Datasheet

High sensitivity, High resolution 1064nm Portable Raman Spectrometer

ATR3110-1064nm

Feature:

- High sensitivity 512 pixels InGaAs array;
- TE-cooled, down to -20℃,
- Ultra-low noise circuit;
- Powerful embedded software;
- Fluorescence background elimination;
- Peak value search and display;
- USB 2.0;
- User friendly human and machine interface;

Application:

- Bioscience
- Pharmaceutical engineering
- Forensic analysis
- Agriculture and food safety
- Gemstones identification
- Environmental science

Description:

ATR3110-1064 is portable Raman spectrometer with an excitation wavelength of 1064nm, and as a member of ATR3110 series enjoying popularity in scientific research sectors. It employs 1064nm laser, Raman filter sets, high-sensitivity InGaAs array, TE cooled, down to -20℃, resulting in optimized SNR and higher dynamic range.

1064nm has the lowest fluorescence, and it avoids fluorescence interference to be applied to many high fluorescent samples, such as dyes, inks, petroleum products, biological samples etc. ATR3110-1064nm covers spectral range of 200~65000px-1, spectral resolution of 10 cm-1.

ATR3110-1064nm is designed with compact size, light weight and low consumption, so it can provide laboratorial Raman detection at any places. It suits to scientific research in laboratory for accurate and reliable detecting results. Its excellent low stray light enables spectrometers to be applied to a wide variety of sectors, especially in biochemistry analyzer, food safety, pharmaceutical engineering etc. Its multi-functional software promotes spectral analysis process in application.

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ATR3110 -1064 System	
Interface	USB 2.0
Integration time	10ms - 600000ms
Power voltage	DC 5V(+/-5%)
Operating Temp	-10~40 ℃
Operating humidity	< 95%
Dimension(L*W*H)	330 mm×260 mm×165 mm
Weight	5 . 5 Kg
Reliability	
Spectral stability	σ/μ < 0.5% (COT 8 hours)
Temp stability	Spectral shift ≤ 1 cm^{-1} (10-40 ℃)
Spectral strength changes (in 5 ~ 40℃)	<±5%
Optical parameters	
Spectral range (cm^{-1})	200-2600
resolution (cm^{-1})	12-15
SNR	>3000:1
Optical path	f/4 crossed C-T
Max Quantum Efficiency	>90%
Focal length	112 mm for incidence and output
Slit Size	50um, 25um optional
Detector	
Item	High sensitivity 512 pixels InGaAs array
Cooled down to	-20 ℃
Detecting range	900-1700 nm
Effective pixels	512
Dynamic range	14,000：1
Pixel size	25 ×500 μm
Excitation light	
Central wavelength	1064nm (+/-0.5nm)
Semi-peak width	0.1 nm
Maximum power output	≥500 mW
Power stability	σ/μ <±0.2%
Raman probe	
Operating distance	6 mm
Blocking of filter	OD>8
NA	0.3
aperture	7mm

Remarks：measuring method based on ASTM E2529-06;

