

PR-1W

Palmtop Raman Spectrometer



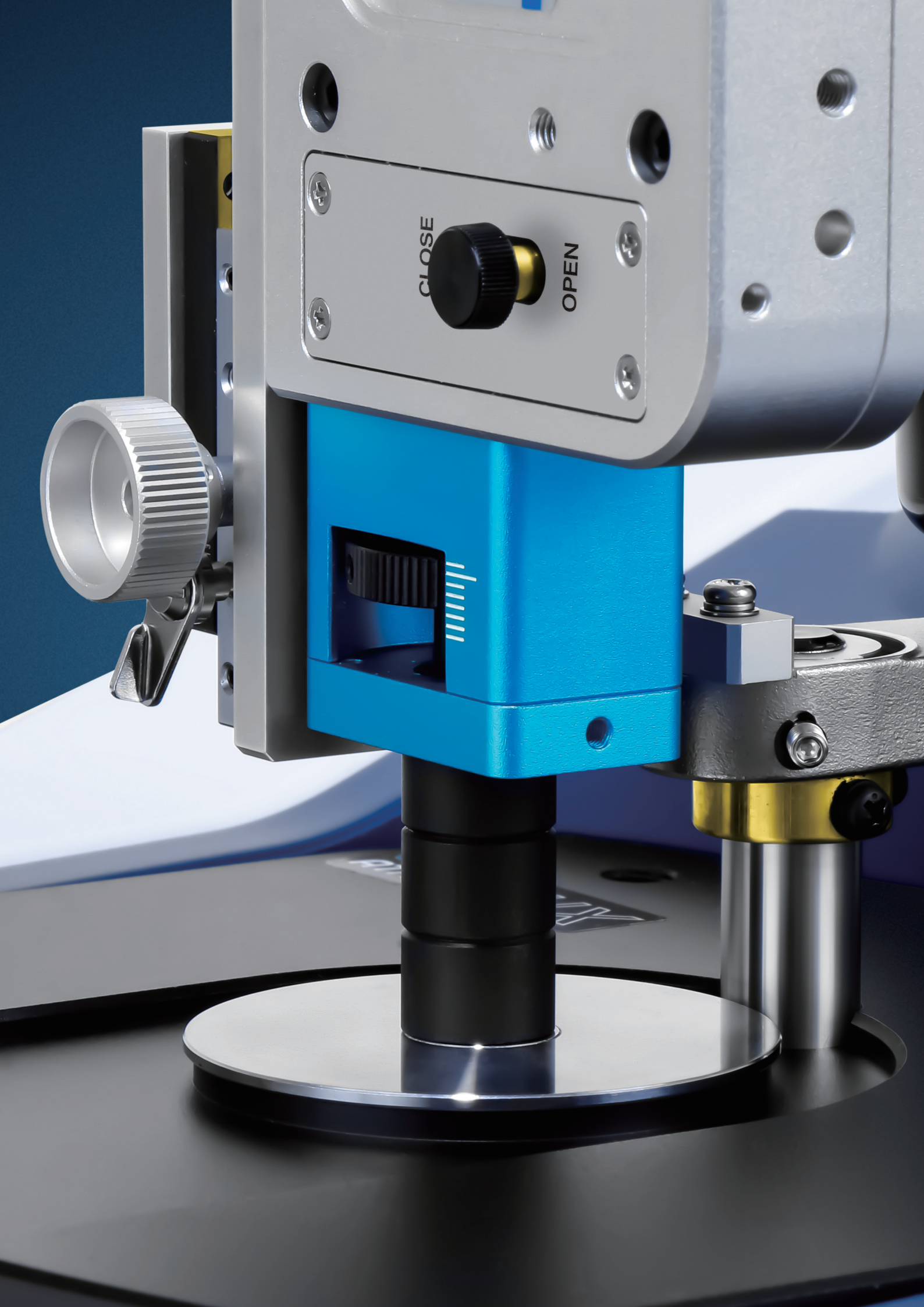
Distribution in the UK & Ireland



**Characterisation,
Measurement &
Analysis**

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Performance
Innovation
Reliability



The PR-1w Palmtop Raman is an amazing new technology that includes a wide-range, high-resolution spectrograph into a tiny form-factor. With performance comparable to much larger systems, you can quickly perform a wide range of *in-situ* analyses with a spectral measurement range, sensitivity and analysis tools that no other system can match.

