

NS200 series

# Raman Spectrometer



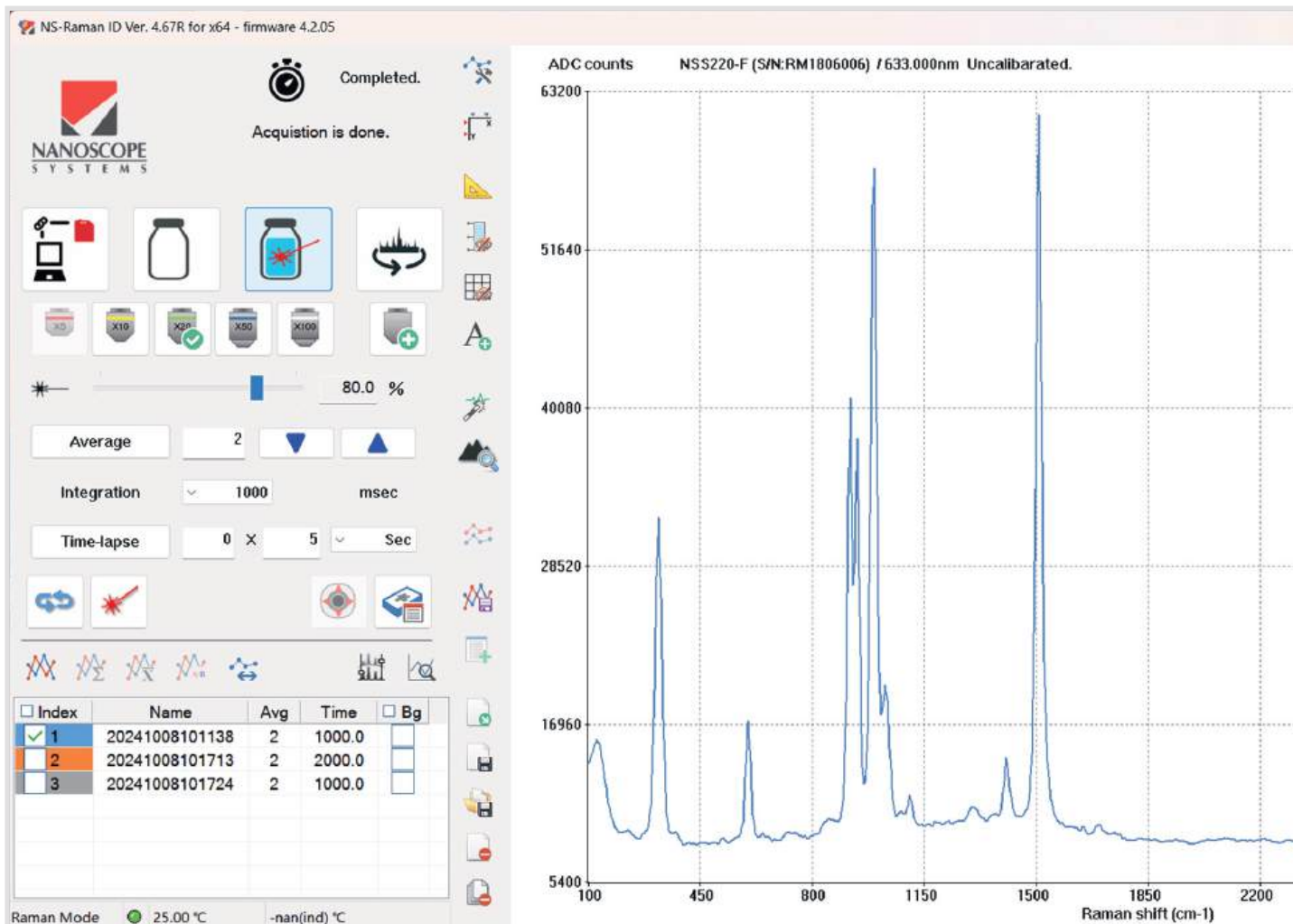
# NS200 series

## Single laser micro Raman spectrometer

NS200 series provides compact size single laser micro Raman spectroscopy. Unlike the bulky Raman instruments, it can be easily and conveniently handled even by the first user. The optical microscope imaging and auto-focusing function make it easy to focus on the target position of the sample. Its compact size and adaptability for various experimental setups further enhance its user-friendly configuration.

