Agilent
Trusted Answers

Agilent Resolve Raman Spectrometer

High-throughput handheld Raman spectrometer

Resolve Raman spectrometer

Agilent offers a comprehensive range of molecular spectroscopy solutions, including portable and in-lab Raman, FTIR, UV-Vis-NIR, and fluorescence products.

The Agilent Resolve handheld Raman spectrometer delivers high-resolution spectra with portability, on-site capability, and ease of use, making it a great choice for analysis in the field. Using a nondestructive technique with no need for sample preparation, Resolve offers rapid scan times, even through containers or multiple layers.

Resolve in a nutshell

The Resolve spectrometer offers:

- **Advanced optical design**
  This handheld system provides data quality akin to that of a benchtop system.
- **An 830 nm wavelength**
  It offers reduced fluorescence while retaining high Raman signal with a reduced risk of sample damage.
- **Out-of-the-lab ruggedness**
  This field-proven, robust system offers outstanding performance and reproducibility, even in difficult environments.
- **Innovative technology**
  Offering the proprietary spatially offset Raman spectroscopy (SORS), Resolve can help you obtain data of interest through layers or containers.


Select Container:
Thick, Colored or Opaque
Glass, Clear Bag or None
Vial
Agilent
Resolve
Raman

A rugged body and intuitive interface for easy data collection anywhere

The Resolve system combines a tough handheld unit with a simple, user-friendly interface, built to withstand harsh environments. Full system control requires only seven large, responsive buttons, which are ideal for gloved use. Operational managers can fully customize workflows, laser-arming passwords, and the format of results and associated metadata.

The more advanced Academic Mode unlocks further workflow flexibility and access to collection parameters (such as SORS offset position, acquisition times, and more) to optimize Raman measurements to the application at hand.

In-field calibration and performance check built into a protective, removable nose cap. Contact and noncontact scan modes available

SORS optics with 830 nm laser (class 3B) for high signal-to-noise ratio, through-barrier measurements, and fluorescence mitigation

Ability to create reference libraries for onboard matching

Lithium-ion battery pack for up to 4 hours use in the field

The system works in three modes:

Surface Scan mode

For line-of-sight measurements, similar to conventional Raman identification systems

Vial Holder mode

For quick identification of materials contained within glass vials in a custom holder

Through-Barrier mode

For measurements that require scanning sub-surface or through barriers, including nonmetallic, sealed containers like colored and opaque plastics, glass, paper, wrapping, sacks, and fabrics

Additional features

Perform remote measurements for increased efficiency.

Export single-scan processed data to USB (or via Wi-Fi) in CSV or SPC formats.
Export academic data (raw, unbaselined, and so on).
Bulk export through Agilent Command Fleet Management software.

Use Resolve scan data to create new library items on the spot using the onboard user libraries.
For more advanced library creation functions, choose Command Fleet Management software.

Perform automatic self-test runs to ensure data quality and detection performance.

Overplot previous scans or any library item to obtain further information on your scan.

Add sample references and notes to scans.

SORS through-barrier capability

Conventional handheld Raman systems are typically limited to operation through clear plastic bags or clear glass vials. If the material of interest is found behind a layer or within thicker, colored, or opaque containers, it might be necessary to damage or open the item to take a sample. This is not always possible, safe, or desirable.

The Agilent Resolve Raman spectrometer uses proprietary Agilent handheld SORS technology to help you obtain data of interest behind layers or containers.

SORS advantages

The Resolve's SORS technology provides the following benefits:

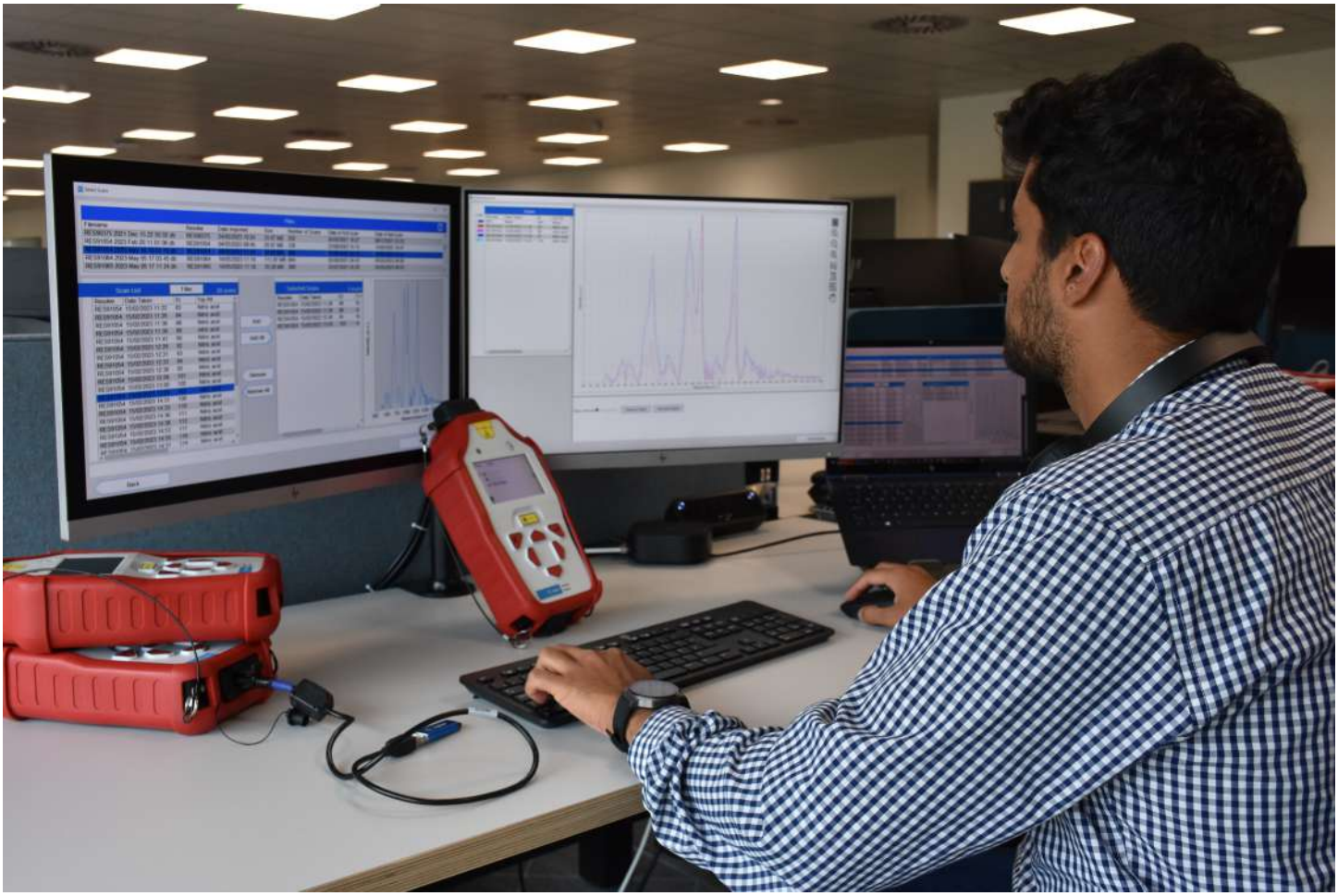
- **Enhanced visibility:** Analyzes areas of the sample below the surface
- **Greater efficiency:** Removes the need to take samples, move objects, and waste valuable time
- **Nondestructive technique:** Keeps samples intact with containers undisturbed
- **Innovative technology**: Limits exposure to hazards as they are kept contained

