

# Newport Spectra-Physics Newsletter

N° 26

Spring 2008

Solutions to Make, Manage and Measure Light<sup>SM</sup>



## **THE BRIGHTEST IDEAS IN POWER**

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**Introducing ProLite<sup>®</sup> Xt High Brightness Diode Laser Family**

## **Agilis PIEZO family expands**

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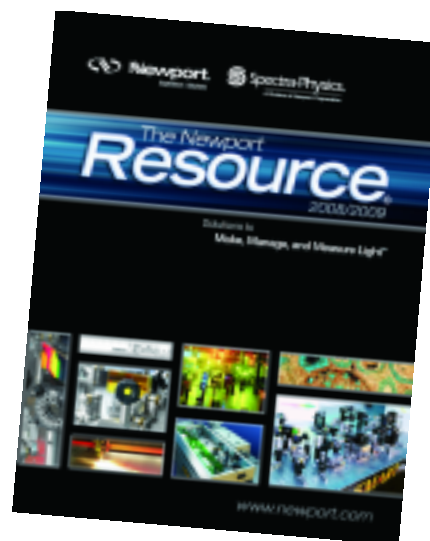
**Latest Additions: a Linear Stage and a Polarizer Rotator**



## **NEW for 2008!**

It's **NEW!** It's **FREE!** Register online at [www.newport.com/resource2008](http://www.newport.com/resource2008) to order your **FREE** copy of the 2008 Newport Resource Catalog and read about 15,000 products including 500 exciting **NEW** launches!

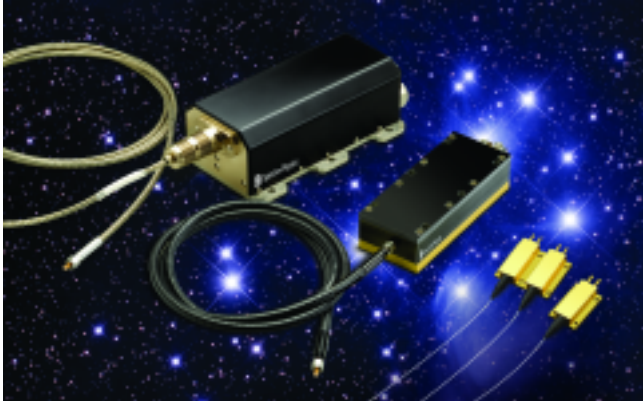
**Register  
for your free copy today!**



## THE BRIGHTEST IDEAS IN POWER

# ProLite® Xt

## High Brightness Diode Laser Family



### *A new generation of diode lasers.*

Spectra-Physics' new ProLite® Xt series of diode lasers marks a new and exciting stage in product development. While the company's ProLite® diode lasers have long equipped the industrial and scientific community with unrivaled reliability and robustness, the ProLite Xt product family incorporates design refinements that add unprecedented brightness to high power, providing industry-leading performance from three distinct models: Orion™, Corvus™ and Cygnus™.

## ProLite® Xt Orion™

### High Brightness Fiber-Coupled Mini-Bar

Spectra-Physics' new ProLite Xt Orion diode laser incorporates the high power and reliability of the compact ProLite SF series, adding unprecedented brightness of 1.8 MW/cm<sup>2</sup>-sr, and using a powerful new mini-bar concept to achieve >20 W out of a 105 μm fiber. The small footprint of the fiber-coupled package, along with the low thermal load, provides maximum design flexibility for commercial fiber laser systems.

Spectra-Physics has optimized the ProLite single emitter technology with innovations in materials, device design, and process refinement – creating one of the brightest diode sources in the industry. The Orion diode laser is configured with multiple single emitters to create the mini-bar, the design of which maximizes reliability through independent emitter failure tolerance. Combined with optimized beam-shaping, this design provides the brightest, most compact source to date for commercial fiber lasers and ensures easy integration into a wide variety of applications.

### The ProLite Xt Orion Advantage

- Unprecedented brightness of >1.8 MW/cm<sup>2</sup>-sr ideal for laser pumping
- >20 W out of 105 μm, 0.22 NA fiber
- Available wavelengths: 915 nm, 940 nm and 980 nm for application flexibility
- Hermetic, compact design for easy integration into a wide variety of applications

#### Applications

- Commercial fiber laser pumping
- Life and health sciences
- Direct materials processing

**WEB** See our website for more info.  
[newport.com/orion26](http://newport.com/orion26)

## ProLite® Xt Corvus™

### High Brightness Fiber Coupled Bar

The ProLite Xt Corvus builds upon the proven performance of the ProLite CW series. As part of Spectra-Physics' ProLite Xt High Brightness family, Corvus lasers offer unprecedented brightness in a single fiber-coupled diode laser bar, providing over 35 W of output power from a 100  $\mu\text{m}$  fiber.

