

Confocal Raman Microscope

ATR8800

Features:

- Auto-imaging, auto-focus and auto-scan.
- Large imaging (50x50mm), auto image splicing.
- Max. 4 wavelengths build in one system
- Rotating turret grating
- Seal door design fit to day and night test
- Long focal length & super high-resolution
- Confocal Imaging large area
- Super sensitivity, SNR > 6000:1.
- The maximum integration time reach up to 1.3 hours.
- True confocal for accurate Raman images.
- Super spatial resolution.
- Exclusive software for switching optical path.
- Fast positioning and finding the focus
- Good quality objective lens, spot size up to micron.
- 5-mega cameras with clear and accurate images
- USB 3.0 connector to the computer.

Application:

- Nanoparticles and new materials.
- Research institute research.
- Biological sciences.
- Forensic expertise.
- Materials science.
- Medical immune analysis.
- Agricultural and food identification.
- Gemstones and inorganic mineral identification
- Environmental science

Description:

The ATR8800 series scientific-grade confocal Raman imaging microscope. This is a true confocal Raman imaging microscope self-developed successfully first-launched in China market in 2022. It provides wavelengths of 266 nm, 325 nm, 514 nm, 532 nm, 638 nm, 785 nm, 830 nm, 1064 nm for free selection solutions, one-band, dual-band, triple-band, or quadri-band to satisfy customers requirements. With confocal pinhole can improve spatial resolution with a minimum spot size up to 1.6μm, and result in trace material identification.

Auto-focus and Auto-scan Raman imaging microscope features super sensitivity, super fast scan, and excellent resolution of 0.5cm-1.

Confocal Raman microscopy can combine Raman spectroscopy with microscopy technique to measure trace micron sample less than 2 seconds.

The unique seal sample compartment is an ideal for any experiment on the daytime, push and pull seal door can start measurement w/o turning off light in the lab.

The free software provides a powerful function of multiple band splicing large area imaging data.



Model	Focus length	Wavelength /nm ^{*3}	Laser power /mW	Range ^{*1*2}	Resolution/c m ^{-1*4}
ATR8800-FL350	350mm	266	50	50~ 10000	4.5
		325	30	50~ 10000	2.6
		532	100	5 ~ 10000	1.4
		638	80	5~ 10000	1.4
		785	350	5~ 10000	2.1
		1064	500	50~ 10000	5.2
ATR8800-FL510	510mm	266	50	50~ 10000	2.9
		325	30	50 ~ 10000	1.9
		532	100	5~ 10000	0.9
		638	80	5 ~ 10000	0.9
		785	350	5 ~ 10000	1.4
		1064	500	50~ 10000	3.6
ATR8800-FL810	810mm	266	50	50~ 10000	2.2
		325	30	50 ~ 10000	1.1
		532	100	5 ~ 10000	0.45
		638	80	5 ~ 10000	0.45
		785	350	5 ~ 10000	0.86
		1064	500	5~ 10000	2.3

ATR8800LT: Deep cooling to -30°C, long integration time (up to 1.3h)

ATR8800EM: Deep Cooled Area Array EMCCD Detector

ATR8800BS: Basic series

ATR8800AF: Auto-focus

ATR8800MP: Scan imaging-Mapping, Auto-focus

ATR8800UV: UV-enhanced Mapping

Note:

*1: Max. wavenumber range decided by different wavelengths;

*2: Standard started from 150cm⁻¹, the beginning wavenumber can be lowered down to 5cm⁻¹, 50cm⁻¹;

*3: Optional wavelengths customized;

