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Datasheet

Autofocus and automatic scanning scientific-grade microscopic Raman spectrometer

ATR8800

Features:

- Fully automatic Raman imaging experiment, automatic focus and automatic scanning.
- Ultra-large imaging (50X50mm), automatic image splicing.
- Support up to four excitation wavelengths Raman.
- Long focal length high-resolution design.
- Ultra-field imaging function (optional).
- Ultra-high sensitivity, signal-to-noise ratio > 6000:1.
- The maximum time of points can reach 1.3 hours.
- True focus ensures more accurate Raman images.
- Ultra-high spatial resolution.
- Unique software control switching optical path.
- Locate quickly and quickly find the focus position.
- High-quality objective lens, spot micron class.
- 5 million cameras with clear and accurate images
- USB 2.0 connector to the computer.

Application:

- Nanoparticles and new materials.
- Research institute research.
- Biological sciences.
- Forensic expertise.
- Materials science.
- Medical immunoassay.
- Agricultural and food identification.

Description:

The ATR8800 series microscopic Raman spectrometer integrates two lasers and combines the advantages of the microscope and the Raman spectrometer. The micro-Raman detection platform makes it possible to "seen and test", and the visually accurately locates the Raman detection platform, so that the observer can detect the Raman signals of different surface states on the sample and display the microzoning shape of the detected position on the computer, which greatly facilitates the Raman micro-area detection.

The full series of ATR 8800 can be fully automatic focus, automatic scanning, key operation, batch experimentation, uniformity scanning, etc., without waiting, and can be obtained. Highly reliable scanning imaging Raman data.

The ATR8800 is equipped with spectrometers with different focal lengths to meet the requirements of different resolutions. The ATR8800 is also equipped with objective lenses specially designed for Raman systems, which brings laser spots to the limit of diffraction, and then displays focus information accurately and intuitively on the computer through 5 million cameras. The problem of collecting Raman signals in ordinary Raman systems is slightly higher or slightly lower than the actual optimal focal surface, thus improving Raman spectral quality.

The ATR8800 perfectly solves the loss of the camera imaging time path, and realizes the separation of camera imaging from Raman signal collection, so as to obtain the best signal strength. At the same time, the ATR8800 uses high-performance Raman, whether it is sensitive, signal-to-noise ratio, stable, etc., which is a leading level in the industry, providing a strong guarantee for Raman's research.

Floor 15th, Bld. A04, 3rd Software Park, Jimei, Xiamen, 361005, China
Tel: +86-592-6102588

1. Performance parameters:

Table 1 ATR8800 product selection table

Model	Spectrometer focal length	Excitation wavelength/nm	Laser power/mW	Maximum wave number range	Minimum resolution/cm-1
ATR8800-FL350	The focal length of the spectrometer is 350mm	532	100	200 ~ 3700	1.4
		633/638	80	200 ~ 3500	1.4
		785	350	200 ~ 3500	2.1
		1064	500	200 ~ 2500	5.2
ATR8800-FL510	The focal length of the spectrometer is 510mm	532	100	200 ~ 3700	0.9
		633/638	80	200 ~ 3500	0.9
		785	350	200 ~ 3500	1.4
		1064	500	200 ~ 2500	3.6
ATR8800-FL760	The focal length of the spectrometer is 760mm	532	100	200 ~ 3700	0.5
		633/638	80	200 ~ 3500	0.5
		785	350	200 ~ 3500	1.0
		1064	500	200 ~ 2500	2.7
ATR8800LT special customized version: deep refrigeration to -30°C, ultra-long integral time (up to 1.3h)					

Table 2 ATR8800 performance parameters

ATR8800 performance parameters	
Excitation wavelength	532、633、638、785、1064nm Optional
Laser power	532nm ： 100mW 633nm ： 80mW 638nm ： 80mW 785nm：350mW 1064nm：500mW
Optical path	C-T optical path
Spectrometer focal length	350mm、510mm、760mm Optional
Object lens	Standard configuration：4X、10X、20X； Optional configuration：50X、100X
Microscopic lighting	High brightness long life white light LED