The Corvus series leverages technical advancements in bar-geometry design and beam-shaping technology to efficiently fiber-couple single diode laser bars. A low numerical aperture, small-diameter, single-core fiber delivers a high intensity, high brightness  $>3 \text{ MW/cm}^2\text{-sr}$  output. In addition, the field-serviceable fiber design minimizes downtime for fiber-pumping, plastics-welding and other material-processing applications where serviceability is critical.

### The ProLite Xt Corvus Advantage

- Unprecedented brightness of  $>3 \text{ MW/cm}^2\text{-sr}$  ideal for laser pumping
- $>35 \text{ W}$  out of 100  $\mu\text{m}$ , 0.22 NA fiber
- Wide wavelength range: 790 nm – 980 nm for application flexibility
- Detachable single-core optical fiber for field serviceability
- Passive cooling for low maintenance and cost effective end products

#### Applications

- Fiber laser pumping
- Direct materials processing
- Life and health sciences
- Defense and security

**WEB** See our website for more info.  
newport.com/corvus26

## ProLite® Xt Cygnus™

### High Brightness Fiber Coupled Stacked Array

Building upon the proven performance of the ProLite Monsoon® series, Cygnus lasers provide maximum power and brightness in a fiber-coupled stacked array. Delivering 200 W of output power from a 200  $\mu\text{m}$  fiber, the Cygnus laser is the highest brightness fiber-coupled diode in the industry and is ideal for use in advanced fiber laser pump applications.

Active water cooling enables the low thermal resistance needed to drive the high power levels required to achieve extremely high brightness. In addition, the Cygnus series leverages technical advancements in individual device design and beam-shaping to provide a brightness of more than  $4 \text{ MW/cm}^2\text{-sr}$ . The field-serviceable fiber design maximizes operational time for fiber-pumping and other applications that require the highest performance. Robust packaging allows the Cygnus laser to operate reliably in harsh industrial environments.

### The ProLite Xt Cygnus Advantage

- Unprecedented brightness of  $>4 \text{ MW/cm}^2\text{-sr}$  ideal for laser pumping
- Up to 200 W out of 200  $\mu\text{m}$ , 0.22 NA fiber
- Up to 400 W out of 400  $\mu\text{m}$ , 0.22 NA fiber
- Available wavelengths: 915 nm, 940 nm and 980 nm for application flexibility
- Durable construction for use in rugged environments
- Detachable single-core optical fiber for field serviceability

#### Applications

- Fiber laser pumping
- Direct materials processing
- Defense and security

**WEB** See our website for more info.  
newport.com/cygnus26

PRODUCT EXPANSION FOR APPLICATION SOLUTIONS

Excelsior® Portfolio

New products with enhanced power.



Spectra-Physics Laser Division has unveiled some powerful new additions to its innovative Excelsior® product family, including the new Excelsior 505, a single frequency laser at 505 nm with output power available at 10 or 20 mW – ideal for customers who need a reliable laser for DNA Sequencing.

In addition, the company announced increased output power for the 100 mW version of its Excelsior 405, 75 and 100 mW versions of the Excelsior 561, and a 60 mW version of the Excelsior 635.

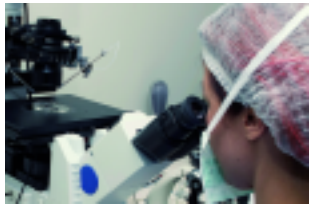
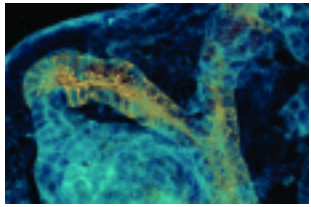
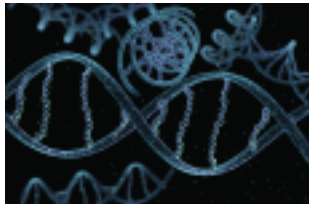
Spectra-Physics' Excelsior range includes low-power continuous-wave (CW) solid-state lasers at 375, 405, 440, 473, 488, 505, 532, 561, 635, 785 and 1064 nm. Excellent tools for a variety of OEM applications, they provide superior optical beam quality, exceptionally low optical noise, and high reliability. Offering the smallest footprint in their class, these stand-alone devices are easy-to-use and operate, and deliver outstanding output power stability over a wide temperature range.

Wavelength	Maximum Output Power
375 nm	16 mW
405 nm	100 mW
440 nm	40 mW
473 nm	50 mW
488 nm	100 mW
505 nm	20 mW
532 nm	200 mW Single Frequency 50 mW Multi-Mode
561 nm	100 mW
635 nm	60 mW
785 nm	45 mW
1064 nm	500 mW

**WEB** See our website for more info.  
newport.com/excelsior26

**Applications**

- Flow Cytometry
- Confocal Microscopy
- DNA Sequencing
- Microarray Reader
- High-Content Analysis
- Raman Spectroscopy
- Semiconductor Inspection & Metrology
- Holography



## NEWPORT'S FAMILY OF PIEZO-DRIVEN DEVICES CONTINUES TO GROW

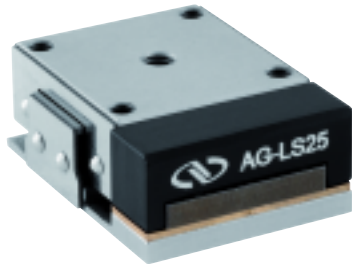
### Agilis™ Series



Latest additions: a linear stage and a polarizer rotator.

