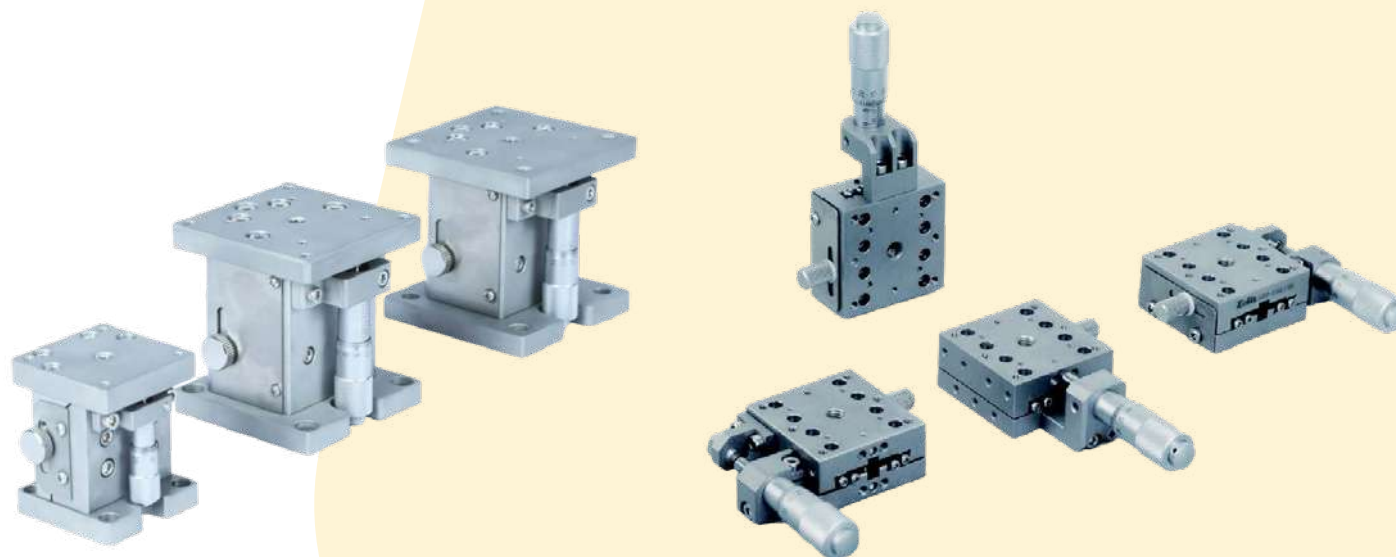


Fibre Alignment Stages	NFP-GON10	NFP-2561(L)	NFP-3561(L)	NFP-5561(L)	NFP-6561(L)	APFP- θ_x	APFP-T9(L)	APFP-YZ	APFP-XYZ(L)	APFP-XYZT(L)	APFP-XYZT θ (L)	FP-XYZT(L)
Axes of Travel	θ_x	θ_y, θ_x	X,Y,Z	X,Y,Z, θ_y, θ_z	X,Y,Z, $\theta_x, \theta_y, \theta_z$	θ_x	θ_y, θ_z	Y,Z	X,Y,Z	X,Y,Z, θ_y, θ_z	X,Y,Z, $\theta_x, \theta_y, \theta_z$	X,Y,Z, θ_y, θ_z
Bearing Type	Rotation Mechanism	Rotation Mechanism	Crossed-Roller	Crossed-Roller	Crossed-Roller	Rotation Mechanism	Rotation Mechanism	Crossed-Roller	Crossed-Roller	Crossed-Roller	Crossed-Roller	Linear Bearing
Base Material	304 Stainless Steel	304 Stainless Steel	304 Stainless Steel	304 Stainless Steel	304 Stainless Steel	430 Stainless Steel	430 Stainless Steel	430 Stainless Steel	430 Stainless Steel	430 Stainless Steel	430 Stainless Steel	430 Stainless Steel and Al Alloy

Manual Linear Stages	NFP-x461	NFP-462	(A)KSM13-40	(A)KSM25-65	KSMW12(A)-40	KSMW25(A)-65	(A)PSM13-34	(A)PSM25-45	(A)PSM25-65	TSM13	TSM25	TSMxxD
Table Size (mm)	40x40	65x65	40x40	65x65	40x40	65x65	34x34	45x45	65x65	34x34	65x65	
Travel (mm)	13	25	13	25	13	25	13	25	25	13	25	13/25/50/75/125
Bearing Type	Crossed-Roller				Crossed-Roller Bearing		Ball Bearing				Dovetail	
Sensitivity (μm)	<1		<2				<3			3		
Base Material	304 Stainless Steel		Al Alloy									
Drive Type	Micrometre		Screw/Micrometre							Screw	Screw	Pinion and Rack/ Screw

High-Precision Linear Stages

- High-precision manual vertical stages
- Direct lift structure
- Micrometre, high-sensitivity drive
- Linear Slide Guide for smooth running



	SK-V6A-40Z	SK-V13A-60Z	SK-V13A-65Z	AK-V6A-40Z	AK-V6A-40C	AK-V13A-60Z	AK-V10A-60C	AK-V13A-65Z	AK-V10A-90C	MJ60	MJ120	MJ240
Table Size (mm)	40x40	60x60	65x65	40x40	40x40	60x60	60x60	65x65	90x90	120x80	250x150	400x150
Travel (mm)	6	13	13	6	6	13	10	13	10	60	120	240
Sensitivity (μm)	≤2									-	-	-
Drive	Micrometre									Fine lead screw, Φ8x1	Two-way fine lead screw Φ12x1.75	

Manual Linear Stages	NFPR	KSMR5A-100	KSMR5A-120	PSMR	RSM56-1	RSM56-1	RSM82-1/1A	RSM50-C	RSM100-1W
Table Diameter (mm)	R&D	100	120	R&D	56	73	82	50	100
Bearing Type	Crossed-Roller	Crossed-Roller	Crossed-Roller	Ball Bearing	Steel Ball	Steel Ball	Steel Ball	Gear Type	Ball Bearing
Base Material	304 Stainless Steel	Al Alloy							
Sensitivity (μm)	-	4	4	-	None	-	-	Coarse	-
Drive Mode	Micrometre (Coarse/Fine)			Micrometre/Screw (Coarse/Fine)	Screw (Coarse/Fine)		Micrometre/Screw (Coarse/Fine)	-	Worm & Gear

Manual Goniometers/ Tilt Stages	KSMG	PSMG	TSMG30-W/TSMG15-W	TSMG10-1/2W	TSMT3-1ATSMT5-2/3	TSMT5-2/3
Rotation Angle (°)	±10/±15	±10/±15	25x25	65x65	±3 Adjust Range	±3
Table Dimensions (mm)	40x40/65x65	65x65	±15/±30	±10	-	-
Rotation Centre Height (mm)	57/40/75.5/50	75.5/50	32.5/12.5	100/76	30mm Aperture	-
Min Scale (")	0.1	0.1	0.1/0.2	5	-	-
Load (Kg)	5/10	2	1	2	0.5	0.1

	ASM-XYZ-1A	ASM-XYZ-2A	ASM-XYθ-1A	ASM-XYZθT-1A	ASM25X-YZ-RG2	ASM75XY-V60	ASM-RG2	ASM25XY-RV	ASM13XY-G2	ASMV5-TR	ASM-VRG2	ASM25XY-RTV5	ASM25XY-T4	ASM25XY-G2
Axis	XYZ	XYZ	XYθ	XYZ, θx, θy, θz	XYZ, θx, θy, θz	XYZ	θx, θy, θz	XYZ, θz	XY, θx, θy	Z, θx, θy, θz	Z, θx, θy, θz	XYZ, θx, θz	XY, θx, θz	XY, θx, θy
Travel (mm)	Tx, Ty:25, Tz:13	Tx, Ty:25, Tz:5	Tx, Ty:25, θz:360°	Tx, Ty:25, Tz:5, θz:360°, θx, θy:±5°	Tx, Ty, θz:360°, θx, θy:±10°	Tx, Ty:75, Tz:60	θx, θy:±10°, θz:360°	Tx, Ty:25, Tz:5, θz:360°	Tx, Ty:13, θx, θy:30°	Tz:5, θx, θy:±5°	Tz:5, θx, θy:±10°, θz:360°	Tx, Ty:25, Tz:5θx:±3°, θz:360°	Tx, Ty:25, θx:±4°, θz:±2.5°	Tx, Ty:25, θx, θy:±10°



New Scale Technologies

New Scale Technologies designs and manufactures small, precise, and smart motion modules that embed drive, control, and digital communications inside. These miniature motion systems are used in medical instruments, smartphones, extended reality devices, neural recording measurements, and automated metrology processes.

