

Super fast line scan Raman spectrometer

ATR3180

Features

- Line scan Raman imaging, super fast scanning imaging
- Spatial resolution up to 512 bands (single scan)
- Ultra-low temperature refrigeration, ultra-high sensitivity detector
- The sensor is cooled to -70 °C
- Ultra low noise circuit
- Powerful PC-side spectral analysis software
- Advanced spectral processing algorithms and software
- Friendly human-computer interface

Application

- Nanoparticles and new materials
- Research institute research
- Biology
- Forensic Medicine Identification
- Material science
- Medical Immunoassay
- Agriculture and food identification
- Gem and inorganic mineral identification
- Environmental science



Description

The ATR3180 super fast line scan Raman spectroscopic imager is a brand-new, optimized and designed macro Raman spectrometer with breakthrough features developed by Optosky in 3 years for more than 20 years in the development of Raman spectrometers. It uses ultra-high-power laser, linear laser shaping technology, spatial resolution spectrum analyzer, and ultra-low temperature refrigeration (-70°C) high-sensitivity area array CCD, allowing the instrument to scan and image large-area samples ultra-fast. ATR3180 can adapt to use in complex environments. The Raman spectrometer has a wide range of applications, especially in the fields of scientific research, food safety, pharmaceutical engineering, new materials, new energy, etc.

The multifunctional software shipped with the ATR3180 has been rigorously tested by hundreds of scientists around the world and collected their improvement opinions. It has been updated in nearly a hundred versions. Its functions are very complete and stable, and it is very suitable for the development of Raman research work.

Model	Excitation wavelength	Maximum laser power
ATR3180-473	473nm	5W
ATR3180-532	532nm	30W
ATR3180-638	638nm	5W
ATR3180-785	785nm	30W

•Tested according to the American national standard ASTM E2529-06 method.

•The above parameters only represent the company's standard products, other parameters can be customized.

•If specially customized, the resolution performance can be improved by about 1/3, but the sensitivity will be sacrificed.

1. Selection guide

Model	Excitation wavelength	Maximum laser power	Wavelength range(cm^{-1})	Resolution (cm^{-1})
ATR3180-325	325nm	5W	150~8000	2.6
ATR3180-405	405nm	5W	150~8000	2.3
ATR3180-473	473nm	5W	150~8000	2.1
ATR3180-532	532nm	30W	150~8000	2.0
ATR3180-638	638nm	5W	150~8000	2.0
ATR3180-785	785nm	30W	150~8000	2.0
ATR3180-1064	1064nm	30W	150~8000	3.0

2. Performance parameters

ATR3110C-785 System	
Interface	USB 3.0
Integration time	8ms~1.3hours
Power voltage	DC 12V \pm 5%
Operating Temperature	10~35 °C
Operating humidity	< 90%
Dimension(L*W*H)	45x33x13.2cm
Weight	14.5 Kg
Reliability	
Spectral stability	$\sigma/\mu < 0.5\%$ (COT 8 hours)
Temperature stability	Spectral shift $\leq 2 \text{ cm}^{-1}$ (10-40 °C)
Variation of intensity (in 5 ~ 40 °C)	< \pm 2%
Optical parameters	
Spectral resolution (cm^{-1})	2.0
SNR	>8000:1
focusing	98 mm for incidence and output
Number of spectral bands	2048
Number of spatial bands	512 (single scan), 100,000 (Z-shaped scan stitching)
Detector	
Item	Ultra-low temperature refrigeration, ultra-high sensitivity area array CCD
Detector cooling temperature	Various configurations, as low as -70 °C
Detecting range	200-1100 nm
Effective pixels	2048*264

Dynamic range	50000: 1
Pixel size	14 μ m \times 14 μ m
Full well capacity	300 Ke ⁻
Sensitivity	QE>85%, 6.5 μ V/e ⁻
Raman probe	
Laser power	Each excitation wavelength is not consistent
Laser linewidth	<0.2 nm
Cooling method	Water cooling
Working distance	<1.0 m
Transmission rate	OD>8
Excitation divergence angle	23°
Scan displacement platform	
Scanning method	Electric
Maximum moving range (length, width)	800 \times 600 mm (customizable)
Maximum moving range (height)	800 mm (customizable)