

## Scientific-Grade Confocal Raman Microscope

# ATR8800

### Features :

- Automatic Raman imaging experiment, Auto-focus, Auto-scan
- Confocal light path
- 4 excitation wavelengths support.
- Long focal length
- Ultra-high sensitivity, SNR >6000:1;
- Rotated grating
- Closed hatch
- Imaging range (100×100mm), automated imaging splicing
- Unique software controls switching light path.
- Quick positioning and focus;
- High-quality objective lens, Micron-level light spot;
- 5 million pixel cameras with clear image
- 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

### Description:

The ATR8800 series scientific-grade confocal Raman imaging microscope. This is a 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 combination selection, one-band, dual-band, triple-band, or quadri-band offers free selection and combination to satisfy any scientific-grade research requirements. It uses confocal technique of pinhole to improve spatial resolution with a minimum spot size up to 1.6 $\mu$ m, and result in trace material measure. 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 specimen less than 2 seconds.

The exclusive designed 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.



Table 1 ATR8800 product selection table

Model	Focus length	Wavelength /nm <sup>*3</sup>	Laser power /mW	Range <sup>*1*2</sup>	Resolution/c m <sup>-1*4</sup>
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<sup>-1</sup>, the beginning wavenumber can be lowered down to 5cm<sup>-1</sup>, 50cm<sup>-1</sup>;

\*3: Optional wavelengths customized;

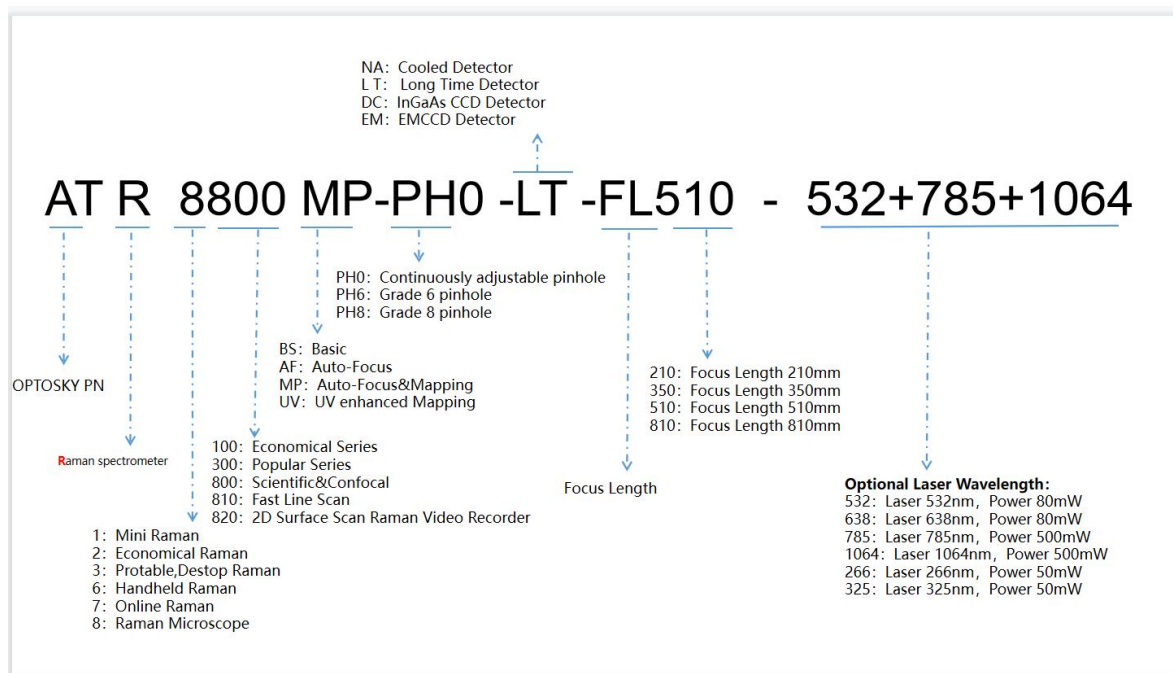
\*4: Best resolution can be further improved by reducing slit size;