#### AG-LS25

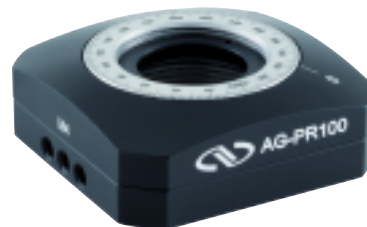
High-Precision Miniature Linear Stage



The AG-LS25 is a new, high-precision miniature linear stage offering a wide range of advanced features at a notably competitive price. Powered by Newport's new Agilis™ piezo step direct motor, the unit has ultra-high adjustment sensitivity. It is also lightweight and extremely compact and provides for convenient remote operation. The AG-LS25 size and price are comparable to those of a high quality manual stage.

#### AG-PR100

Polarizer Rotator

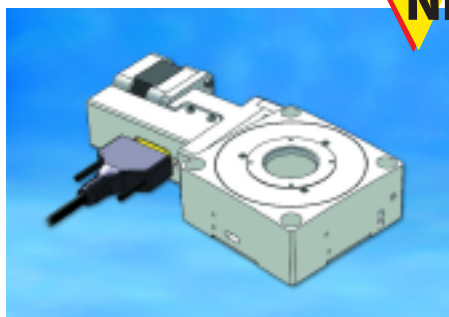


AG-PR100 is a polarizer rotator which features 360° continuous rotation for 1" diameter waveplates and polarizers. This high-precision unit features Newport's new Agilis™ piezo step direct motor which provides ultra-high adjustment sensitivity and convenient remote operation.

**WEB** See our website for more info.  
newport.com/agilis26

### Vacuum Compatible Precision Rotation Stage

URS75BPPVP



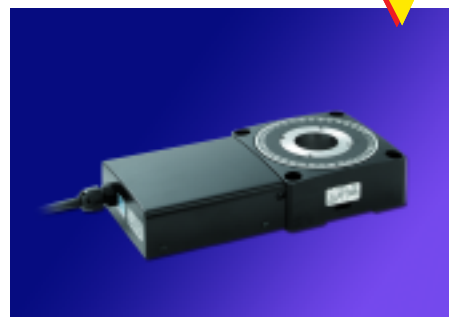
**NEW**

The URS75BPPV6 rotation stage features an enhanced, lower profile package providing easier top down mounting that is directly compatible with our vacuum compatible stages. When using with our XPS or ESP300 motion controllers with high micro-step capability, low noise operation and very small incremental motions are guaranteed.

**WEB** See our website for more info.  
newport.com/stage26

### Precision Rotation Stage

URS-B Series



**NEW**

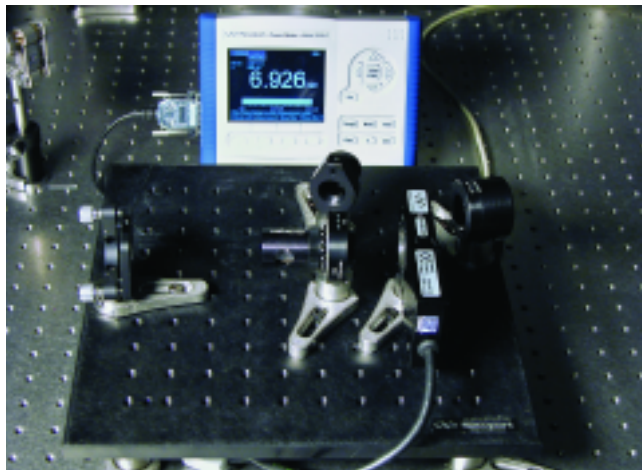
The URS-B Series provides precision 360° continuous motion in a low profile package. They meet the requirements of numerous research and industrial applications and are directly compatible with our VP, XM, GTS, ILS, IMS and other series of linear stages.

**WEB** See our website for more info.  
newport.com/URSB26

## THE POWER OF DO-IT-YOURSELF

# Computer-Controlled Variable Attenuator Kit

*Sophisticated yet simple to assemble.*



### Features & Benefits

- Automatic control and adjustment of output power of fixed power lasers
- Designed to work with Spectra-Physics Ti:Sapphire ultrafast lasers
- All parts selected and tested to work together
- Produces either horizontal or vertical output polarization

While the whole idea of kits is to make life easier, they can be remarkably complicated constructions. Bucking this trend, the Newport Computer-Controlled Variable Attenuator (CCVA) has been specifically designed as an easy-to-assemble kit for continuous, automatic attenuation of laser output power. As such it combines sophistication with ease of use.