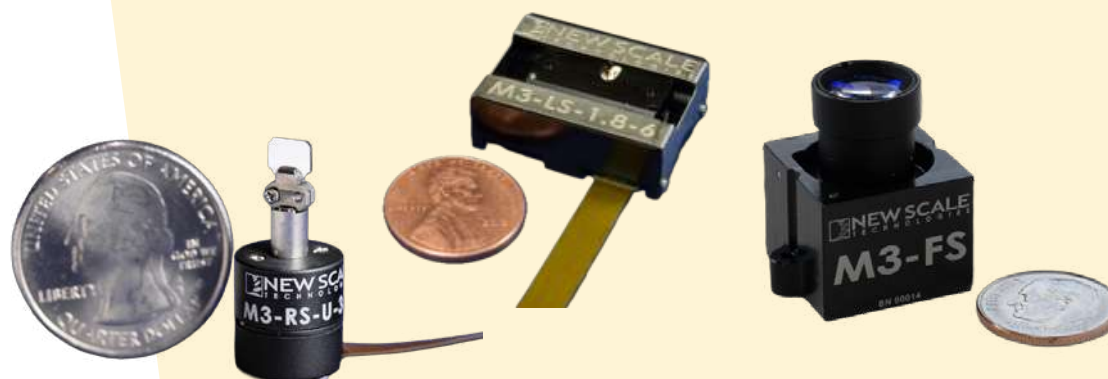
Motorised MicroPositioners

The M3 family of micropositioners bring disruptive features to your product development and experimental work in a truly miniature package. The success of these modules is down to the fully embedded driver electronics which results in a compact, plug-and-play positioning stage.

M3-TMM-U2-4.5-6 Two-Axis Tilting Mirror Module

This Two-Axis Tilting Mirror Module is an ultracompact beam steering system intended for use in miniature beam steering applications. Its small size and high precision make it ideal for extreme miniaturization of large and complex photonics instruments and benchtop systems

- Small: 14mm x 14mm x 7mm total system size
- Precise: 0.02 deg repeatability
- Smart: Embedded controller, I2C or SPI communication, or USB adapter to PC/Pathway
- High speed: 720 deg/sec
- Low Power: 3.3 V DC



	M3-RS-U2	M3-LS-1.8	M3-LS-3.4	M3-L-U2-8	M3-FS	M3-F
Function	Rotary Stage	Linear Stage	Linear Stage	Linear Actuator	Lens Focusing	Lens Focusing
Travel	360°	6mm	15mm	8mm	1.5mm	1.5mm
Resolution (closed-loop)	0.022°/4μrad	500nm				
Max Load	3g	20g	200g	20g	5g	5g
Speed	1100/deg	5mm/s	>4mm/s	35mm/s	5mm/s	5mm/s



Zolix Instruments offers a complete range of optical breadboards and vibration-isolated optical tables designed for precision optical experiments, laser systems, imaging, and metrology. The portfolio spans portable breadboards, passive damping tables, and advanced pneumatic vibration isolation platforms, supporting applications from entry-level optical setups to ultra-stable microscopy and interferometry.

Zolix optical tables are built around stainless-steel working surfaces, precision 25 mm hole grids (M6), and rigid welded or honeycomb cores. Multiple vibration isolation architectures are available, allowing users to balance performance, footprint, and budget.

Pneumatic Vibration Isolation Optical Tables

For high-performance vibration suppression in sensitive applications.

- Pneumatic isolation with semi-diaphragm air springs
- Three-wire pendulum isolation for ultra-low resonance
- High-load pneumatic isolation platforms
- Individual pneumatic isolator systems

Achievable resonant frequencies as low as 1–1.5 Hz, with excellent isolation in both vertical and horizontal directions.

Optical Breadboards (Non-Isolated)

- Designed for rigid optical setups where vibration isolation is not critical.
- Solid aluminium breadboards (13 mm)
- Stainless steel breadboards (50–200 mm)
- High-flatness bonded stainless steel breadboards
- Honeycomb core breadboards for reduced weight

Available in sizes from 200 × 200 mm up to 3000 × 1500 mm, with surface flatness down to 0.02 mm / 600 × 600 mm depending on construction.

Passive Damping Optical Tables

For improved stability without compressed air.

- Dual-Frequency Damping Tables
- Welded or honeycomb tabletops
- Typical resonance: 6–15 Hz
- Load capacities up to 1950 kg

Suitable for general laser labs, precision motion systems, and industrial optical setups.



DIAGNOSTICS

DIAGNOSTICS Lock-In Amplifiers

Diagnostics to help you measure, characterise and optimise photonic systems

Our comprehensive diagnostics portfolio provides the tools required to measure, characterise and optimise advanced photonic and laser systems. From ultrafast pulse characterisation and wavelength measurement to precision power and energy monitoring, we are experts in ultrafast diagnostics and synchronisation capability. Our solutions allow you to accurately understand and control your laser performance.

- 113 ▶ Lock-In Amplifiers
- 116 ▶ Pulse Generators
- 118 ▶ Laser Diagnostic Equipment
- 121 ▶ Diode Drivers and Controllers
- 122 ▶ Laser Power and Energy Meters
- 124 ▶ Fizeau Interferometers
- 126 ▶ Laser-Based Ultrasound



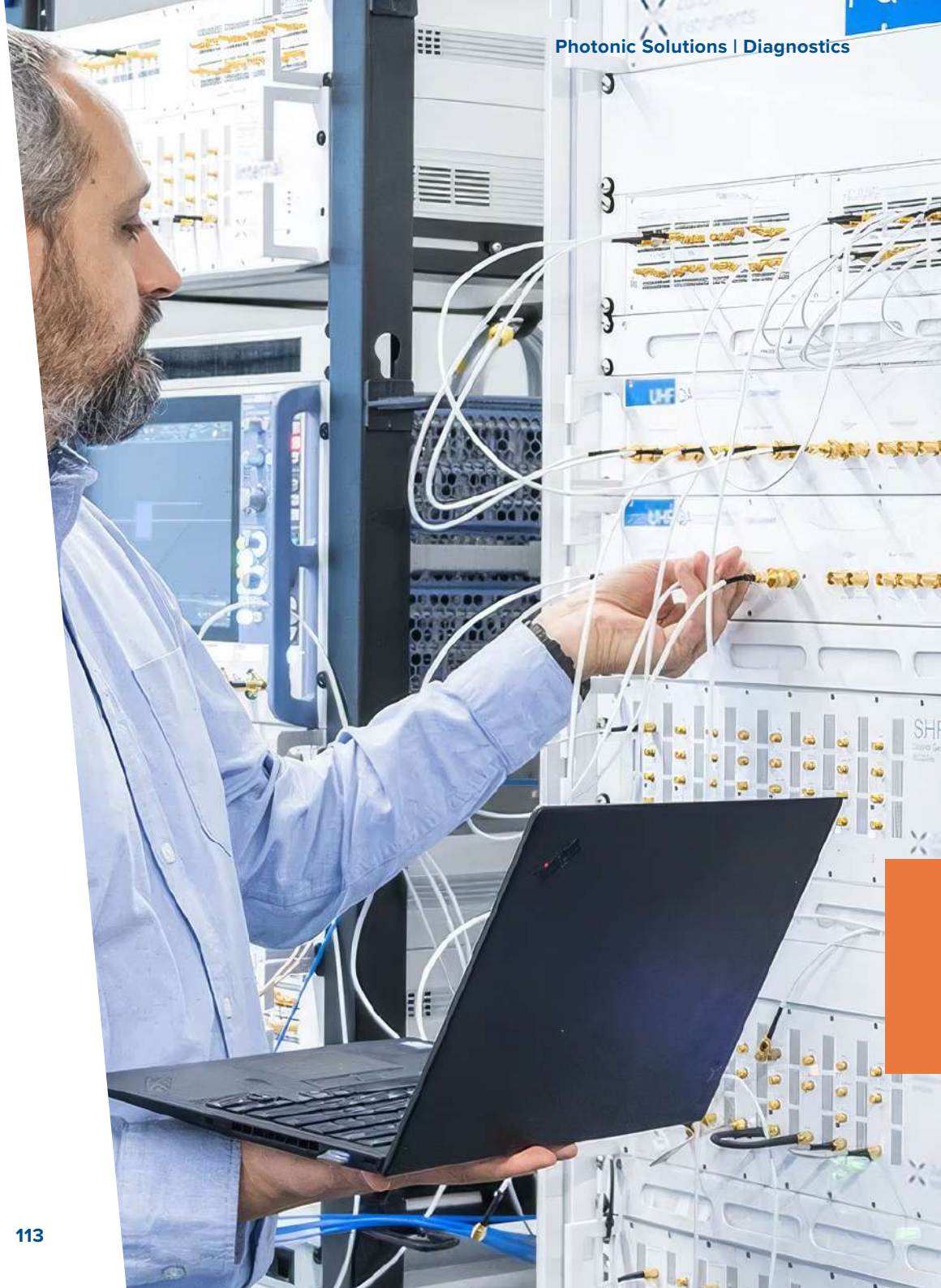


Lock-in amplifiers are an essential part of research laboratories in areas such as optics and photonics, nanotechnology and materials science, quantum technologies, scanning probe microscopy and sensing.