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2. Measured spectrum

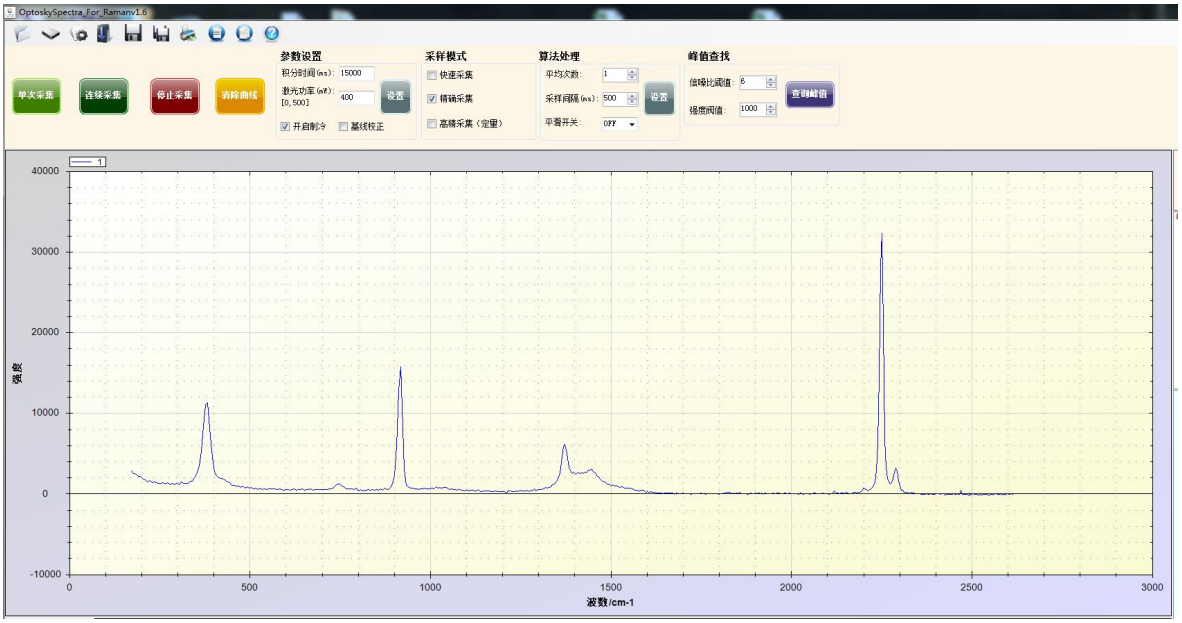

Fig 1 ATR3110-1064 measured spectra（Sample: Acetonitrile, laser power: 400mW, integration time: 15s）

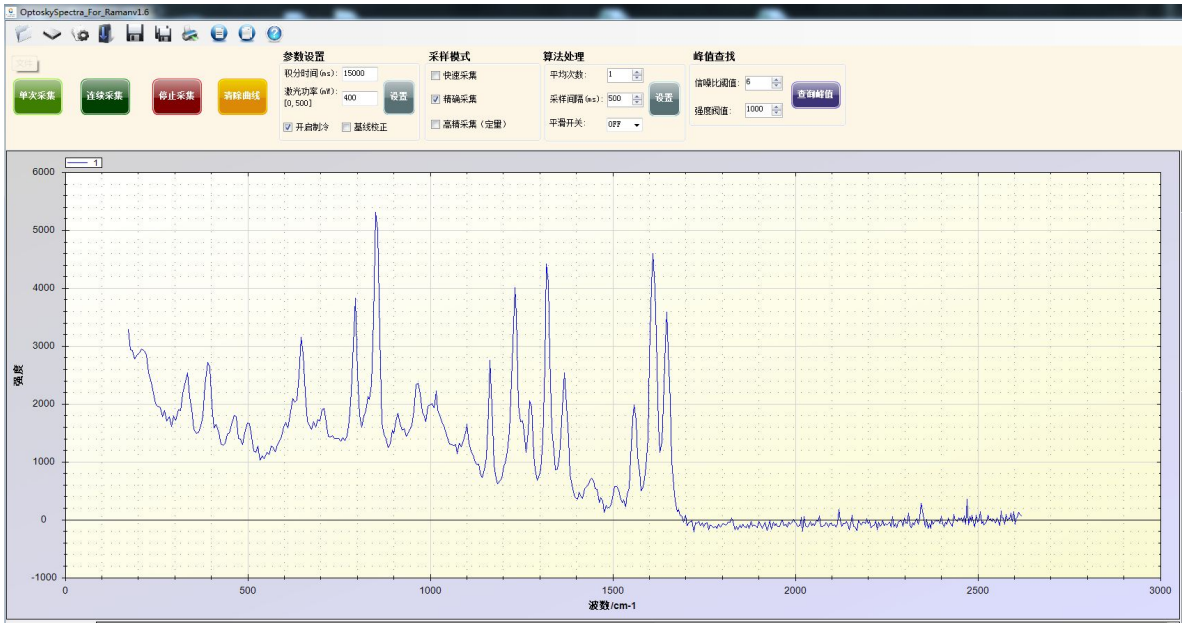

Fig 2 ATR3110-1064 measured spectra（sample: Tylenol, laser power: 400mW, integration time: 15s）

