The Spero-QT® remains the highest-performance and most versatile infrared microscopy platform available. Powered by Daylight’s award winning quantum cascade laser (QCL) technology, the small desktop sized instrument uses a proprietary wide-field, low-noise imaging architecture to enable real-time spectroscopic analysis for a range of Pharmaceutical, Materials and Life Sciences applications. The Spero-QT is equipped with a high-precision automated sample stage which accommodates as many as three standard microscope slides. Finally, a large sample compartment area makes the Spero-QT compatible with a variety of microfluidic devices and accessories.

Our latest model, Spero-LT, has been economically configured to get the most out of your research for a lower cost. With all of the same high-performance specifications in speed and resolution as the Spero-QT, this is a great solution for tight budgets.

INSTANTANEOUS RESULTS IN LIVE MODE
Produces hyperspectral data cubes in seconds and also supports live discrete-frequency imaging, eliminating standard, time-consuming workflow steps to acquire data.

HIGHLIGHTS
• Reflection AND transmission modes¹
• Live video-rate IR imaging
• High-sensitivity measurements (< 3 mAU)
• Fast hyperspectral scan speeds (> 7 M spectral points per second)
• Multiple, high-NA, large FOV imaging optics²
• Large, flexible sample compartment
• Easy-to-use ChemVision™ software included
• Multiple output file formats available
• Chemometrics packages available
• No cryogenic cooling needed
• Small footprint

Spero®QT | LT
ULTRAFAST, WIDE-FIELD MID-IR MICROSCOPY

¹ Depending on application and settings
² Depending on optics and settings
INFRARED MICROSCOPY WILL NEVER BE THE SAME

APPLICATIONS
- Tissue analysis
- Live cell imaging
- Liquid and microfluidic analysis
- Chemical reaction monitoring
- Polymer science
- Plasmonics and metamaterials
- Materials inspection
- Tablet API mapping
- Protein analysis
- Forensics

SPECIFICATIONS

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SPECIFICATIONS

CONFIGURATIONS
IMAGING MODES SPERO-QT SPERO-LT
IR Reflection ✓
IR Transmission ✓ ✓
Visible ✓
Mosaic Stitching ✓ ✓
Hypercube Collection ✓ ✓
High Resolution IR Objective (0.7 NA) ✓
Wide-Field IR Objective (0.3 NA) ✓ ✓

SPECIFICATIONS

PARAMETER HIGH-RESOLUTION IR (0.7 NA)1 WIDE-FIELD IR (0.3 NA)
Wavelength Range Spero-LT Standard Configuration: 1750 cm⁻¹ to 1000 cm⁻¹
Spero-QT Standard Configuration: 1800 cm⁻¹ to 950 cm⁻¹
Customizable between 2300 cm⁻¹ and 800 cm⁻¹
Image Cube Acquisition Time < 40 s (450 absorbance images collected at 2 cm⁻¹ spacing)
Camera Array Size 480 x 480
Image Pixel Size 1.3 μm (0.7 NA) 4.3 μm (0.3 NA)
Diffraction-Limited Spatial Resolution < 5 μm @ λ = 5.5 μm < 12 μm @ λ = 5.5 μm
Numerical Aperture 0.7 0.3
Spectral Resolution Variable, down to 2 cm⁻¹
Minimum Detectable Signal < 3 mAU per scan
Working Distance > 8 mm > 25 mm
Field of View (FOV) 650 μm x 650 μm (0.7 NA) 2 mm x 2 mm (0.3 NA)

STAGE
Stage Travel X > 75 mm
Stage Travel Y > 50 mm
Stage Travel Z > 10 mm
Stage Repeatability < 1 μm

HYPERSPECTRAL DATA CUBE

A high-resolution spectrum is collected simultaneously at every image pixel position (230,400 pixels per FOV) in about 35 seconds.

FIELD OF VIEW

With a 128x128 FPA FTIR, it would require 16 fields of view to cover an area similar to a single field of view of the Spero-QT.

INVISIBLE LASER RADIATION
AVOID EXPOSURE TO THE BEAM
CLASS 3B LASER PRODUCT

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COMPLIES WITH 21 CFR 1040.10 AND 1040.11 EXCEPT FOR DEVIATIONS Pursuant to Laser Notice No. 50, Dated June 24, 2007. COMPLIES WITH IEC 60825-01

DRS Daylight Solutions
15378 Avenue of Science, Suite 200
San Diego, CA 92128
Tel. +1 858 432 7500
daylightsolutions.com