\*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



<b>ATR8800</b>	
Excitation wavelength	Max. 4 lasers of 266,325, 532,638,785,1064 nm
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 CCD: 2000X256 pixels 2) Deep cooling CCD: 1600X200 pixels 3) Deep cooling InGaAs : 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
Laser spot diameter	>1 $\mu$ m
Laser stability	$\sigma/\mu < \pm 0.2\%$
Interface	USB3.0
X, Y axis Stage	
Move method	Manual/Electric optional
Moving range	50 X 50 mm, 100X100mm optional
Mobile resolution	0.1 $\mu$ m
Positioning accuracy	1 $\mu$ m
Scan interval	Software setting, min. 1 $\mu$ m
Scan speed	20 mm/s
Nano stage (optional)	Minimum displacement resolution 2nm, displacement accuracy 10nm
Z axis (auto focus)	
Focus accuracy	$\leq \pm 0.2 \mu$ 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) $\times$ 58.3(W) $\times$ 643(H) ATR8800-FL510: 1009(L) $\times$ 58.3(W) $\times$ 643(H) ATR8800-FL810: 1520(L) $\times$ 68.3(W) $\times$ 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 $\pm$ 2 $^{\circ}$ C), constant humidity (50 $\pm$ 10%)
Cleanliness	Above ten thousand

## Application:

- Nanoparticles and new materials.
- Research institute research.
- Biological sciences.
- Forensic expertise.



- Materials science.