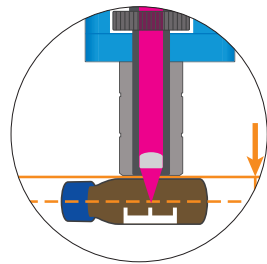
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RAMAN in the palm of your hand.

Optimal Focus

- Dial-type focusing mechanism with optional working distance objectives



Optional Objectives

- Focal distances from 9 – 22 mm



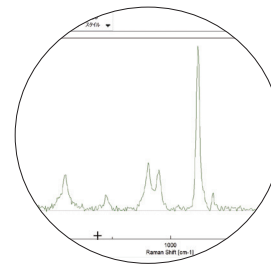
Shutter

- Manual shutter interlock for Class 3B laser safety



Measurement

- Non-destructive measurement of solids, powders and liquids
- Qualitative and quantitative analysis
- Measure inside bags, vials, etc.

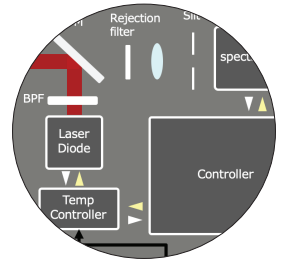


Simple Design

- Compact form-factor
- Contact the sample and start measurement with one click

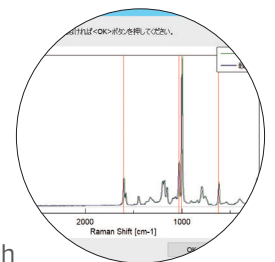
Optical System

- 785 nm laser (Class 3B Laser Safety)
- 3,000 to 200 cm^{-1} range
- 3 cm^{-1} resolution
- Room temperature CMOS detector



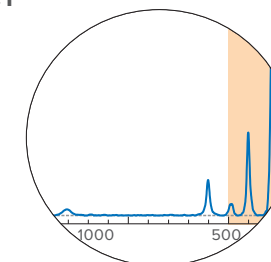
Software

- Spectra Manager™
- KnowItAll® spectral search (optional)
- Imaging model analysis, spectra search, etc.



Low Wavenumber Measurement

- Measure close to the Rayleigh scatter, down to 200 cm^{-1}



Optional Accessories



PR-1-V Vial Holder

For 2 mL vials, which can be measured in a light-tight compartment.



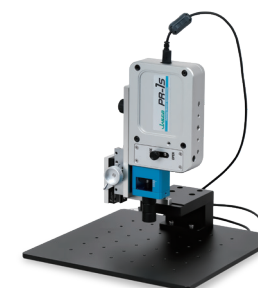
PR-1-C Cuvette Holder

For rectangular cells (and vials).



Small Volume Liquid/Powder Sample Holder

Three liquid/powder sample holders with five wells (PR-1-SP-5), six wells (PR-1-DC-6) and eight wells (PR-1-DC-8).



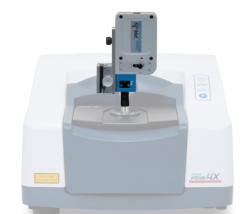
PR-1-Z Z Stage Unit

Adjustable stage for optimizing static measurements (up to 25 mm). Can be used with liquid/powder sample holders.



PR-1-DS Enclosed Sample Compartment

Perform measurements in a laser safe light-tight enclosure when the PR-1-w cannot completely cover the sample.