The kit is based on the combination of a 1/2 wave-plate and polarizer. The algorithm used to control power operates in a closed loop with PID (proportional, integral, derivative) feedback, compensating for slow changes in output power. For the manual variable attenuator, power is measured directly on the output of the attenuator for each wavelength and set accordingly by rotating the 1/2 wave-plate. By contrast, the computer-controlled closed-loop attenuator sets and

maintains power by positioning the 1/2 wave-plate based on a feedback signal from a photo detector which can exhibit a strong dependence on wavelength. This chromaticity becomes significant when the tuning range is large. Consequently, a spectrometer is incorporated into the set-up, which provides real-time information about the wavelength of the laser, thus taking advantage of the precise wavelength calibration of the photo-detector. This is especially important when the laser power needs to be held constant while scanning wavelength.

Depending on the choice of components, the attenuator is suitable for laser wavelengths ranging from 400 nm to 1100 nm and average powers from 1 nW up to 20 W (500 W/cm<sup>2</sup> damage threshold). This device is capable of attenuating light by a factor of 1000 while still maintaining an error of less than 10%. The algorithm used to control power operates in a closed loop with PID (proportional, integral, derivative) feedback, compensating for slow changes in output power within the bandwidth of the device greater than 500 ms.

### Applications

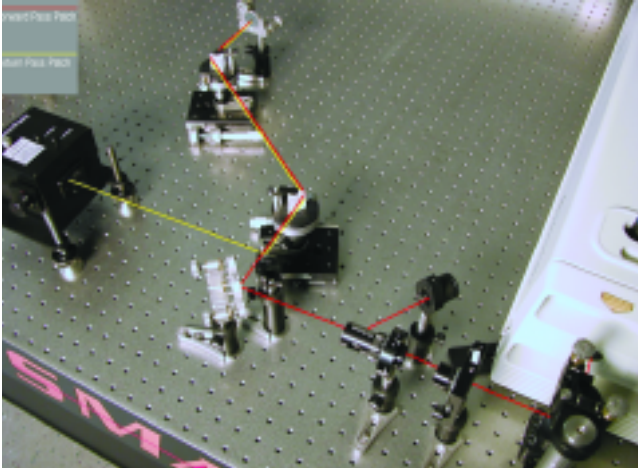
- Multiphoton Microscopy
- Supercontinuum Generation
- Terahertz Generation
- Ultrafast Spectroscopy
- Optical Coherence Tomography

**WEB** See our website for more info.  
[newport.com/kit26](http://newport.com/kit26)

## GOOD NEWS FOR RESEARCHERS

# Prism Compressor for Ultrashort Laser Pulses

### *Reversing pulse-broadening.*



### Features & Benefits

- Compensates for material dispersion that can cause pulse-broadening of femtosecond pulses
- Three different choices of prism materials
- Rapid adjustment of prism-separation
- Designed to work with Spectra-Physics Ti:Sapphire ultrafast lasers, OPA and OPO
- All parts tested and certified for function and assembly

Devised for easy assembly, the Newport prism compressor (PC) for ultrashort pulses is designed to deliver the shortest pulse to your sample or device, reversing pulse-broadening – a welcome initiative.

A typical femtosecond pulse can have from 5 to 100 nm of bandwidth around the center wavelength of the laser. When a femtosecond pulse with that much bandwidth passes through any optical material such as a lens, beamsplitter or Faraday isolator, it will inevitably experience pulse-broadening resulting from group velocity dispersion (GVD). The good news is that the pulse-broadening effects of GVD can be reversed and recompressed by using pairs of prisms, gratings or chirped mirrors

### Applications

- Compensates for material dispersion that can cause pulse broadening of femtosecond pulses
- Rapid adjustment of prism-separation
- Designed to work with Spectra-Physics Ti:Sapphire ultrafast lasers, OPA and OPO

**WEB** See our website for more info.  
[newport.com/pulse26](http://newport.com/pulse26)

**WHEN SPACE IS AT A PREMIUM...****Compact Lens Positioners***... and cost is an important factor.***NEW**

Our new LA1V-XY and LPV-1 compact lens positioners provide an economical solution for applications requiring two (XY) or five (XYZ  $\theta_x\theta_y$ ) axes of precision adjustment. Their compact size makes them ideal for OEM applications, or research projects with limited table space.

**WEB** See our website for more info.  
[newport.com/lens26](http://newport.com/lens26)

**FIXING THE DEGREE****45-Degree Pedestal Post Adaptors***Available in six different versions.***NEW**

As their name suggests, Newport's 45-degree pedestal post adaptors enable mounting of optical components at a fixed 45-degree angle. To perform this function, six different versions of pedestal post adaptors are available, all of which position the optic at a height of 2 inches on center with the pedestal; all are also provided with a cross-drilled through hole to allow leveraged tightening to the pedestal posts.

