



DATASHEET
EOC-SI-R8300TW
Dual-Band & Auto-Focus Raman Microscope

Description

EOC-SI-R8300TW Series integrates two lasers, microscope and Raman spectrometer, combining with all of the advantages to one miniature Raman microscope. It becomes possible to see micro areas of samples on the computer screen with just a single mouse click. When the sample is visualized in accurate position, the observer can scan Raman spectrum under various surface conditions, and synchronous Mapping can be displayed intuitively on the screen in a click. As a result, it takes great convenience to detect micro areas of samples.

Combine unique patented conjugate focusing (true confocal) system with accurate image processing algorithm, and it enables a very small sample areas to be analyzed, as well as it requires minimal operator training and maintenance, yet resulting in uniform result not just spectrum.

EOC-SI-R8300TW Series operate in all-auto focus, all-auto scan, one-button operate, it can run batches of experiment, uniform scan, wait for no time can obtain highly reliable scanned imaging Raman data. EOC-SI-R8300TW is equipped with tailor-made objective, and laser spot on the sample becomes very close to diffraction limit, then focal information can be displayed in accurate and intuitive on the screen with 5-megapixel camera. it improves Raman spectrum quality, as a result of overcoming the problem due to traditional Raman system collects Raman signal from higher or lower actual focal surface.

EOC-SI-R8300TW solve signal loss in optical path while camera imaging, it also separate camera imaging from Raman signal collection in order to obtain optimal signal intensity. Meanwhile, EOC-SI-R8300TW installed the high performance Raman spectrometer, which employs sensitivity, SNR, stability leading the industry level, in return provide guarantee for Raman analysis.

Features:

- Dual-Band Wavelength:
 - 785+1064 nm;
 - 532+1064 nm;
 - 532+633 nm;
 - 532nm+785 nm;
 - 633+1064 nm;
- Auto-Focus, Auto Scan, All-Auto Raman Experiment;
- Ultra-high Sensitivity, SNR>6000:1
- True Confocal, ensure precision Raman image
- Ultra-high space resolution
- Unique Software Control switch optical path
- Ultra-high stability
- Good quality optical component, excellent product performance;
- Quick positioning, swift to find focal position
- High Quality Objective, Light spot in micrometer level
- 5-mega pixels camera, clear and accurate image
- USB2.0 interface connecting PC

Application

- Nano particles and new materials
- Scientific research Institutions
- Bioscience
- Forensic identification
- Material science
- Medical immunology analysis
- Agriculture and food accreditation
- Gemstones & minerals identification

Models	Excitation Wavelength
EOC-SI-R8300TW-785+1064	785+1064 nm
EOC-SI-R8300TW-532+633	532+633 nm
EOC-SI-R8300TW-532+1064	532+1064 nm
EOC-SI-R8300TW-532+785	532nm+785 nm
EOC-SI-R8300TW-633+1064	633+1064 nm

