

Technical Specifications

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| General Specifications | |
| integrated correlative measurements modes | high performance nano-IR, confocal Raman, micro-IR, AFM |
| optical inspection | integrated dual objective (20x & 100x) |
| infrared optics | patented high-NA dual-sided parabolic mirror (NA=0.5) |
| system operation | automated measurement mode switching, instrument setup and sample ID recognition |
| nano-IR spectroscopy | |
| nano-FTIR | reflectivity and absorption nano-spectroscopy and chemical mapping based on patented interferometric near-field detection |
| tapping AFM-IR | absorption nano-spectroscopy and chemical imaging based on patented heterodyne AFM signal detection |
| IR Objective | patented high-NA dual-sided parabolic mirror (NA=0.5) |
| tunable QCL (nano-FTIR & AFM-IR) | coverage of mid-IR fingerprint 950-1725 cm ⁻¹ (ca. 5.8-10.5 μm) |
| widely-tunable OPO (nano-FTIR & AFM-IR) | near-continuous coverage of mid-IR fingerprint & functional groups region from 625 cm ⁻¹ to 7140 cm ⁻¹ (ca. 1.4-16 μm) |
| tunable QCL (AFM-IR only) | coverage of mid-IR fingerprint (760-1860 cm ⁻¹) and CH-region (2700-3000 cm ⁻¹) or silent region (2000-2400 cm ⁻¹) |
| Confocal Raman micro-spectroscopy | |
| objective | LWD 100x objective for confocal Raman micro-spectroscopy |
| VIS laser for Raman spectroscopy | up to 2 lasers (532 nm, 785 nm) |
| CCD + spectrograph | back illuminated CCD (1024x255 px, 26x26 μm pixel size), 328 mm focal length, F/4.1 aperture, fiber-coupled, on-axis quad grating turret incl. 4 gratings |
| IR micro-spectroscopy | |
| mode of operation | Laser Direct Infrared (LDIR) spectroscopic imaging in transfection geometry |
| widely-tunable OPO | near-continuous coverage of mid-IR fingerprint & functional groups region from 625 cm ⁻¹ to 7140 cm ⁻¹ (ca. 1.4-16 μm) |
| AFM microscope | |
| available AFM modes | AFM, PFM, KPFM, cAFM, TipForce (nano-mechanical property mapping) |
| closed loop scanner | high stability 100 μm x 100 μm x 8 μm, typ. AFM RMS z-noise < 80 pm |
| Add-ons and Accessories | |
| instrument installation | active vibration isolation system |
| AFM probes | contamination-free nano-IR probes for accurate spectroscopic chemical identification |
| environmental control | housing purging, sample temperature control |
| microfluidic liquid cell | in-situ nano-FTIR analysis in liquid environment |
| photo-current kit | nanoscale resolved mapping of tip-induced IR photo-current |