### Features & Benefits

- Optical microscope imaging
- Auto-focusing
- Automatic switching between Raman and microscope mode
- Image stitching in microscope mode
- Raman signal mapping with automatic sample stage
- Time-lapse acquisition of Raman spectrum
- Operation with a laptop or desktop computer (USB interface)
- Convenient dark room chamber
- Analysis of detected signal with library database
- Easy and intuitive operation & analysis software
- User's own library management software



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## Fully automated all-in-one system

The NS200 series is a Raman spectrometer designed as an all-in-one type with a fully automated configuration. The laser and the spectral detector are assembled in the measurement module, which is integrated with the 3-axis motorized stages, allowing for efficient and easy operation.

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## Compact size

The NS200 series is designed as a compact device, offering you the flexibility to carry it anywhere and set it up on any office table with a laptop. This versatility will maximize the implementation of your experiments, allowing you to adapt your research to different environments.

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## Customizable design

Our customization design team is available to modify the frame design to suit your specific experimental setup. We would be pleased to support every customer's first research and prototyping.

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## High spectral stability

The NS200 series is equipped with an optimized design featuring selected optical components, a high-sensitivity detector, and verified electronic components. This ensures a high level of instrument stability, allowing you to obtain consistent, reliable data.

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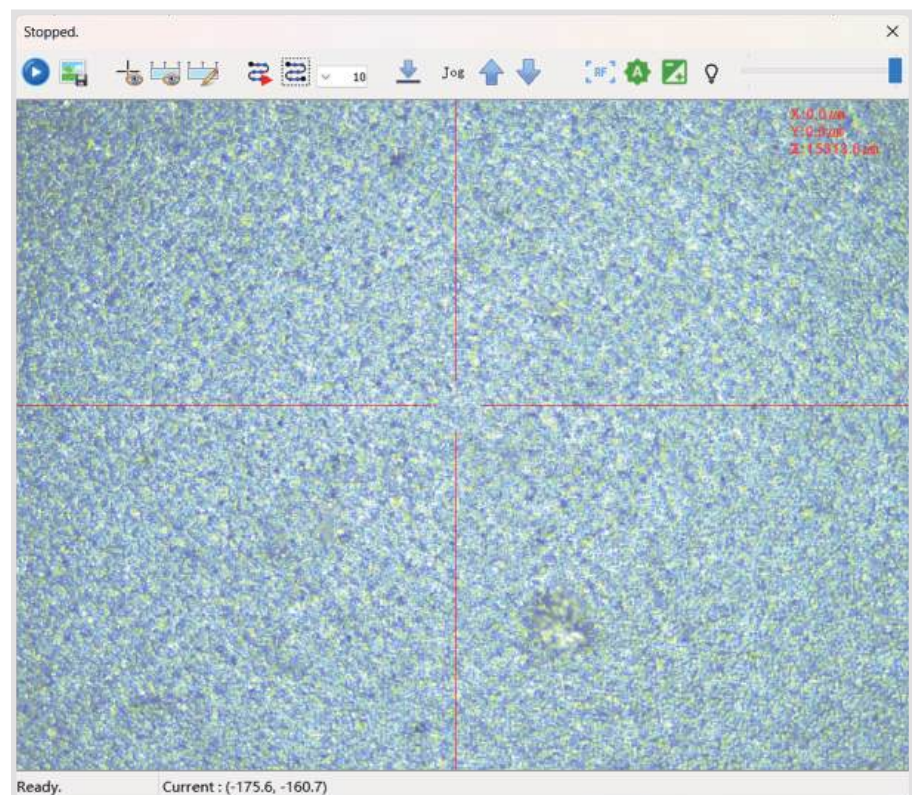
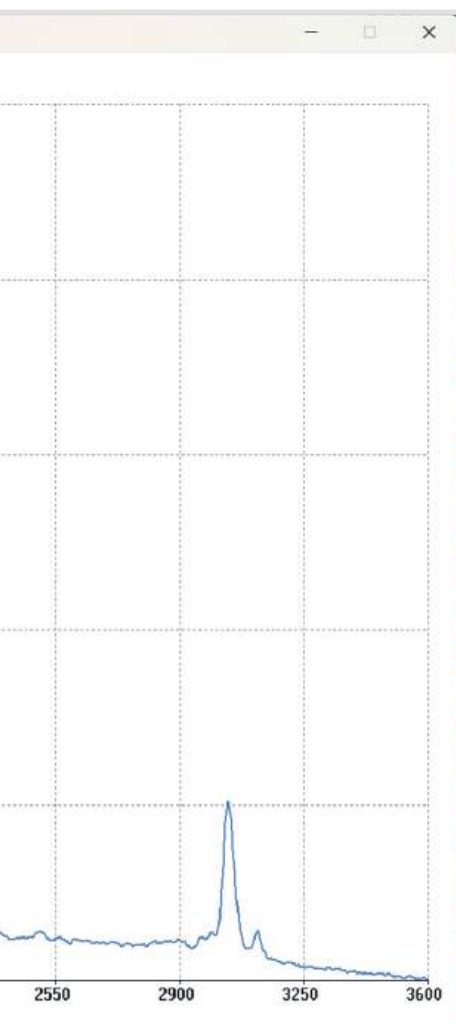
## Easy operation software

