



StellarSCOPE™ AM/PA Raman Particle Analyzer



The **StellarSCOPE™ AM/PA Raman Particle Analyzer** automates particle detection and chemical identification using Raman spectroscopy for applications including microplastics, contamination monitoring, pharmaceuticals, materials science, and environmental research.

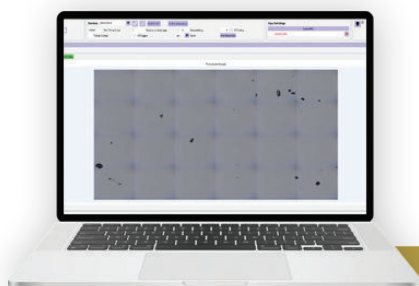
The system locates, images, and non-destructively identifies individual particles with minimal user intervention, improving speed and repeatability over manual analysis. Integrated software streamlines particle mapping, spectral acquisition, and reporting for efficient workflows. Built on StellarNet's proven Raman platforms, StellarSCOPE AM/PA delivers flexible, research-grade performance for R&D and quality control.

Contact StellarNet to speak with an application scientist about your specific analysis needs.



Technical Specifications

StellarSCOPE AM/PA	Key Performance Specifications
Particle Detection Range	~1 μm to several millimeters (depending on optics and magnification)
Particle Measurement Accuracy	$\pm 1 \mu\text{m}$ (calibrated in microns)
Stage Travel Range	X/Y: 120 mm $\times$ 85 mm (large area coverage) Z: motorized focusing
Stage Precision	Step resolution: 0.15 μm Repeatability: $\pm 2 \mu\text{m}$
Optical Imaging	High-resolution digital CMOS microscopic camera (1.3 MP, optional 5 MP upgrade) Multiple objective lenses available (4x to 100x)
Microscopy Modes	Brightfield (standard) Optional: Darkfield, DIC (Differential Interference Contrast), Phase Contrast
System Calibration	Built-in FOV calibration in $\mu\text{m}/\text{pixel}$
Optical Features	Auto par centricity and confocally
Raman System	Configurable Raman excitation and detection modules Auto-alignment for precise Raman targeting
Spectral Classification	AI/ML-based Spectral ID™ engine Reference library matching with material classification
Software Platform	Particle Wizard™ workflow automation software Integrated imaging, analysis, Raman acquisition, and reporting
Outputs	Annotated composite images, Binary & morphological masks, Statistical plots & size distribution charts, and Comprehensive results tables (particle data + Raman spectra + classification)
Data Export Formats	CSV, PDF, images (TIFF/PNG), project archive
System Footprint	Standard laboratory benchtop configuration



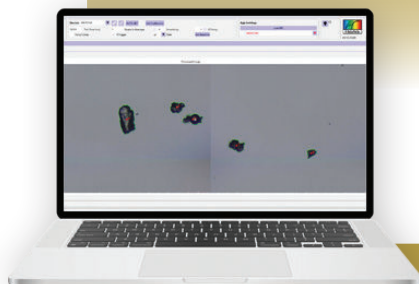
Step 1: High-Resolution Scanning & Mapping

Define your ROI in Particle Wizard™, and the system delivers a micron-calibrated composite map—ensuring accurate sizing, repeatable Raman targeting, and fully traceable data.



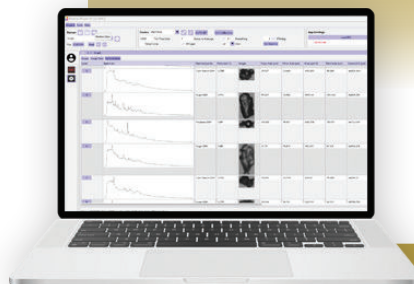
Step 4: Raman Spectral Acquisition

Collect Raman spectra with a click—target individual particle IDs or all detected particles. The automated stage aligns each centroid to the laser for accurate, reproducible results.



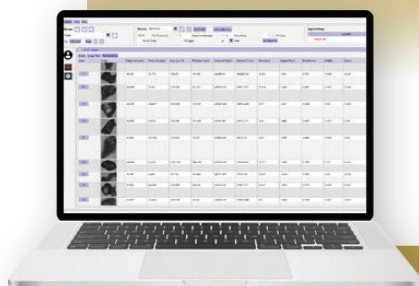
Step 2: Particle Detection & Segmentation

Adjust algorithms and filters by size, shape, and ratio. The system maps particles with contours, centroids, and labels for a clear, indexed view.



Step 5: Raman Spectral Matching & Classification

Spectral ID™ applies AI to match Raman signatures to a reference library, logging each particle's spectrum and classification in the results table.



Step 3: Particle Measurement & Classification

Particle Wizard™ captures detailed particle metrics—size, shape, circularity, and centroid coordinates—all linked to unique IDs and compiled in an exportable results table.



Step 6: Reporting, Visualization & Output

Particle Wizard™ generates a complete, organized report with annotated images, and exportable tables of measurements, Raman spectra, and AI classifications—giving you clear results and visuals in one place.

These outputs combine visual evidence and quantitative data for traceability, reproducibility, and compliance. StellarSCOPE AM/PA delivers fast, accurate particle analysis to support quality, regulatory standards, and material insights.