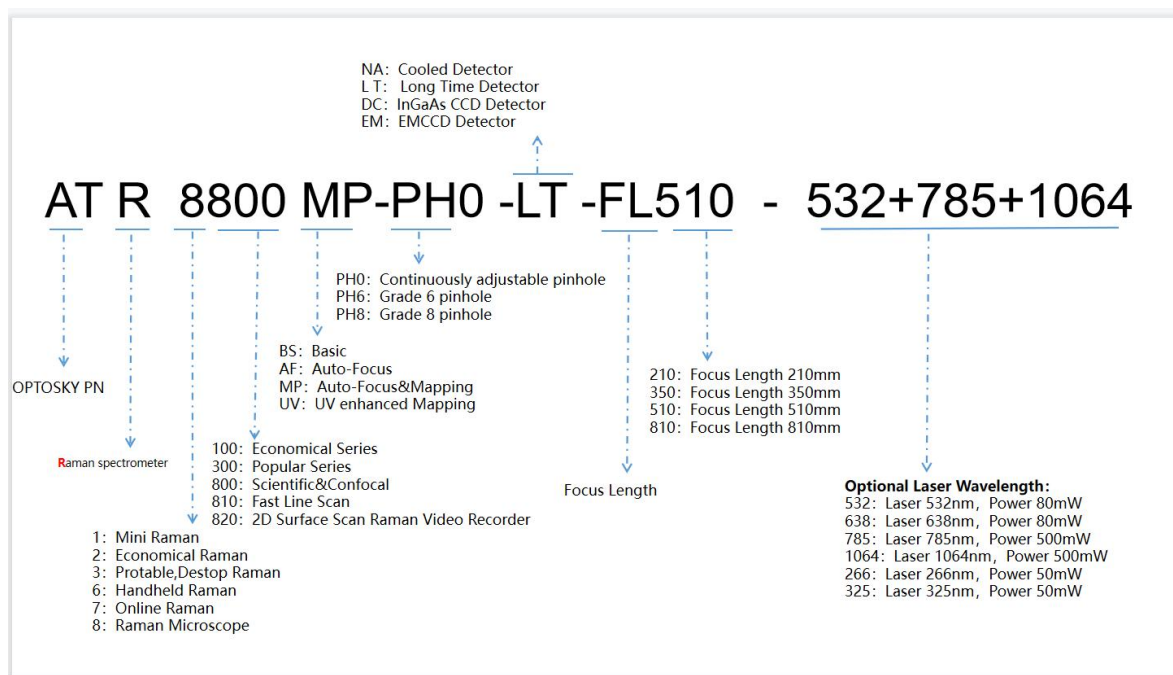
*4: Best resolution can be further improved by reducing slit size;

*5: Table above listed include standard models, and Optosky accept optional wavelengths or range as required.

Ordering Guide:

Naming example:

- **ATR8800AF-LT-FL350-532+638:** Autofocus, long integration time, focal length of 350mm, excitation wavelengths are dual wavelengths: 532nm and 633nm respectively
- **ATR8800MP-EM-FL810-532+638+1064:** Scanning imaging, EMCCD detector, focal length is 810mm, excitation wavelength is three wavelengths: 532nm, 633nm and 1064nm respectively



ATR8800 performance parameters	
Excitation wavelength	266, 325, 532, 638, 785, 1064nm optional, simultaneous integration of up to 4 excitation wavelengths
Laser power	266nm: 30 mW 325nm: 30mW 532nm: 100mW 633nm: 80mW 638nm: 80mW 785nm: 350mW 1064nm: 500mW
Optical path	C-T optical path
Focal length	350mm, 510mm, 810mm Optional
Built-in grating	Standard 3 pieces; 300 lines, 600 lines, 1200 lines, 1800 lines, 2400 lines optional
Detector	1) Deep cooling area array CCD: 2000X256 pixels 2) Deep cooling and high sensitivity EMCCD: 1600X200 pixels 3) Deep cooling area array InGaAs CCD: 512X1 pixels Up to 2 detectors can be integrated, choose one of detector 1# and detector 2#;
Objectives	Standard configuration: 4X, 10X, 20X, 50X; Optional configuration: 100X
Microscopic lighting	High brightness long life white light LED
Lighting Type	Epi Illumination
Microscope camera	5-mega pixels industrial camera

