

High-sensitivity High-resolution Portable Raman Spectrometer

ATR3110

Feature:

- Ultra-high sensitivity FFT-CCD TE-cooled;
- low noise circuit;
- Powerful embedded software;
- Fluorescent background eliminates;
- Peak finding and display;
- Win 10 operation system;
- USB 2.0;
- User friendly human-machine interface;
- Remote control via LAN;
- IP67 case;

Application:

- Biological science
- Pharmaceutical engineering
- Forensic analysis
- Agriculture and food safety
- Gemstone
- Environmental science

Description:

It employs ultra-high sensitivity FFT-CCD, high-efficient Raman probe, power reach up to 600mW ultra narrow line width laser, combined by high reliable optical design, circuit design, and measure result, high SNR, and fit well to field work. The obvious reliability ensures detect result, excellent low stray condition can apply Raman instrument to wider industries, especially biochemical analyzer, food safety, pharmaceutical engineering etc. This multi-function software support Raman analysis process.

ATR3110 employs 110/220V power supply, DC supply via 5V adaptor.



ATR3110 System				
Interface	USB 2.0 and WIFI			
Operating system	Windows 10			
Integration time	4ms - 120s			
Power voltage	DC 19V(+/-5%)			
Operating Temp	-10~40 °C			
Operating humidity	< 95%			
Dimension(L*W*H)	26x33x16.5cm			
Weight	5.5 Kg			
Reliability				
Spectral stability	$\sigma/\mu < 0.5\%$ (COT 8 hours)			
Temp stability	Spectral shift $\leq 1 \text{ cm}^{-1}$ (10-40 °C)			
Variation of intensity (in 5 ~ 40 °C)	$< \pm 5\%$			
Optical parameters				
Spectral range (cm^{-1})	200-4000	200-3000	200-2300	200-400
resolution (cm^{-1})	16	12	10	6
SNR	$> 3000:1$ (918 cm^{-1} of Acetonitrile, 10s accumulation, 200mW)			
Entrance slit	50 μm			
Optical system	f/4 C-T crossed optical path			
focusing	98 mm for incidence and output			
Detector				
Item	Ultra-high sensitivity, quick cooling CCD			
Detector cooled down to	-10 °C			
Detecting range	200-1100 nm			
Effective pixels	2048*64			
Dynamic range	50000: 1			
Pixel size	14 μm ×14 μm			
Full well capacity	300 Ke ⁻			
Sensitivity	QE>40%, 6.5 $\mu\text{V}/\text{e}^-$			
Exciting Laser				
Central wavelength	830nm (+/-1nm)			
FWHM	0.08 nm			
Power output	$\geq 500 \text{ mW}$			
Power stability	$\sigma/\mu \leq 0.2\%$			
Raman probe				
Operating distance	6 mm			
Rayleigh scattering resistance	OD>8			
Numerical Aperture	0.3			
Aperture	7mm			