

# Advanced Raman Instrumentation with Intelligent Automation



The intelligent automation of the LabRAM *ARAMIS* represents a major advance in Raman automation. It provides easy computer controlled operation for quality control, analytical and research applications alike. The system maintains the market leading flexibility and performance of the award winning LabRAM series to provide the most comprehensive analytical tool available.

## Ease of use

- Fast multi-wavelength operation
- High stability construction
- Up to 3 integrated lasers, additional external entrance

## Confocality

- True confocal Raman microscopy
- High spatial discrimination

## Automation

- Full system automation: grating and laser selection
- Patented 4-notch filter selector
- Up to 4 gratings on QUAD motorised turret

## Raman mapping and imaging

- Unique Line Scanning mode for fast Raman mapping
- High spectral resolution

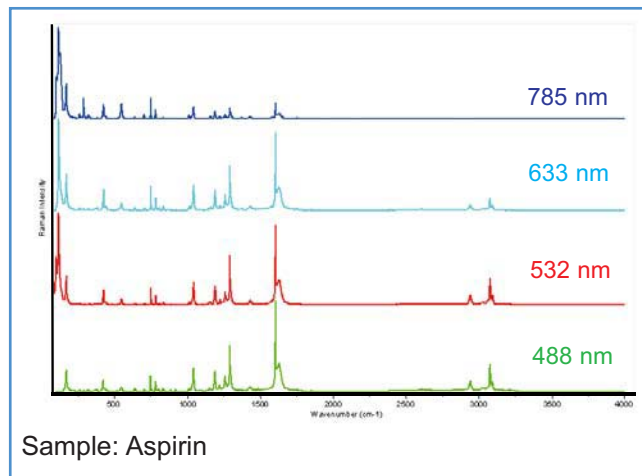
## Automation

### Motorised 4-notch filter selector:

The motorised notch filter selector enables laser wavelengths to be changed with speed and expand multi-wavelength operations into a new dimension - no limits or restrictions.

#### Technical:

Raman filters - standard  $100\text{ cm}^{-1}$  and specialised filters for broad band PL or improved laser rejection



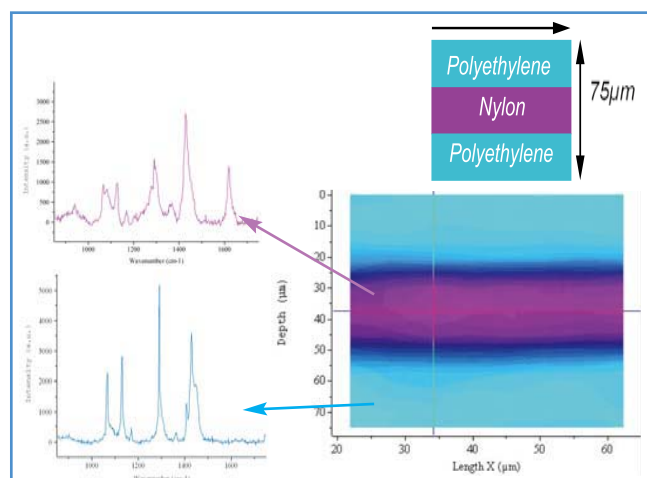
## Raman mapping & imaging

### Raman Z imaging:

Z axis Depth profile: The capability of the TRUE confocal system can be important where laminar samples are of interest. The LabRAM *ARAMIS* can provide unequalled depth discrimination, identifying and characterising thin films and layers sometimes hundreds of microns beneath the surface of a sample.

#### Technical:

The high precision Z motors and Z Piezo system enable depth control down to  $0.01\mu\text{m}$  steps.

