

SPECTROSCOPY / DATA SHEET

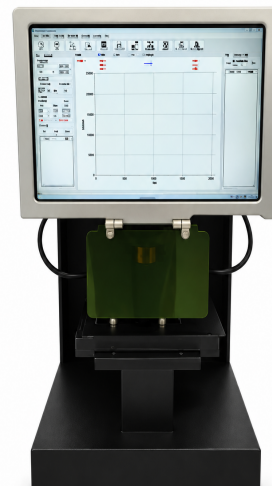
SR 300Z-01

Microscopy Raman Spectrometer

Confocal micro-Raman analysis platform for spectral identification and microscopic mapping.

Overview

- SR 300Z-01 combines Raman spectroscopy with high-precision microscopic scanning to analyze composition, variation and spatial distribution at small scales.
- The modular system supports microscope imaging, manual region scanning, bright-field/dark-field analysis and configurable Raman modules.
- Configuration options include excitation wavelength, microscope type, detector path and analysis accessories as specified in the source material.



Excitation 532 / 785 / 1064 nm	Detection Range 150-3200 cm ⁻¹ *	Resolution 6-12 cm ⁻¹	Spot Size 1-2 μm @100×
Scan Range 130 × 85 mm	Scan Accuracy 200 nm	System Size 300 × 300 × 510 mm	Weight <20 kg

* Detection range depends on excitation wavelength and channel configuration.

Key Advantages

- Modular architecture with independent excitation source, spectrometer and Raman probe modules.
- Selectable excitation wavelengths with free-space or fiber coupling; up to four full-band paths can be switched.
- Confocal microscopy and an all-reflective optical path help reduce stray light and improve signal-to-noise performance.
- High-sensitivity detector architecture with up to four detector coupling interfaces.
- Raman imaging software supports white-light/Raman overlay, fluorescence baseline correction, data management, library building and spectral comparison.

Application Scenarios

- Materials science: Raman spectroscopy, imaging and special-condition studies.
- Pharmaceutical research: composition and crystal-distribution analysis.
- Life sciences: cells, DNA, microorganisms, proteins and drug-interaction research.
- Semiconductor materials and process analysis: composition, stress, thin films and chip structures.

MEASUREMENT PRINCIPLE

Technical Principle

The SR 300Z-01 combines Raman spectral analysis with high-precision microscopic scanning. The system acquires Raman spectra together with microscopic position information so that composition, changes and regional distribution can be analyzed at small scales. White-light imaging and Raman imaging can be overlaid for visual comparison.

SYSTEM DATA

Technical Specifications

Item	Specification
Product model	SR 300Z-01
Excitation wavelength / configuration	532 nm multichannel, 100 mW; 532 nm single-channel, 100 mW; 785 nm multichannel, 500 mW; 785 nm single-channel, 100 mW; 1064 nm multichannel, 500 mW; 1064 nm single-channel, 100 mW
Selectable excitation range	200-2100 nm stated for the multi-wavelength architecture
Detection range	532 nm: 150-3200 cm^{-1} ; 785 nm multichannel: 150-3200 cm^{-1} ; 785 nm single-channel: 150-3000 cm^{-1} ; 1064 nm: 150-2000 cm^{-1}
Line width	<0.1 nm
Spectral resolution	6-8 cm^{-1} for 532 nm and 785 nm configurations; 10-12 cm^{-1} for 1064 nm configurations
Spot size	1 μm @100 $\times$ for 532 nm and 785 nm; 2 μm @100 $\times$ for 1064 nm
Detector	Non-cooled or cooled area-array back-illuminated detector for 532/785 nm configurations; cooled linear-array InGaAs detector for 1064 nm configurations
Microscope	Standard microscope or high-resolution microscope, configuration dependent
Objective selection	10 $\times$ / 20 $\times$ / 50 $\times$ / 100 $\times$; for 1064 nm single-channel configuration, three near-infrared objectives 5 $\times$ / 10 $\times$ / 20 $\times$
Camera	Optional 5 MP, 13 MP or 16 MP camera
Detector coupling	Up to four detector coupling interfaces
Scan range	130 $\times$ 85 mm
Scanning accuracy	200 nm
System dimensions	300 $\times$ 300 $\times$ 510 mm
Weight	<20 kg
Optional accessories	Motorized scanning stage, cryogenic/hot stage, in-situ Raman cell and fluorescence polarization analysis module

Note: Values shown above are translated and consolidated from the supplied source manual. Configuration-dependent values should be confirmed against the final order.

DATA / ANALYSIS

Analysis Functions

Imaging and Spectral Analysis

- Macro and micro Raman imaging research.
- White-light and Raman image overlay.
- Automatic fluorescence baseline correction.
- Data management, user-built libraries and spectrum comparison.

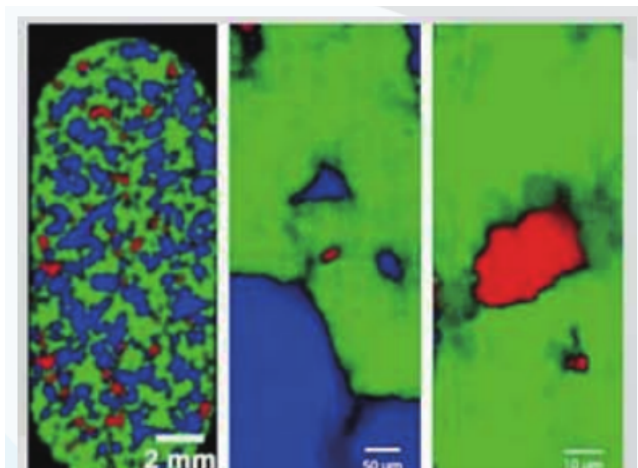
Configuration Scope

- Transmission, reflection, absorption, Raman, fluorescence and polarization analysis modules can be selected.
- Temperature, electric-field and pressure stages are supported as optional modules.
- Accessories are available for thin films, particles, powders, fibers and gases.
- OEM customization is stated in the source material; detailed scope is configuration dependent.

MECHANICAL DATA

Mechanical Dimensions / Installation

System envelope: 300 × 300 × 510 mm; weight <20 kg. The source material describes a modular, detachable architecture in which the excitation source, spectrometer and Raman probe modules are independent for assembly and configuration. Installation details and final accessory arrangement depend on the selected configuration.



Representative Raman mapping image from source material

ORDERING INFORMATION

Product Selection

Selection	Configuration
Base model	SR 300Z-01 - Microscopy Raman Spectrometer
Excitation configuration	Select 532 nm, 785 nm or 1064 nm configuration with the required channel arrangement and power listed in Technical Specifications
Microscope	Standard microscope or high-resolution microscope
Camera	Optional 5 MP, 13 MP or 16 MP camera
Accessories	Motorized scanning stage, cryogenic/hot stage, in-situ Raman cell, fluorescence polarization analysis module and other source-listed accessories

Specify SR 300Z-01 together with the desired excitation, microscope, detector and accessory configuration. Final configuration is subject to the product order.

Configuration Summary

- Excitation: 532 nm, 785 nm or 1064 nm; channel and power are configuration dependent.
- Detector: area-array or InGaAs path according to excitation configuration.
- Microscope: standard or high-resolution microscope.
- System envelope: 300 × 300 × 510 mm; weight <20 kg.

Support Scope

- Technical support.
- Product selection.
- Configuration guidance.
- www.spesense.com

CONTACT / SUPPORT

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