Zurich instruments Lock-in Amplifiers all operate in their intuitive LabOne software environment, the functionality of which can be expanded with a range of options.

MFLI 500kHz/5MHz

- DC - 500kHz, 60MSa/s, 16bits
- Optional upgrade to 5MHz
- Current and differential voltage inputs
- AC line and DC supply (battery) operation
- USB 2.0 and 1GbE high-speed connections
- Plug & Play with embedded LabOne® Web Server





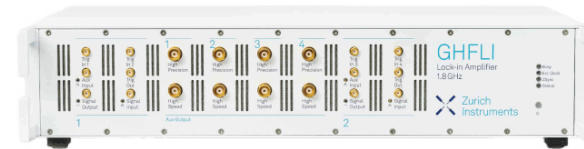
VHFLI

- DC to 50 MHz (200 MHz with the VHF-F200M option)
- Precisely measure up to two current and voltage signals
- Fast measurement time and low noise floor
- Orchestrate complex CW and pulsed measurement sequences with the LabOne® Timeline Module
- Expand your toolset with upgrade options



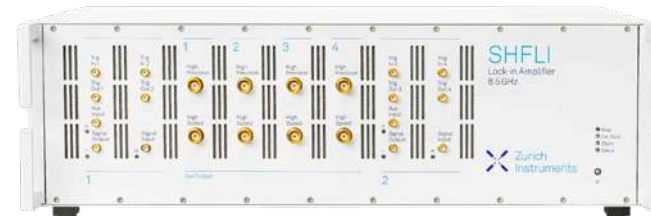
UHFLI 600 MHz

- 2 independent lock-in units
- 2 high-performance signal generators
- 4 independent harmonics per lock-in unit
- High-resolution 12-bit scope with 65k samples
- Frequency Response Analyzer (FRA)
- FFT Spectrum Analyzer



GHFLI 1.8 GHz

- Frequency range: DC - 1.8GHz
- Minimum demodulator time constant: 14ns
- 2 independent lock-in units with signal generators
- 4 independent demodulators per lock-in unit
- 4 high-speed and 4 high-precision auxiliary outputs



SHFLI 8.5 GHz

- Frequency range: DC - 8.5GHz
- Minimum demodulator time constant: 14ns
- 2 independent lock-in units with signal generators
- 4 independent demodulators per lock-in unit
- 4 high-speed and 4 high-precision auxiliary outputs





Quantum Composers is a leading manufacturer of digital delay pulse generators to meet the needs of any application.

Rackmount Digital Delay Pulse Generators

The 9550 Pulse Generator will be the future in rackmount units from Quantum Composers. We now offer 1U units for 6, and 12 channels or 2U units for 24 channels and the expanded 36-channel unit.

These units provide precision timing and synchronization to effectively trigger any series of events or necessary equipment with up to 36 independent outputs, dual inputs with gate/trigger or optional dual trigger, and an external clock reference input.

- Channels: 6, 12, 24, or 36 Independent Channel Outputs
- Resolution: 250 ps
- Accuracy: 1 ns + .0001 x setpoint
- Jitter: < 50 ps
- Rate: 0.0002 Hz to 20 MHz *
- Timebase: 200 MHz *
- 1U and 2U
- Comm Ports: USB, Ethernet, RS232
- Optional:
 - TZ50 Impedance Matching
 - Dual Trigger
- Board Level Options



9100 Series Digital Delay Pulse Generator

Next-generation compact pulse generator.

- 8 channels
- Fully adjustable output mode up to 20V
- TTL mode operation powered by USB 3.0 port
- 250ps resolution
- Jitter: <50ps RMS (channel to channel)

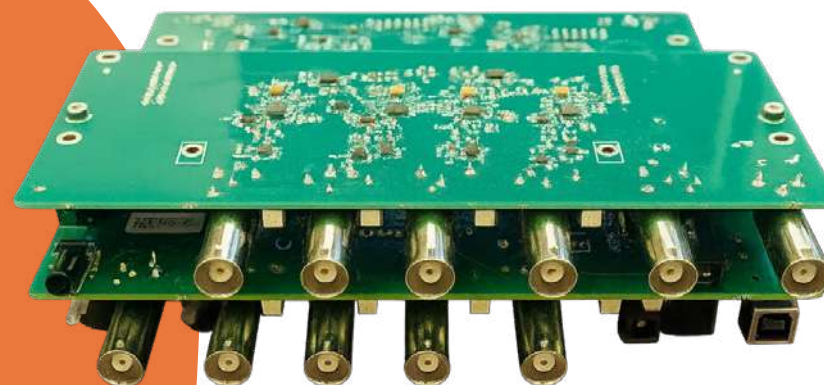


8100 Series Digital Delay Pulse Generator

Ideal for OEM and research facilities looking for a compact and powerful timing device.

The 8100 board-level provides 4 or 8 channels.

- 4 or 8 independent channels
- 250ps Resolution
- Jitter <50ps RMS (channel to channel)
- Clock input and clock output signals on 8-channel



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MOGLabs offer an extensive portfolio of laser electronics, optical amplifiers, and wavemeters. Their products balance outstanding performance, superb features, high-quality design, excellent ergonomics, and moderate cost.

MWM Wavemeter

A compact and economical laser wavelength measurement device, with an on-unit display, and ethernet/USB connectivity standard. This device clearly reveals multimode laser operation, making it particularly suitable for use with external cavity diode lasers and atom cooling and trapping experiments.

- Accuracy $\pm 0.001\text{nm}$
- Spectral resolution 0.02nm
- Wavelength readout resolution 100MHz (0.1pm)
- Any wavelength from 350nm to 1100nm available
- Picowatt input sensitivity
- Instantly identifies multimode input
- Rapid readout
- CW or pulsed laser input
- PID feedback laser wavelength stabilisation
- Ethernet and USB included as standard
- Compact, $165 \times 85 \times 70\text{mm}$
- Self-contained, built-in display, can run from a battery



FZW Compact Wavemeter

A standalone compact wavelength measurement device based on Fizeau interferometers, providing reliably accurate measurements over a wide range of wavelengths (400-1100nm) without recalibration. The measurement and calculation is performed on the device, with the result displayed on the screen, removing the need for a host computer. The small form factor makes it an easy-to-use analysis tool and can be powered either through USB or from a DC plugpack. It provides an analogue output for either wavelength monitoring or laser stabilization via a built-in tuneable PID controller.

- Absolute accuracy 600MHz
- Measurement precision 50MHz
- Up to 250 measurements/s
- Operation over 400-1100nm without recalibration
- Rapid on-device measurement, no host computer required!
- Integrated PID controller for wavelength stabilisation
- Interactive display for control and diagnostics
- Ethernet and USB interfaces
- Compact form-factor, 146x120x81mm





pulseCheck Autocorrelators

pulseCheck autocorrelators can accurately measure pulses from $< 10\text{fs}$ to 500ps for almost any wavelength range from 200nm to $> 12\mu\text{m}$

pulseCheck Single

The pulseCheck Single completes APE's portfolio of autocorrelators by featuring true single-shot measurements of ultrashort, low repetition rate laser amplifiers.

waveScan

A selection of precise laser spectrum analysers for measurement of wavelengths from 200nm to $6.3\mu\text{m}$ and with resolutions down to 0.05nm .



Pulse Characterisation

Spider - Spectral Phase Interferometry for Direct Electric Field Reconstruction

The Spider family is designed for phase resolved ultrafast pulse measurements.