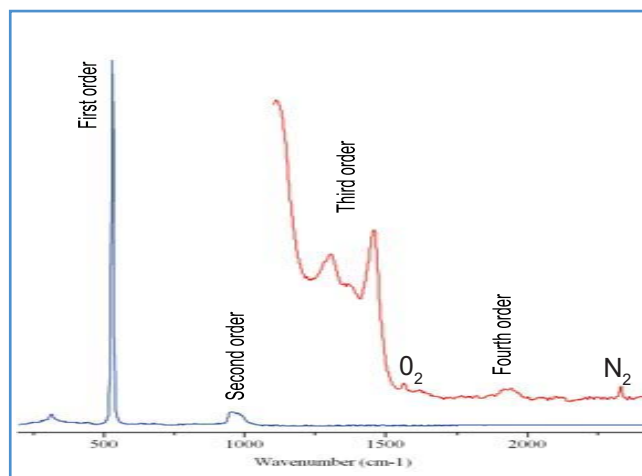


## Confocality

### Sensitivity and confocality at its best:

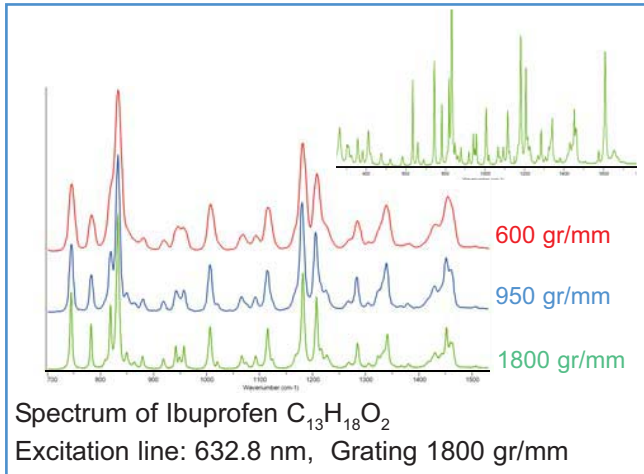
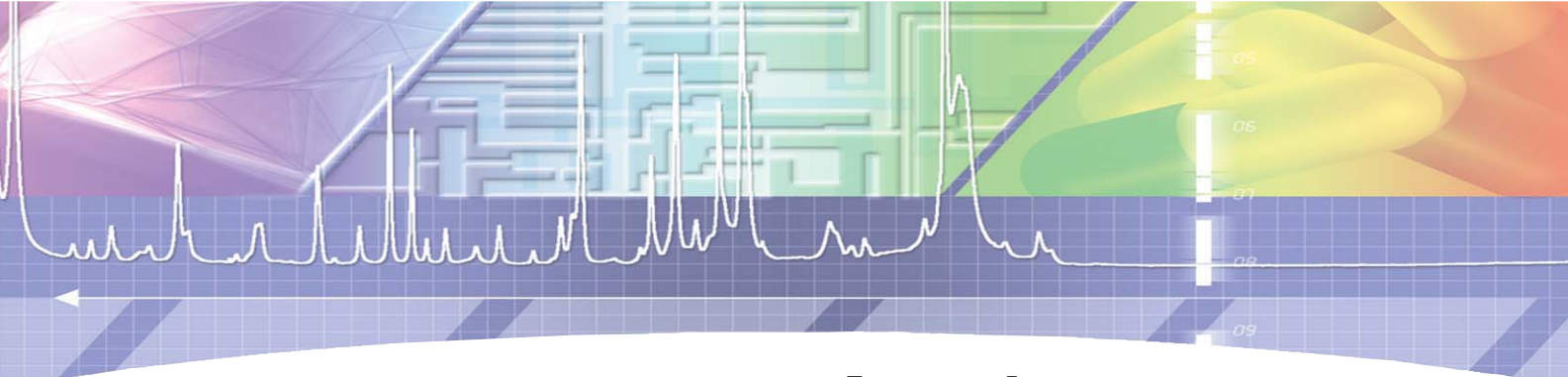
The LabRAM *ARAMIS* provides exceptional detectivity and confocal discrimination as shown on the 4th order band of silicon. On the Si spectrum, the intensities of the  $\text{O}_2$  and the  $\text{N}_2$  bands of air are often seen as very pronounced spectral features (compared to the third and fourth order bands of silicon). This interference arises from out of plane contributions to the Raman signal, rather than from the sample itself. It is a typical feature of where a Pseudo confocal design is used.

The LabRAM *ARAMIS* illustrates the advantage of the TRUE confocal microscope in its ability to remove signals coming from different layers or from out of focus sample volumes.



