Modular Raman Spectrometers

Flexible Raman Spectrometers from the Raman Experts

horiba.com/scientific

HORIBA Scientific
Flexible and Affordable Raman Spectrometers

The new range of modular Raman spectrometers from HORIBA Scientific allows the user to have a flexible Raman system to handle high performance spectroscopy at a price that fits most budgets.

These modular spectrometers can be used with HORIBA Scientific’s own range of dedicated Raman sampling options, such as the Superhead Raman probe or Fiber-Microscope system.

Confocal Modular Raman Microscope

- Confocal Raman microscope
- Fiber- or direct-coupled laser
- Built-in color sample imaging camera
- Choice of lasers (442nm – 830nm)
- Adjustable confocal aperture
- Three objectives (10X, 50X, 100X)
- Manual or optional mapping stage

Standard Microscope: Modular Raman

- Need to use a standard microscope? Not a problem! We can add Raman to it, either as a turnkey system or as an upgrade to your microscope
- Keep key functions of your microscope, and add Raman as another measurement modality
- Fiber- or direct-couple one or more lasers, from 442nm – 785nm

- Choice of spectrometer and detector to satisfy almost any spectral resolution, coverage or sensitivity needs
- Manual or optional mapping stage
- Multimodal: Perform Raman + other spectroscopies on the same system
  - Photoluminescence (PL)
  - Time-resolved PL (TRPL)
  - Raman
  - Electroluminescence (EL)
  - Dark field scattering spectroscopy
- Imaging through spectrometer: Use the same camera for imaging and Raman spectroscopy to authenticate signal origin
Benchtop Macro and Probe-based Modular Raman

- Easy-to-use benchtop macro modular systems
- Many sampling accessories
- Probe-based systems to measure samples that need to be contained or analyzed in a restricted, or controlled environment

- A variety of probe options to suit any budget, space or performance needs
- Confocal options available for improved SNR and depth profiling
- Options with built-in imaging for micro sampling

- Modular low frequency (THz) Raman probe options measure down to few wavenumbers from laser line (~7 cm⁻¹):
  - For structural analyses, crystallinity, isotopic differentiation, phase transitions
  - Available in free space and immersion options

- Specialty probes for:
  - Process monitoring
  - Immersion into corrosive or hazardous environments
  - Polarization Raman
  - And more

OEM Opportunities

- Add Raman to your system and offer more value for your customers
- Work with the experts in Raman spectroscopy, with deep experience and an excellent track record of system integration
- Easy pathway to integrate and take advantage of our products and knowledge in Raman spectroscopy

All on the BEST Raman software...Period!

- With more than half a century of experience in Raman, it shows in our software
- A powerful Raman engine underneath a simple, very easy, and user-friendly interface

Build Your Own!

- The most comprehensive catalog of components for building a custom Raman solution:
  - Spectrometers
  - Single channel detectors
  - Array detectors
  - Turnkey software
  - Custom software (SDK)
CCD Detectors
• The right array detector for every expectation:
  • Spectral resolution
  • Spectral coverage
  • Deep-cooled for high sensitivity
  • Back-thinned CCDs for NIR sensitivity with etalon suppression technology

Single Channel Detectors
• Single channel detectors for:
  • Affordability
  • Multi-spectroscopy systems, such as Raman and PL—extending range into NIR

SDK For Custom Software Development
• Software Development Kit for developing custom software to control all HORIBA components
• Example code for Labview, C, C++, C#, etc.

Spectrometers For Modular Raman

**Lumetta**

<table>
<thead>
<tr>
<th>Specification at Laser Wavelength</th>
<th>532 nm</th>
<th>632.8 nm</th>
<th>785 nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spectral Range (cm⁻¹)</td>
<td>500 – 1300</td>
<td>100 – 3000</td>
<td>100 – 3000</td>
</tr>
<tr>
<td>Resolution (cm⁻¹/pixel)</td>
<td>2.8</td>
<td>1.7</td>
<td>1.1</td>
</tr>
</tbody>
</table>

**UHR**

<table>
<thead>
<tr>
<th>Specification at Laser Wavelength</th>
<th>532 nm</th>
<th>632.8 nm</th>
<th>785 nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spectral Range (cm⁻¹)</td>
<td>500 – 1300</td>
<td>100 – 3000</td>
<td>100 – 3000</td>
</tr>
<tr>
<td>Resolution (cm⁻¹/pixel)</td>
<td>1.8</td>
<td>1.2</td>
<td>0.7</td>
</tr>
</tbody>
</table>

**iHR320**

<table>
<thead>
<tr>
<th>Specification at Laser Wavelength</th>
<th>532 nm</th>
<th>632.8 nm</th>
<th>785 nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spectral Range (cm⁻¹)</td>
<td>500 – 1300</td>
<td>100 – 3000</td>
<td>100 – 3000</td>
</tr>
<tr>
<td>Resolution (cm⁻¹/pixel)</td>
<td>0.9</td>
<td>0.6</td>
<td>0.3</td>
</tr>
</tbody>
</table>

**iHR550**

<table>
<thead>
<tr>
<th>Specification at Laser Wavelength</th>
<th>532 nm</th>
<th>632.8 nm</th>
<th>785 nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spectral Range (cm⁻¹)</td>
<td>500 – 1300</td>
<td>100 – 3000</td>
<td>100 – 3000</td>
</tr>
<tr>
<td>Resolution (cm⁻¹/pixel)</td>
<td>0.5</td>
<td>0.3</td>
<td>0.2</td>
</tr>
</tbody>
</table>

**FHR1000**

<table>
<thead>
<tr>
<th>Specification at Laser Wavelength</th>
<th>532 nm</th>
<th>632.8 nm</th>
<th>785 nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spectral Range (cm⁻¹)</td>
<td>500 – 1300</td>
<td>100 – 3000</td>
<td>100 – 3000</td>
</tr>
<tr>
<td>Resolution (cm⁻¹/pixel)</td>
<td>0.4</td>
<td>0.2</td>
<td>0.1</td>
</tr>
</tbody>
</table>
Custom Spectroscopy Solutions

Light Sources
- Continuous or pulsed broadband illuminators
- Continuous or pulsed tunable illuminators
- Millisecond tunable illuminators
- Fiber or Light Guide illuminators
- Nanosecond pulsed lasers
- Broadband metal halide illuminators

Spectrometers
- Small, mid-range and long focal lengths
- Miniature fiber spectrometers
- Research-grade grating spectrometers
- CCD and PDA USB spectrometers

Cameras
- Front- and back-illuminated
- UV-Vis-NIR
- Scientific
- Deep-cooled
- Low light imaging

Detectors
- PMT
- Single channel
- Solid state
- Ambient/TE/LN-cooled

Optical Accessories
- Filter wheels
- Sample compartments
- Optical fibers
- Collimators
- Laser diodes
- Timing electronics
- Light guides

info.sci@horiba.com   www.horiba.com/osd