Spider FC and Spider IR

The Spider devices provides spectral and temporal characterisation of ultrashort laser pulses down to below 5fs . They can cover the visible, NIR and IR ranges.





dDLC

The MOGLabs Digital Diode Laser Controller is our next-generation controller for precision tunable lasers. It combines the ergonomic ease-of-use of our classic analogue DLC, with the flexibility and performance of a fully digital system.

It offers a combination of impressive performance and ease-of-use, using the front panel with high resolution display, or our comprehensive Windows app, or your own code using the simple text-based command language that MOGLabs is famous for.

- Intuitive controls that mimic our analogue DLC
- Auto-lock and auto-relock
- Oscilloscope functionality
- Ultra-low noise current source
- Temperature controller
- Photodetector
- Demodulator (lock-in amplifier)
- Feedback servos: locking is included
- Piezo drivers
- Modulator driver (dual channel DDS)
- Sweep ramp generator

The dDLC is designed for the ultimate applications in quantum computing, quantum sensing, time and frequency standards, gas sensing, and spectroscopy.



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DIAGNOSTICS Laser Power and Energy Meters



Gentec Electro-Optics are specialists in laser beam and terahertz source measurement and analysis, offering the broadest range of off-the-shelf and custom solutions.

Laser Power and Energy Monitors

The Miro Altitude is a high-performance touchscreen display unit designed for use with Gentec-EO laser power and energy detectors. It provides a clear, intuitive interface for real-time measurement, data visualisation, and system control, supporting both continuous-wave and pulsed laser applications.

With a rugged industrial design, multiple display modes, and broad connectivity options, the Miro Altitude offers a flexible and user-friendly platform for laboratory, production, and field laser measurement setups.



Power Detectors

Get accurate measurements with fast response times with Gentec's range of thermopile or pyroelectric power meters. Available with various absorbers and demonstrating the highest damage threshold shown by devices of this type. Gentec Power Heads are suitable for a wide range of applications, requiring accurate measurement capability from nanowatt to multi-kilowatt power levels.

- Modular concept with different cooling modules
- Fast rise times of less than 1.3 seconds
- Single shot energy up to 200J
- High durability absorber
- High damage threshold up to 100GW/cm²Energy



Energy Detectors

Gentec's pyroelectric energy meters cover a very wide range, going from nanojoules to several tens of joules per pulse.

- Energy up to 85J
- Power up to 25W
- Repetition rates up to 300Hz
- Attenuator and DB15-BNC adapter available



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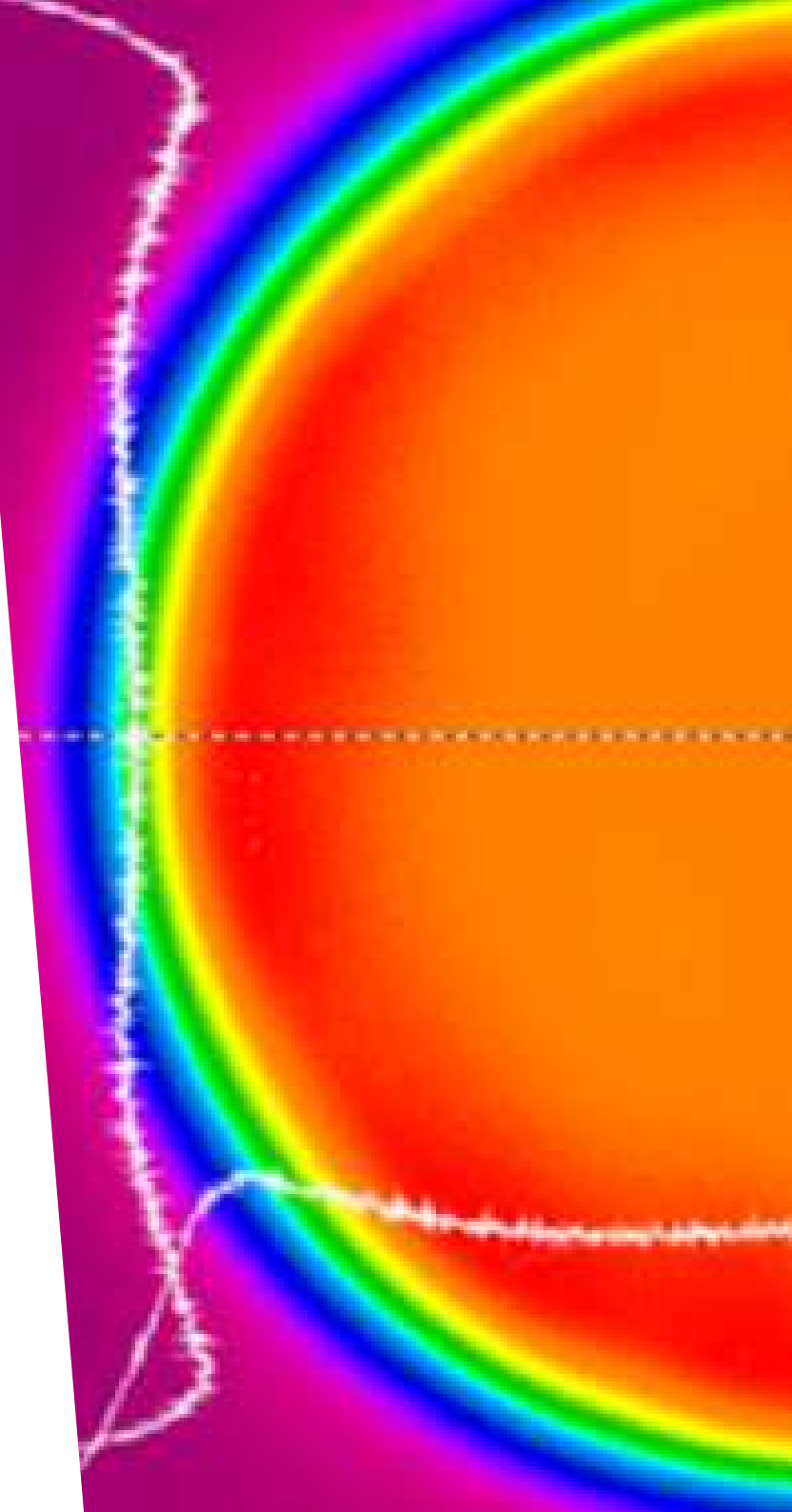
DIAGNOSTICS Fizeau Interferometers



ÄPRE Instruments develops advanced optical interferometry solutions for precision surface and wavefront metrology in optical manufacturing and alignment. Their portfolio includes high-performance Fizeau interferometers, innovative interferometric measurement technologies, and integrated metrology software designed to improve accuracy, speed, and repeatability.

ÄPRE systems combine carefully optimised optical designs with modern detector technology to deliver reliable, high-resolution measurements across a wide range of optical components. Supported by ÄPRE's dedicated metrology software platform, users benefit from fast data acquisition, robust analysis, and streamlined reporting for both R&D and production environments.

ÄPRE solutions are widely used in precision optics fabrication, system alignment, and final inspection, helping manufacturers improve process control, reduce cycle time, and increase overall productivity.



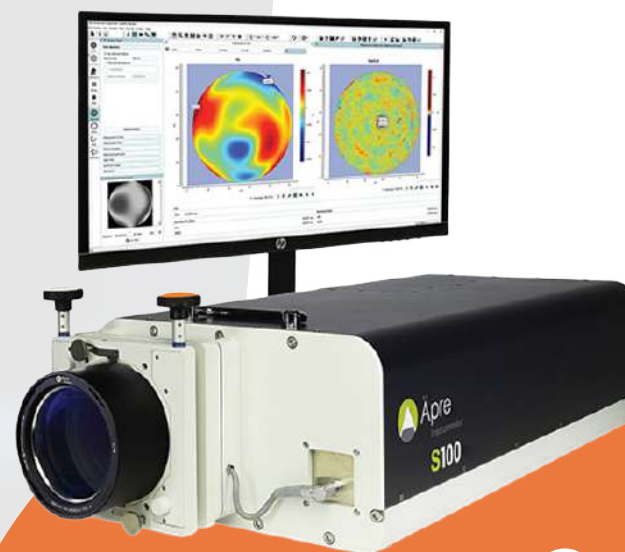
Series	Camera Limited Resolution	Aperture Diameter	Spatial Artifact Reduction	Image Resolution (Lines/mm)
S Series 1MP	1 Mega Pixel	51 – 153mm	No	~100-300 μ m (10-3.3l/mm)
S Series 4MP	4 Mega Pixel	51 – 306mm	No	~63-375 μ m (16-2.7l/mm)
Å Series 4MP	4 Mega Pixel	51 – 153mm	Yes	~63 - 188 μ m (16-5.3l/mm)
Å Series 9MP	9 Mega Pixel	102-306mm	Yes	~85-375 μ m (12-2.7 l/mm)

Spatial Artifact Reduction is an interferometer design approach that minimises image artifacts caused by coherent noise, retrace error, and unwanted reflections, improving measurement accuracy and repeatability—particularly on complex or high-quality optical surfaces.

