

# Jasco NRS-3000 Series Instrument Performance Specifications

	NRS-3100	NRS-3300
Wavenumber Range (Raman Shift) 532 nm excitation	50-8,000cm <sup>-1</sup>	50-8,000cm <sup>-1</sup> 10-8,000cm <sup>-1</sup> (when using low Wavenumber attachment [filter monochromator] measurement to within 10cm <sup>-1</sup> from Rayleigh line with 532 nm or shorter excitation)
Resolution 532 nm excitation	1cm <sup>-1</sup> /pixel (532 laser, 1000 cm <sup>-1</sup> , 1800 gr/mm grating) (0.4cm <sup>-1</sup> optional, requires 13.5 μm pixel CCD, DU-440)	
Laser	Standard Laser—Solid State Laser	
	Wavelength—532 nm	
	Laser Output—Single Line Output: 100 mW (532 nm)	
	Oscillation Mode—Single Mode, TEM <sub>00</sub>	
	Output Stability—Less than ±2% (> 8 hour)	
	Beam Diameter—0.32 ±0.02 mm	
	Beam Broadening Angle—Not more than 2.5 mrad	
	Plane of Polarization—>100: 1 (Vertical)	
	Optional Laser—Visible-NIR	Optional Laser—UV-NIR
	Laser Sources to be Accommodated—Up to 6 (two lasers internal)	
Wavenumber Correction	Laser Optical Alignment—Auto alignment	
Beam Attenuator	Neon Lamp; Secondary Standards (ASTM E1840-96)	
Sample Compartment	Automatic Attenuating System—8-step type (OD 1-6, OD: 0.3, and OD: 0.6)	
Laser/Raman Beam Splitter	Class 1 Laser Safety Interlock System; Automated Sample Compartment Door	
Micro Sample Compartment	Beam Splitter Only	Beam Splitter and Dichroic Beam Splitter
	Dichroic Beam Splitter (optional)	
	Laser Beam Irradiating/Raman Light Focusing Direction—Irradiates sample perpendicularly from above/focuses light perpendicularly above the sample (back scattering system)	
	Laser Beam Irradiating System—With focusing fine adjustment mechanism	
	Beam diameter—Minimum 1 μm	
TV Monitor	Beam Splitter—Ratio between Raman light transmission and laser beam reflection 7/3	
	Objective Lens—For visible light, x100, x20, x5 (standard)	
	Permits simultaneous observation of the sample surface, laser spot and aperture image (aperture diameter: 50 and 200 mm selectable)	
	TV Camera—Color CCD camera	
Raman Light Inlet	Image magnification: 2000x or more (when 100x objective lens is used)	
	Display Unit—Real-time display on CRT by video capture	
	Sample Illuminating System—Epi-illumination	
	Sample View—White LED source	
Monochromator Unit	Raman Light Introduction System—Parallel beam transmitting system (achromatic lens used)	
	Rayleigh Filter—Notch filter	Rayleigh Filter—Notch filters or automatic 6 filter carousel tunable low Wavenumber filter system
	Optical Arrangement—f=300mm singly dispersive	
	Spectrograph Drive System—Direct drive type	
	Diffraction Grating—Holographic diffraction grating	
	1800 lines/mm (standard), 2400 lines/mm, 1200 lines/mm, 600 lines/mm (optional)	
	Working Wavelength Range—220 to 1100 nm	
CCD Detector	Absolute Wavenumber Accuracy—± 1cm <sup>-1</sup>	
	Diffraction Grating Changeover—Maximum 3 gratings	
	Standard—Andor Model DV401-F1	Standard—Andor Model DU401-F1
	Number of Pixels—1024x128	
	Size of Pixel—26 Microns	
Cooling System— Peltier Type; Cooling Temperature -65°C (air cooling)	Chip Type—Front Illumination type (standard); Back Illumination type (option)	
	Cooling System— Peltier Type; Cooling Temperature -75°C (air cooling) -95°C (water cooling)	

# Software Specifications, Instrument Options, and Accessories

	NRS-3100	NRS-3300
Data Acquisition and System Control—Spectra Manager™ II	Data Processing—Arithmetic operations, Spectral subtraction, Baseline correction, Cosmic ray correction, Derivatives, Peak height, Peak area, Peak width, Smoothing, Zooming, Peak picking, Spectral search including user library building software with 600 standard spectra. Optional Software—Interval scan, Carbon analysis, Stress analysis, Curve fitting, Multivariate data analysis programs (PCA, PCR, PLS, and CLS), Validation	
Data Publishing—JASCO Canvas	Standard and customized print templates for standardized data output	
Macro Measurement	Optional	Standard
Imaging Option	N/A	Filter carousel direct imaging
Options and Accessories for all	Automatic Mapping— x-y-z stage with auto focus, 1/2 wave plate optics, polarized light measurement unit, transmitted light illumination, rotating stage accessory, polarized light viewing, Nomarski interference contrast imaging, trinocular eyepiece, high sensitivity viewing CCD camera (requires trinocular attachment), sample cryostat, heating-cooling stage, isothermal measurement unit, diamond anvil cell, fiber probe (including RMP-102 microprobe), UV and NIR objective lenses, etc.	

	NRS-3100	NRS-3300
Power Requirements	200 VA	
Dimensions	860W x 635H x 820D (mm)	1360W x 635H x 835D (mm)
Weight	Approx. 200 kg	Approx. 400 kg

FT-IR • UV-Vis • Fluorescence • Chiroptical • Chromatography



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