

PORTABLE SPECTRORADIOMETER

NaturaSpec™ Ultra

Reveal What History Is Made of - Without Taking a Sample

Discover more about paintings, manuscripts, archaeological objects, pigments, and other culturally significant materials through non-invasive spectral analysis.

The Spectral Evolution NaturaSpec Ultra brings lab-quality, ultra-high-resolution spectroscopy directly to the object - helping researchers investigate materials while preserving the integrity of priceless and irreplaceable artifacts.



Ultra-High-Resolution UV-Vis-NIR Spectroscopy for Art & Cultural Heritage

Preserve the Object. Explore the Spectrum.

Cultural heritage research presents a unique challenge: obtaining meaningful information about an object without damaging the very material you're trying to understand.

Traditional analytical techniques may require the removal or destruction of samples. The Spectral Evolution NaturaSpec Ultra is a fiber optic reflectance spectroscopy (FORS) method that allows researchers to collect spectral measurements without removing or damaging the object.

The NaturaSpec Ultra's new fast scanning mode enables programmable scan rates of up to 10 Hz. Available SDKs simplify integration into automated scanning workflows.

Using the NaturaSpec Ultra with appropriate reflectance optics, such as the Precision Probe, researchers can perform fast non-invasive spectral scanning on a wide variety of cultural heritage materials.



Ideal for the Study of:

- Paintings and painted surfaces
- Historical pigments and dyes
- Manuscripts and documents
- Archaeological artifacts
- Glass and decorative objects
- Cultural heritage materials
- Small or delicate samples
- Museum and conservation collections



SPECTRAL EVOLUTION - ACCURATE. RELIABLE. TRUSTED.

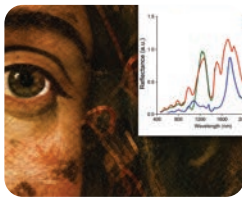
One Instrument. Multiple Heritage Applications.

Pigment & Material Investigation



Collect reflectance spectra from pigments and other materials to help characterize the composition of artwork and culturally significant objects.

Artwork Authentication Research



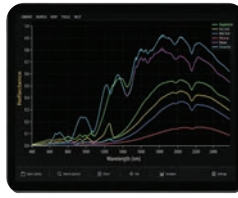
Spectral analysis can provide information about pigments and materials that may support investigations into an artwork's age, provenance, restoration, or authenticity.

Conservation & Restoration



Document spectral characteristics before, during, and after conservation work to create a repeatable record of an object's condition and materials

Spectral Library Development



Build high-resolution spectral libraries of pigments, reference materials, historic materials, and artifacts for comparison with future measurements.

Archaeological Research



Bring spectroscopy to archaeological materials and research environments where transporting objects to a laboratory may be impractical or undesirable.

Non-Invasive Research



Analyze valuable or irreplaceable objects while minimizing the need for destructive sampling.

Designed for Precise, Repeatable Measurements



350–2500 nm Spectral Range

Collect full-range UV-Vis-NIR/SWIR spectral measurements.



Fast-scanning Capability

- High speed scanning up to 10Hz.
- SDK's available for automated scanning



2,151 Reported Channels

Spectral data output in 1 nm increments provides detailed spectra for analysis and comparison.



Three Photodiode Arrays

- 1024-element UV-enhanced Si array
- 512-element TE-cooled InGaAs array
- 512-element extended TE-cooled InGaAs array



No Moving Optical Parts

Solid-state diode-array technology provides excellent stability, repeatability, and reliability.



Automatic Measurement Optimization

- Automatic exposure
- Detector integration
- Dark-current correction
- Data optimization



Excellent Wavelength Performance

Wavelength reproducibility: ≤ 0.1 nm
Wavelength accuracy: ± 0.5 nm

Flexible Measurements for Precious Objects

Cultural heritage objects don't always fit conveniently beneath laboratory instrumentation.

The NaturaSpec Ultra's fiber-optic configuration provides flexibility when working with objects of different shapes, sizes, and locations.

The NaturaSpec Ultra features a fiber optic cable compatible with a wide range of accessories for nondestructive measurements. For art and archaeology applications, they most commonly include lenses that modify the bare fiber's 25° field of view, a surface probe for nondestructive scanning flat surfaces, or a precision probe with a bifurcated fiber optic design that integrates its own light source. The precision probe measures a spot approximately 1 mm in diameter, allowing researchers to capture even the finest details within a sample.



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