There are also special options for NIR and LWIR.

Reveal Software

REVEAL is APRE's advanced interferometer metrology software, engineered for fast, accurate, and traceable optical measurement analysis. With an intuitive interface and comprehensive tools for surface and wavefront evaluation, REVEAL enables rapid data acquisition, flexible analysis, and consistent report generation in seconds. Built-in traceability, configurable filtering and masks, and robust reporting help streamline measurement workflows from R&D through production.



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Sound & Bright offers a range of cutting-edge laser-based ultrasound systems, with market-leading sensitivity and noise reduction, for Non-Destructive Testing applications ranging from laboratory research and development to industry.

Tempo 2D – Multi-component receiver

The multi-component laser receiver is capable of simultaneously measuring two components of the surface displacement, the out-of-plane, and the in-plane motions, using a single laser probe and a single collecting optic. This system is capable of reconstructing the complete ultrasonic field.

- Multi-Component Receiver
- High Efficiency Optical Design
- Measurement Precision
- Unaffected by Low Frequency Acoustic Noise
- Signal Indicators



Tempo 1D – Ultra High-Frequency Receiver

This system can detect surface displacements resulting from the propagation of UHF ultrasounds, up to GHz. The system measures the spatial component normal to the surface of the target tested.

- Ultra-High Frequency
- High Efficiency Optical Design
- Measurement Precision
- Unaffected by low Frequency Acoustic Noise
- Signal Indicators



The Quartet - Multi Purpose Receiver

The multi-purpose laser receiver is suited for a wide range of acoustic and ultrasonic applications from the laboratory to the factory and is available in the visible or infrared.

- Robust and Versatile
- Fiberised Optical Head
- Measurement precision
- High sensitivity on all surface types and materials
- Inspection on rapidly moving objects
- Not wavelength dependent
- Signal Indicators



Modulo Uno

This compact laser interferometric ultrasound receiver is based on a streamlined implementation of Sound & Bright's rugged Multi-Channel Random Quadrature (MCRQ) optical design. Using a single detector architecture, the system eliminates the need to split the probe beam for signal processing, enabling efficient operation with lower laser power while maintaining high measurement sensitivity.

This simplified optical configuration reduces system complexity and cost, while allowing reliable ultrasonic detection on sensitive materials, such as composites and biological samples, without additional beam conditioning. Modulo Uno is well suited to laboratory research, biomedical applications, and portable or space-constrained inspection setups.

- Interferometric Ultrasound Receiver
- Streamlined MCRQ Optical Architecture
- Single-Detector Design
- High Sensitivity with Low Laser Power
- Suitable for Sensitive Materials and Biomedical Applications
- Compact Footprint and Reduced System Complexity
- Measurement Precision



Modulo Quatro

The Modulo Quatro is a configurable, multi-channel laser interferometric ultrasound receiver designed for advanced and demanding Non-Destructive Testing applications. Built on Sound & Bright's proven Multi-Channel Random Quadrature (MCRQ) technology, the system combines ruggedness, flexibility, and high measurement precision to address complex inspection scenarios.

Modulo Quatro supports up to four detection channels, which can be routed through a single optical head for rapid scanning or deployed as four independent optical heads. This enables simultaneous measurements from multiple angles on a single point or parallel inspection across multiple, widely spaced points on a sample. Based on a streamlined variant of the MCRQ architecture, Modulo Quatro inherits the core benefits of the field-proven Quartet platform, including efficient multi-speckle detection and robust signal processing on all surface types.

The system connects directly to a computer, eliminating the need for external oscilloscopes or A/D cards, and simplifying integration into laboratory or industrial measurement workflows.

- Multi-Channel Interferometric Ultrasound Receiver
- MCRQ Optical Technology
- Four-Channel, Multi-Point Measurement Capability
- Configurable Single-Head or Multi-Head Operation
- High Collection Efficiency on All Surface Types
- Parallel Signal Processing for Multi-Speckle Light
- Direct Computer Interface (No External DAQ Required)
- Measurement Precision and Industrial Robustness



ACCESSORIES

Supporting technologies for advanced laser and photonic systems

Our extensive accessories portfolio provides the essential supporting technologies required to optimise, protect and maintain advanced laser and photonic systems. From laser consumables and replacement components to laser safety equipment, detectors and attenuators to optical isolators, polarisers and pulse management solutions, we offer a comprehensive range of components for demanding research and industrial applications.

- 129 ► Faraday Rotators and Isolators
- 132 ► Pockels Cells
- 134 ► Laser Safety Equipment
- 135 ► Pulse Management
- 136 ► Laser Consumables
- 137 ► Detectors
- 140 ► InGaAs CAMERAS
- 141 ► Laser Attenuators and Polarisers



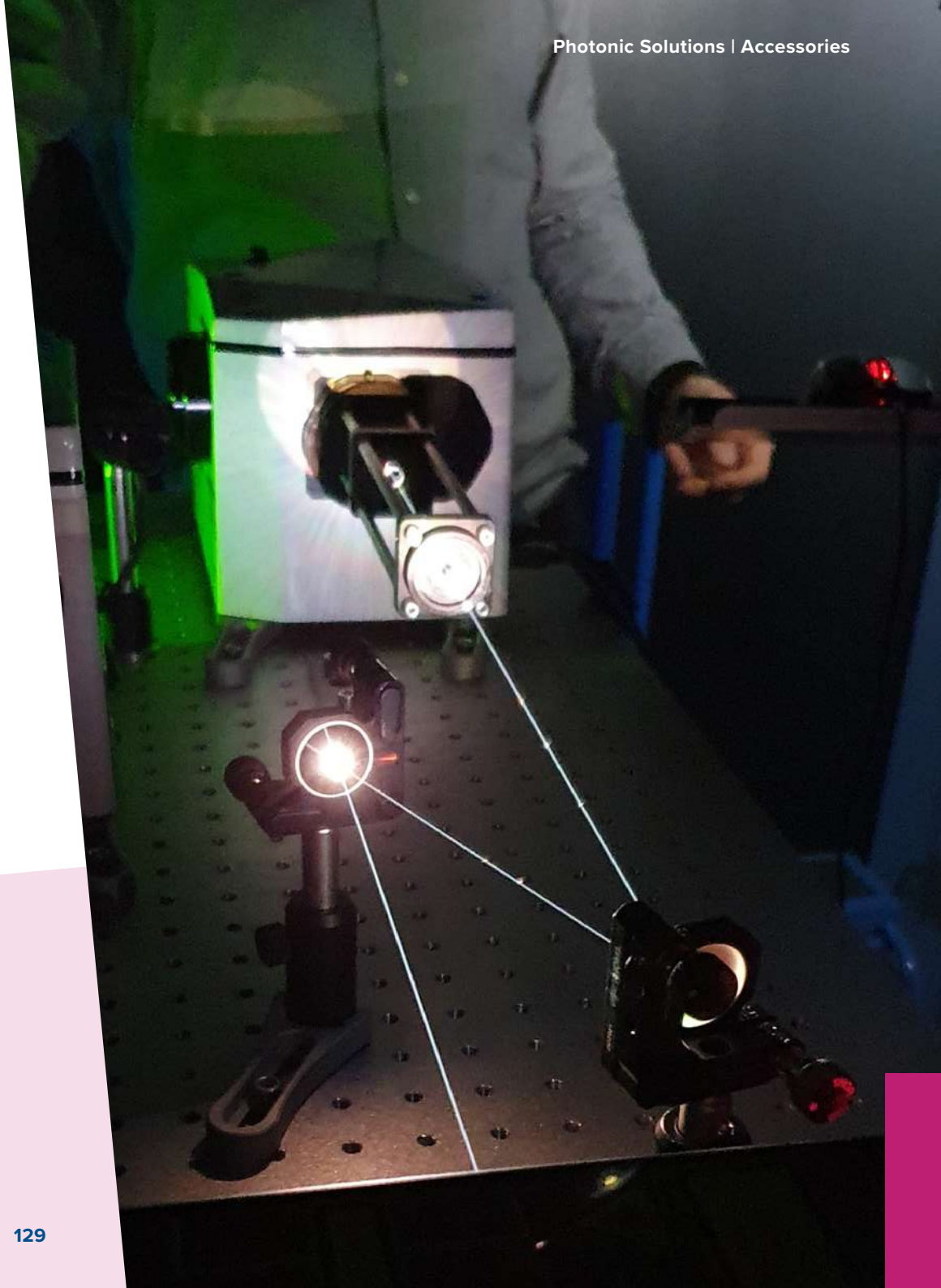
IPOptica

Input Optica portfolio of Faraday Rotators and Isolators are the ideal solution to prevent optical feedback in pulsed and CW laser and to eliminate ASE generated by amplifiers. They offer broadband coverage and with large aperture available and are available at most wavelengths.

