Lightnovo

- PREMIUM PERFORMANCE FOR QUANTITATIVE ANALYSIS
- EXCELLENT FOR MATERIAL IDENTIFICATION
- HIGH SENSITIVITY
- EXTENDED SPECTRAL RANGE VIA DUAL LASER
- AFFORDABLE

miniRaman spectrometer

The world's smallest research-grade Raman spectrometer

TECHNOLOGY

MiniRaman spectrometer is an advanced miniaturised Raman spectrometer with integrated, patented, reference channel. This technology allows for an automatic calibration of the unstabilised laser wavelength drift. The spectrum from the sample gets always corrected for Raman shift and Raman intensity. This allows for a continuous calibration of the device and, therefore, the results are fast and reliable. This feature makes miniRaman an ideal solution for material identification and quantitative measurements.

Two lasers with wavelengths 660 or 675 nm (choose the best one according to your task) and 785 nm to extend measured spectral range

Details for miniRaman MRs patent

SPECIFICATIONS

Feature versus model	MiniRaman Standard	MiniRaman Power	MiniRaman SERS	MiniRaman Power Dual	MiniRaman Standard Dual
Laser wavelength	785 nm			660/675 nm and 785 nm	
Power on sample*	5-50 mW	10-90 mW	0,5-15 mW	5-40 mW (660) 5-75 mW (675) 10-90 mW (785)	5-40 mW (660) 5-75 mW (675) 5-50 mW (785)
Spectral Range	400-2700 cm^{-1}			2700-4000 cm^{-1} (660) 2550-4000 cm^{-1} (675) 400-2700 cm^{-1} (785)	
Spectral Resolution	7-15 cm^{-1} (slit size dependent; slit size can be customized)				
Signal-to-noise ratio at**:	500:1	1000:1	100:1	600:1 (660) 800:1 (675) 800:1 (785)	600:1 (660) 800:1 (675) 440:1 (785)
Physical dimensions	112 mm x 39 mm x 34 mm (LxWxH)				
Weight	400 g (optional 200g in aluminum housing)				

* *Actual laser power range can differ ± 2 % per device. Please contact us if you need specific laser power range values*
** *Determined as peak signal-to-noise ratio of polystyrene spectrum at maximal laser power, integration time 0.3s, number of repetitions 10.*

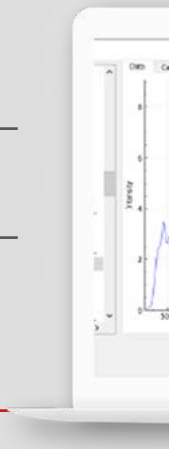
SOFTWARE

Miraspec for PC (Windows 7, 10, 11) and smartphone (Android)

System controlled by smartphone or PC via Bluetooth or USB-C cable.

Data acquisition	• laser power control • exposure time control • sensor gain control	• number of repetitions control • spectral range control
Data preprocessing options	• spectral smoothing using Savitzky-Golay filter and Asymmetric Least Squares • spectral background correction using rolling circle and Asymmetric Least Squares	• spectrum normalization (unit norm, unit area) • intensity normalization* • laser mode-hop correction* • spectral super resolution*

**patented feature*



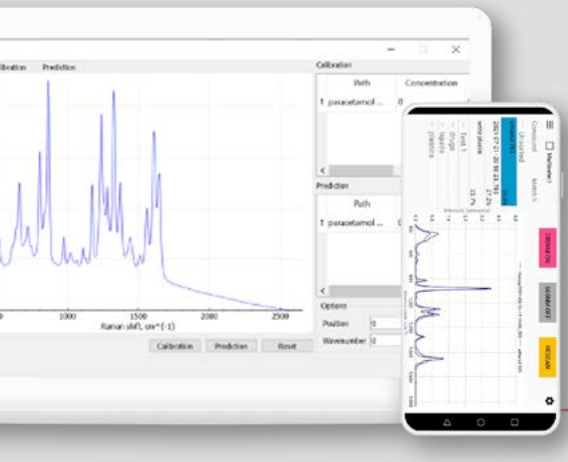
Display feature allows materials ID without the need of device operation via smartphone or PC
Single handed operation and analysis

APPLICATIONS

- Biosciences
- Pharmaceuticals
- Chemicals
- Surface Enhanced Raman Scattering
- Polymers
- Nano-materials
- Semiconductors
- Forensics
- Alcohol quality and counterfeit product detection
- Cosmetics
- Geology
- Skin diagnostics

ACCESSORIES

- long working distance probe, f=30 mm
- middle working distance probe, f=15 mm
- short working distance probe, f=6.25 mm
- contact probe; ideal for in-vivo skin measurements, direct contact measurements of powders and liquids
- sample holders
- axial focusing accessories
- light protection sample cover
- objective covers
- adapters for standard microscopy objectives



Data analysis features:

Qualitative analysis	• material identification • creation of spectral libraries
Quantitative analysis	• Raman peak height/peak area calibration • Partial Least Squares (PLS) calibration • Multivariate Curve Resolution calibration • Non-Negative Least Squares quantification of mixtures

Harness the power of Raman spectroscopy and make it widely accessible for the benefit of mankind.

- Lightnovo's mission

Lightnovo has been founded in 2019 by a team united by the belief in making a difference with innovative Raman spectroscopy solutions.

Our goal is to provide premium performance Raman spectrometers and microscopes with the world's smallest form factor at a price that democratizes access and opens new application areas.

It is our vision to become the recognized leader in providing the highest value Raman spectroscopy and Raman microscopy solutions for research, industry and healthcare.

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