1, Technical Parameters

Sheet 1 EOC-SI-R8300TW Embedded Raman Performance

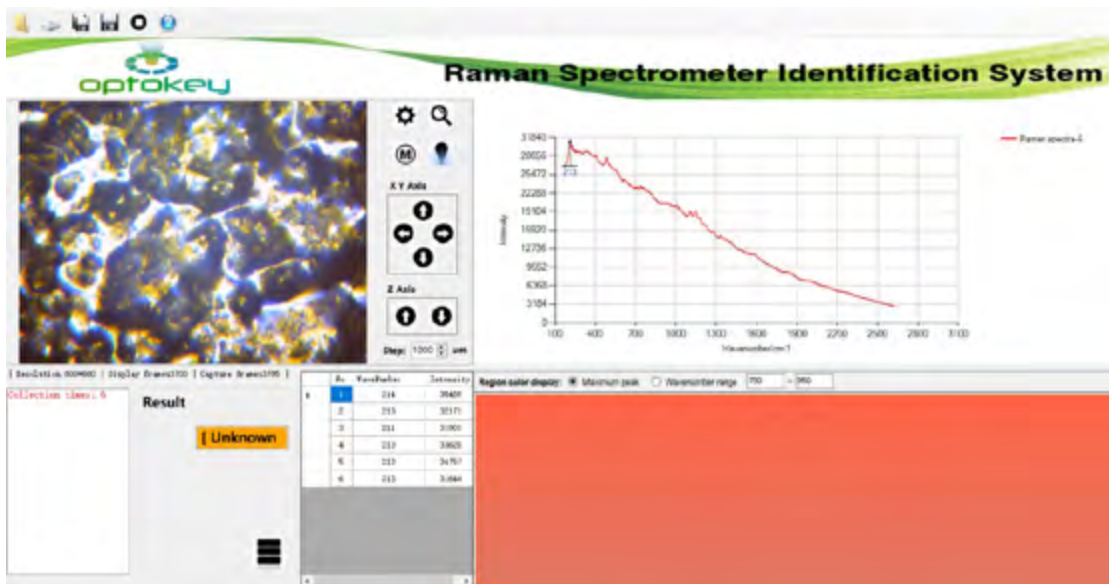
Wavelength 1	Wavelength 2 /nm	Power /mW	Wavenumber Range /cm ⁻¹	Resolution/cm ⁻¹
532 nm	532	100	200 ~ 3700	5 ~ 7
633 nm	633	50	200 ~ 3500	3 ~ 6
785 nm	785	500	250 ~ 2700	3 ~ 6
			200 ~ 3500	4 ~ 8
			200 ~ 4300	5 ~ 10
1064 nm	1064	500	200 ~ 2600	7 ~ 12
Customized Wavelengths				

Sheet 2 EOC-SI-R8300TW Performance Parameters

EOC-SI-R8300TW Performance Parameters	
Camera	5-mega industrial camera
Focus	True Confocal
Laser Spot Diameter	>1μm
Laser Stability	$\sigma/\mu < \pm 0.2\%$
Interface	USB2.0
Electrical controlled X,Y axis 2D platform	
moving range	5 X 5 cm
moving resolution	0.1μm
positioning accuracy	1μm
Scan speed	20mm/s
Z axis (automated focusing)	
focusing accuracy	$\leq \pm 0.2\mu\text{m}$
Max. range	20mm
focusing speed	Less than 10 s



