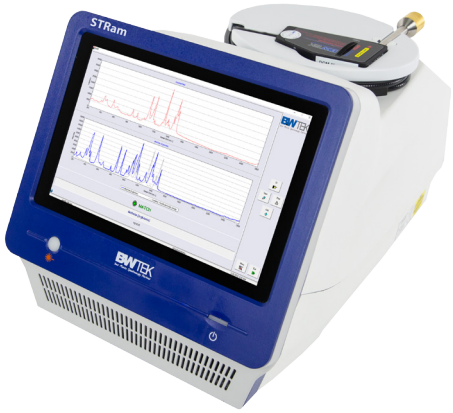
STRam

B&W TEK
A Metrohm Group Company

Raman Solution

Portable Raman Analyzer for Rapid Analysis and Identification Through Opaque Barriers



The award winning STRam® unites a high-throughput spectrometer, specialized sampling optics and advanced algorithms in a portable Raman system to deliver rapid material identification capabilities through a variety of barrier layers and packaging previously impenetrable with Raman. Using our patented STRaman® technology, the STRam can collect Raman signal generated underneath diffusive top layers to identify material inside even visually opaque barriers such as plastic bottles and paper bags. This removes the need to open containers and come in contact with the material, maintaining package and sample integrity. The system design features a large sampling area and depth and minimized power density, facilitating the measurement of samples that can be challenging for conventional focused Raman spectroscopy.

SENSITIVE:

The system design enhances the signal at a greater depth so that samples inside opaque containers can be identified without the signature of the top layers overwhelming the sample signature. The system combines a high-throughput spectrometer, a high sensitivity and low noise detector, a specialized sample probe, and advanced identification algorithms.

VERSATILE:

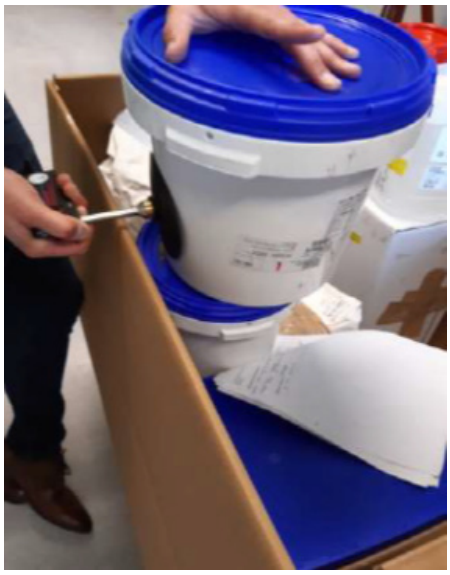
The system provides versatility for see-though measurements through barriers and across a large sampling area while allowing low power density in measuring sensitive samples. Specialized adaptors can easily be attached for focused measurement directly on a sample. The STRam can be used for Raman analysis of samples ranging from those in packages to sensitive energetics or biological samples, and its large spot size gives greater reproducibility of heterogeneous sample measurements.

PORTABLE:

The STRam is a fully integrated system with a tablet computer running 21CFR part 11 compliant software for through-barrier-layer material identification. With optional battery operation for easy portability, the system provides research-grade, high-sensitivity Raman capabilities wherever needed.

Applications:

- **Through-Package Material Identification**
- **Customs and Logistics Package Inspection**
- **Pharmaceutical Raw Material Identification**
- **Narcotics Detection**
- **Art and Archaeological Study**
- **Bioscience and Medical Analysis**
- **Forensic Analysis**
- **Geological and Mineralogical Research**
- **Material Science Research**



Specifications:

Laser		
Laser Power (exiting probe)	420 mW, nominal	
Laser Power Control	0 to 100% (adjustable at 1% increments)	
Spectrometer	**Range**	**Resolution***
BWS475-785H-ST	150 – 2800 cm^{-1}	< 6.0 cm^{-1} @ 912 nm
BWS475-1064-ST	100 – 2500 cm^{-1}	< 10.0 cm^{-1} @ 1296 nm
Detector	**785 nm excitation**	**1064 nm excitation**
Detector Type	High Quantum Efficiency CCD	High Sensitivity InGaAs Array
Temperature	-25 ˚C	-20 ˚C
Integration Time	7 ms – 30 min	0.2 ms – 5 min
Electronics		
Computer Interface	USB 2.0	
Trigger	Yes (Compatible with B&W Tek Probes)	
Power Options		
DC Power Adaptor	Input: 100-240 VAC 50/60Hz. Output: 12V DC @ 6.6 Amps	
Battery	Optional	
Physical		
Dimensions	15.7in x 10.2in x 9.8in (40cm x 26cm x 25cm)	
Weight	~19.5 lbs (~8.8 kg)	
Operating Temperature	0 ˚C – 35 ˚C	
Humidity	10% - 85%, non condensing	

**Resolution measured using atomic emission lines. Raman resolution per ASTM E2529-06 (Standard Guide for Testing the Resolution of a Raman Spectrometer) available upon request.*

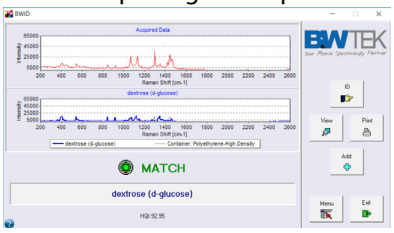
The Analytical Scientist Innovation Awards 2017

Accessories Included:

- Fiber-optic see-through Raman probe
- Focus adaptor, surface regulator, and light shield
- Laser safety goggles
- BWID®-pharma software with STID (installed on embedded tablet)
- Windows-based BWSpec® operating software
- BWIQ® chemometric software (trial version)
- Wheeled carrying case

Software:

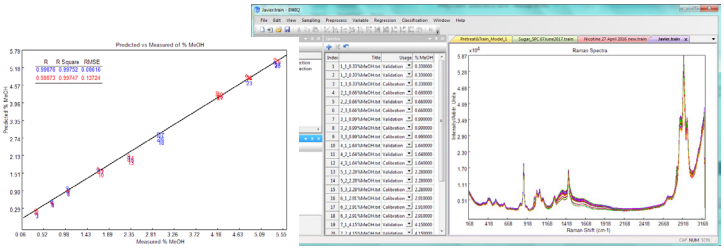
B&W Tek offers comprehensive software packages that provide solutions for Raman application needs. Powerful calculations, easy data management, and user-friendly, easy-to-follow workflows are all at the tips of your fingers.



The STRam is controlled by 21 CFR Part 11 compliant BWID®-Pharma software optimized for rapid identification and verification of materials, and includes advanced STID algorithms for through-package identification. BWID®-Pharma provides enhanced system access security, secured data storage, and an audit trail of data activities. IQ and OQ services are available.

In the laboratory, the system can be connected to an external computer and used with the BWSpec® software, the foundation for all B&W Tek software platforms, offering full acquisition control, continuous monitoring and additional analysis capabilities and viewing options.

B&W Tek's software portfolio also includes BWIQ®, a multivariate software package for qualitative and quantitative analysis of spectral data. BWIQ includes chemometric methods such as Partial Least Squares Regression (PLS), Principal Component Analysis (PCA) and Support Vector Machine (SVM) regression, a full suite of preprocessing tools, and extensive graphics for model interpretation. Models can be used for real-time predictions from BWIQ directly. The BWIQ chemometrics software package is ideal for analysis of spectroscopic data.



Available Accessories:

- Standard 9.5mm dia. probe shaft
- Probe holder & XYZ positioning stage
- Battery
- A range of long-working-distance lenses
- Video microscope
- Industrial Raman immersion probe
- Raman spectra libraries for ID (only PTL-CNSP is usable in STID mode).
- 1D barcode scanner.

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