#### Technical:

Confocal coupling optics with motorised adjustment



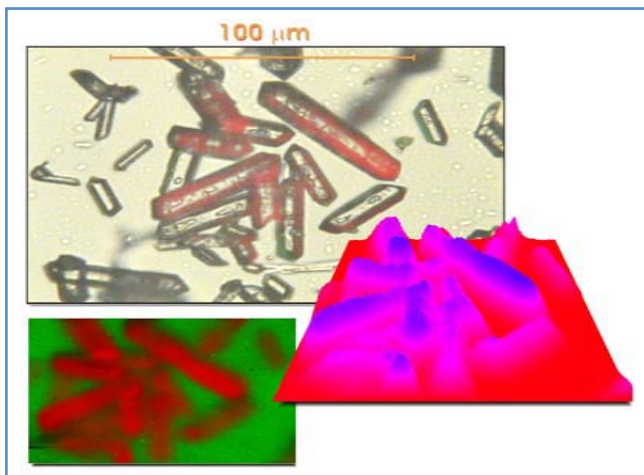
## Ease of use

### Up to 3 integrated lasers:

The spectra shown on the right hand side clearly show the multi-wavelength advantage. Having several lasers on the same system can enable problems such as fluorescence, sample heating and photo-sensitivity to be minimised or reduced dramatically.

#### Technical:

Laser options: solid state 488nm, 532nm, 633, 785nm and 830nm as standard. Secondary external laser entrance for further expansion. Laser density filters: 9 position filter wheel with ND attenuation filters.



Fast Raman map of pharmaceutical crystals, 500ms/point acquisition

## Automation

### 4 position QUAD grating turret:

The new 4 position QUAD grating turret not only selects the most efficient grating for the spectral ranges from the UV to the NIR, it also enables the spectral resolution to be selected to achieve the best or most appropriate spectral band separation.

#### Technical:

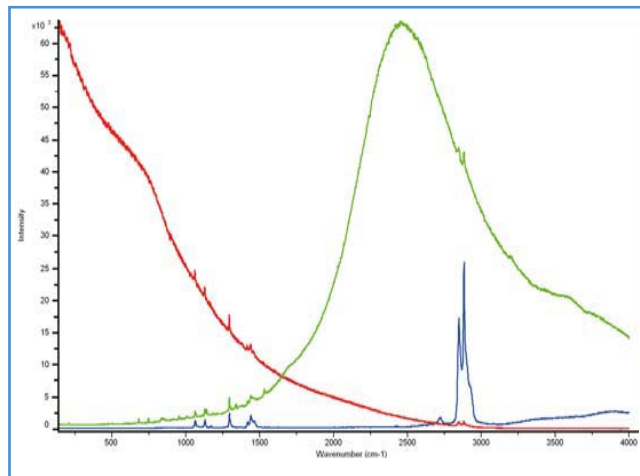
Wide range of specialised HORIBA Jobin Yvon gratings.

Typical spectral dispersion:

785nm: 950 gr/mm - 0.95  $cm^{-1}/pixel$

633nm: 1800 gr/mm - 0.75  $cm^{-1}/pixel$

532nm: 2400 gr/mm - 0.75  $cm^{-1}/pixel$



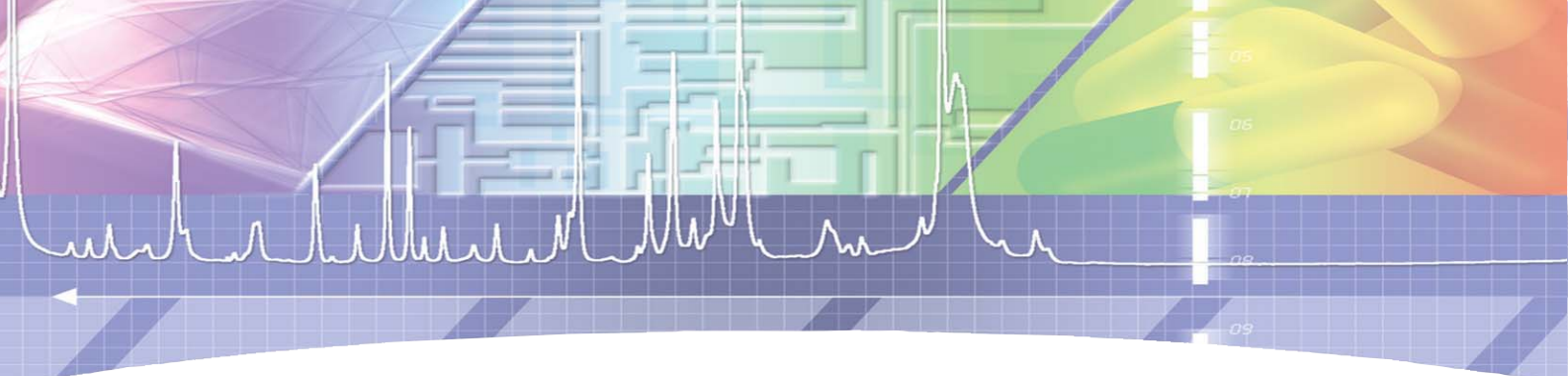
## Raman mapping & imaging

### Unique Line Scanning mode for fast Raman mapping:

The LabRAM *ARAMIS* has true confocal mapping performance. The Raman images produced are of the highest definition and resolution. The sophisticated software and hardware enable fast and accurate Raman images to be obtained routinely.