Fig 1. EOC-SI-R8300TW structure picture



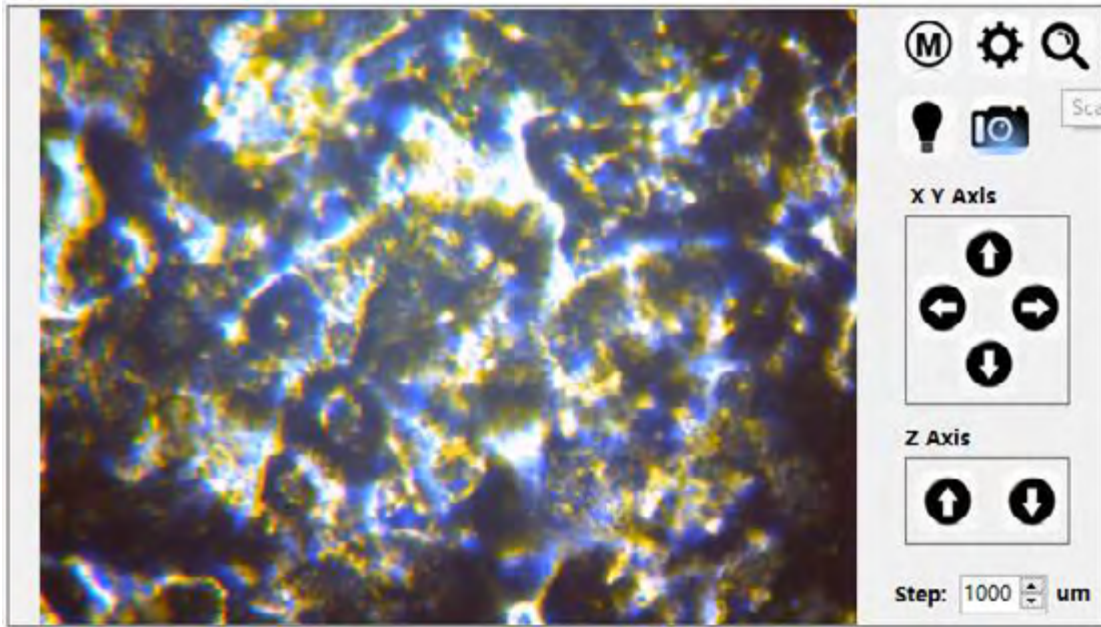


Fig. 3 EOC-SI-R8300TW imaging and scan control panel

2. Optical Performance

2.1 Spectrum

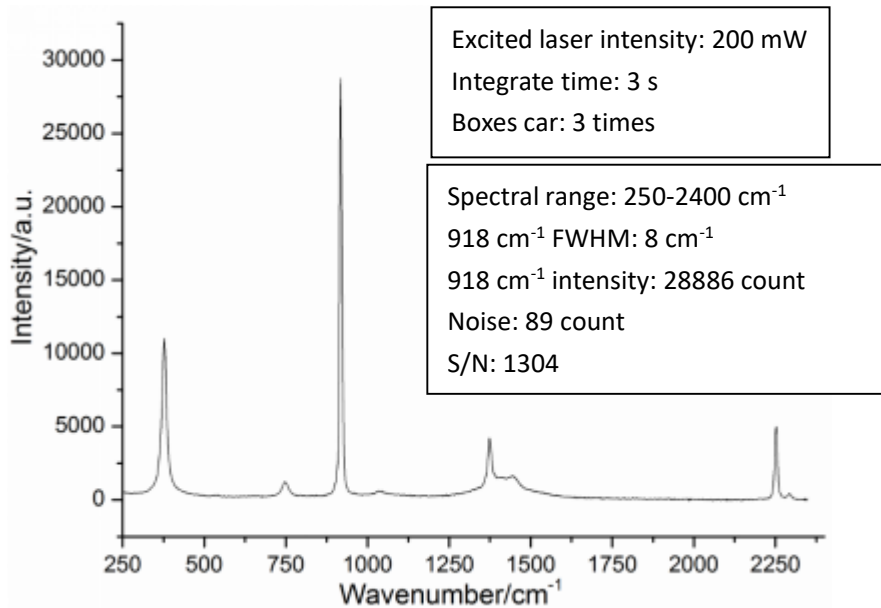
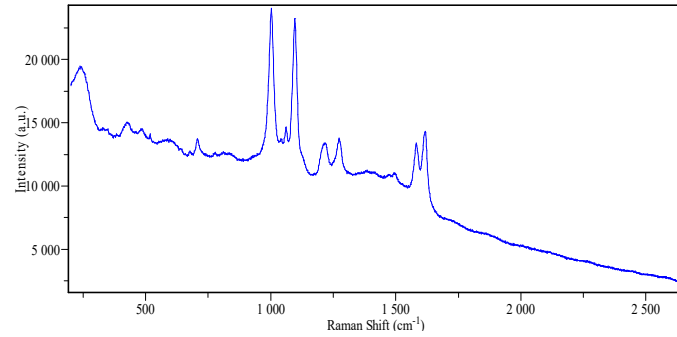
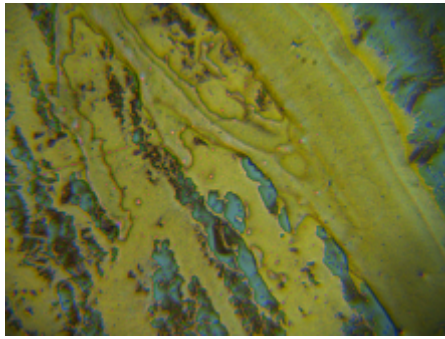
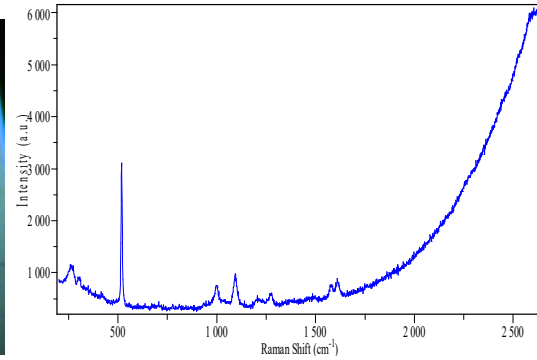
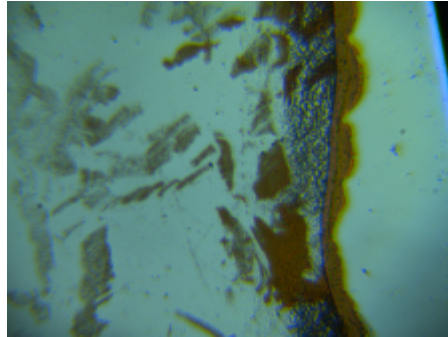