Focusing method	Confocal Raman Imaging
Laser spot diameter	>1μm
Laser stability	$\sigma/\mu < \pm 0.2\%$
Interface	USB3.0
X, Y axis two-dimensional platform	
Move method	Manual/Electric optional
Moving range	50 X 50 mm, 100X100mm optional
Mobile resolution	0.1 μm
Positioning accuracy	1 μm
Scan interval	Software setting, min. 1μm
Scan speed	20 mm/s
Nano stage (optional)	Minimum displacement resolution 2nm, displacement accuracy 10nm
Z axis (auto focus)	
Focus accuracy	$\leq \pm 0.2 \mu\text{m}$
Maximum stroke	20 mm
Focus speed	< 10 s
Nano stage (optional)	Minimum displacement resolution 2nm, displacement accuracy 10nm
Physical parameter	
Dimensions	ATR8800-FL350: 905(L)×58.3(W)×643(H) ATR8800-FL510: 1009(L)×58.3(W)×643(H) ATR8800-FL810: 1520(L)×68.3(W)×643(H)
Weight	ATR8800-FL350: 59 Kg ATR8800-FL510: 63 Kg ATR8800-FL810: 78 Kg
Working environment parameters	
Voltage	100~240 VAC
Peak power	< 200 W
Other motivation	NA
Emission	NA
Platform requirements	Air Floating Vibration Isolation Optical Platform
Working temperature and humidity	Constant temperature (25±2°C), constant humidity (50±10%)
Cleanliness	Above ten thousand