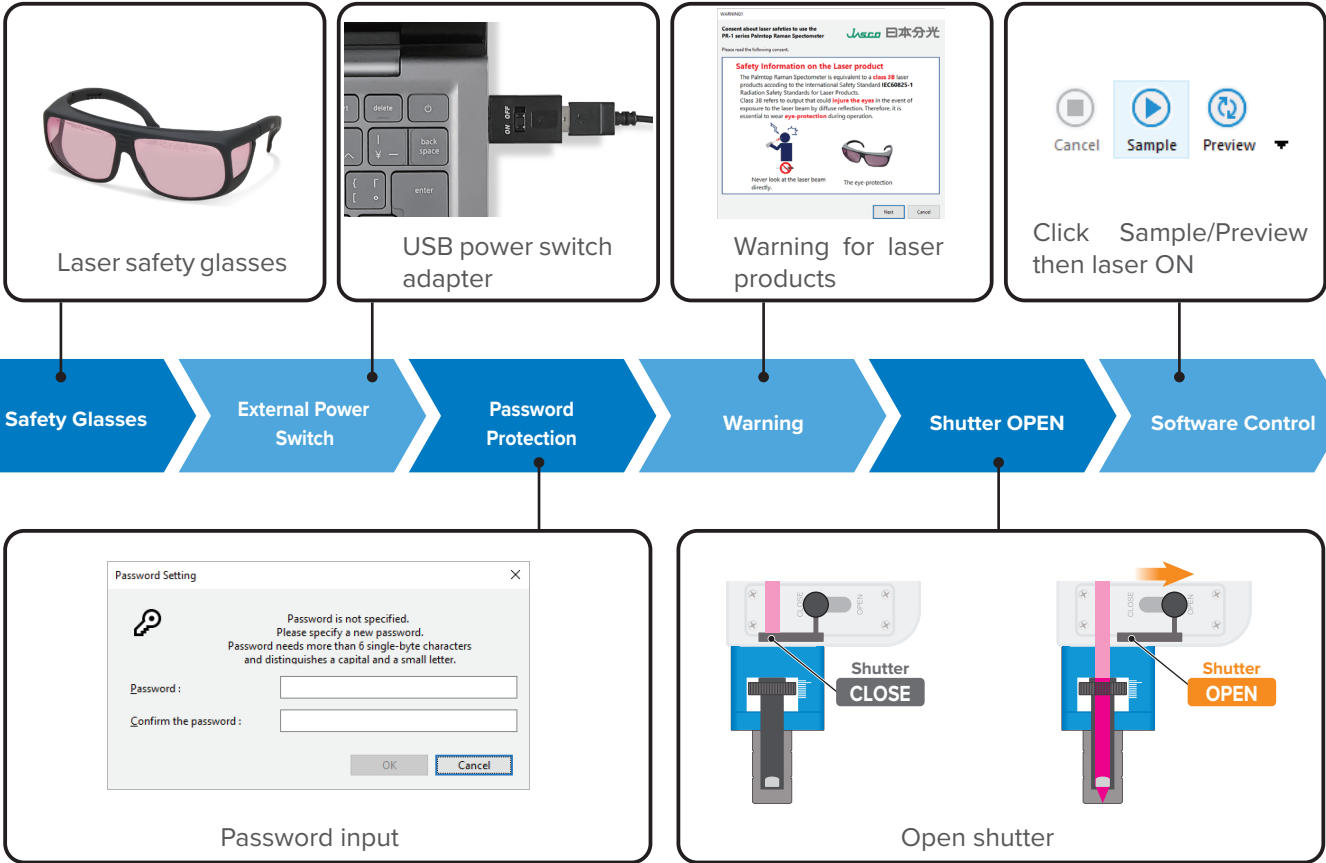


PR-1-ATR Combined Raman and FTIR ATR Accessory

Use the PR-1-w on a FTIR with ATR Pro X accessory for combined *in-situ* Raman and IR measurement.

