OPTOSKY Spectroscopy Solutions

Datasheet

Miniature Raman Spectrometer ATR2500

Features

Full free space design, super high sensitivity;
Ultra-high sensitivity detector;
Ultra-low noise circuit;
Ultra-light, ultra-small, ultra reliable;
Powerful spectral analysis software;
Eliminate fluorescent background;
Peak search and display;
USB 2.0;
Friendly man-machine interface.

Application

Research of Research Institute
Nanoparticles and new materials
Bioscience
Forensic Medicine
Material science
Medical immunoassay
Agriculture and food identification
Gems and inorganic minerals ID
Environmental science

Description

ATR2500 is a Raman spectrometer developed by Optosky for more than 20 years. After 5 years, it has developed a brand-new,optimized and designed high-sensitivity Raman spectrometer with breakthrough characteristics. It has ultra-small and ultra-light,High resolution, high sensitivity, high reliability, etc. ATR2500 adopts Optosky's latest full free space optical path technology,which increases the Raman signal collection efficiency by nearly 4 times, thereby increasing the sensitivity by 4 times.

The ATR2500 Raman spectrometer is very suitable for laboratory scientific research. It is small in size, high reliability,easy to measure, and the detection results are accurate and reliable. The excellent low stray light design of ATR2500 makes it easy to use. The multi-function software randomly distributed by ATR2500 has been strictly tested by hundreds of scientists around the world and collected their improvement opinions. After nearly a hundred versions of updates, the function is very complete and stable, which is very suitable for the development of Raman research.

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1. Selection Guide

Mode	Spectral Range (cm^{-1})	Resolution (cm^{-1})	Excitation Wavelength (cm^{-1})
ATR2500-R27	250-2700	3~6	785
ATR2500-R40	150-4000	7~10	785
ATR2500-532	100-4100	8~12	532
ATR2500-1064	200-2600	10~15	1064

2. parameter

ATR2500	
Interface	USB 2.0
Integration time	4ms - 120s
Voltage	DC 5V±5%
Work temperature	-10~45 ℃
Work humidity	< 95%
Dimension(L*W*H)	Without probe： 119.2×89×35 mm With probe： 139×89×35 mm
Weight	390 g
Reliability	
Spectral reliability	σ/μ < 0.5% (COT 8 hours)
Temperature reliability	Spectral shift ≤ 1 cm-1 (10-40 ℃)
Spectral intensity	<±5% (in 5 ~ 40 ℃)
SNR	>1300:1 (918 cm-1 of Acetonitrile , 4sIntergation, 130mW)
Detector	
Model	Ultra-sensitive linear array detector
Spectral range	200-1100 nm
Effective pixels	2048 pixels
Dynamic range	50000： 1
Laser	
Center wavelength	785±0.5nm
Half width	0.08 nm
Maximum output power	≥300 mW , the actual output power software can be set

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Minimum power output adjustment	1mW
Power stability	σ/μ <±0.2%
Raman probe	
Rayleigh Scatter Resistance	6 mm
Operating Distance(OD)	OD>8
NA	0.3
Aperture	7mm

3. ATR2500 Spectrum

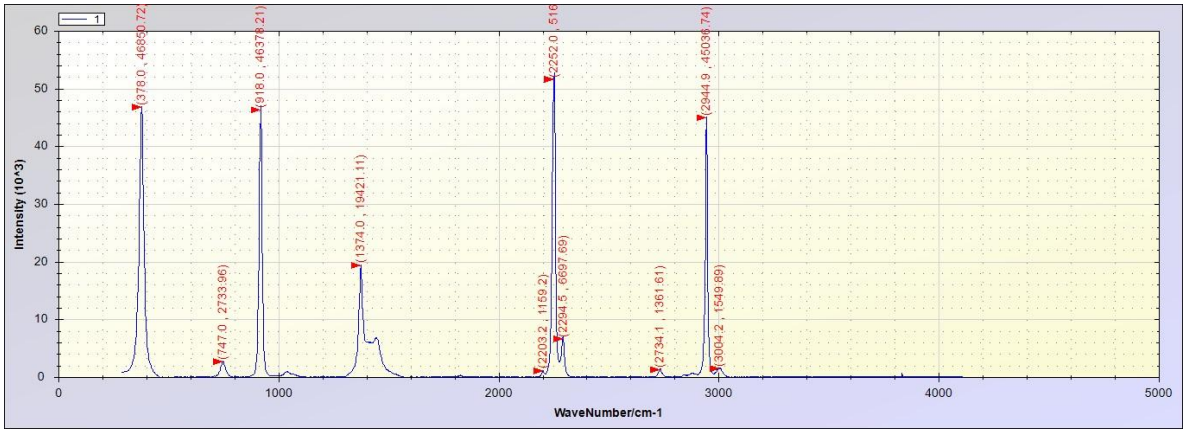

Figure 1 Raman spectrum curve test results; sample: acetonitrile, laser power: 130mW, measurement integration time: 4000ms.

