



**LASER-SPECTRA SERVICES INDIA PVT. LTD**

**"Science + Service = Our Life"**

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 **Spectra-Physics**

  
**Newport.**  
Experience | Solutions

**HORIBA**  
Scientific

## Duetta Fluorescence and Absorbance

**Horiba**



- ★ Two instruments in one, fluorescence and absorbance
- ★ CCD Fluorescence in the blink of an eye
- ★ UV-Vis-NIR Fluorescence Detection from 250 to 1,100 nm
- ★ Excitation/Absorbance Wavelength Range and detection range from 250 to 1,000 nm
- ★ Entire 3D EEM in a second
- ★ S/N Ratio: 6,000:1 RMS

## FluoroMax-Plus Series Compact Steady-State Fluorescence



- Water Raman signal-to-noise ratio: >16000:1 (>6000:1 FSD)
- NIR detection option for upto 1650nm
- TCSPC Attachment
- Lifetime range: <150 ps to >10 s
- Phosphorescence lifetime: <10  $\mu$ s to >10 s with Fluoromax Plus P Model

## Fluorolog-3 Series Modular Steady-State Fluorescence



- ★ S/N Ratio >30,000:1 (>15,000:1 FSD)
- ★ Fully modular and customizable
- ★ Multiple NIR detector option to cover the spectral range upto 40 $\mu$ m!
- ★ TCSPC option for lifetime <150 ps to 1 s
- ★ Lifetime range with suitable laser and detector is <25 ps to 1 s
- ★ Phosphorescence lifetime: <10  $\mu$ s to >10 s

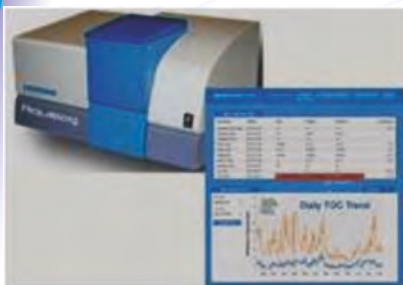
## QuantaMaster Series Modular Steady-State Fluorescence



- Water Raman signal-to-noise ratio: >30,000:1 (>15,000:1 FSD)
- Fully modular and customizable
- Triple grating monochromators for extended wavelength range
- Multiple light source and detectors with dual entrance and dual exit monochromators
- NIR steady state and phosphorescence lifetime detection to 5500nm
- TCSPC option for lifetime <150 ps to 1 s
- Lifetime range with suitable laser and detector is <25 ps to 1 s
- Phosphorescence lifetime: <10  $\mu$ s to >10 s

## Aqualog Compact Fluorometer for CDOM

**Horiba**



- ★ Simultaneously measure both absorbance spectra and fluorescence  
Excitation-Emission Matrices
- ★ EEMs are acquired up to a 100 times faster than with other instruments
- ★ Double grating excitation monochromator for superior stray light rejection
- ★ S/N Ratio: > 20,000:1
- ★ Fluorescence and Absorbance range upto 800 nm

## XploRA™ PLUS Research Grade Confocal Micro Raman



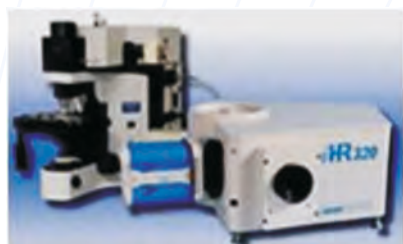
- Multi-laser options with One Click operation
- Lasers available from VIS to NIR
- Integrated imaging spectrometer with 4 gratings
- Automated switching involving no moving parts on the laser path
- Research grade Microscope with 3 Mega Pixel video camera
- Expandable platform: AFM, macro sampling, EMCCD

## LabRAM HR Evolution Research Raman Made Easy!



- Fully Motorized Confocal Micro Raman spectrometer from lasers to detectors
- Unequalled spectral resolution with 800 mm focal length
- Fully achromatic system 200-2100 nm from sample to detector
- Lasers available from UV to NIR
- Laser switching is software controlled (up to 6 lasers)
- Open space microscope for large free space under the objective turret
- ULF option to 10cm-1
- Expandable platform: AFM and TERS

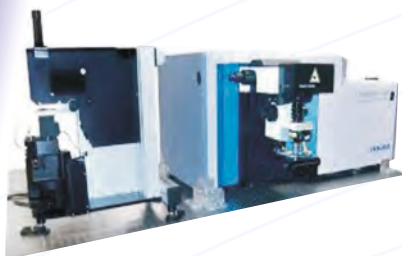
## Modular Raman Multi-excitation Fibre coupled Raman