**WEB** See our website for more info.  
[newport.com/post26](http://newport.com/post26)

**NEW SILVER COATING ENHANCES CAPABILITY****Broadband Hollow Retroreflectors***Impressive performance in parallelism and distortion.***NEW**

Our broadband hollow retro-reflectors are constructed of three front-surface flat mirrors assembled into a corner cube. Using a patented fabrication technique, parallelism up to 1 arc-sec and wavefront distortion  $\leq \lambda/3$  are achieved economically. Coatings are available for UV, visible, and IR, with damage threshold typically 100 W/cm<sup>2</sup> CW or 10 mJ/cm<sup>2</sup> with 10 ns pulses.

**WEB** See our website for more info.  
[newport.com/reflect26](http://newport.com/reflect26)

**A DUAL ROLE****Q-TMS****Holders for Pedestal Posts***Adjustable supports in six sizes.***NEW**

The Q-TMS series holders for pedestal posts provide a means to support and adjust PS series Pedestal and Extension Posts. Available in six different lengths, all Q-TMS post holders include a clamping fork to allow mounting anywhere on an optical table.

**WEB** See our website for more info.  
[newport.com/TMS26](http://newport.com/TMS26)

## EXCEPTIONAL STABILITY AND RESISTANCE

**VALUMAX® Series****Posts and Post Holders**

*Precision-molded yet low-cost.*



VALUMAX® series posts and post holders are the ideal choice for cost-sensitive or non-critical mounting applications. They are precision-molded from a composite material with thermal and electrical insulating properties as well as an

exceptional degree of thermal stability, dimensional stability and chemical resistance.

VALUMAX® SPV series posts are 0.5 in (12.7 mm) in diameter with a 8-32 (M4) tapped hole in one end and a 1/4-20 (M6) tapped hole in the other. Each post is supplied with a 8-32 (M4) double-ended set screw which enables it to be removed easily from either end. The posts can also be used with VPH and VPT series post holders.

**Key Features**

- Low-cost, precision-molded composite material
- Thermal and electrical insulative properties
- Unique collet-locking mechanism
- Integrated pedestal base

**WEB** See our website for more info.  
newport.com/valumax26

## UNIQUE ROTATIONAL FACILITY

**CYM-2R****Adjustable Cylindrical Lens Mount**

*Eliminates unwanted translation.*



feature eliminating unwanted translation during rotation of the power axis.

The mount's 100-TPI screws provide a  $\pm 5^\circ$  roll adjustment range with a sensitivity of 6 arc seconds. With the use of adaptors (sold separately), other sizes of cylindrical optics can also be held and rotated about their centers. Adaptors are available to mount 1/4-in, 1/2-in, 1-in and 19-mm high cylindrical lenses. Each of these adaptors places the center of the cylindrical lens at the CYM-2R's axis of rotation and has a location pin for quick installation

**Key Features**

- Rotates cylindrical lens about its center
- $\pm 5^\circ$  rotation range
- 6 arc-sec sensitivity
- Adaptors for numerous cylindrical lens sizes

**WEB** See our website for more info.  
newport.com/cym26

Newport's CYM-2R can hold and position cylindrical lenses that are as large as 2 inches in height. In addition the mount provides rotation about the geometrical center of the lens – a unique

## EFFICIENT PERFORMANCE

# Oriel® LED Fiber Sources

*Compact and durable.*



Newport sets another standard in instruments to make light, with the new family of Oriel LED Sources. For applications where low power consumption and heat dissipation are critical, these sources of VIS-NIR radiation are simple, economical and long-lived alternatives to diode lasers and QTH lamp-based systems.

We offer models covering wavelengths from 385 nm to 629 nm, as well as a broadband white light model, with power levels up to 500 mW. An interchangeable LED head is recognized by the driver. A standard output flange offers easy coupling to light guides, fibers or lens assemblies.

### Key Features

- Narrow and broadband VIS-NIR sources
- High intensity, up to 500 mW
- Interchangeable Smart LED heads
- Long-lived and economical alternatives to lamp-based systems

**WEB** See our website for more info.  
newport.com/LED26

## PURSuing OPTIMUM SPATIAL UNIFORMITY

# Lamp Alignment for Solar Simulators

*A tool that's new, quick and easy.*

Accurate alignment of the replacement lamp is a critical part of maintenance to ensure the desired spatial uniformity performance of a solar simulator. Newport's new lamp alignment tool, while not a certification tool as per International Standards, speeds and simplifies the lamp alignment of any Oriel Class A Solar Simulator. Among other benefits are a USB2.0 connection, color display and easy portability.

