

Dual Band Raman Microscope

ATR8320

Features

- Spectrometer Focal Length: 150mm, Resolution: 3cm⁻¹;
- 2 Wavelength: 532, 638, 785 (Optional);
- Built-In Double Rotated Grating For Flexible Use;
- Wide Range Testing And Hd Testing Both;
- A Variety Of Cooling Detectors Are Available, With Cooling Temperatures Up To -70°C;
- Fully Automatic Raman Experiment, Auto-Focus, Auto-Scan;
- High Sensitivity, Snr>6000:1
- True Focus Ensures More Accurate Raman Images
- Software Controls Switched Light Path
- Quick Positioning, Quick Focus
- High-Quality Objective Lens, Micron-Level Light Spot;
- 5 Million Pixel Cameras
- Interface: Usb3.0

Application

- Nanoparticles And New Materials
- Universities And Research Institutes
- Biotechnology : Biological Sciences
- Biopharma : Forensic Medicine Identification
- Material Science
- Chemistry : Medical Immunoassay
- Agriculture And Food Identification : Food & Beverage
- Water Pollution Analysis
- Energy: Gem And Inorganic Mineral Identification
- Environment: Environmental Science

Description

ATR8320 combines the advantages of the microscope and Raman spectrometer. The Raman microscopy detection platform makes it possible to "what you see is what you measure". The Raman microscope detection platform is a visual and precise positioning Raman detection platform, which allows the user to detect the Raman signals of different surface states on the sample, and can be displayed simultaneously on the computer, which is greatly Facilitates Raman micro-area detection.

ATR8320 uses a spectrometer with a focal length of 150mm, a resolution of up to 3cm⁻¹, and built-in dual rotated grating, which can perform both wide-band range Raman testing and High spectral resolution Raman spectrum testing.

ATR8320 built-in narrow linewidth lasers with wavelengths of 532nm, 638nm, and 785nm (2 optional, wide range of applications), with power up to 550mW; it also has a variety of cooling detectors to choose from, and the cooling temperature can reach -70°C; at the same time, combined with High reliability optical design, circuit design, and structural design, the measurement results are very stable.

ATR8320 is characterized by high flexibility and high resolution. It can perform micro-Raman testing in a wide band range and high-spectral resolution Raman spectroscopy testing. It has the advantage of high cost performance and can be extended to liquid testing. It is very suitable for including Materials. Research in Chemistry, Biology, Pharmaceuticals and other fields.

The entire series of ATR8320 can perform Auto-focus, Auto-scan, One-click operation, and can conduct batch experiments without waiting; it is equipped with an objective lens specially designed for the Raman system, making the light spot close to the diffraction limit. It overcomes the problem in ordinary Raman systems that the focal plane for collecting Raman signals is slightly higher or slightly lower than the actual optimal focal plane, thereby improving the quality of the Raman spectrum.



Product data information is current as of publication data. Products conform to specifications per the terms of Optosky Standard warranty.

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1. Select Guide

Model	excitation wavelength	Laser Power	Wavelength range (cm-1) *1	Resolution (cm-1)
ATR8320-532+785	532nm	80mW	150~10000	3
	785nm	500mW	150~10000	5
ATR8320-532+638	532nm	80mW	150~10000	3
	638nm	80mW	150~10000	3
ATR8320-1064*2	1064	500mW	150~10000	8

Note:

*1: Other waveband ranges, such as low-wavenumber Raman (150~10000 cm-1) and terahertz Raman (10~10000 cm-1), can be customized;

*2: 1064nm Raman spectrum can only be used for single-wavelength Raman;

Performance parameters of the built-in Raman spectrometer

Excitation wavelength	Laser Power	Wavelength range (cm-1) *1	Resolution (cm-1)
532nm	80mW	150~10000	3
638nm	80mW	150~10000	3
785nm	500mW	150~10000	5
1064nm	500mW	150~10000	8
Other wavelengths can be customized			

Excitation wavelength	Advantage
532nm、638nm	High excitation efficiency; short experimental time.
785nm	High overall performance: Low cost, lower price
1064nm	No fluorescence interference;

2. Parameter

ATR8320 System	
Interface	USB 2.0
Integration time	1ms~1.3hours
Microscope camera	3、5-mega pixel camera
voltage	AC100~240V, 约 50W
Focus	Conjugate focus
Laser spot diameter	>1μm
Working temperature	-10~45 °C
Working humidity	< 90%
Weight	20 Kg

Reliability	
Spectral stability	$\sigma/\mu < 0.5\%$ (COT 8 hours)
Temperature stability	Spectrum shift $\leq 1 \text{ cm}^{-1}$ (10~40 °C)
Spectral intensity change (in 5 ~ 40 °C)	$< \pm 5\%$
Optical parameters	
SNR	>8000:1 (918 cm^{-1} of Acetonitrile, 10s accumulation, 200mW)
Optical system	F/4 C-T cross symmetric optical path
CCD Detector	
Type	Ultra-low temperature refrigeration, ultra-high sensitivity area array CCD, multiple detectors available
Detector cooling temperature	The lowest temperature reaches -70 °C
Detection range	200~1100 nm
Effective Pixels	2048*264
Dynamic Range	50000: 1
InGaAs Detector	
Model	High sensitivity 512 or 1024 pixel InGaAs detector
Detector cooling temperature	-10 °C
Detection range	900-1700 nm
Effective pixels	512/1024
Dynamic range	50000: 1
Raman probe	
working distance	6 mm
Fiber length	1.5m
Dual laser optical path coupling method	Coaxial coupling output
Transmission rate	OD>8
Aperture	0.3
Aperture	7mm
X、Y axis Stage	
X/Y axis Moving range	50 X 50 mm
X/Y axis Moving resolution	0.1 μm
X/Y axis Positioning accuracy	1 μm
X/Y axis Scan speed	20mm/s
Z axis Stage (auto focus)	
Z axis Positioning accuracy	$\leq \pm 0.2 \mu\text{m}$
Z axis Max. range	20 mm
Z axis Focus speed	$\leq 10 \text{ s}$