The dedicated software controls the NS200 series Raman spectrometer with an easy and intuitive user interface. Even beginners can operate it skillfully after short training.

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## Research-proven spectrometer

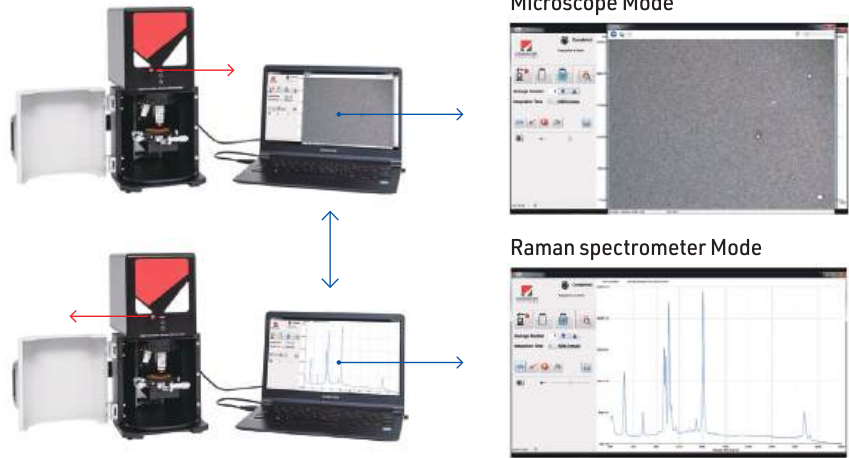
Many researchers use the NS200 series and cite it in their research papers. The NS200 series will be a reliable tool for your research.



## Convenient microscope-spectrometer mode switching

The built-in optical microscope enables the user to "see the target" before spectrum acquisition. After finding the focus position, the motorized mechanism switches it to the Raman spectrum mode.