Class 3B Laser Safety by Design

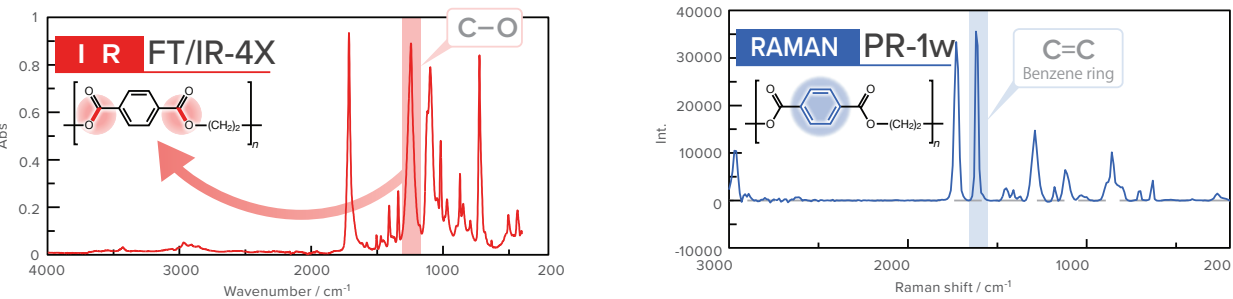
The PR-1w is a Class 3B laser safety product that has a safety mechanism ensuring the laser is not turned on until five user interactions have been performed.



Orthogonal IR and Raman Analysis

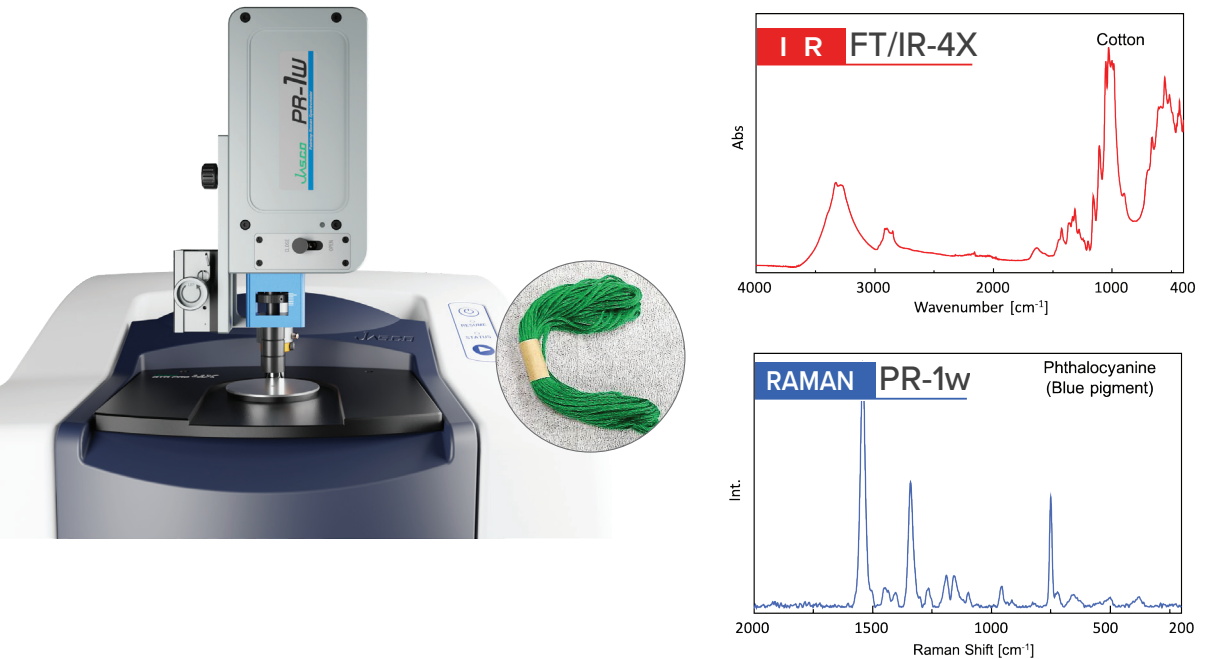
Analysis of Polyethylene terephthalate (PET)

The PR-1w Palmtop Raman allows you to access high resolution Raman spectroscopy (3 cm^{-1}) in a low cost form-factor that is complementary to macro FTIR measurement. By combining spectra from both techniques molecular structure can be probed with greater detail. In the example shown here, the non-dipole C=C bond can be identified by Raman which cannot be measured by IR, enhancing structural information.