#### Technical:

Research grade Olympus microscope frame, Koehler Illumination %R - %T, 10x, 50x, 100x objectives (options for UV, NIR, LWD). Colour CCD TV camera or binoculars.



## LabSpec NGS

The LabSpec NGS develops the industry leading LabSpec spectral software capabilities to a new dimension, complementing the automation of the LabRAM *ARAMIS*.

The advanced software utilises a modern open architecture approach to provide the user with full instrument control, flexibility and performance.

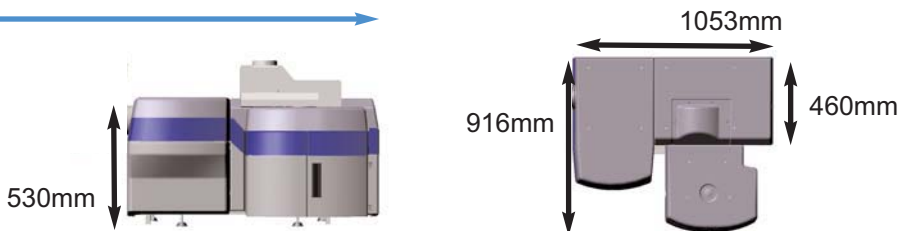
- Full control of instrument automation
- Fully automated measurements (raman mapping)
- Add-on modules for external system control
- Access to high power data analysis
- Macro capabilities

## Options and accessories

<b>Optional Microscope versions:</b>	Open FSM or INV (Inverted)
<b>Optional Macro chamber:</b>	90° and 180° excitation - with automated operation
<b>Polariser accessories:</b>	Raman, Laser and white light
<b>FTIR micro accessory:</b>	Full reflective and contact ATR FTIR microscopy options
<b>Accessories:</b>	Motorised mapping stages, heating/cooling stages, fibre probes
<b>Second detector entrance:</b>	for PL, NIR Raman (above 1.1µm) and other applications

*Contact your nearest HORIBA Jobin Yvon office to find out further options*

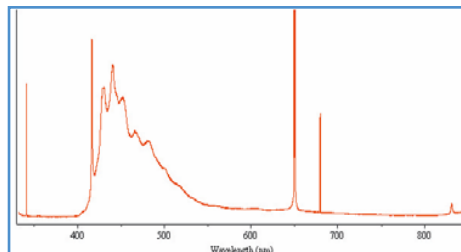
## Dimensions



λ= 325 - 1064 nm, P≤300 mW  
**VISIBLE OR INVISIBLE LASER RADIATION**  
**AVOID EXPOSURE TO BEAM**  
**CLASS 3B LASER PRODUCT**

- The content of this catalogue is subject to change without prior notice  
 - It is forbidden to copy from the contents of this catalogue in part or in full  
 - Please read the instruction/operation manual before using these products

This instrument complies with 21CFR 1040.10 and IEC 60825-1 (02/2001)



The CREST (Continuous Rapid Extended Scanning Technology) system continuously scans the grating. It will enhance the Raman spectrum over the CCD detector field of view to enhance S/N and band definition for certain types of acquisition, samples and detectors. The spectrum, above, illustrates the use of the CREST scan to seamlessly cover a broad spectral range.

**HORIBA** JOBIN YVON

Find us at [www.jobinyvon.com](http://www.jobinyvon.com) or telephone:

**USA:** +1-732-494-8660    **France:** +33 (0)3 20 59 18 00    **Japan:** +81 (0)3 3861 8231  
**Germany:** +49 (0) 6251 84 75-0    **UK:** +44 (0)20 8204 8142    **Italy:** +39 02 57603050  
**China:** +86 (0)10 6849 2216    **Other Countries:** +33 (0)1 64 54 13 00

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