- ★ Fibre coupled modular Raman
- ★ Available in two configurations; 320nm based and 550nm based Modular Raman Spectrometer
- ★ Confocal fiber-microscope or fiber-optic sampling probe are available
- ★ An integrated colour video camera offers easy sample alignment and digital image capture
- ★ Spectral range starts from 100cm-1
- ★ Lasers available from VIS to NIR



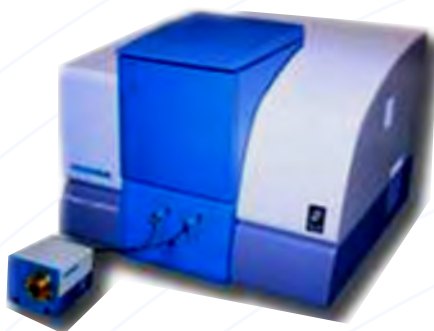
## LabRAM HR Nano



**Horiba**

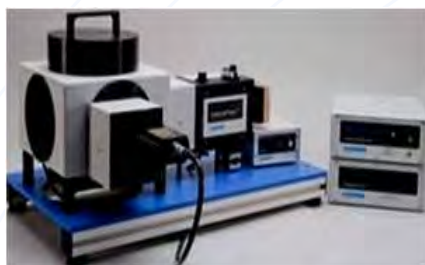
- ★ Physical and Chemical imaging
- ★ Macro, micro and nano scale measurements can be performed on the same platform.
- ★ Fully automated operation, start measuring within minutes, not hours!
- ★ High collection efficiency
- ★ Nanoscale spectroscopic resolution (down to 10 nm) through Tip Enhanced
- ★ High performance is obtained without active vibration isolation.

## MacroRAM™ Benchtop and Portable Raman



- Bench-top Raman spectrometer for macroscopic measurements
- Compact and robust design suits for teaching labs to industrial QC applications
- Uses a 785 nm diode-pumped solid-state laser, with tunable output power from 7 mW to 450 mW
- Raman Range: 100 cm<sup>-1</sup> to 3400 cm<sup>-1</sup>
- External probe for remote sample measurements

## DeltaSeries Modular Lifetime Fluorescence

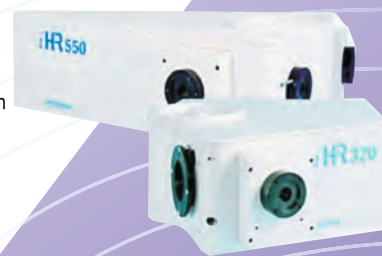


- Monochromator/Filter based TCSPC system
- Fast acquisition of lifetimes as little as 1 millisecond
- Measure fluorescence and phosphorescence lifetime in one instrument
- Easy plug-and-play operation with multiple laser diodes and LEDs
- Repetition rate is upto 100MHz
- Lifetime range from 25ps!!

## Short to Long focal Length Imaging Spectrometer

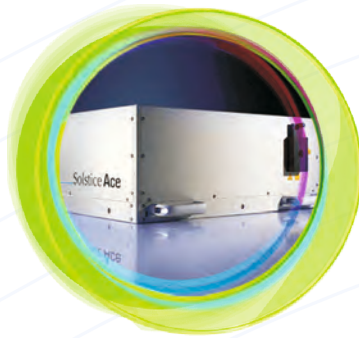


- MicroHR Imaging spectrometer with 140mm focal length
- Triax Series spectrometer with 180/190mm focal length
- Gemini 180mm double additive spectrometer
- IHR320/IHR550 Imaging spectrometer
- FHR 640/1000mm spectrometer
- M Series 1000/1250mm spectrometer



## Amplifier

### Solstice Ace High-energy, Industrial One-box Ultrafast Amplifiers



- Patented Ace regenerative amplifier cavity design
- Configurable pulse widths from <35 fs to <120 fs
- Configurable repetition rate, 1–10 kHz
- The right laser for the most demanding scientific and industrial applications

### Spitfire Ace Industry Leading Power Maximum Stability



- Revolutionary Ace regenerative cavity design More than 16 W of output power
- Less Astigmatism than Brewster cut designs Advantages:
- Better Thermal Characteristics
- Less material dispersion
- Better efficiency
- Better beam quality
- Fewer losses