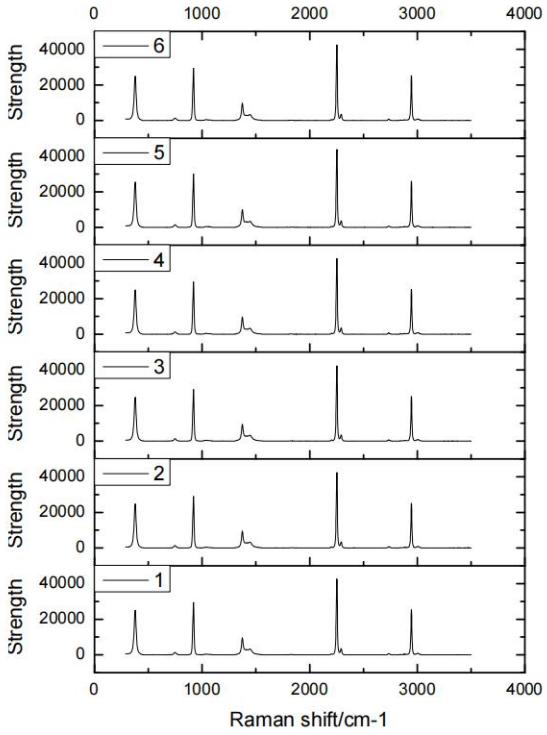

Figure 2 Spectral intensity repeatability test, the result is 0.06%, the spectral intensity stability is good.

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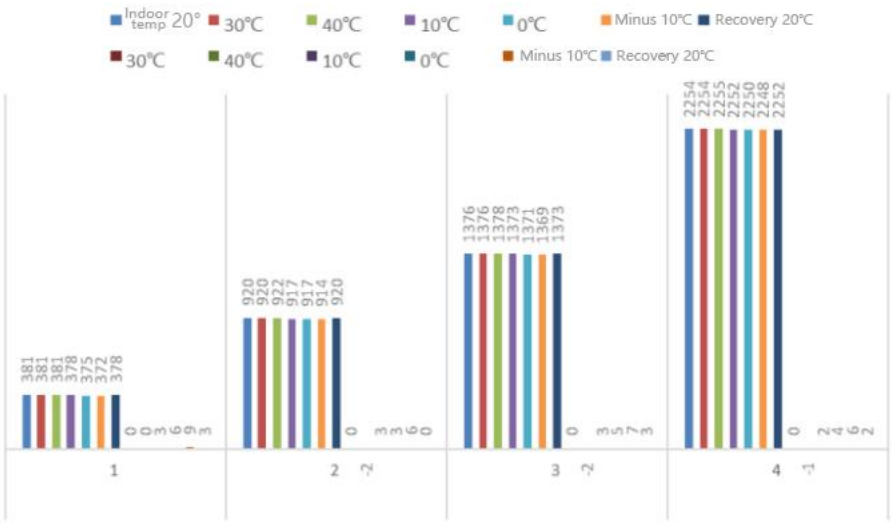

Figure 3 Temperature drift test, -10~40℃ wavenumber drift

4. ATR2500 Dimensions

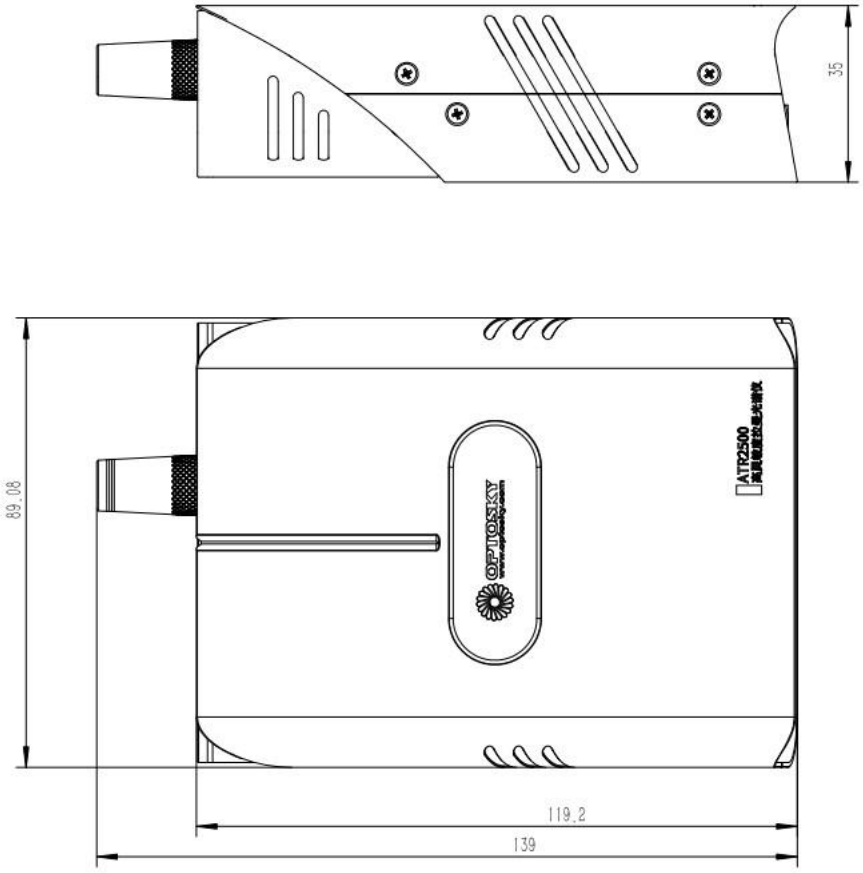

Figure 4 ATR2500 Dimensions

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