Feature:

- Broadband operation with large apertures up to 70mm
- High damage threshold and low insertion loss
- Orthogonal or Brewster isolated beams
- Tunable input polarisation

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VITG – Free Space Rotator and Isolator

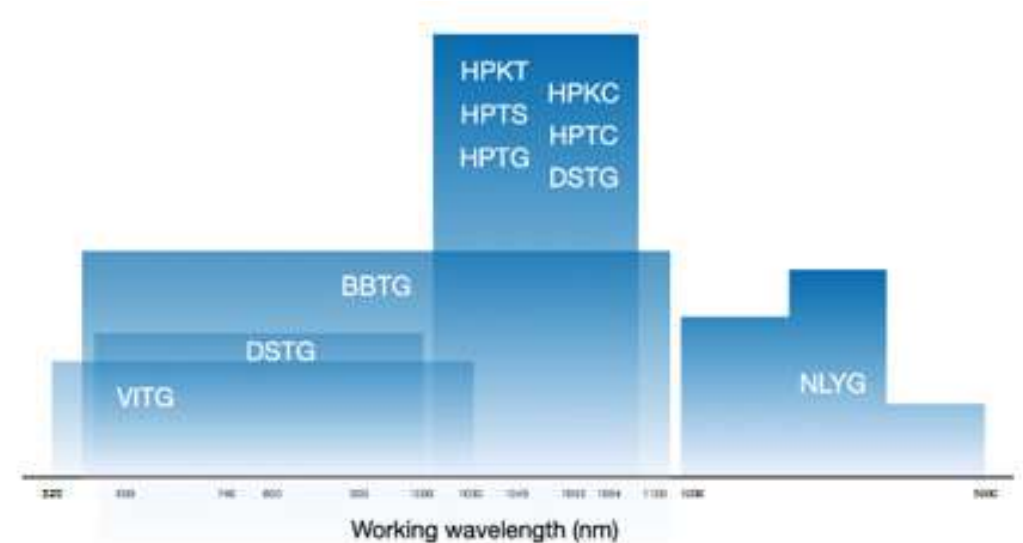
VITG series products have been designed to cover broad demands of wavelength from 320nm to 980nm.

BBTG – Broadband Rotators and Isolators

BBTG series products are designed to minimise pulse broadening by unique short optical path length and low reflective indices. This results in the great broadband wavelength protection of ultra-short laser pulses from 520nm to 1150nm.

HPTG – High Power Rotators and Isolators

HPTG have been designed to provide superior protection for solid state lasers and fibre lasers in 1000 - 1100nm range. They support broad aperture range devices and tested up to 400W for CW power.



HPTS – Ultra High-Power Rotators and Isolators

The HPTS series meet the demands of high power and high energy laser in the 1000-1100nm range.

HPKT - High Power Rotators and Isolators for fs lasers

The HPKT series focuses on the 1000-1100nm market demands with specified performance up to 600W and without damage over 2.6kW of average power testing.



DSTG – Dual-Stage Rotators and Isolators

The DSTG series provides high isolation over 60dB at high incident power for solid state lasers and fibre lasers in 320 - 1100nm range. Tested to 100W of CW power the DSTG series support broad aperture range devices.

HPKC/HPTC – Water Cooled Rotators and Isolators

These water-cooled devices provide higher extinction at high incident power, with an order of lower absorption and thermo-optic coefficient, making them the ideal solution for ultra-fast and high-power applications.

NLYG – Free Space Rotator and Isolator

Designed to satisfy the various demands from 1200nm to 5000nm from QCLs, Ho and Tm Oscillators.

	VITG 405-980nm	BBTG 520-1150nm		HPTG 1000-1100nm	HPTS 1000-1100nm	HPKT 1030-1064nm	DSTG	HPKC/ HPTC 1030-1064nm	NLYG
Clear Aperture D	2mm, 4mm, 5mm	4mm, 5mm, 8mm, 12mm		2mm, 2.5mm, 3.5mm, 4mm, 5mm, 6mm, 8mm, 10/12mm, 15mm, 20mm, 25mm, 30mm, 35mm, 45mm, 60mm, 70mm	2mm, 3mm, 3.5mm	3.5mm, 5mm, 8mm, 10mm, 12mm, 15mm, 20mm	4mm, 5mm	12mm, 15mm, 20mm	4.6mm
Working Wavelength	320–980nm (±10nm)	520~1150nm		1000~1090nm	1000~1090nm	1000~1090nm	532-1064nm	1000~1090nm	1310-4600nm
Rotation (Peak)	45° ± 0.5°	0°/90° ± 1°		45° ± 0.5° 45° ± 1°	45° ± 0.5°	45° ± 0.5°	90° ± 0.5°	45° ± 1°	45° ± 0.5°
Peak Isolation	>33dB (Isolator)	>35dB (Isolator) @22°C		>35dB (Isolator) @22°C	>35dB (Isolator)	>35dB (Isolator)	>60dB (Typically: >68dB)	>35dB (Isolator)	>30dB (Isolator)
Damage Threshold	>3J/cm2 @ 10ns	3.4J/cm2 @ 10ns 1J/cm2 @10ns	5J/cm2 @ 10ns 2kW/cm2 CW	10J/cm2 @ 10ns (MAX15J/cm2 on request) 1J/cm2 @ 8ps (Max 1.5J cm2 on request)	10J/cm2 @ 10ns (MAX15J/cm2 on request) 1J/cm2 @ 8ps (Max 1.5J cm2 on request)	>7J/cm2 @ 10ns >600mJ/cm2 @ 8ps (@1064nm)	>3J/cm2 @ 10ns 10J/cm cm2 @ 10ns (@1064nm)	7J/cm2 @ 10ns >600mJ/cm2 @ 8ps	1J/cm2 @ 10ns 5J/cm2 @ 10ns 2.5W

Input Optica offer Pockels Cells based on both BBO and RTP crystals for applications such as q-switching, pulse picking, optical switches and regenerative amplifiers. Pair with any one of their Pockel Cell Drivers to enable all critical functionalities.

Feature:

- Great suppression of Piezo effects
- High Transmission Rate and low insertion loss
- Broadband working wavelength (190nm~4um)
- High damage threshold.
- Low thermal lensing effect and thermal depolarization phenomena
- Available in single or double crystal configuration
- Up to 12mm clear aperture

Contact us to discuss your application.



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BPR – BBO Pockel cell

The BPR line of BBO based pockel cells have been specifically designed for high power damage threshold, low piezo effect and low insertion loss.

- 190-2200nm
- 2.6mm-5.6mm clear aperture
- Single stage and dual stage

BPU – Water cooled BBO Pockel cell

BPU series Pockels Cells offer large clear aperture and are specifically designed to satisfy the demands of high pulse energy.

- 190-2600nm
- 2.6mm – 11.6mm clear aperture
- Single stage and dual stage

RPR – RTP Pockel cell

With much higher electro-optic effect, the RPR line have been specifically designed to meet the demands of low piezo effect in moderate power laser applications.

- 400-4000nm
- 2.6-9.6mm clear aperture
- Non piezo effect over 230kHz

Pockel cell Drivers

IPOptica's Pockels Cell Drivers are precision-engineered to deliver universal compatibility and peak performance across electro-optic crystal technologies, including BBO, KDP, RTP, and other third-party Pockels Cells. They are ideally suited to high-power ultrafast laser systems demanding sub-nanosecond temporal precision (± 0.2 ns) and ultra-stable high-voltage operation ($\pm 0.03\%$ ripple).