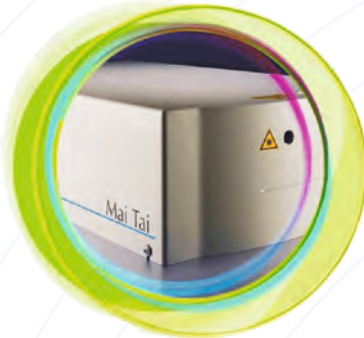
### Spirit Series High Repetition Rate Ytterbium Amplifiers



- ★ Pulse Width: < 400fs
- ★ Spirit 1030-100 and 70 Setting a new standard for high-precision femtosecond machining
- ★ Spirit HE, High Power, High Pulse Energy Industrial Femtosecond Lasers
- ★ Spirit, Industrial high repetition rate ultrafast lasers
- ★ Spirit One, Breakthrough cost-performance femtosecond laser

## Oscillators

### Mai Tai Series, The highest performance Ti:sapphire oscillator on the market!



- High output power maximizes penetration depth in multiphoton imaging Short output pulse width to provide high peak power
- Highest Output Power 2.5 W @ 800
- Broad Tuning Range 690 – 1040 nm

### Synergy, Ultra-broadband sub-10 fs Ti:Sapphire oscillator



- ★ Ultrafast pulses
- ★ Extreme peak power
- ★ Dispersive mirror cavity
- ★ Ultra-low noise
- ★ Ease of operation
- ★ Highest contrast
- ★ Outstanding pulse quality

## Opto-Mechanics

**Newport**



- ★ Optical mounts mechanically secure optical components without damaging the optic.
- ★ Our optical mounts help researchers and companies stay at the leading edge of photonics technology.
- ★ It includes Optical Mirror mounts, Lens Mounts, Motorized mirror mounts, Polarizer rotation mounts, Prism mounts, Optic flip mounts, Optics filter mounts, Tablet computer mounts, cylindrical device mounts, diffraction grating mounts, Pockels cell positioners and etc.,

## Opto-Mechanics



### OPTICAL POST ASSEMBLIES

Optical posts and pedestals are used to precisely control the elevation and location of optical mounts on a breadboard or optical table.



### BASES AND BRACKETS

Newport offers a full range of bases and brackets for locating and securing optical components on an optical breadboard or table.

## Opto-Mechanics



### OPTICAL BREADBOARD

Newport offers a broad range of high performance honeycomb optical breadboards and solid aluminum breadboard plates to fit any performance, budget or timeline need.



### OPTICAL RAILS

Our optical rails and optical benches make repeatable linear alignment of optical components quick and easy.

### BEAM ROUTING

We offer optics cage and enclosed beam routing solutions as well as periscopes.



### LAB SUPPLIES

- Optomechanical hardware
- Laboratory educational kits
- UV Lab Safety products
- Laser safety goggles
- Beam blocks





## Optical Table

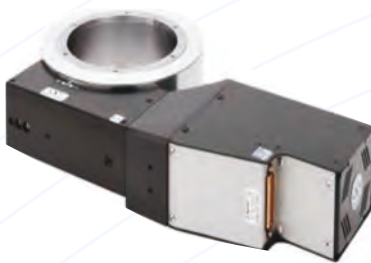
Newport



\* Table and legs sold separately

- ★ Precision tuned damped research optical tables
- ★ Broadband damped industrial and educational optical tables
- ★ Clean room optical tables
- ★ Non-magnetic optical tables

## LINEAR STAGE



- ★ xy, xz or xyz multi-axis motion configurations
- ★ Manual and Motorized Linear Stages
- ★ High precision stages with different types of travel range, Speed and load capacity
- ★ Major applications include metrology, scanning, Inspection, Laser direct writing, Spectroscopy, Genome sequencing, wafer scribing, telecom component alignment etc.,



## Hexapods



- A hexapod is a parallel kinematic motion device that provides six degrees of freedom: X, Y, Z, pitch, roll, and yaw.
- Hexapods are creative and effective solutions to complex motion applications that require high load capacity and accuracy in up to six independent axes.
- Newport hexapods are high performance motion devices, very affordable and extremely easy to use

## Optical Meters



- ★ Bench top power and energy meters
- ★ Handheld power and energy meters
- ★ Optical power meters and sensor kit
- ★ Virtual power and energy meters
- ★ Optical wavelength and power meter
- ★ Radiometers

## Optical Sensors



- Photodiode power sensors
- Thermopile power sensors
- Pyroelectric energy sensors
- Wavelength sensors
- Integrating spheres
- Low light sensors
- High dynamic range power sensors