### Focusing the target with optical image

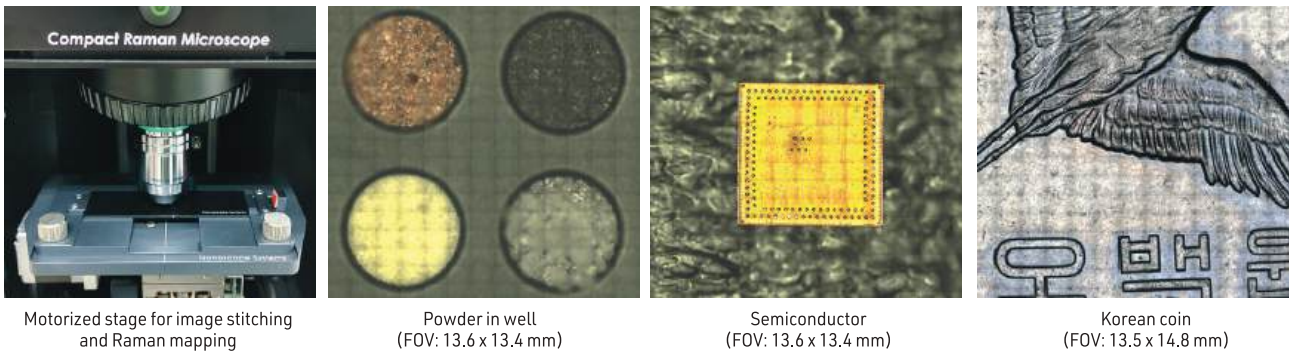


### Spectrum acquisition

## Image stitching and Raman mapping by motorized stage interface

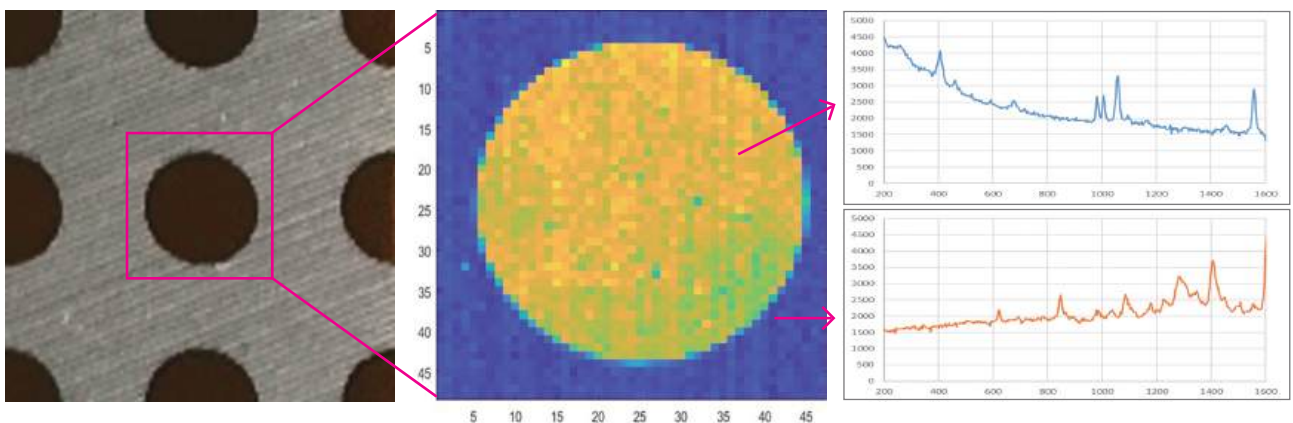
### Image stitch in microscope mode

The NS200 series, equipped with a motorized XY stage, can generate an image of the sample covering an area of the XY stage stroke by image stitching. You can easily use this preview image to assign locations for data acquisition.



### Raman mapping

Raman mapping images can be obtained using the motorized stage scanning method. The scanning range or the mapping area is defined on the optical microscope image, and sequential spectrum acquisition along the scanning paths in the defined range is performed automatically. The result is displayed by the adequate colors reflecting the material property of each point characterized by the Raman spectrum.