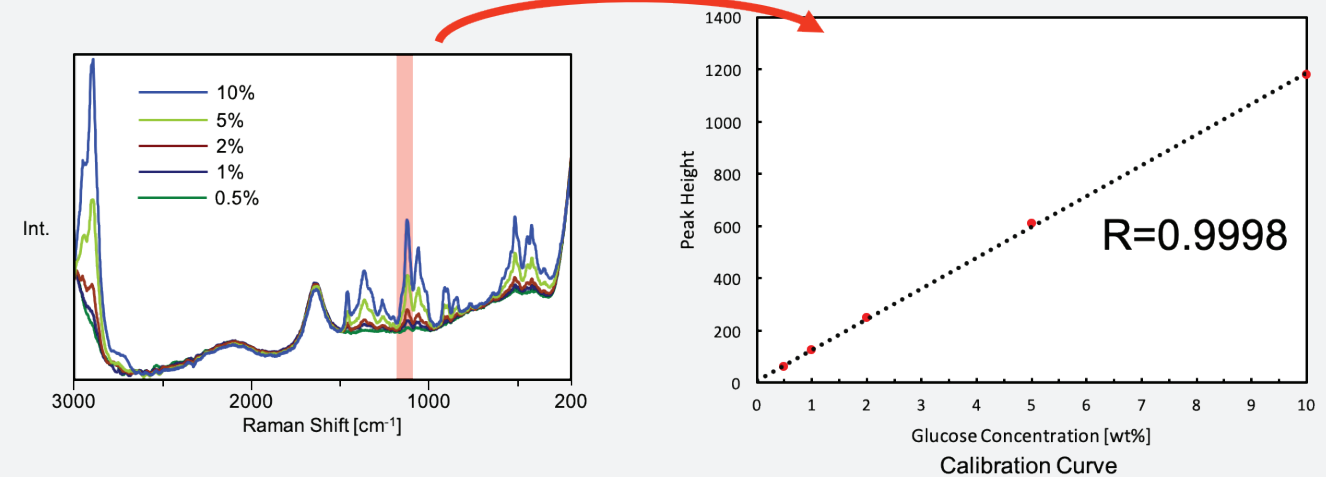
Analysis of Embroidery Thread

Complimentary information can be obtained with orthogonal analysis. Measurement is made in the same spectral range for the PR-1w and FTIR ATR.

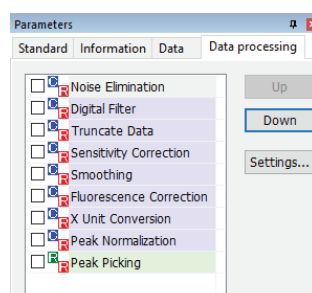


Quantitative Analysis of Glucose in Solution

Correlation between glucose concentration and peak height is shown below.



Spectra Manager™ for Palmtop Raman

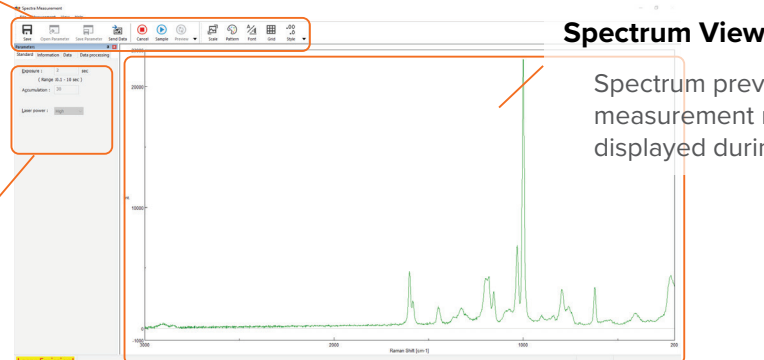


Simple Measurement

The user is guided through the measurement using a simple customizable process. The acquired spectrum is processed automatically based on the selected data processing parameters before being displayed in Spectra Analysis, and for identification using spectral library search. The PR-1-w provides spectral data that has good agreement with other high-performance Raman spectrometers.

Tool Bar Ribbon

Graphical buttons make it possible to perform the operation easily (saving the file, starting measurement, display setting, etc.).



