i-RAMAN Pro

B&W TEK
Your Mobile Spectroscopy Partner

A Metrohm Group Company

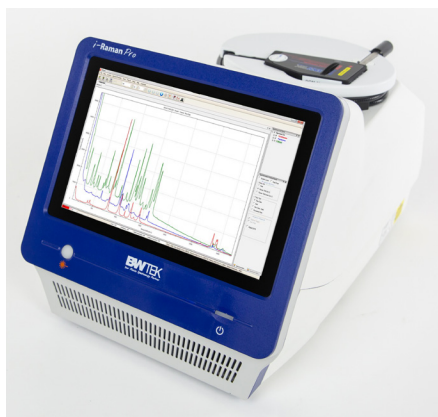*Raman Solution*

Deep-Cooled, High-Sensitivity/Resolution Portable Raman System

The i-Raman® Pro is a fully integrated Raman system with an embedded tablet computer and a fiber-optic sampling probe, providing real-time quantitation and identification capabilities in a high-sensitivity, high-resolution portable Raman. Using a high-quantum-efficiency CCD array detector with deep cooling (-25℃) and high dynamic range, this portable Raman spectrometer delivers excellent signal-to-noise ratio for applications requiring long integration times. The i-Raman Pro features the unique combination of wide spectral coverage and high resolution, measuring down to 65 cm^{-1} and up to 4200cm^{-1}, in a mobile design.

The i-Raman Pro can be battery operated for easy portability, giving research-grade Raman capabilities for high-precision qualitative and quantitative work wherever it is needed.

SENSITIVE:

High-quantum-efficiency CCD array detector with ultra-deep cooling and high dynamic range offers increased sensitivity.

COMPREHENSIVE:

Sampling via a fiber-optic probe gives the flexibility to make measurements in different positions for a range of sample sizes and forms. Our comprehensive package of sampling accessories, including a video microscope lenses for stand-off measurements, provide the utmost utility for Raman analysis in the lab and the field.

TOUCH SCREEN INTERFACE:

The i-Raman Pro is a fully integrated system with a touchscreen tablet computer running touch-friendly software, providing material identification and real-time predictions.

Applications:

- **Art and Archaeological Study**
- **Bioscience and Medical Diagnosis**
- **Pharmaceutical Analysis**
- **Raman Microscopy**
- **Process Monitoring (PAT)**
- **Forensic Analysis**
- **Gemology**
- **Geological and Mineralogical Research**
- **Materials Science Research**
- **Narcotics Detection**
- **SERS**

Specifications:

Laser	Exiting Probe	At Laser Port
532 nm Excitation	35 mW, nominal	42 mW, nominal
785 nm Excitation	340 mW, nominal	455 mW, nominal
Laser Power Control	0 to 100% (adjustable at 1% increments)	

Models	Range	Resolution*
BWS475-532S	65-4200 cm^{-1}	< 4.5 cm^{-1} @614 nm
BWS475-532H	65-3400 cm^{-1}	< 3.5 cm^{-1} @614 nm
BWS475-785S	65-3350 cm^{-1}	< 4.5 cm^{-1} @ 912 nm
BWS475-785H	65-2800 cm^{-1}	< 3.5 cm^{-1} @ 912 nm

Detector	
Detector Type	High Quantum Efficiency CCD Array
CCD Temperature	-25 ˚C
Integration Time	7 ms – 30 mins

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.

Accessories (Included):

- Fiber-optic probe with external trigger
- Laser safety goggles
- 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.
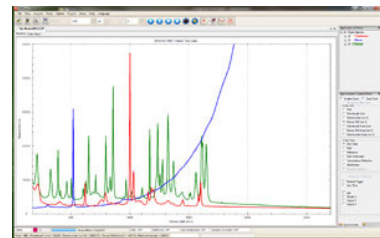
BWSpec® is the foundation for all B&W Tek software platforms. It is general spectroscopic software for instrument control, data acquisition, including real-time peak analysis and trending, and can be used on the tablet or connected to an external computer.

The optional BWID® software is optimized for rapid identification and verification of materials with spectral libraries. For Raman applications in regulated environments, BWID-Pharma software supports requirements for FDA 21 CFR Part 11 compliance.

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 online use with the i-Raman Pro for real-time prediction and offline use for analysis of spectroscopic data.
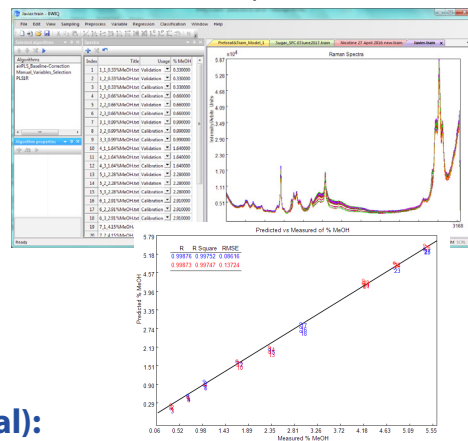
Accessories (Optional):

- Battery
- Cuvette holder
- Tablet holder
- A range of long working distance lenses (up to 6 meters)
- Probe holder and XYZ positioning stage
- Industrial Raman immersion probe shaft
- Microscope adaptor
- Video microscope
- Performance testing kit, including liquid vial holder
- Raman flow cell
- BWID acquisition and identification software

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