This new alignment tool consists of a sensor pallet which is designed to be placed underneath the solar simulator illumination, and a display unit. The pallet comprises a number of Si solar cells, permanently attached on a PCB board. The solar cells are calibrated



so that each cell will respond to sunlight and display the relative light intensity measured. Three sizes of solar cells are available: 2", 4" and 8", to address various sizes of solar simulators. A handle attached to the side of the pallet makes it easy to carry.

**WEB** See our website for more info.  
newport.com/lamp26

### Key Features

- An entirely new solar simulator lamp alignment tool
- Promotes rapid achievement of optimum spatial uniformity
- A color display simplifies the lamp alignment process
- USB2.0 connection

The display unit consists of a LCD with a touch screen that allows interaction with the pallet and communication with a PC for file maintenance. The alignment tool includes software enabling access to the data saved in the tool, transfer of data to a PC, and removal of unnecessary files from the memory.

## DURABLE, EFFICIENT AND RELIABLE

### Raman Series Laser Source Modules

*Small spectral width – superior optical quality.*

Newport's Raman laser source modules have the smallest spectral width of any of the company's visible diode laser sources. They also boast low spectral noise and very narrow line-widths which make them ideal for Raman spectroscopy, interferometry and holography applications.

Available at four standard wavelengths of 640 nm, 658 nm, 685 nm or 785 nm, Raman Laser Source Modules come with 1 m multi-mode fiber pigtailed with SMA connectors and core diameters of 50  $\mu\text{m}$  or 100  $\mu\text{m}$ .

All self-contained RLx series Raman laser source modules offer superior optical quality and ultra-stable temperature, wavelength and output power control. The RLx



Series modules feature a precision current source and a PID temperature controller. The modules operate at 5 VDC, a lower operating voltage that reduces waste heat within the laser module, thereby increasing diode lifetime, efficiency and reliability. Three types of Raman sources are featured:

**RLC Series:** CW operation,

**RLA Series:** Analog modulation of up to 20 MHz,

#### Key Features

- Ultra-narrow line-widths and low spectral noise
- Four standard wavelengths of 640 nm, 658 nm, 685 nm, & 785 nm
- Ultra-stable wavelength and output power
- CW, analog modulation, or digital modulation
- 1 m, 50  $\mu\text{m}$  or 100  $\mu\text{m}$  fiber with SMA connector

**RLD Series:** Digital modulation (via TTL) of up to 100 MHz

All modules require a 5–12 VDC power source

**WEB** See our website for more info.  
newport.com/raman26

## A BOON FOR RESEARCHERS

### QE/IPCE Measurement Kit

*Preselected components from an industry leader.*



*Note: Solar cell fixture is NOT provided.*

Oriel's new QE/IPCE measurement kit is designed to help researchers who need to set up Quantum Efficiency (QE) and Incident Photon to Charge Carrier Efficiency (IPCE)

measurement experiments for a solar cell, a detector, or any other photon-to-charge converting device.

The most suitable components for your measurement needs have been preselected from the range offered by Newport, an industry leader in light sources and spectroscopy products

**WEB** See our website for more info.  
newport.com/QE26

#### Key Features

- Preselected components for solar cell QE/IPCE measurements
- Simple yet flexible software that measures QE with an easy configuration set-up
- Selectable light sources of either or both 150 W and 300 W Xe light sources
- All components from Newport, facilitating support
- Digital lock-in measurements with NIST calibrated detectors over the 360–1100 nm range

## A REMARKABLE CAPABILITY

### Refractive Beam Shapers

*New versions, new applications fit...*



Newport's visible refractive beam shapers boast a remarkable capability. Thanks to patented technology from IBM Research, all our refractive designs make it possible to convert a Gaussian laser beam into a collimated flat top beam with almost 100% efficiency. We have now extended the range

still further with the addition of two new ultraviolet and near-infrared versions of our Refractive Beam Shaper series. These have no internal focus, making them ideal for higher energy-pulsed and CW laser applications.

Newport's high precision aspheric optics enable simple-to-use, rugged and efficient beam shaping that can be readily integrated into material processing, micro-machining, non-linear optics, optical data storage, cell sorting and other applications. The collimated flat-top beam is produced by point-to-point mapping of the Gaussian input rays to redistribute the intensity to a



#### Key Features

- Converts Gaussian beam input to flat-top output
- High energy conversion: accepts 99.7% of input energy
- High profile uniformity: 78% of input power is directed into the flat top with 10% RMS power variation (15% RMS for GBS-UV-H)
- Collimated output beam allows use of conventional optics after beam shaping
- Provides performance over large wavelength ranges

flat-top output which can be easily manipulated and re-sized with conventional imaging optics.

