

Dual-Band Raman Spectrometer

ATR3220

Features

- 150mm focal length; resolution up to 3cm^{-1} ;
- Two wavelengths : 532, 638, 785;
- Two excitation light coaxial excitation;
- Ensure that the test can be performed at the same position when switching the light path;
- Built-in dual rotating grating, flexible use;
- Both wide band range and high resolution test;
- Cooled Derector to -70°C ;
- Built-in android software;
- Multi-touch capacitive screen, simple and easy to use

Application

- Lab Equipment for Research institutes
- Science Equipment for Biological sciences & Life Science
- Public Safety & Forensic identification & Chemical Industry
- Material sciences & Material Testing & Material Research
- Life Science Research : Medical immunoassays
- Agriculture and food Safety
- Environmental Science : Water stress
- Gemstone and inorganic mineral identification
- Environmental science

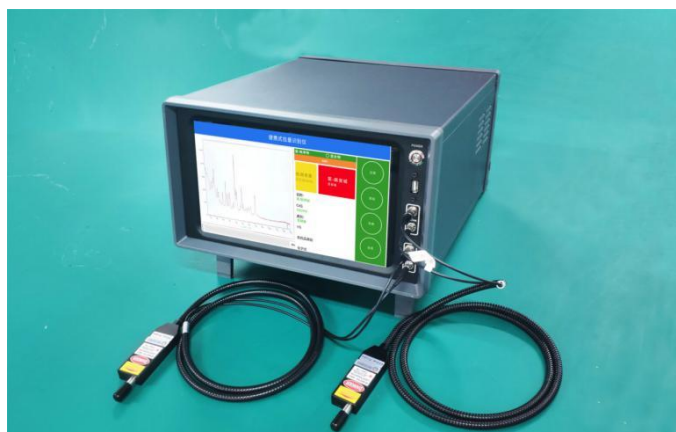
Description

The ATR3220 dual-band Raman spectrometer has two wavelengths of laser light source concentrated inside. The two excitation wavelengths are coaxially excited. There is no need to move the probe when switching the optical path, so the same position of the test sample can be achieved with different excitation wavelengths.

ATR3220 uses a spectrometer with a focal length of 150mm, a resolution of up to 3cm^{-1} , and a built-in dual rotating grating, which can perform both wide-band Raman testing and high-spectral resolution Raman measurement.

ATR3220 has built-in ultra-narrow linewidth lasers with excitation wavelengths of 532nm, 638nm, and 785nm (2 optional), with a maximum power of 550mW; and a variety of cooling detectors are available, with a cooling temperature of -70°C ; at the same time, combined with high-reliability optical design, circuit design, and structural design, the measurement results are very stable and the signal-to-noise ratio is extremely high.

ATR3220 features high flexibility and high resolution. It can perform both wide-band Raman testing and high-spectral resolution Raman spectroscopy testing. It has the advantages of high cost performance and small sample size. It can be expanded to liquid testing and is very suitable for identification of textiles, biology, alcohol, crystals, biomedicine, research institutes, pharmaceu industry, chemical reactions, scientific research and biological processes.



1. Selection Guide

Model	Excitation wavelength	Maximum laser power	Wavelength range (cm-1)*1	Resolution (cm-1)*
ATR3220-532+785	532nm	80mW	150~10000	3
	785nm	500mW	150~10000	5
ATR3220-532+638	532nm	80mW	150~10000	3
	638nm	80mW	150~10000	3
ATR3220-1064*2	1064	500mW	150~10000	8

Note:

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

*2: 1064nm Raman spectrum can only be equipped with single-wavelength Raman;

Performance parameters of built-in Raman spectrometer

Excitation wavelength	Maximum laser power	Wavelength range (cm-1)	Resolution (cm-1)*
532nm	80mW	200~4000	3
638nm	80mW	200~4000	3
785nm	500mW	200~4000	5
1064nm	500mW	200~2600	8

Other wavelengths can be customized

In experiments, we are often unsure which excitation wavelength is better? 532nm? 785nm? 1064nm? Each excitation wavelength of Raman has its own characteristics:

Excitation wavelength	Advantage	Shortcoming
532nm、638nm	High excitation efficiency; short experimental time.	Susceptible to fluorescence
785nm	High comprehensive performance: low cost and low price	Low excitation efficiency
1064nm	No fluorescence interference;	High cost, low Raman excitation efficiency and long experimental time.

2. Parameter

ATR3220 system	
Interface	USB 2.0
Operating system	Android 6.0
Display	11.6' high-definition capacitive touch screen, multi-touch
Resolution	1920x1080
Integration time	1ms~1.3hours
Voltage	Dc 12v±5%
Working temperature	-10~45 °C

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

Working humidity	< 90%
Dimensions (l*w*h)	45×33×13.2 cm ³
Weight	14.5 kg
Reliability	
Spectral stability	$\Sigma/\mu < 0.5\%$ (cot 8 hours)
Temperature stability	Spectral 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 symmetrical optical path
CCD detector	
Type	Low temperature cooled & high sensitivity array ccd, variety of detectors available
Cooling temperature	Lowest temperature -70 °C
Detect range	200~1100 nm
Effective pixels	2048*264
Dynamic range	50000: 1
InGaAs detector	
Model	High sensitivity 512 or 1024 pixel InGaAs 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 coupled output
Barrier rate	Od>8
Numerical aperture	0.3
Aperture	7mm

3. Product pictures