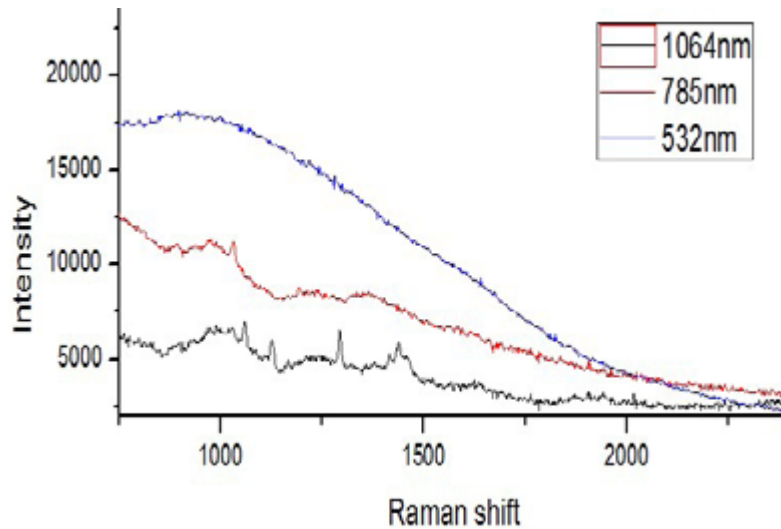
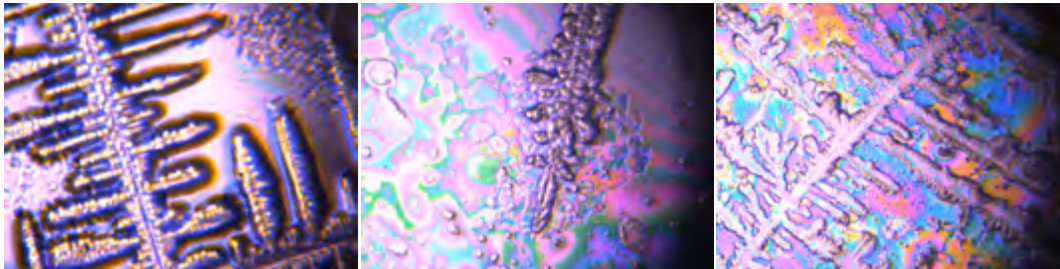
Fig. 4 EOC-SI-R8300TW acquire acetonitrile spectra



EOC-SI-R8300TW Sers experiment 1: left is sample picture, right shows Sers Raman spectra



EOC-SI-R8300TW Sers experiment 2: left picture is sample, right shows Sers Raman spectra



EOC-SI-R8300TW experiment to measure cell metabolite, the above three picture surface topograph, the below Raman spectrum scanned by EOC-SI-R8300TW-1064, EOC-SI-R8300TW-785, EOC-SI-R8300TW-532.