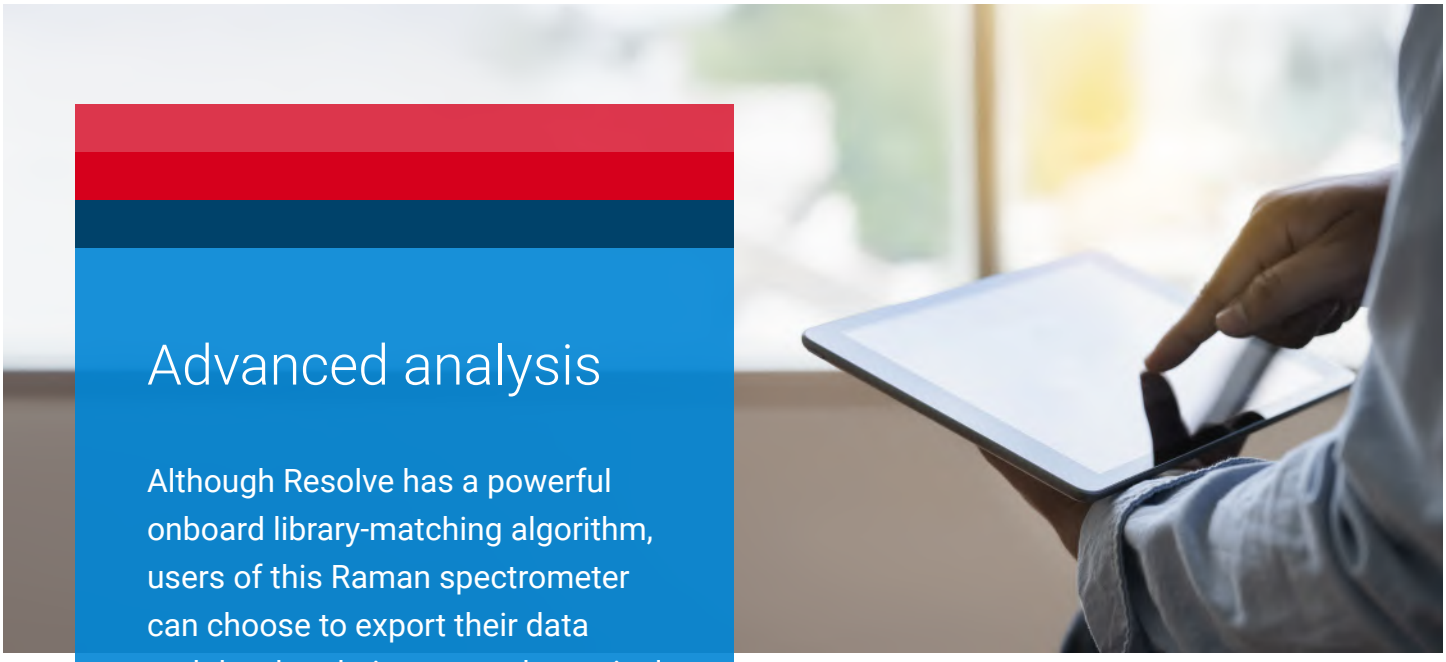
Command Fleet Management software

Agilent Command Fleet Management software is designed to enhance the use of your handheld Resolve spectrometer, whenever you wish to take advantage of the Resolve's onboard library-matching algorithm.

Capabilities:

- Easy batch or single file creation from Resolve databases (file types: CSV, PDF, and SPC).
- Creation of new library items from Resolve scan data.

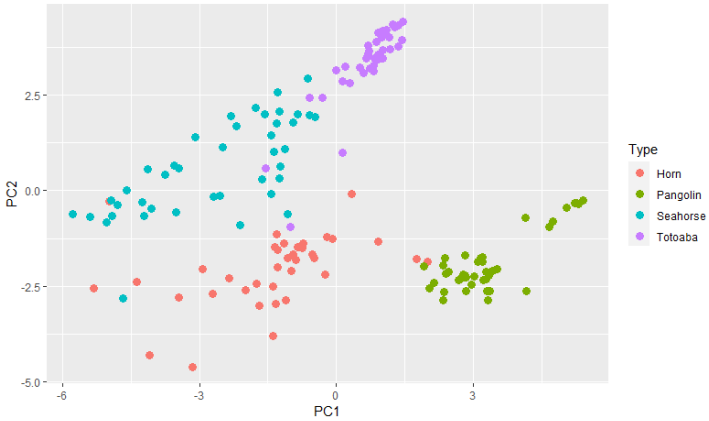




Advanced analysis

Although Resolve has a powerful onboard library-matching algorithm, users of this Raman spectrometer can choose to export their data and develop their own mathematical model to achieve predictions. Thanks to the high signal-to-noise ratio, advanced chemometric analysis can unlock a variety of information.

SORS, calibrated, and uncalibrated scan data can be accessed in CSV format by exporting a scan or full database to a USB device or to previously enabled shared folders via Wi-Fi.



For advanced users looking to integrate Resolve into their analytical solution, a data-streaming Bluetooth API can be provided to allow abstraction of different spectrum types.

Note: The Bluetooth socket connection handling and interface for the external device will be fully developed by the user.

Example research applications

Agriculture

The noninvasive and nondestructive nature of Raman spectroscopy combined with the choice of laser wavelength, high-quality optics, and subsurface measurements make Resolve an ideal Raman spectrometer for agricultural research. The portable nature of Resolve offers the possibility to perform analysis directly in the field for quick quality evaluation.

Resolve has been proven to be an ideal instrument for the investigation of factors such as nutritional values, variety identification, and disease or stress symptoms in plants.

Food and beverages

Food quality issues and food adulteration can be harmful to human health and often lead to economic losses for both consumers and producers.

The spectral information offered by Resolve's SORS technology makes it an interesting method to analyze different aspects of food and beverages, especially when through-packaging analysis is required.

Falsified vaccine identification

SORS has been demonstrated for analysis of the dominant excipients in surrogates for falsified COVID-19 vaccines contained in vaccine vials. This technique can be extended to other vaccines and liquid medicines.

Agilent handheld spectrometers

Vaya Raman system

The Agilent Vaya Raman raw material identity verification system is designed from the ground up to be used in GMP-compliant raw material identification processes.

4300 handheld FTIR spectrometer

The Agilent 4300 handheld FTIR spectrometer is the first of its kind to employ lightweight ergonomics, ease of use, ruggedness, and flexibility in one system. The 4300 is an ideal partner to Resolve when FTIR is preferred for deployment into nonlaboratory situations.

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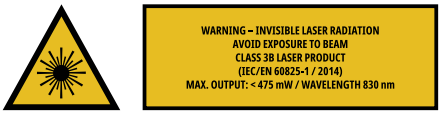

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