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Lighting method	Epi-fire type
Microscope camera system	5 million pixel industrial camera
Focusing method	Conjugate Focus
Laser spot diameter	>1μm
Laser stability	σ/μ <±0.2%
Communication mode	USB2.0
X, Y axis two-dimensional platform	
Move method	Manual, Electric optional
Moving range	50 X 50 mm
Mobile resolution	0.1 μm
Positioning accuracy	1 μm
Scan speed	20 mm/s
Z axis (auto focus)	
Focus accuracy	≤ ±0.2 μm
Maximum stroke	20 mm
Focus speed	No more than 10 s

Figure 1 ATR8800 Raman microscope functional structure indicator diagram

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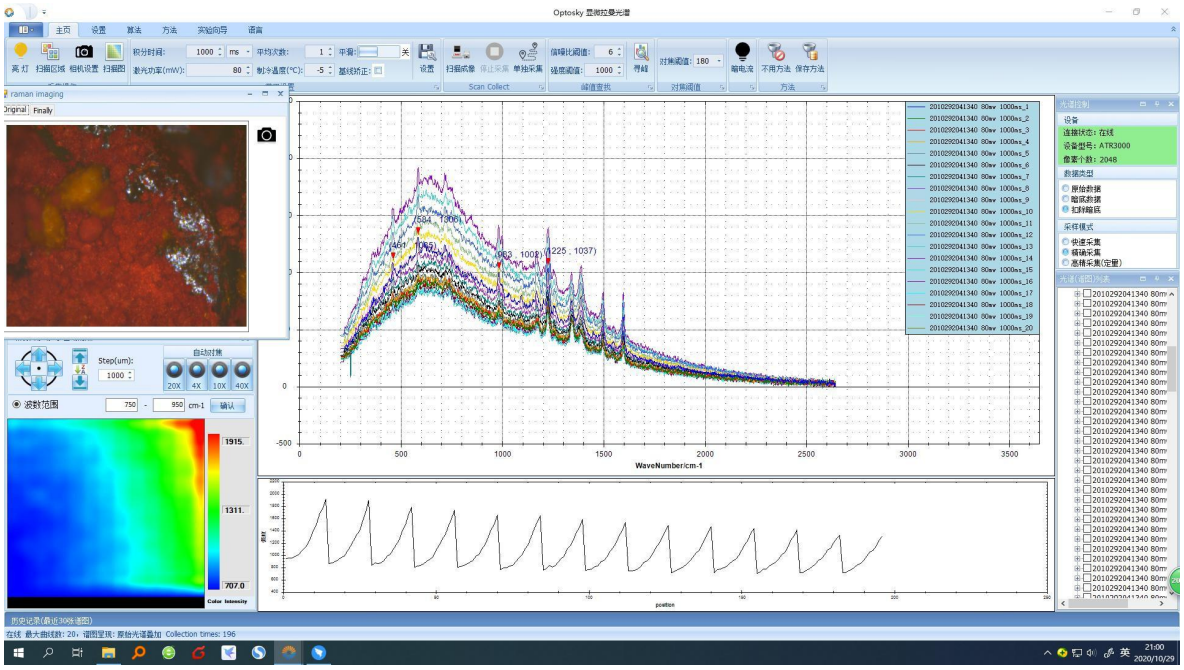