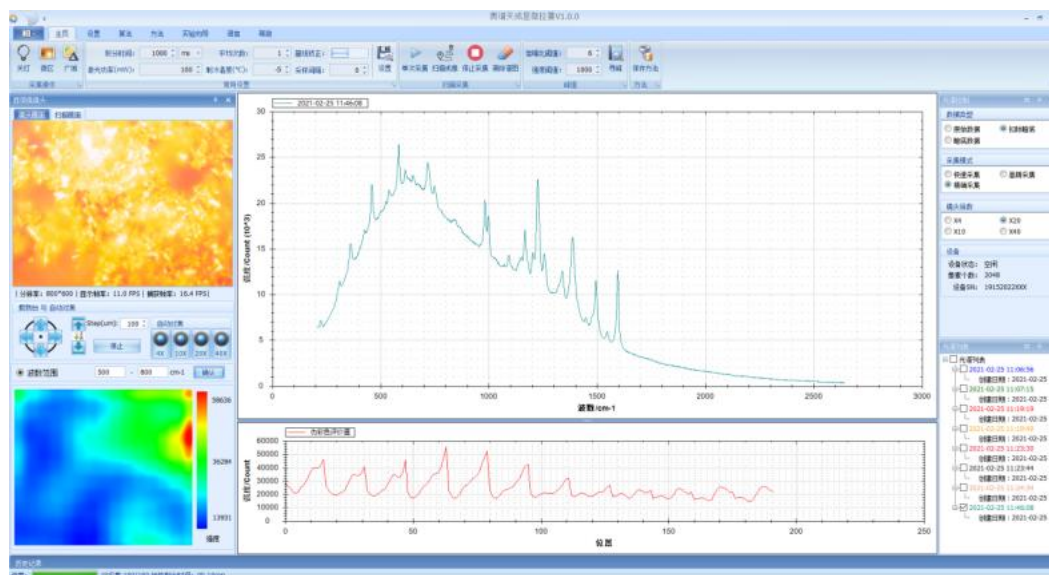


Fig.1 Software interface of ATR8800

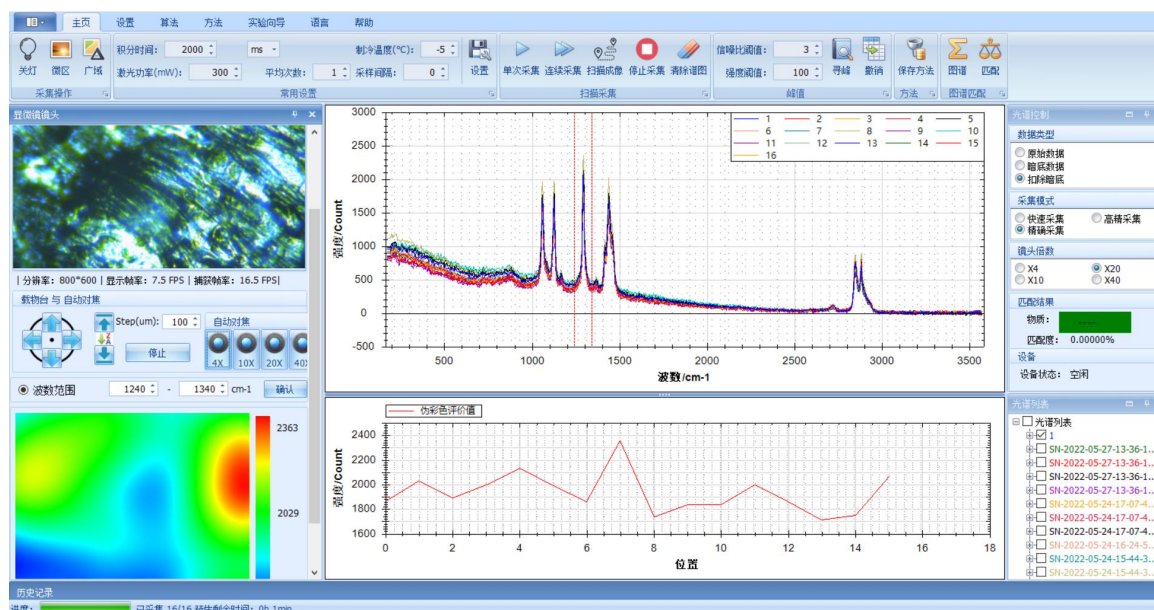


Fig .2 Software interface of ATR8800

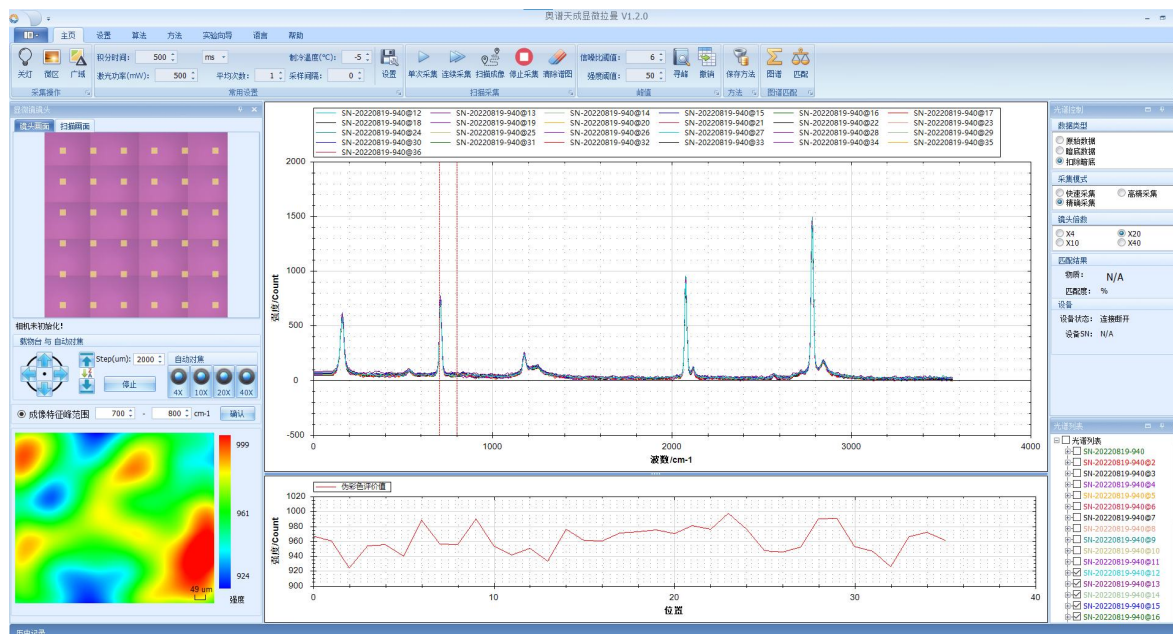


Fig .3

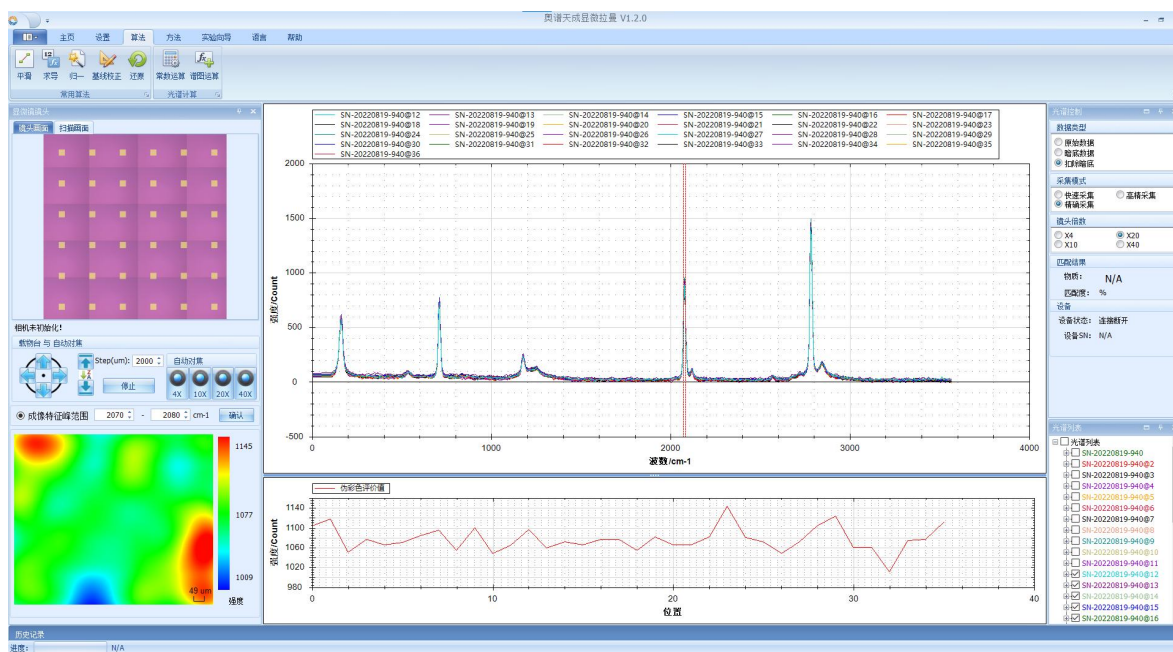


Fig .4

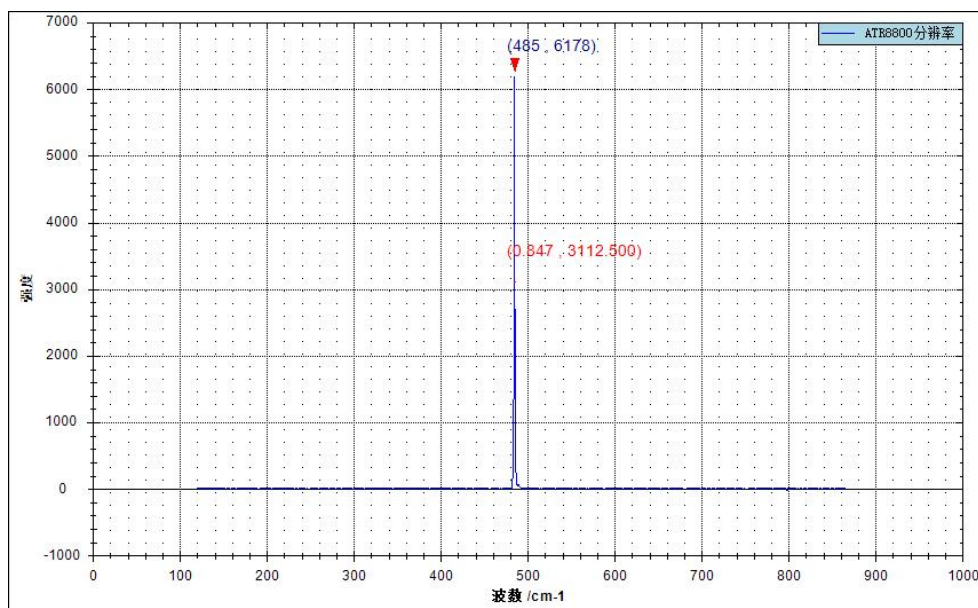


Fig .5 The test results indicate: the resolution of the instrument reaches 0.847 cm-1, the test specification: according to the national standard "General Specification for Raman Spectrometer", the test equipment: ATR8800-FL510, the test light source: mercury-argon lamp, the collection line: 546.08nm