Spectrum View

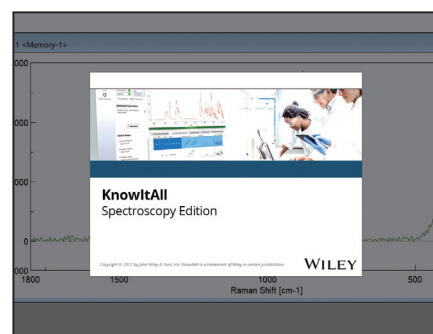
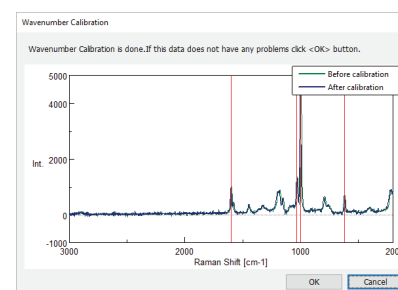
Spectrum preview and the measurement results are displayed during measurement.

Measurement Conditions

Set-up for measurement is easy with only three parameters to set: laser power, exposure time, and accumulations.

Wavenumber Correction

For accurate data, a wavenumber correction can be performed using a polystyrene standard provided with the system.



Spectral Search

Wiley KnowItAll® with up to 25,000 Raman spectra is available as an option.



SPECTRA MANAGER™

A SINGLE PLATFORM FOR EVERY INSTRUMENT.

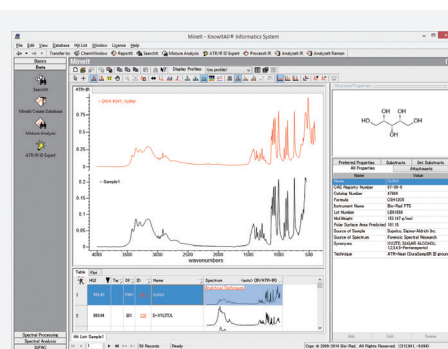
JASCO has developed the unique and powerful, cross-platform Windows® software package to control the widest range of optical spectroscopy instrumentation. Spectra Manager™ is a comprehensive lab companion for measuring and processing data, eliminating the need to learn multiple software programs and allowing data from many instruments to be analyzed and displayed together on the same platform.

KnowItAll® JASCO Edition Spectral Search

Wiley KnowItAll® Informatics System, JASCO Edition is available as an option for the PR-1w Palmtop Raman. This comprehensive data search database and analysis software includes the features shown below, including free access (for 90 days after software activation) to the database libraries, including 25,000 Raman spectra and lifetime unrestricted access to the data library including 1,300 reference spectra of general chemicals.

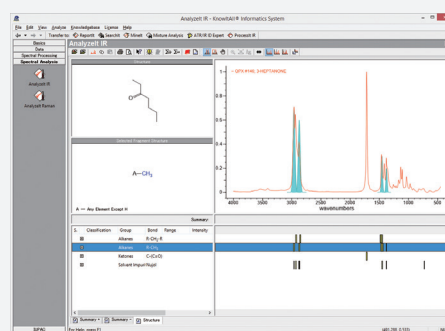
The KnowItAll® spectral database of 25,000 sample spectra is segmented into several easy to search individual libraries.

| KnowItAll Raman Spectral Libraries | |
|---|---------|
| Library Name | Spectra |
| Sadtler Controlled & Prescription Drugs 1 - Wiley | 855 |
| Sadtler Controlled & Prescription Drugs 2 - Wiley | 995 |
| Sadtler Controlled & Prescription Drugs 3 - Wiley | 1,375 |
| Sadtler Flavors & Fragrances - Wiley | 600 |
| Sadtler Inorganics - Wiley | 1,630 |
| JASCO Raman Library | 650 |
| Sadtler Nutraceuticals - Wiley | 470 |
| Sadtler Organometallics - Wiley | 150 |
| Sadtler Polymers & Monomers (Basic) 1 - Wiley | 1,680 |
| Sadtler Polymers & Monomers (Basic) 2 - Wiley | 245 |
| Sadtler Polymers & Processing Chemicals - Wiley | 495 |
| Sadtler Standards 1 - Wiley | 1,000 |
| Sadtler Standards 2 - Wiley | 1,000 |
| Sadtler Standards 3 - Wiley | 1,000 |
| Sadtler Standards 4 - Wiley | 1,000 |
| Sadtler Standards 5 - Wiley | 1,000 |
| Sadtler Standards 6 - Wiley | 1,000 |
| Sadtler Standards 7 - Wiley | 2,205 |
| Sigma-Aldrich Library of Raman Spectra - Wiley | 6,485 |