Figure 2 ATR8800 software interface 1

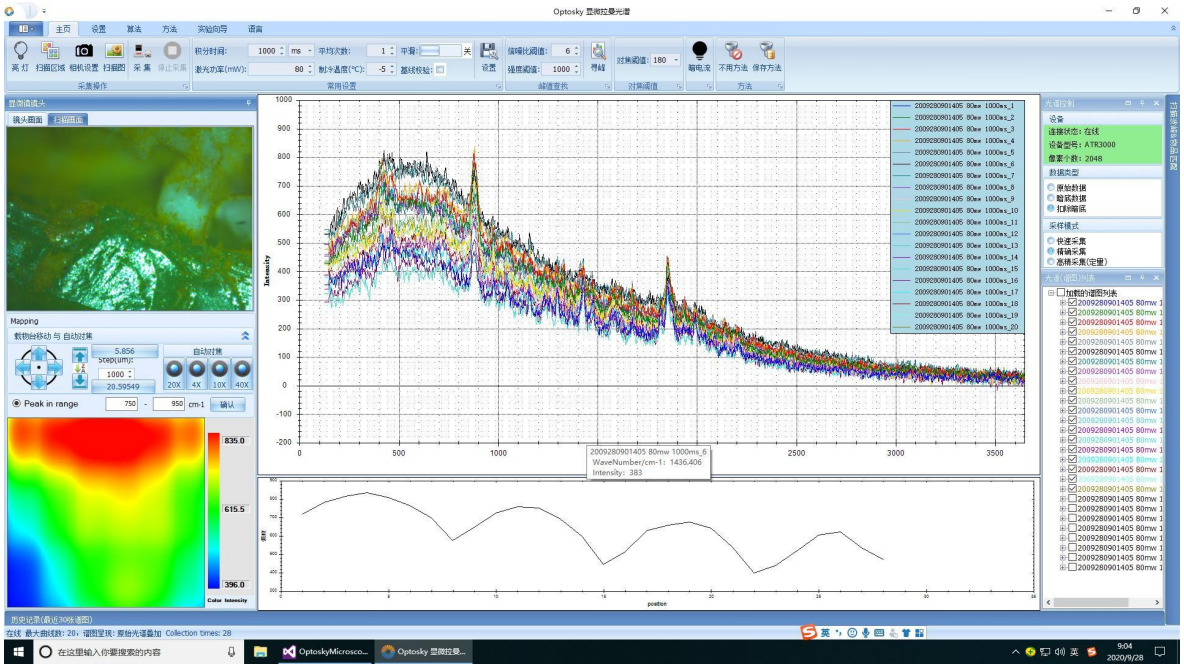

Figure 3 ATR8800 software interface 2

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Examples of successful cases

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	ATW2320-1	ATW2320-2	ATW2320-3	ATW2320-4
Optical parameters				
Spectral range (nm)	190-380	280-500	190-1000	300-1100
Detector type	Cooled high sensitivity CCD			
Sensor pixel	2048 pixels			
Optical resolution	0.76	0.87	1.89	1.89
Spectral sampling interval	0.15	0.17	0.58	0.58
Spectral sampling accuracy	0.07	0.07	0.21	0.21
Available channels	1300	1300	1480	1470
SNR	>800:1	>800:1	>800:1	>800:1
Integration time	1ms ~128 Sec			
Measurement uncertainty	6%	6%	3.7%	3.7%
Typical saturation value	17 W/m2 ●nm (@ 220nm) 14 W/m2 ●nm	10 W/m2 ●nm (@350nm) 8 W/m2 ●nm	1 W/m2 ●nm (@ 550nm) 0.77 W/m2 ●nm (@	1 W/m2 ●nm (@ 550nm) 0.82 W/m2 ●nm (@

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	(@ 300nm)	(@450nm)	700nm)	800nm)
NEI	0.65μW/m2 ●nm (@ 220nm) 0.56 μW/m2 ●nm (@ 300nm)	0.35μW/m2 ●nm (@ 220nm) 0.27 μW/m2 ●nm (@ 300nm)	0.38μW/m2 ●nm (@ 220nm) 0.29 μW/m2 ●nm (@ 300nm)	0.38μW/m2 ●nm (@ 220nm) 0.29 μW/m2 ●nm (@ 300nm)
Light receiving method	Cosine corrector, FOV 7°, integrating sphere (choose one of three)			
Optical splitter	C-T splitter			
Spectral instability	<0.5%	<0.5%	< 0.75%	< 0.75%
System level parameters				
Data interface	RS232, RS485, USB interface			
operating system	High stability embedded operating system			
Volume	Cylindrical: Ø98mm x 450mm(L)			
weight	8.2 kg			
Maximum working depth	100 meters, customized models up to 300 meters			
Power supply	5 ~ 36V DC			
Power consumption	<8 W			
Operating temperature range	-30 − 50 ℃			
Humidity range	Airtight and waterproof			
Other parameters				
Probe type	Dedicated optical probe for direct measurement of radiance from water; with extended interfaces for surface method and profile method at the same time, maintaining a constant attitude independently			
Measurement window protection method	Anti-corrosion and anti-fouling brush, anti-pollution and anti-adhesion polymer nano layer			
Maximum unattended working time	≥1year			
Software function	Equipped with visual supporting software, with the following functions: remote wireless control (remote wireless setting functions such as sensor switching, measurement frequency, measurement time, measurement mode, etc.); data processing (automatically reject abnormal data, posture calibration, statistical data processing functions); data Display (with visualization and real-time display of key parameters such as raw data, water radiance, remote sensing reflectivity, etc.)			

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