## Solar Simulators

Newport



- Oriol provides Class AAA, Class ABA and Class ABB Solar Simulators depending upon the applications
- Includes Class AAA calibration certificate for IEC, ASTM and JIS
- 2x2, 4x4, 6x6, 8x8 or 12x12 inch output beam
- Temperature sensors and interlocks ensure operator safety
- LED Class AAA Solar Simulator
- Low cost alternative for PV cell research requiring small area of illumination

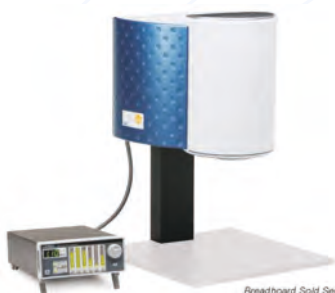
## Low-Cost Solar Simulators



Breadboard Sold Separately

- Standards compliant to ASTM & IEC for AM1.5G operation at 1.0 sun output
- Compact design - integrated power supply, ignitor, homogenizer and lamp housing
- Simple, drop-in lamp assembly requires no lamp alignment
- Integrated 2 inch filter holder
- These 1.5 x 1.5 inch (38 x 38 mm) Simulators meet Class ABB as defined by the ASTM and IEC standards.

## LED Solar Simulator



Breadboard Sold Separately

- Factory certified IEC, ASTM, JIS AAA rated
- 2 x 2 inch output beam size
- Variable output adjustment from 0 to 1.0 sun
- Fast turn on time, <100 ms - no shutter required
- User settable spectral control
- 10,000 hour LED lifetime - no bulb replacement required

## Light Sources



- For Photocatalysis
- For Water Splitting
- For Photochemical reaction Studies
- Hg / Xe / Hg-Xe / QTH Sources
- Tunable light Sources
- Calibration Sources



## Photovoltaic Cell I-V Test Stations

Newport



- Photovoltaic research demands cell characterization for a wide range of efficiencies.
- Our I-V Test Station applies a modular approach to I-V measurements.
- Works with all Oriel solar simulators
- Easy-to-use LabVIEW® based I-V characterization software

## Quantum Efficiency Measurement System



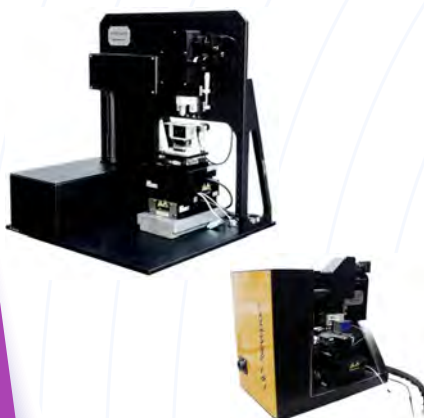
- ★ Oriel's QEPVSI-b is a preconfigured, yet flexible solution for measuring Quantum Efficiency (Q), also known as Incident Photo to Charge Carrier Efficiency (IPCE).
- ★ Industry leading components ensure accuracy and repeatability. Oriel's TracQ™ Basic software provides instrument setup, control, data collection, and export.
- ★ Compliant to ASTM E1021-12 standard and test methods
- ★ The kit includes a silicon detector with NIST-traceable spectral responsivity data characterized over its operating range.
- ★ A fully automated filter wheel is easily configured through the software provided with the QEPVSI-b.
- ★ The fully configured and calibrated Oriel Cornerstone™ monochromator provides excellent throughput to the cells under test. Ruled diffraction gratings were selected to provide high efficiency over a broad wavelength range.

## Ultrafast Spectroscopy



- Newport offers solutions for ultrafast spectroscopy, including transient absorption and fluorescence upconversion and time-correlated single photon counting devices and Femtosecond Stimulated Raman Spectrometer
- Fluorescence Upconversion provides 100-400 fs resolution
- Flexibly designed femtosecond pump-probe spectrometer
- Broad pump-probe delay range and high pump-probe delay resolution
- Use a variety of ultrafast amplifiers and optical parametric amplifiers (OPA) as input

## Laser Micromachining



- ★ Laser micromachining is a laser enabled process used to make micrometer scale features in materials.
- ★ A pulsed laser deposits finite amounts of energy into a material for precise and reproducible material removal enabling the laser machining process to cut, scribe, drill, or ablate a material.

We offer,

- ★ Microfabrication Workstation
- ★ Fiber Bragg Grating Manufacturing Workstation
- ★ uFAB-L Micromachining Workstation