

i-Raman®

Sensitive, Versatile, Simple



The i-Raman® is part of our award-winning line of portable Raman spectrometers. It delivers high resolution combined with field-portability, providing performance comparable to large benchtop Raman systems while only weighing less than 7 lbs. The system's small footprint, lightweight design and low power consumption (optional battery) provide research grade Raman capabilities anywhere!

The i-Raman offers 532nm and 785nm excitation wavelength standard and high resolution configurations measuring from 65 cm^{-1} to 4000 cm^{-1} . All i-Raman systems feature a TE-cooled CCD detector, allowing for the maximum effective integration time of several minutes. This makes the i-Raman an economical solution for many Raman applications such as teaching, product development, materials science research and quality control.

Features:

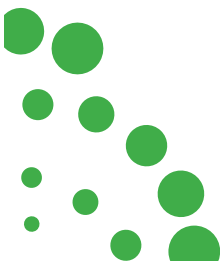
- Spectral resolution of 3.5 cm^{-1}
- 150 cm^{-1} of the Rayleigh line; 65 cm^{-1} option available
- Wide Raman shift coverage
- Patented CleanLaze® technology for laser stabilization and narrow linewidth
- TE-Cooled 2048 pixel array
- Fiber optic interface for convenient sampling

Applications:

- Art and Archaeology
- Bioscience and Medical Diagnosis
- Education and Teaching
- Forensic Analysis
- Gemology
- Geology and Mineralogy
- Materials Science
- Pharmaceutical Development and Quality Control
- Polymers and Chemical Processes
- Raman Microscopy
- SERS (Surface-enhanced Raman spectroscopy)

Why Choose Raman?

- No sample preparation required
- Nondestructive
- Able to measure through glass, quartz, plastic (non-contact)
- Samples can be solid, liquid or gas, transparent or opaque
- Small sample size
- Wide spectral coverage for a variety of diverse applications
- Spectra have high selectivity and specificity, which is ideal for identification



Specifications:

Laser		
532nm Excitation	>40mw at laser port (50mW max)	
785nm Excitation	>320mw at laser port (420mW max)	
Laser Power Control	0-100%	
Spectrometer		
	Range	Resolution*
i-Raman-532S	150 - 4000cm ⁻¹	<4.5cm ⁻¹ @ 614nm
i-Raman-532H	150 - 3300cm ⁻¹	<3.5cm ⁻¹ @ 614nm
i-Raman-785S	150 - 3200cm ⁻¹	<4.5cm ⁻¹ @ 912nm
i-Raman-785H	150 - 2700cm ⁻¹	<3.5cm ⁻¹ @ 912nm
Detector		
Detector Type	TE Cooled Linear Array	
Pixel Number	2048	
Pixel Size	14µm x 200µm	
TE Cooling Temperature	10°C	
Dynamic Range	1300:1 (typical)	
Digitization Resolution	16-bit or 65,535:1	
Integration Time	5ms - 65,535ms	
Electronics		
Computer Interface	USB 2.0 / 1.1	
Trigger	Yes (Compatible with B&W Tek Probes)	
Power Options		
DC (Standard)	5V DC @ 8 Amps	
Physical		
Dimensions	6.7in x 13.4in x 9.2in (17cm x 34cm x 23.4cm)	
Weight	~3 kg (~6.6 lbs)	
Operating Temperature	10°C - 35°C	
Storage Temperature	-10°C - 60°C	
Humidity	10% - 85%	

*Typical resolution measured using atomic emission lines. Center wavelength and linewidth not guaranteed

Accessories:

Fiber-optic Raman probe (immersion probe and trigger probe options)

Cuvette Holder

Probe Holder

Video Microscope

Microscope Adaptor

Flow Cells

Battery

Laser Safety Goggles



Software:

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

BWSpec®, provided with every Raman spectrometer, is the foundation for all B&W Tek software platforms. Built on the proven BWSpec® platform, BWID® (optional) is optimized for rapid identification and verification of materials. For industrial Raman applications in regulated environments: BWID®- Pharma supports requirements for electronic signature and audit trails in accordance with US FDA 21 CFR Part 11.



B&W Tek's software portfolio also includes BWIQ®, a multivariate software package for analysis of spectral data including exploratory and qualitative analysis, and quantitative regression methods along with the ability to perform real-time predictions. BWIQ® offers an intuitive user interface and intelligent algorithms implemented with efficient matrix calculation power. BWIQ® offers traditional chemometric methods such as Partial Least Squares Regression (PLS), Principal Component Analysis (PCA) and SIMCA and Support Vector Machine (SVM) algorithms. The software includes outlier detection and a full range of preprocessing tools. Its logical workflow makes it easy to use by novice and expert users and is ideal for online use with the i-Raman® for real-time prediction and offline use with high resolution spectroscopic data.