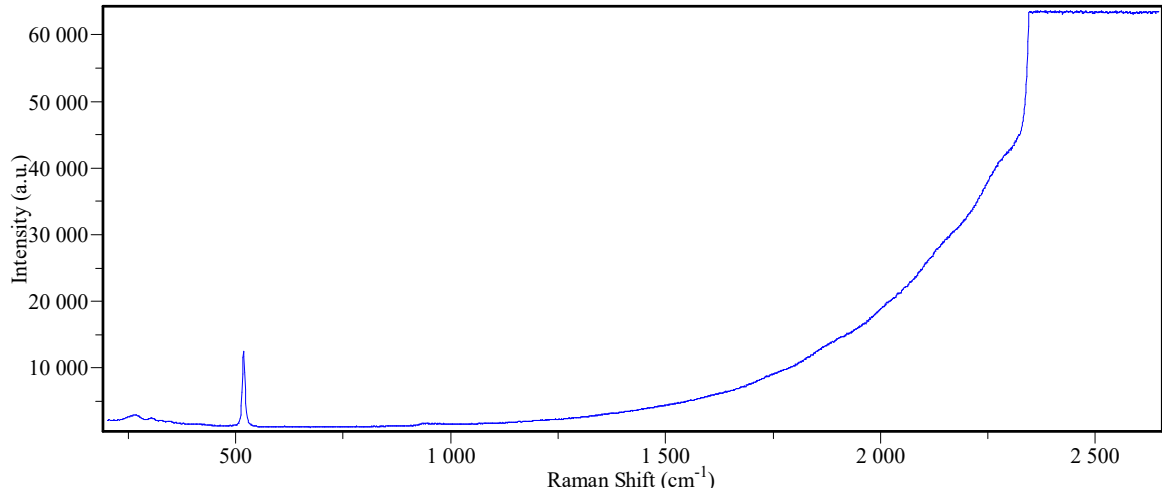


Fig 8 EOC-SI-R8300TW Measure Si Raman spectra (500mW, 1S integration time)

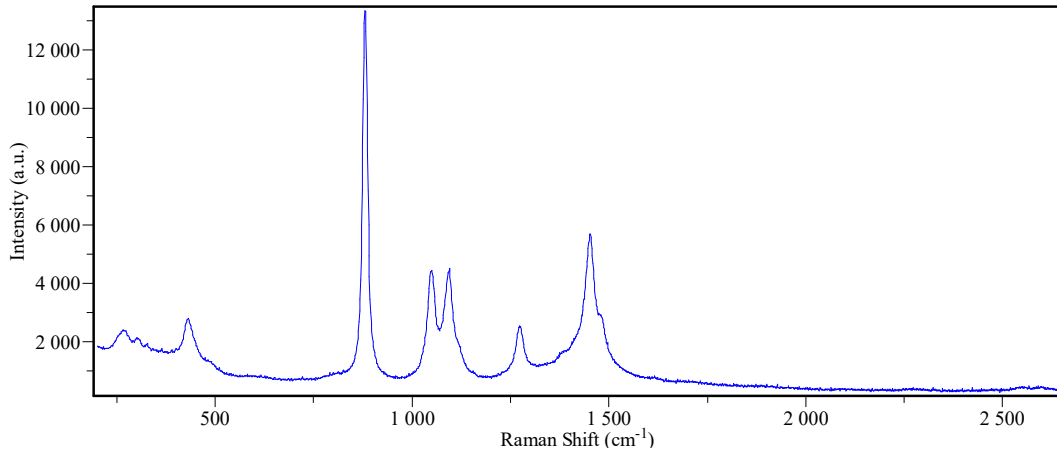


Fig 9 EOC-SI-R8300TW Measure alcohol Raman spectra (500mW, 1S integration time)

4 Order Information

Models	Excitation Wavelengths
EOC-SI-R8300TW-785+1064	785+1064 nm
EOC-SI-R8300TW-532+633	532+633 nm
EOC-SI-R8300TW-532+1064	532+1064 nm
EOC-SI-R8300TW-532+785	532nm+785 nm
EOC-SI-R8300TW-633+1064	633+1064 nm

For example: actual final model no. EOC-SI-R8300TW-785+1064