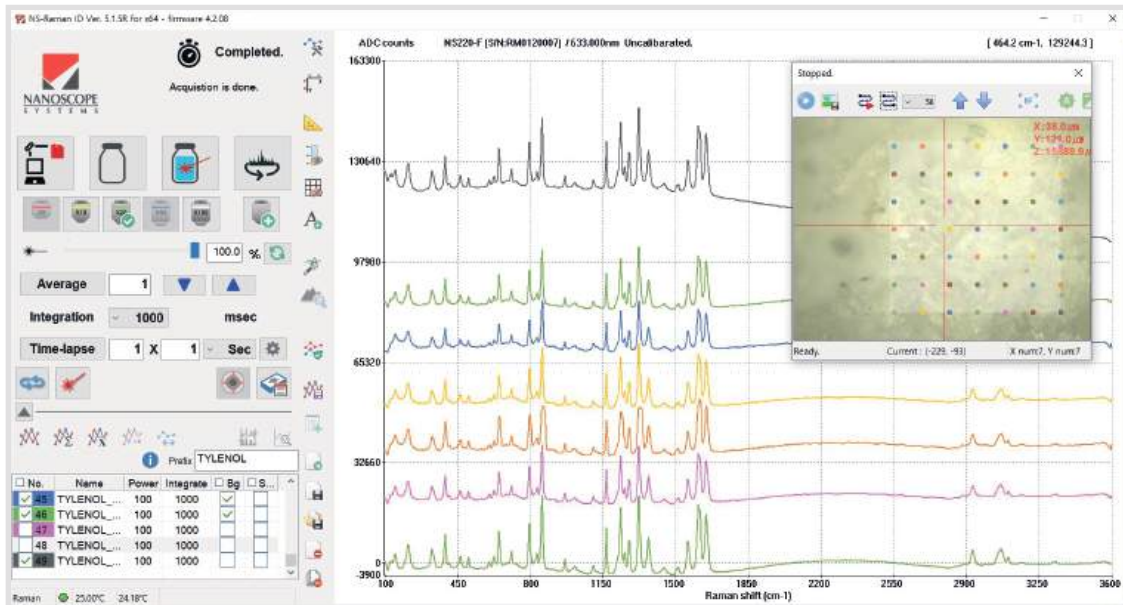


Specify the mapping range on the microscope view image

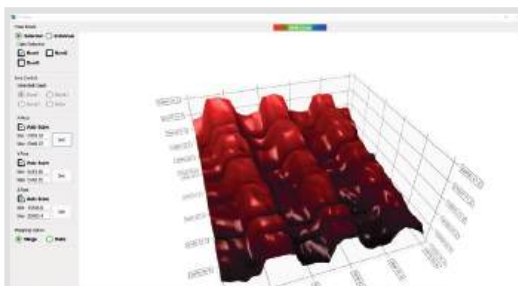
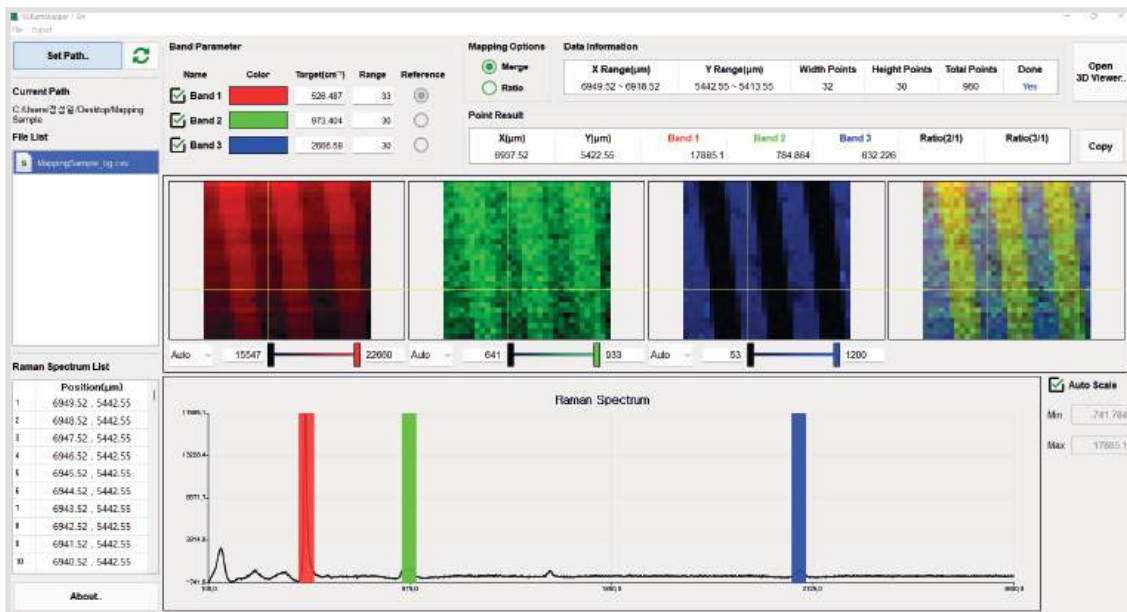
Raman mapping image : Different colors for different property

## Software interface for Raman mapping

Raman mapping is to visualize the spectral property of the area. The array of acquisition points is made automatically or manually, and the spectrum is obtained for each coordinate of the points.