**WEB** See our website for more info. [newport.com/beam26](http://newport.com/beam26)

## PACKING A PUNCH

### LBP-HR



### High Resolution Laser Beam Profiler

*For intuitive interpretation of data in real-time.*



profiles and analysis of most laser sources. This is a powerful software-driven device with complete beam diagnostic measurement features, including a multi-measurement routine to increase signal integrity for higher

Packing a punch yet markedly user-friendly, Newport's new LBP-HR Laser Beam Profiler offers true 12-bit dynamic range and a 1.4 megapixel CCD for detailed

accuracy results. The system presents graphical and numerical information for an intuitive interpretation of data in real-time.

For continuous or pulsed laser beams the LBP-HR provides an extensive range of graphical presentations, and analysis capabilities of laser beam parameters such as beam width, shape, position, power and intensity profiles. The laser beam profiler includes NG4, NG9, and NG10 attenuators that thread into the camera aperture for power reduction of the input beam. The LBP-HR communicates with PC

#### Key Features

- Real-time beam size and Gaussian fit
- 350–1310 nm spectral response
- 2D/3D intensity plots and X and Y profiles
- Beam centroid tracking and charting
- Software-controlled shutter and gain
- Detailed statistics and analysis tools
- High speed USB 2.0

software through USB, and is powered by the USB port on a PC, which means there is no need for an external AC adapter.

**WEB** See our website for more info. [newport.com/LBP26](http://newport.com/LBP26)

## EXTENDING THE DYNAMIC RANGE

## 918D Series Low-Power Detectors

### *Building on success.*

Newport's 918D series low-power detectors are special in more ways than one. Designed as a natural progression in the evolution of the company's low-power detector series, and building on and extending the utility of the 818 series, two distinct and unique features characterize the 918D product range. An integrated OD3 attenuator extends the dynamic range of the detectors and they are fully calibrated to NIST-traceable standards.

All existing features of the popular 818 series of low-power detectors are incorporated into the latest 918D product range; electrical and electro-optic specifications are identical. In addition, Newport's exclusive OD3 attenuator



technology means that, by sliding the attenuator into the beam path, the measurement range can be extended without interruptions.

Newport's in-house calibration facility also means that each detector is shipped with its individual calibration data electronically stored inside the detector head. In addition to actual calibration curves, a certificate of calibration is shipped with the detector. Electronic sensors provide feedback to the power meter, leading to automatic adjustment of the calibration data to account for any change in temperature, and thereby increasing measurement accuracy.

### Key Features

- Automatic thermal drift compensation
- Free space and fiber optic measurements
- Integrated attenuator allows easy extension of measurement range from 1 pW up to 2 W (-90 to +33 dBm)
- Calibration data electronically stored in detector head
- 2 m-long cable allows easy integration into test systems

To facilitate fiber optic input, 918D series detectors can be either post-mounted or placed directly on a table top. Finally, an adaptor that converts from the 14-pin connector to a BNC connector is available, allowing the 918D series detectors to be used with Newport's 1815-C or 1825-C power meters.

**WEB** See our website for more info.  
[newport.com/detector26](http://newport.com/detector26)

## THE BEST OF BOTH WORLDS

## 818P-001-12 High Sensitivity Thermopile Detector

### *Low spatial dependence plus high sensitivity.*

Ideally suited for measuring pulsed laser diodes, OPA, gas lasers (HeNe, argon, etc.) or any low-power laser, the newly introduced 818P-001-12 high sensitivity thermopile detector offers the flat spectral response and low spatial dependence of thermopile detectors, while retaining the high sensitivity of photodiodes. Users working with lasers in the  $\mu\text{W}$  and  $\text{mW}$  range will



particularly appreciate its lower thermal drift compared with that of standard thermopile detectors.

Newport's 818P Series comprises a full range of the highest quality detectors to meet most optical power measurement needs. The series provides broadband, spectrally flat power detectors for general use. High-peak power pulse damage

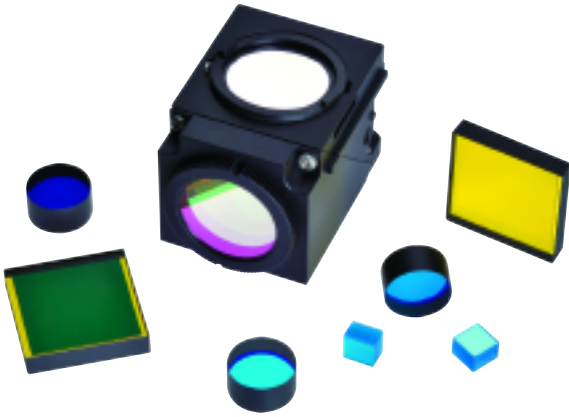
resistance in specific UV and IR bands is also offered. Maximum power ratings range from 1 to 400 Watts; higher maximum power ratings require heatsink, fan, or water-cooled operation. Standard apertures of 12, 19, 25 and 55 mm are available as are volume-absorber versions with an 18 mm aperture. Typical applications include: measurements of CW or pulsed Ion; Nd:YAG; Ti:Sapphire; CO<sub>2</sub>; Holmium lasers; high-power laser diodes; and excimer laser measurements in the UV range