PDU

2000W direct-grid power conversion with programmable delay, simultaneous precision in high voltage actuation (20kV) or ultrafast timing (2.5MHz)

PDL

delivering PDU performance in a radically miniaturised footprint

PDR

Ultra-compact, industrial grade driver factor for OEM laser systems

PDM

Palm sized chassis engineered for low-frequency, high-voltage electro-optic control

PDS

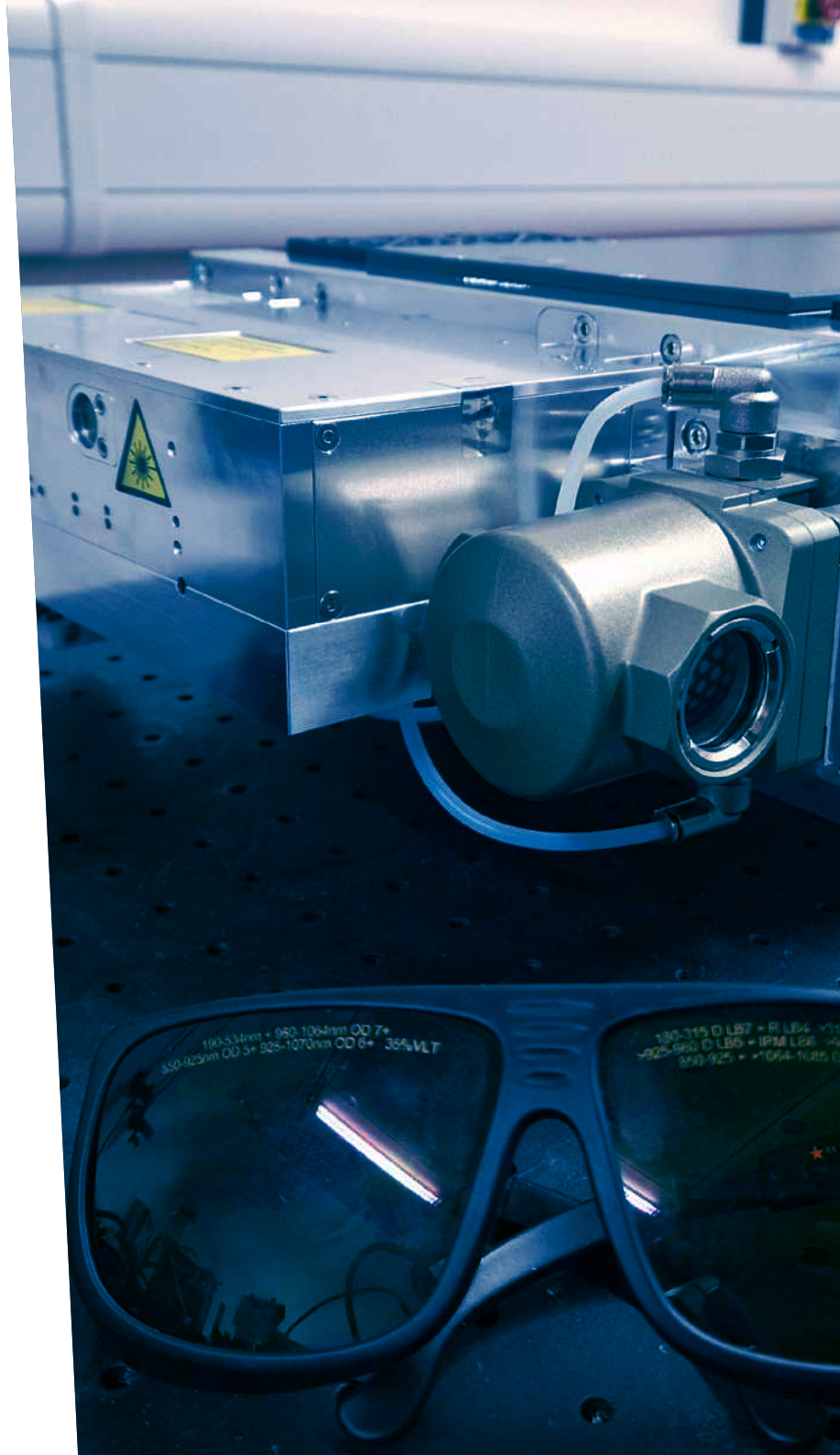
Designed to meet the needs of pulse lasers, especially Q-switching and pulse picking.

ACCESSORIES Laser Safety Equipment



NoIR laser safety glasses provide reliable eye protection across a broad range of laser wavelengths and power levels, combining high optical quality with certified safety performance. Engineered for use in research, industrial, and clinical laser environments, NoIR glasses offer comfortable fit, durable construction, and clear visibility while blocking harmful laser radiation.

Available in multiple wavelength-specific filter options and styles, these safety glasses help ensure compliance with laser safety standards while supporting comfortable, fatigue-free wear during extended work sessions.





We are pleased to offer the complete suite of pulse management systems from APE GmbH.

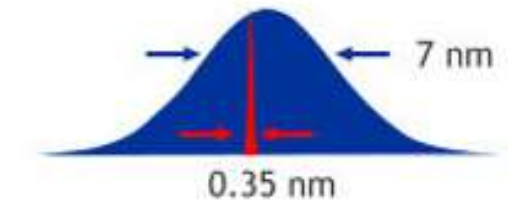
pulseSelect – pulse picker

Suitable for fs and ps mode-locked lasers, the pulseSelect is an acousto-optical pulse picker that uses an adjustable internal frequency divider or external triggering to pulse pick with low division ratios down to $f_{\text{rep}}/2$.



pulseSlicer – spectrum slicer

The pulseSlicer narrows the spectral bandwidth of a pulsed laser whilst at the same time the spectral pulse width is broadened.



scanDelay – optical delay line

Introduce a well-defined time delay into an optical path. The delay is periodically controlled by a fast scanning shaker at a frequency up to 20kHz.

femtoControl – dispersion compensation

Pulse compression and dispersion compensation optimised for femtosecond laser pulses for light microscopy.



Cavity Dumper Kit – intracavity reduction of pulse repetition rate

The Cavity Dumper Kit is an acousto-optical switch that can be integrated into the cavity of a mode-locked laser system for the reduction of the systems pulse repetition rate and to increase pulse energy.



Exciton specialises in supplying the highest quality and range of laser dyes. The laser dyes cover a wide spectral range and provide the optimum lasing efficiency for a given mode of excitation.

We strive to keep the majority of Exciton dyes in stock for next day delivery. If however, the dyes are not in stock our leadtime is typically three working days.



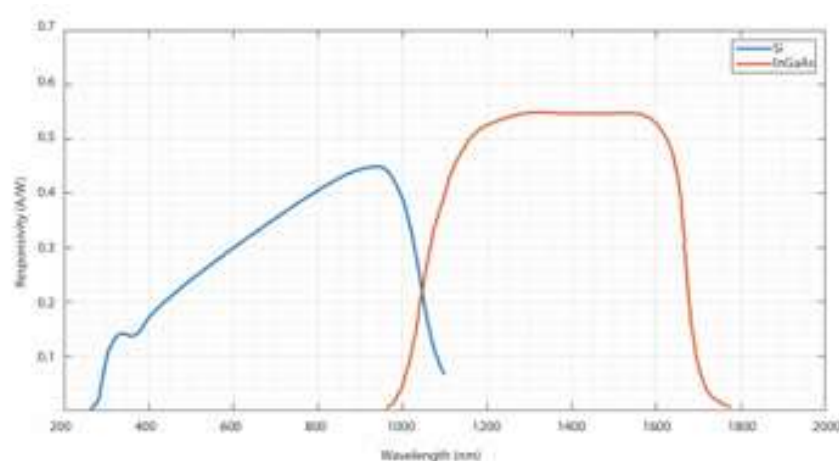
ACCESSORIES
Laser Consumables



Nireos SPIDER photodetector

SPIDER photodetector (Single-Pixel DEtectoR) is an amplified Si-InGaAs photodetector with programmable gain and an embedded 24 bit data acquisition system. This two colour detector provides a straightforward beam alignment and a wide spectral response from 320nm to 1700nm.

- Amplified Detector and Analog-to-Digital Converter in a Unique Device
- Broad spectral coverage with a single-pixel element
- High Sensitivity (pico-Watt range)
- High Dynamic Range (109:1)
- Plug&Play software and DLLs available



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Comprehensive range of Photomultipliers for photon counting applications and silicon detectors for Time Correlated Photon Counting (TCSPC), Steady-State, and Gated Photon Counting.