Once the sequential measurement is completed, the spectrum set is reconstructed as pixels of an image, and each pixel is described by the specific color and the intensity level of the color by the mapping program.

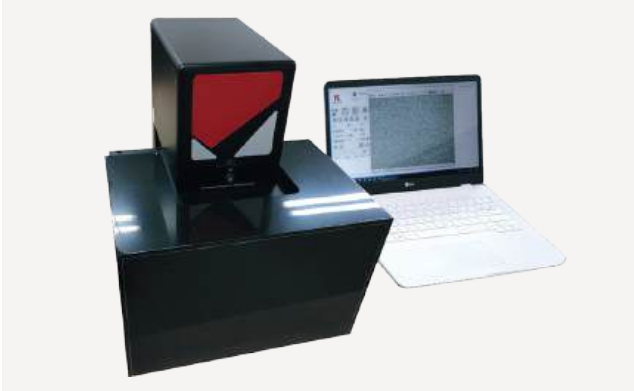


The Raman spectral property can be visualized. The color represents the spectral bands, and the amplitude represents its strength. It is convenient to interpret the material property. (Please note this is not the actual 3D shape of the sample.)

## Frame configuration of NS200 series

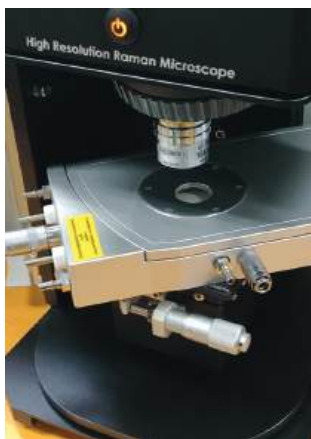
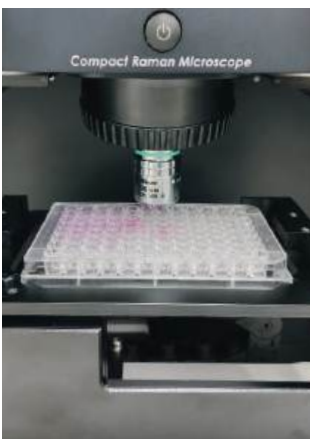
### Open frame configuration

The NS200 series' open frame configuration offers more convenience, allowing you to equip your experimental setup easily with enough space.



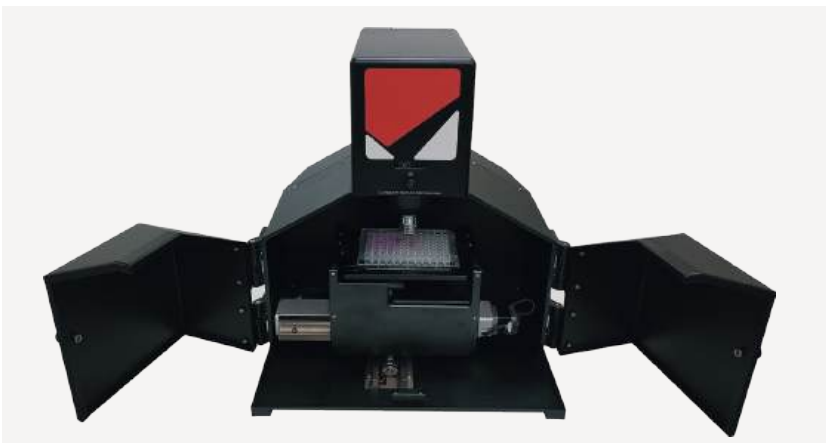
### Customizing sample stage

The sample stage of the NS200 series is designed for your convenience and control. You can personalize it to suit your experiments, providing efficiency and precision in your research.