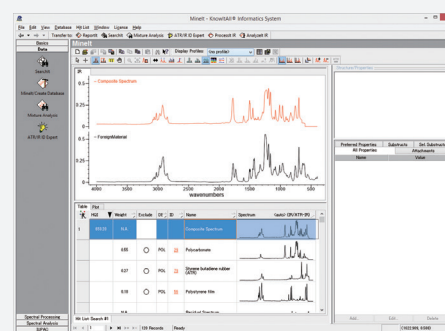
SearchIt™

Search against reference databases as well as your own imported spectra. Searches are customizable and driven by powerful algorithms. Searchable fields include name, structure, substructure, properties, and analytical data, such as spectra and peaks.



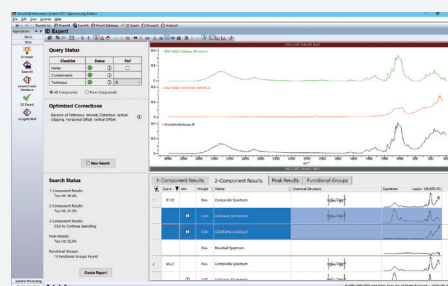
Analyzelt™

Interpret the bands in the spectrum. Simply load a spectrum and click on a peak of interest to generate a list of possible functional groups at that position. Analyzelt™ features over 200 functional groups and hundreds of interpretation frequencies.



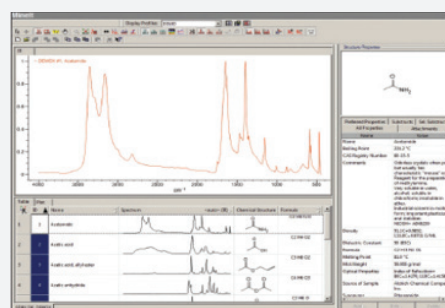
Mixture Analysis

Determine the components in a mixture. Transfer the spectrum to be analyzed and the software searches and compares the samples to reference databases of known compounds, predicting the possible mixture of components.



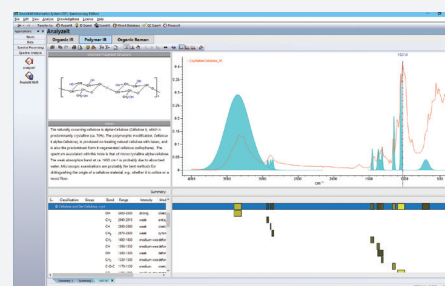
ID Expert™

ID Expert automatically performs a series of basic analyses, single and multi-component search, peak search, and functional group analysis.



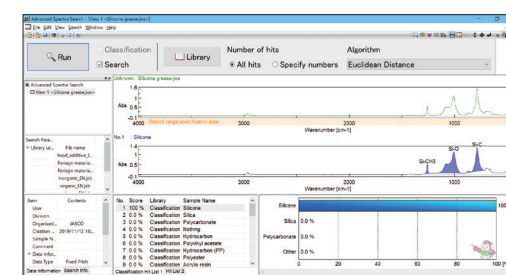
Minelt™

Searchable databases can be built for Raman, IR and NIR, chemical structures and other metadata. Databases can be customized for users' needs. Convenient for QC labs.



Analyzelt™ Polymer IR

Useful in the identification of IR spectra of unknown polymers and classification/pattern characterization of polymers.