HPM-100 Hybrid Single-Photon Detector

Large-area detector offering ultrafast instrument response function of <20ps FWHM with no afterpulsing. Excellent dynamic range for TCSPC measurements. Five cathode types covering 220- 900nm.

PMCS-150 Small Cooled High Speed PMT Module

Cooled, high-speed detector head for all single photon counting applications. Contains a fast miniature PMT, a Peltier Cooler, high voltage generator, a GHz pulse amplifier and a current-sensing circuit. Instrument response function of <120ps FWHM in TCSPC applications and spectral coverage from 185-900nm.



PMC-150 Cooled Fast PMT Module

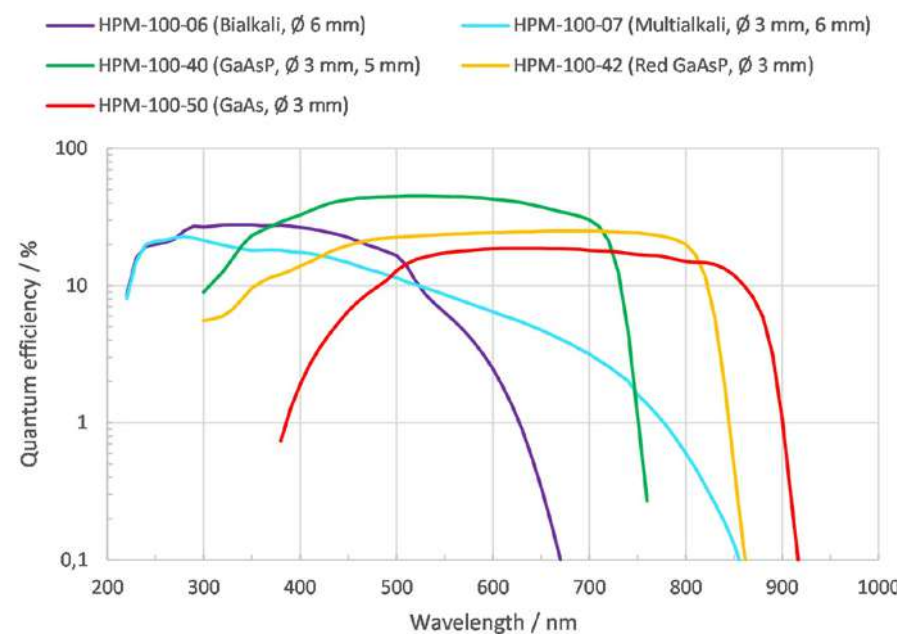
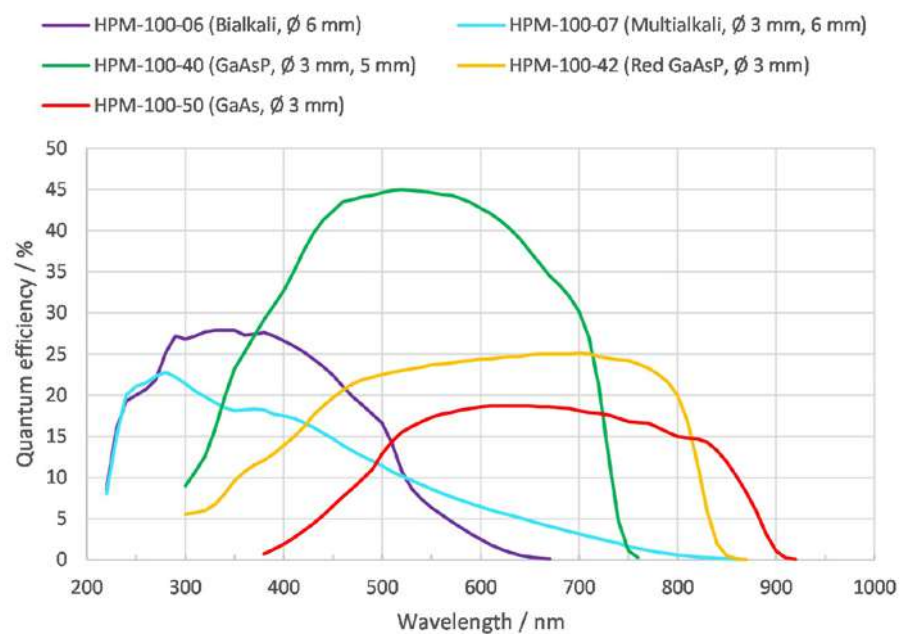
High-speed detector head for all single photon counting applications. Fast instrument response function of <150ps FWHM in TCSPC applications and spectral coverage from 300-900nm.



PML-16 Multichannel, Multispectral TCSPC Detector

Simultaneously record 16 separate channels of a multi-anode PMT.

	HPM-100	PMC-150	PMCS	PML-Spec, MW FLIM
Wavelength Range (nm)	220-900	185-900	185-900	300-820
Transit Time Spread typ. Values (TCSPC IRF) (ps)	Down to 20	130	120	180
Detection Efficiency (max.)	45% at 500nm	43% at 350nm	18% at 490nm	45% at 540nm
Size of Active Area	3mm, 6mm	8mm	8mm	Linear (0.8x16)mm, Quadratic (4x4)mm

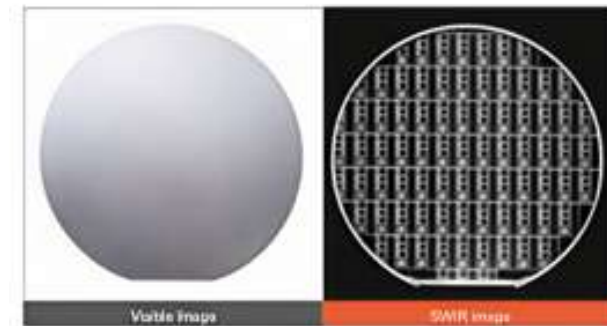
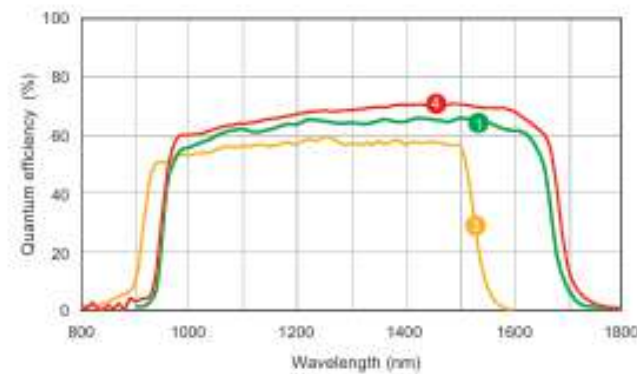


HAMAMATSU

PHOTON IS OUR BUSINESS

InGaAs Cameras

InGaAs cameras bridge the gap in NIR wavelengths in the 950-1700nm range where silicon detectors are no longer sensitive. Hamamatsu's InGaAs cameras capture images with QVGA to VGA resolution and with exquisite image contrast.



	C15333-10E04-02 line sensor	C14041-10U0-02 InGaAs sensor	C12741-11 InGaAs sensor	C12741-03-02 InGaAs sensor	C16741-40U InGaAs sensor
Spectral Sensitivity (nm)	950-1700	950-1700	950-1700	950-1700	400–1700
Sensor Resolution (Pixels)	1024 x 1 (V)	320 x 256	640 x 512	640 x 512	1280 x 1024
Pixel Size (μm)	12.5 x 12.5	20 x 20	20 x 20	20 x 20	5x5
Active Area (mm)	12.8 x 0.0125	6.4 x 5.12	12.8 x 10.24	12.8 x 10.24	6.4 x 5.12
Frame Rate (fps USB 3.1 Gen 1)	Internal mode 40kHz Edge trigger 20kHz Sync readout 40kHz	214.3 (Global shutter) 216.6 (Rolling shutter)	7.2	≈ 59.8	71.53

LASNiX

Lasnix Laser Attenuators and Polarisers use unique, substrate-free, free-standing metal grids to control polarisation and power.

IR Step Attenuators

Precision instruments to reduce laser beam power while not affecting other beam parameters. Available in wide IR bands between 0.7-1200 μm , and can attenuate up to 300W.

Continuously Variable Attenuators for CO₂ Lasers

Precisely control the power and polarisation of a transmitted CO₂ laser beam without changing any other beam parameters.

Linear Polarisers for CO₂ Lasers

Precision thin film elements for perfect polarisation of a CO₂ laser beam. The polarisers are mounted in lightweight Oriented frames for simple installation and ease of use.



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**You have the ideas, we have the
technologies to bring them to life.**



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