NWPEC

EC-Raman

Integrated Raman Microscope

Product Introduction

The EC Raman integrated Raman microscope innovatively integrates the three major functions of electrochemical regulation, microscopic imaging, and Raman spectroscopy analysis, constructing a truly multimodal in-situ research platform. This device adopts a compact integrated design, breaking through the limitations of traditional instrument space and easily being placed in harsh working environments such as glove boxes. Its integrated intelligent particle recognition function can cooperate with electrochemical in-situ testing technology to achieve high-precision tracking and analysis of micro dynamic processes.

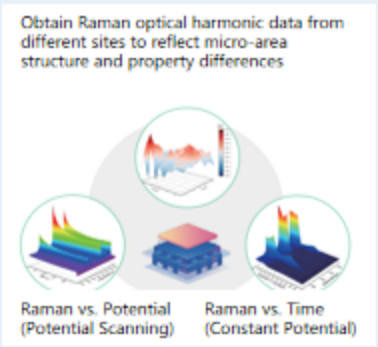
Product Parameters

Project	Parameter
Laser Wavelength	532 nm/633 nm/785 nm
Spectral Resolution	⩽4 cm^{-1} (grating rotation spectrometer) ⩽8 cm^{-1} (fixed grating spectrometer) Spectral Resolution
Spectral Range (Raman)	150~3900 cm^{-1}(532nm)/150~2900 cm^{-1}(633nm)/160~3400 cm^{-1}(785nm)
Laser Power	0-500 mW
Spectral Accuracy	±3 cm^{-1}
Instrument SNR	>5000:1
Built-in Electrochemical Workstation (Optional)	Voltage range: 10 V; Voltage accuracy:+1 mV±FS*0.01%; Current range: ⩾ ±500 mA Current accuracy: +0.2%* FS; Support electrochemical Raman experiments
Particle Identification (Optional)	Integrated particle-recognition algorithm with auto-positioning; localization accuracy <2 μm

Featured Modules

Deep integration of electrochemical and Raman combined technology

Integrating microscopic imaging, Raman spectroscopy, and electrochemical systems, it enables in-situ simultaneous acquisition of electrode morphology, spectroscopic, and electrochemical information. The acquisition synchronization delay is as low as hundreds of nanoseconds, accurately supporting transient characterization such as cyclic voltammetry and potential step.



Automated intelligent algorithm

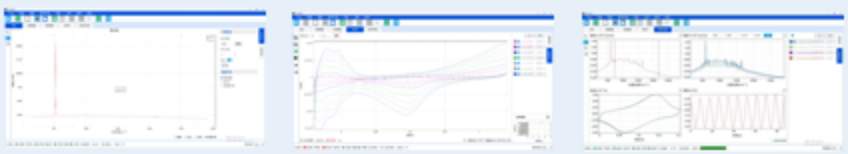
Integrated image recognition, automatic positioning, and batch statistics of micron-sized particles; one-click automatic focusing; intelligent noise reduction and baseline subtraction, significantly enhancing spectral quality.

Magnetic adsorption electrolytic cell

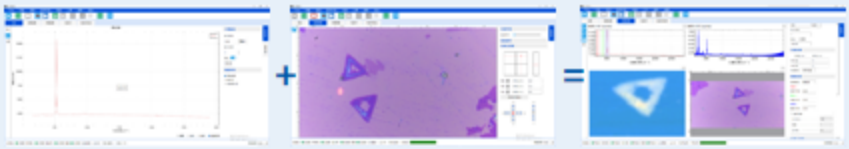
Magnetic adsorption electrolytic cell: No manual wiring required, plug and play, fundamentally avoiding electrochemical runaway caused by wiring errors, while eliminating signal disturbance caused by wire stress.

Multi-functional software platform

Integrating microscopy, Raman spectroscopy, Raman imaging, and electrochemical modules, real-time synchronous electrochemical and Raman data are obtained from the same interface, directly establishing a dynamic correlation between potential and spectroscopy to ensure reliable data.



Conventional Raman spectroscopy acquisition + Electrochemical analysis and testing = Electrochemical Raman characterization



Conventional Raman spectroscopy acquisition + White light microscopy imaging = Raman scanning imaging