

Raman Solution

## i-Raman® Plus

### Highly Sensitive, High Resolution Fiber Optic Raman System



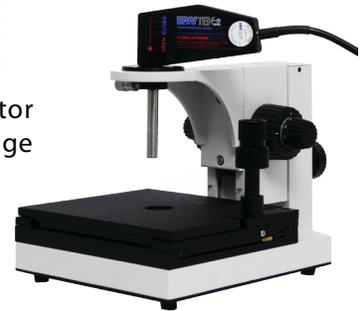
The i-Raman® Plus is an enhanced version of our award winning i-Raman portable Raman spectrometer, now powered by our innovative smart spectrometer technology. Using a high quantum efficiency CCD array detector with deeper cooling and high dynamic range, this portable Raman spectrometer delivers an improved signal to noise ratio for up to 30 minutes of integration time, making it possible to measure weak Raman signals. The i-Raman Plus features the unique combination of wide spectral coverage and high resolution with configurations measuring out to  $4000\text{cm}^{-1}$ , enabling you to measure stretching bands around  $3100\text{cm}^{-1}$ . The system's small footprint, lightweight design, and low power consumption provide research grade Raman capabilities anywhere. The i-Raman Plus comes standard with a fiber optic probe, and can be used with an XYZ positioning stage probe holder, a cuvette holder, and our proprietary BWIQ multivariate analysis software. With the i-Raman Plus, a high precision qualitative and quantitative Raman solution is at your fingertips.

#### Applications:

- Geology, Mineralogy, and Gemology
- Bioscience and Medical Diagnostics
- Semiconductor & Solar Inspection
- Pharmaceutical Material Analysis
- Polymer and Chemical Analysis
- Environmental Science
- Raman Microscopy
- Forensic Analysis

#### SENSITIVE:

High quantum efficiency CCD array detector with deeper cooling and high dynamic range



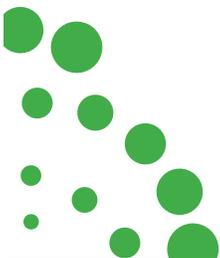
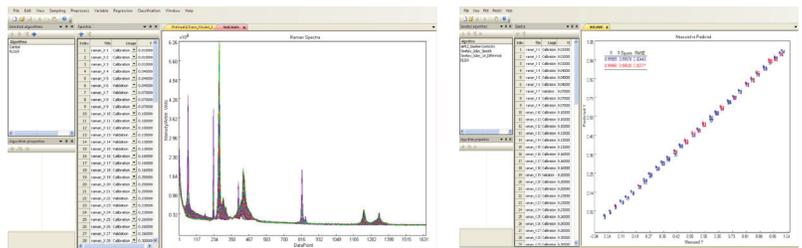
#### COMPREHENSIVE:

Our comprehensive package of sampling accessories for measuring solid and liquid samples provide you the utmost utility right out of the box.



#### QUANTITATIVE:

Our state of the art BWIQ quantitative Raman analysis software package provides an intuitive user interface, intelligent algorithms, and efficient matrix calculation power, making it easy to use by both expert and novice users.



## Specifications:

<b>Laser</b>		
532nm Excitation	< 50mW	
785nm Excitation	< 300mW	
Laser Power Control	0 to 100%	
<b>Spectrometer</b>	<b>Range</b>	<b>Resolution*</b>
BWS465-532S	175cm <sup>-1</sup> - 4000cm <sup>-1</sup>	~ 4.0cm <sup>-1</sup> @ 614nm
BWS465-532H	175cm <sup>-1</sup> - 3300cm <sup>-1</sup>	~ 3.0cm <sup>-1</sup> @ 614nm
BWS465-785S	175cm <sup>-1</sup> - 3200cm <sup>-1</sup>	~ 4.5cm <sup>-1</sup> @ 912nm
BWS465-785H	175cm <sup>-1</sup> - 2700cm <sup>-1</sup>	~ 3.5cm <sup>-1</sup> @ 912nm
<b>Detector</b>		
Detector Type	High quantum efficiency CCD Array	
Pixel Number	2048 Effective Detector Elements	
Effective Pixel Size	14µm x ~ 0.9 mm	
CCD Cooling Temperature	-2°C	
Dynamic Range	50,000:1 (Typical)	
Digitization Resolution	16-bit or 65,535:1	
Integration Time	100ms - 30 mins	
<b>Electronics</b>		
Computer Interface	USB 3.0 / 2.0	
Trigger	Yes (Compatible with BWTek Probes)	
<b>Power Options</b>		
DC Power Adaptor	12V DC @ 6.6 Amps	
Battery	Optional	
<b>Physical</b>		
Dimensions	6.7x13.4x9.2inc (17x34x23.4cm)	
Weight	~6.6lbs (~3kg)	
Operating Temperature	0°C - 35°C	
Storage Temperature	-10°C - 60°C	
Humidity	10% - 85%	

\*Typical resolution measured using pen lamp emission

## Additional Features:

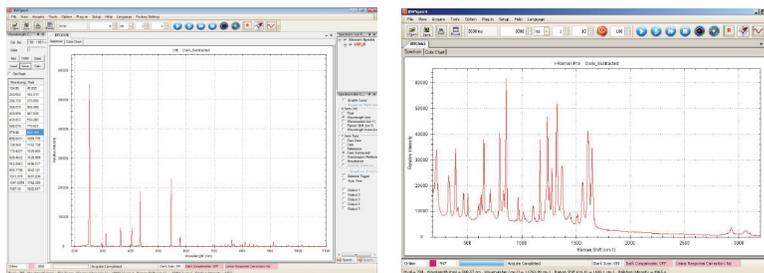
- Patented CleanLaze® Technology for Laser Stabilization
- 175cm<sup>-1</sup> of the Rayleigh Line (65cm<sup>-1</sup> Option Available)
- Fiber Optic Coupling for Convenient Sampling
- Up to 4000cm<sup>-1</sup> Raman Shift Coverage
- Spectral Resolution as fine as 3cm<sup>-1</sup>

## 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 work flow are all at the tips of your fingers.

BWSpec™ is the foundation for all B&W Tek software platforms and comes standard with every Raman spectrometer. Built on the proven BWSpec™ platform, BWID™ (optional) is optimized for identification and verification of materials. For industrial Raman applications that require federal compliance: BWID™- Pharma (optional) supports all requirements for FDA 21 CFR Part 11 Compliance.

The most recent addition to B&W Tek's software portfolio is BWIQ™ chemometrics software for use with the i-Raman® Plus and other high resolution Raman products. BWIQ™ is a multivariate analysis software package which can analyze spectral data and discover internal relationships between spectra and response data or spectra and sample classes. By coupling new and transitional chemometric methods such as airPLS baseline correction, with high speed and accurate sparse linear algebra algorithms, BWIQ represents the next generation in speed, accuracy and performance.



## Accessories (Included):

- Fiber Optic Raman Probes
- Laser Safety Goggles

## Accessories (Optional):

- Cuvette Holders
- Probe Holders
- Immersion Raman Probe Shaft
- Microscope Adaptor
- Video Microscope
- Raman Flow Cells

