Raman Measurement System

BIX-8815 Series

Raman spectroscopy is a powerful analytical technique in molecular spectroscopy, based on inelastic light scattering. When incident light interacts with a sample, molecular vibrations induce energy shifts in the scattered photons, generating a Raman spectrum. Since each substance exhibits unique vibrational fingerprints, Raman spectroscopy enables precise qualitative identification of unknown samples. Moreover, the linear relationship between Raman peak intensity and molecular concentration allows for accurate quantitative analysis.

Key Advantages

- Non-contact & non-destructive – Ideal for liquid and solid samples without physical interference.
- High specificity – Distinct spectral fingerprints for precise material identification.
- Broad applicability – Suitable for organic/inorganic compounds, polymers, pharmaceuticals, and more.

Raman measurement (Solid)

Raman measurement(Liquid)

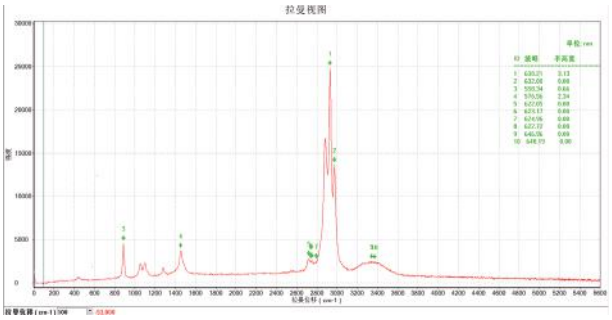
Features

- Broad Spectral Range: Coverage of up to 4000 cm^{-1}, suitable for diverse molecular vibrational analysis.
- High Resolution: Precision detection with resolution <10 cm^{-1}, enabling fine spectral differentiation.
- Adjustable Narrow-Linewidth Laser: Tunable output power and ultra-narrow linewidth for enhanced signal clarity.
- Modular Design: Flexible configuration for customized testing needs, adaptable to various sample types and experimental setups.

Applications

- Gemstone & Cultural Relic Authentication – Non-destructive identification of precious jewelry and artifacts.
- Food Safety Inspection – Rapid detection of fruits, vegetables and agricultural products.
- Pharmaceutical Analysis – Composition testing and quality control of drugs.
- Chemical & Environmental Monitoring – Industrial inspection and pollution detection.

Typical Spectrum

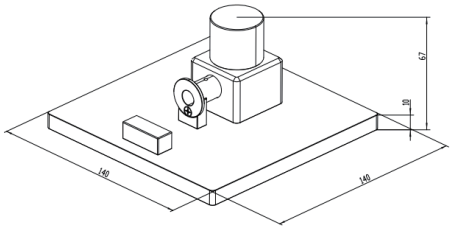


Raman spectrum of the alcohol sample under the excitation wavelength of 532 nm

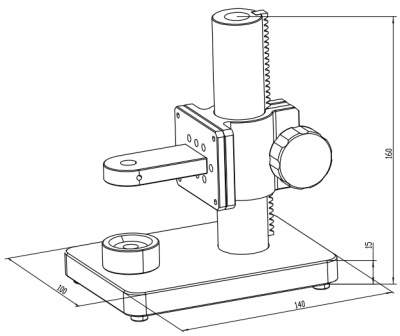
Specifications

Model	BIX-8815-532-01 Basic BIX-8815-532-02 High resolution	BIX-8815-785-01 Basic BIX-8815-785-02 High resolution	BIX-8815-830-01 Basic BIX-8815-830-02 High resolution
Laser Parameter	Wavelength 532nm Power ≥ 100mW Line width<0.1nm	Wavelength 785nm Power ≥ 400mW Line width<0.1nm	Wavelength 830nm Power ≥ 400mW Line width<0.1nm
Raman Spectroscopy Range	176cm^{-1} - 4000cm^{-1}	176cm^{-1} - 3500cm^{-1}	176cm^{-1} - 2800cm^{-1}
Optical Resolution	< 10.5cm^{-1}	< 10cm^{-1}	
Probe Working Focal Length	7.5mm		
SNR	【532-01】600 : 1 【532-02】800 : 1	【785-01】600 : 1 【785-02】800 : 1	【830-01】600 : 1 【830-02】800 : 1
Laser Power Supply	110/220 VAC		
Spectrometer Interface	USB2.0，12Mbps		
Humidity	5%-80%		
Environment Temperature	0℃ -45℃		

Dimensions (mm)



Liquid test accessories



Solid test accessories