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3. Measuring accessories

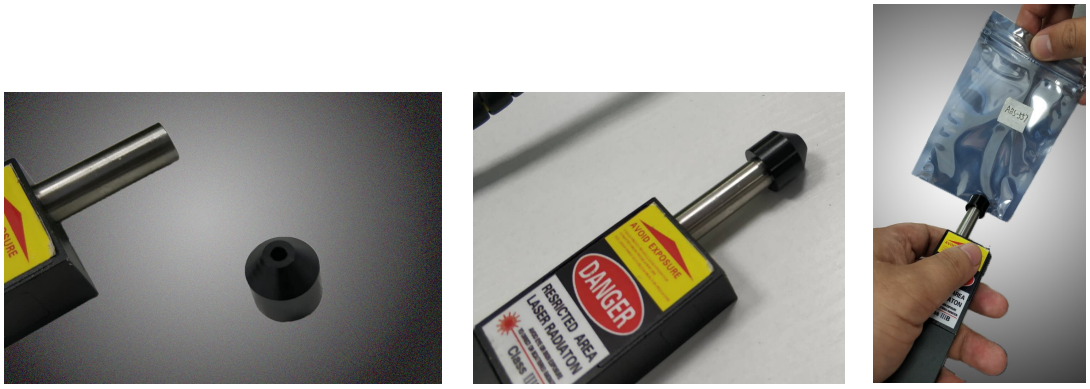

Fig 3 Solid, powder measuring probe

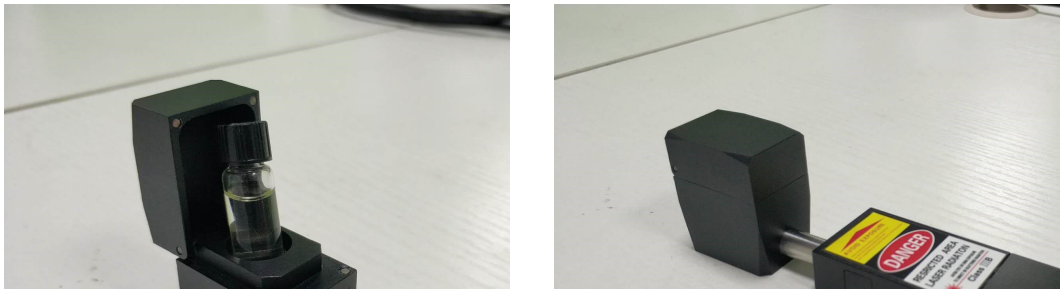

Fig 4 Fluid sample cell（Thermo bottle）

Fig 5 Fluid sample cell（Liquid chromatography bottle）**(Optional)**

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Fig 3 Raman probe gun **(optional)**

Fig 7 Measuring adjustable holder (Optional)

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4. Other excitation wavelength:

ITEM No.	Excitation Wavelength (nm)	Maximum laser power (mW)	Spectral range (cm^{-1})	resolution (cm^{-1})	Feature
ATR31100-27	785	550	250-2700	6	Available for most application
ATR31100-35			200-2500	8	
ATR31100-43			200-4300	10	
ATR3110-1064	1064	500	200-2600	12-15	Fluorescence-free, non-destructive ,high-sensitivity, high-SNR, Available samples: dark-color samples, fluorescence sample, biology sample, bacteria, plastic, fuel, petroleum product, vegetable oil, explosive etc.
ATR3110-830	830	550	200-3300	7	higher skin permeance suit to biological samples, eg. Non-invasive blood glucose, early cancer diagnosis
ATR3110-266	266	50	200-3000	25	
ATR3110-532	532	100	200-3200	10	
ATR3110-633	633	80	200-3200	10	

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