### Well plate chamber configuration

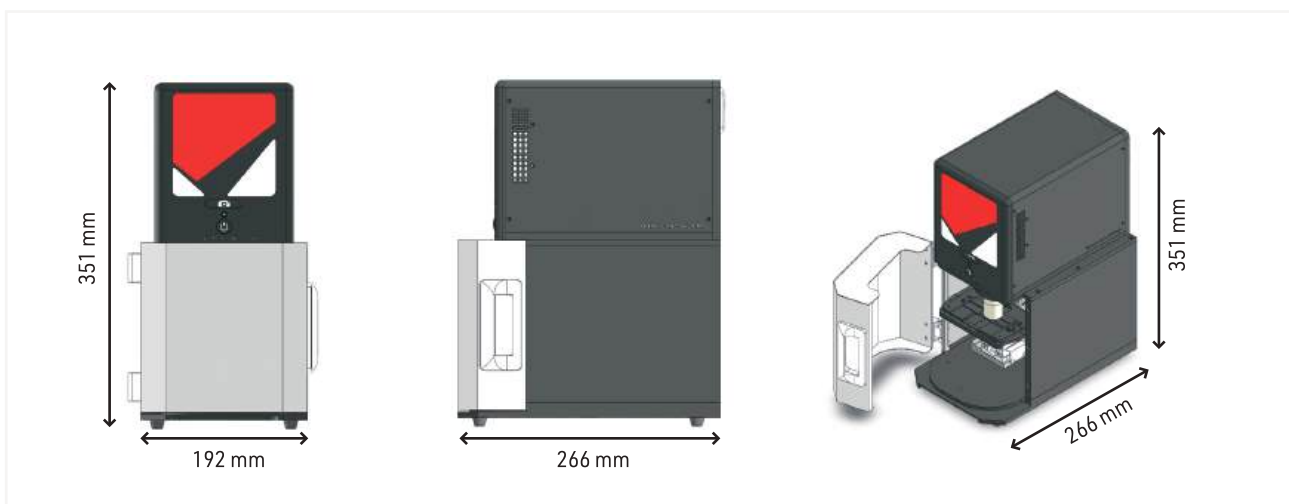
NS200 series with the larger motorized sample stage is available, which can effectively cover the standard well-plate area.



## Specifications

Model	NS200	NS220	NS240
Laser Wavelength	785 nm ± 0.5 nm	633 nm ± 0.5 nm	532 nm ± 0.5 nm
Spectrum Range	100 cm <sup>-1</sup> ~ 3200 cm <sup>-1</sup>	100 cm <sup>-1</sup> ~ 3500 cm <sup>-1</sup>	100 cm <sup>-1</sup> ~ 3600 cm <sup>-1</sup>
Spectral Resolution	≤ 10cm <sup>-1</sup>		
Collection Optics	NA 0.46 / WD 3.1 mm (Default) Depends on Objective lens		
Laser Output Power	40 mW	40 mW	20 mW
	Depends on Objective lens		
Exposure	Min : 50 msec ~ Max : 10 sec		
Microscope field of view	530 x 400 μm (with 20x objective lens)		
External Power	24V@5A		
Weight	~ 12 kg (w/o Objective lens)		
Size	Head only : 140 x 228 x 162 mm <sup>3</sup> With frame : 192 x 266 x 351 mm <sup>3</sup>		
I/O (Interface)	USB 3.0		
Software	NSRamanID		
Data Formats	.txt, .csv		
Library	~200 materials		
User Library	Can be built by user		
Display	By laptop computer		
Feature	Multiple Objectives, Bright field microscope image		
Automatic functions (Optional)	Motorized motion of Microscope-Spectrometer switching, Auto focusing, Motorized XY motion, Raman signal mapping, Joy stick		

## Dimensions



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# Nanoscope Systems' products for Raman spectroscopy

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<b>NS200 series</b>	single laser micro Raman spectrometer
<b>NS100 series</b>	compact Raman spectrometer module
<b>Ramcheck-P200</b>	for reading SERS strip
<b>SERSpace</b>	SERS substrate amplifying Raman signal



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