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**HPF™****Filters for Fluorescence Microscopy**

*The starting point for custom-designed filters.*



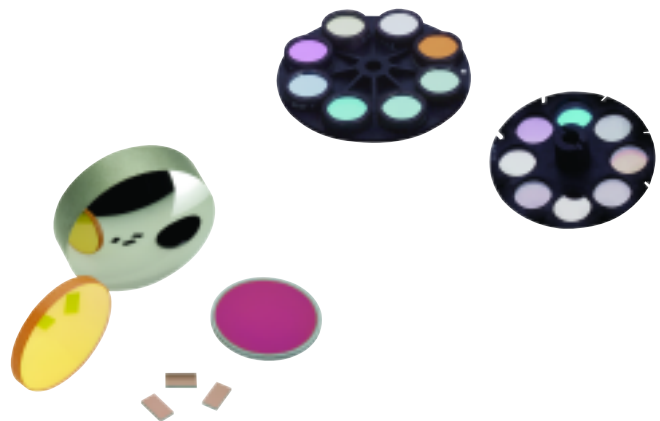
Almost a decade's experience has gone into development of Newport's HPF™ series of filters for fluorescence detection, resulting in a compilation of filter product designs providing for maximum performance and use with many of the most popular standard and some of the most promising new fluorophores. HPF™ filters are manufactured using our patented Stabilife® coating technology which provides excellent spectral performance, spectral stability, and physical durability.

Since the late 1990s our product designs have served as the starting point for custom-designed filters for market-leading instruments including DNA Sequencers, Cytometers, MicroPlate Readers, In vivo Imagers, and Thermocyclers. Individual researchers can now also benefit from these OEM-proven designs, purchasing the High Performance Filter sets for Epi-Fluorescence microscopy advertised in our new catalog. Using key design features, these sets have been manufactured to provide ultra-high performance and superior field life.

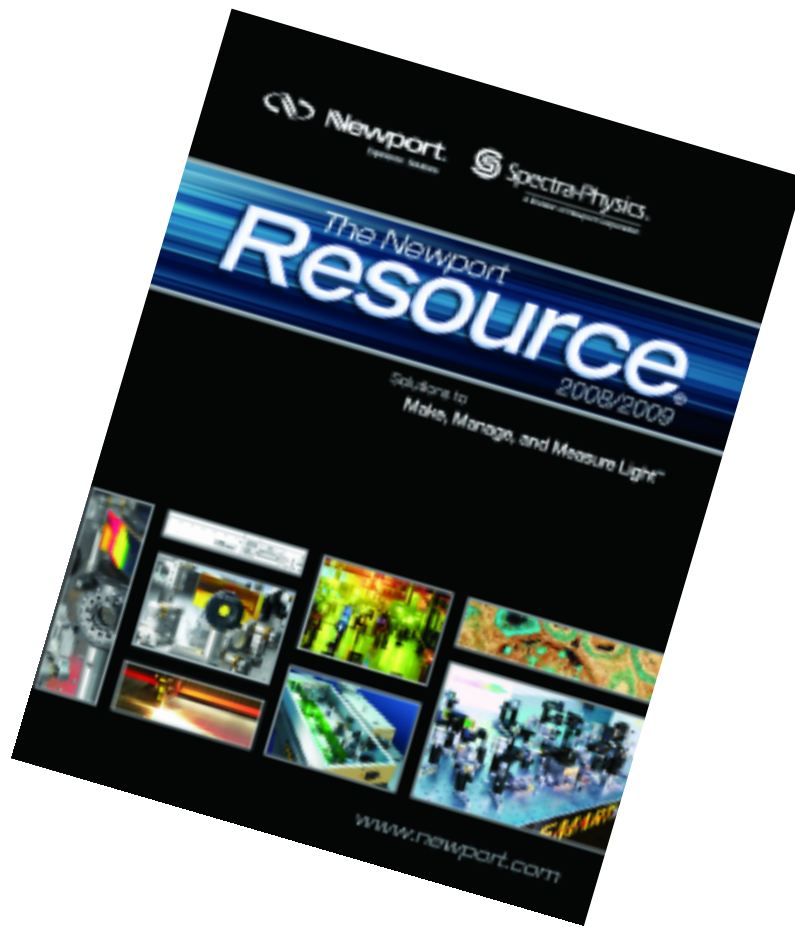
**Key Features**

- Patented Stabilife® Coatings
- Shift free spectral response @ 0%–100% RH
- Humidity per MIL-STD-810, Method 507.3, Procedure III, 20 cycles
- Lowest autofluorescence
- Extremely sharp transitions from rejection to transmission regions
- Maximum transmission
- Excellent set signal-to-noise ratio
- Optimized optical fabrication for brilliant imaging
- Superior field life

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