ADSS-4X Advanced Spectra Search Program

The advanced spectral search program uses machine learning to perform classification without reference to a database and can classify the spectrum of unknown samples into 35 different chemical categories. It can also simultaneously identify the measured sample by searching against a user-buildable spectral library (starting with approximately 600 common reference spectra).

| | | |
|-------------------------------|-------------------------|-----------------|
| Carboxylic acids | Silicone | Urethanes |
| Carboxylic acid salts | Epoxy resins | Silica |
| Carboxylic acid esters | Polyethers | Silica (talc) |
| Carboxylic acid esters (oil) | Polyethers (polyacetal) | Silica (kaolin) |
| Proteins | Fluorides | Carbonates |
| Polyamides | Styrene | Sulfates |
| Cellulose and sugar | Polycarbonates | Polyimides |
| Hydrocarbons | Nitriles | Phosphates |
| Hydrocarbons (polyethylenes) | Phenolic resins | Water |
| Hydrocarbons (polypropylenes) | Polyvinyl acetates | Acetone |
| Acrylic resins | Polyvinyl chlorides | Alcohol |
| Polyesters | Polyvinyl alcohol | |

Additional Raman Instruments

The NRS series of confocal Raman microspectrometers includes three different optical configurations.



NRS-4500
Simple system with f200 spectrograph, for excellent discrimination in a compact instrument



NRS-5000
Research grade f300 spectrometer, for applications that demand greater resolution and sensitivity

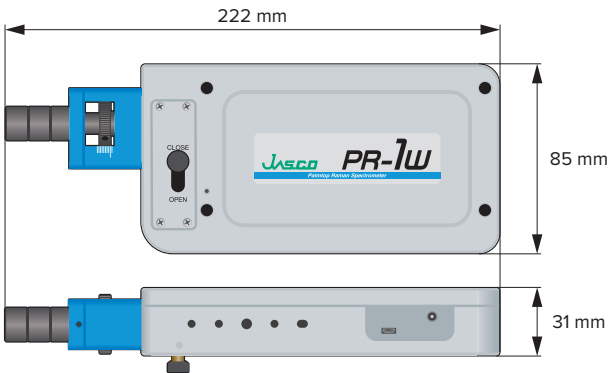


NRS-7000
Most advanced system with f500 spectrograph, for sensitive measurement and the highest resolution

- All Models**
- Class 1 laser safety
 - Automatic selection of multiple lasers
 - Raleigh rejection filter selection
 - Grating selection
 - Exceptional wavenumber accuracy with a high-precision rotary-encoder direct drive mechanism
 - Patented Spatial Resolution Image (SRI) function for simultaneous observation of sample image, laser spot and aperture image
 - Automated X-Y-Z with joystick and mouse/keyboard control
 - Spectra Manager™ Suite for measurement and confocal imaging
 - Auto-alignment of microscope laser introduction optics and Raman scattering light path
 - Wavenumber calibration using an internal Ne lamp
- NRS-5500/7500 only**
- Tunable Rayleigh rejection filter
 - Unique Dual Spatial Filter (DSF) providing higher spatial resolution than conventional confocal optics, especially in the Z-axis
 - Low wavenumber measurement, close to the Rayleigh scatter

Specifications

| Model | PR-1w |
|----------------------|---|
| Wavenumber Range | 3000 - 200 cm ⁻¹ |
| Resolution | 3 cm ⁻¹ /pixel |
| Laser Wavelength | 785 nm |
| Laser Power | 5, 25, 50 mW |
| Shutter | Normally closed |
| Connections | USB and AC adapter |
| Software | Spectra Manager™ Version 2.5 |
| Operating System | Windows 10/11 (Pro) |
| Laser Safety | Class 3B |
| Standard Accessories | Standard sample polystyrene, laser safety glasses, USB ON/OFF switch, normally closed release jig |
| Weight | 0.8 kg |



RMP-500 Series | Portable Raman

The RMP-510 is a high resolution (2cm⁻¹/pixel) probe Raman spectrometer with a robust optical design and tolerance to being transported. The spectral performance is close to that of a conventional benchtop Raman system and offers many of the same features, such as interchangeable gratings for selecting wavenumber range and spectral resolution.

Spectra Manager™ Suite simplifies data collection and analysis. Optional Wiley KnowltAll® Informatics can be added for library searching and creation of sample databases.





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JASCO Corporation

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