# DataSheet

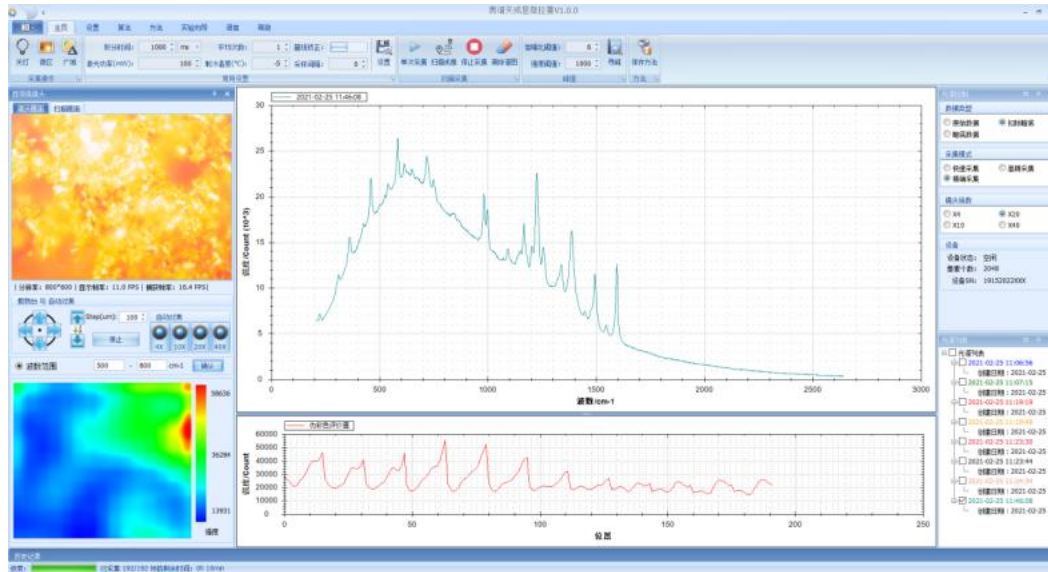


Fig .1 Software interface of ATR8800

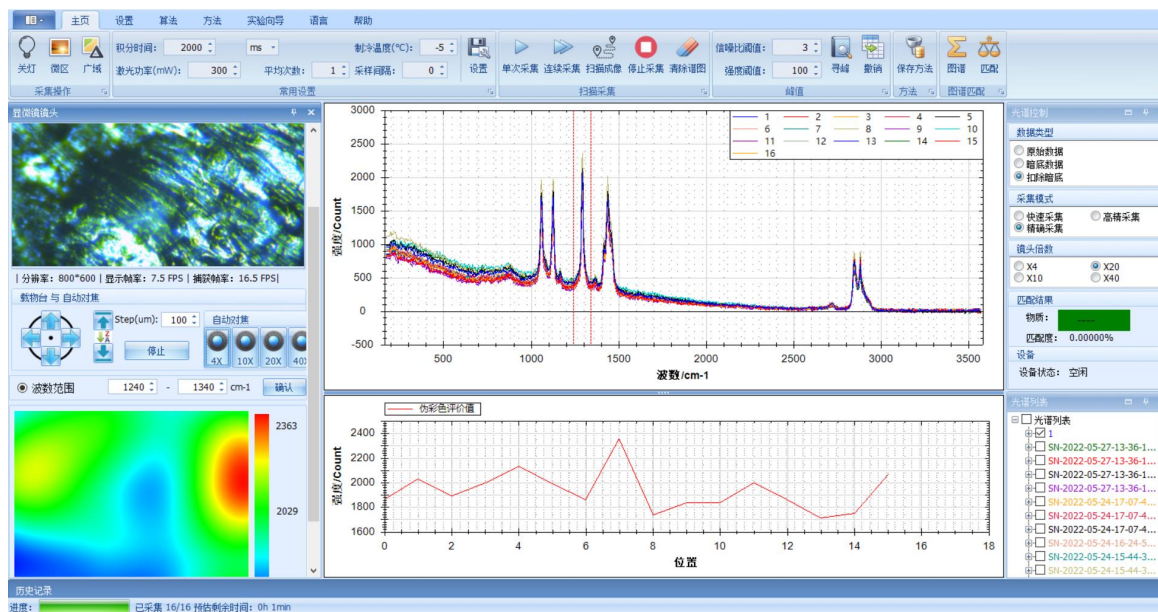


Fig .2 Software interface of ATR8800



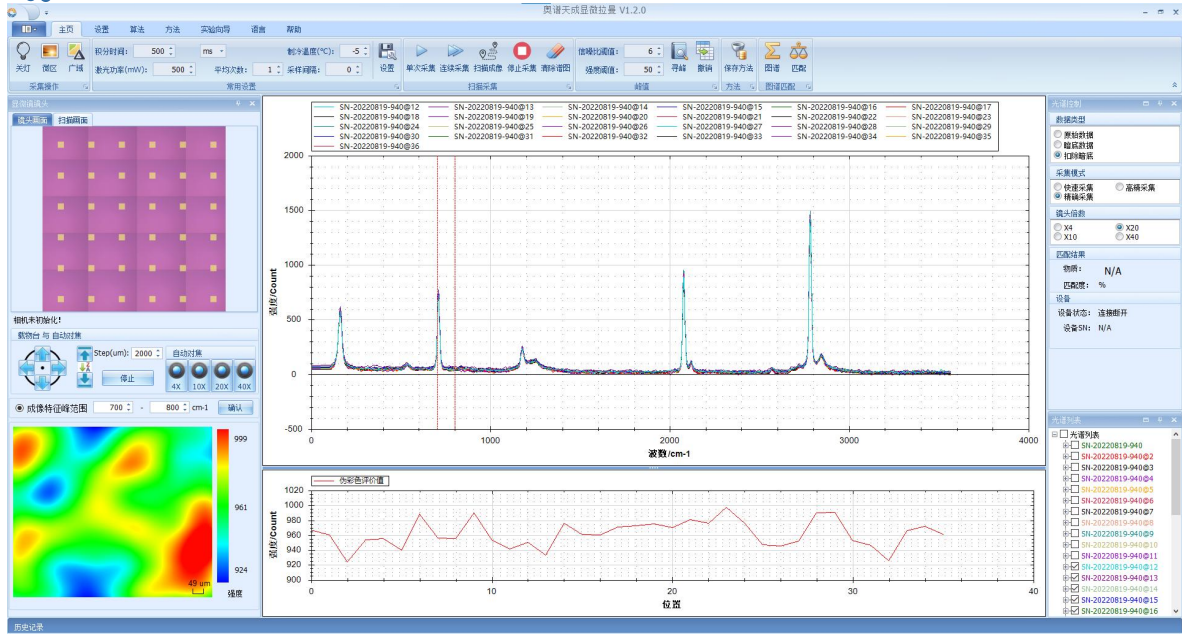


Fig. 3

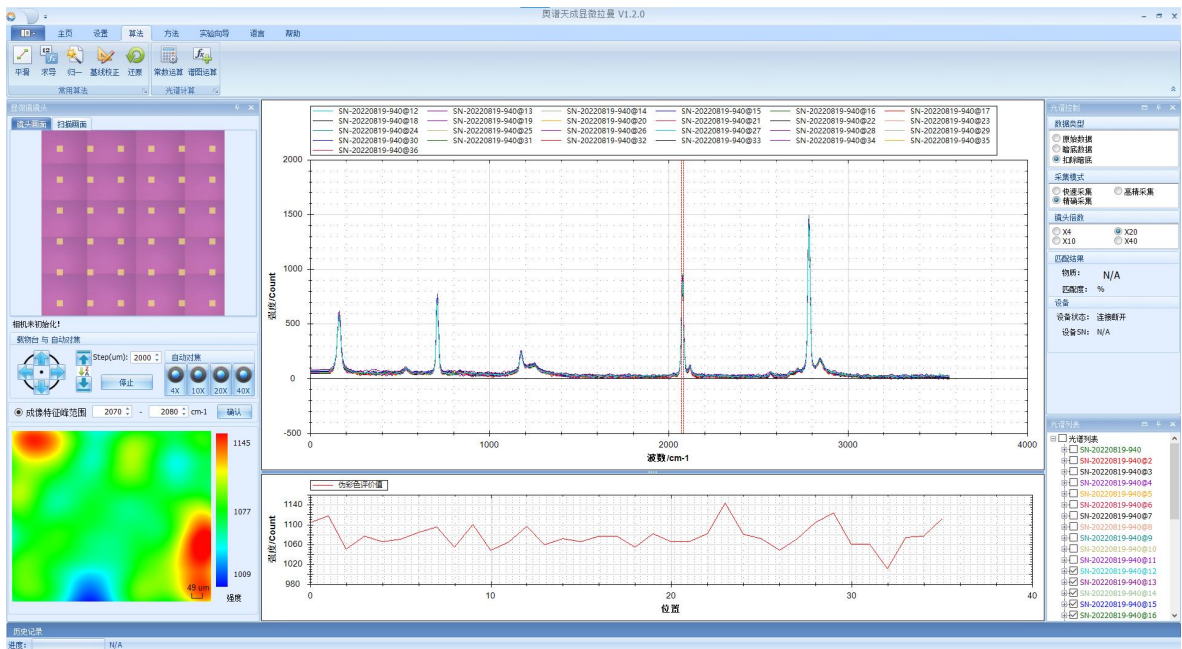


Fig. 4

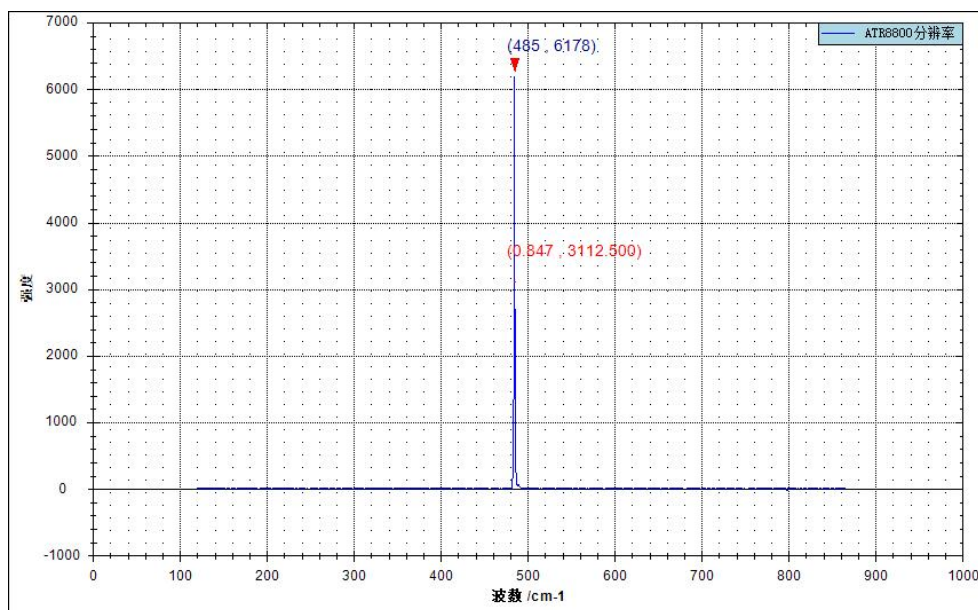


Fig .5 The test results indicate: the resolution of the instrument reaches 0.847 cm-1, the test specification: according to the national standard "General Specification for Raman Spectrometer", the test equipment: ATR8800-FL510, the test light source: mercury-argon lamp, the collection line: 546.08 nm



