

## **SPERO QT® | LT**

### Rapid-Wide-Field Mid-IR Microscopy

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 accomodates 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 accesories.

Our latest model, Spero-LT, has been economically configured

to get the most of your research for a lower cost. With all of the same high-performance specifications in speed and resolutions as the Spero-QT, this is a great solution for tight budgets.

#### INSTANTEOUS RESULTS IN LIVE MODE

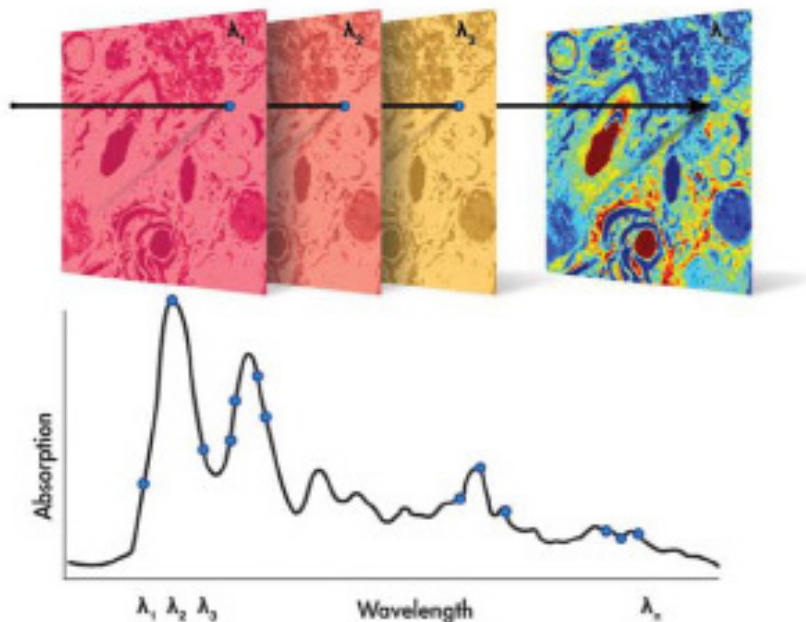
Produces hyperspectral data cubes in seconds and also supports live discrete-frequency imaging, eliminating standard, time-consuming workflow steps to acquire data.

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# 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



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

## CONFIGURATIONS

IMAGING MODES	SPERO-QT 340	SPERO-LT 340
IR Reflection	X	
IR Transmission	X	X
Visible	X	
Mosaic Stitching	X	X
Hypercube Collection	X	X
High Resolution IR Objective (0.7 NA)	X	
Wide-Field IR Objective (0.3 NA)	X	X

## SPECIFICATIONS

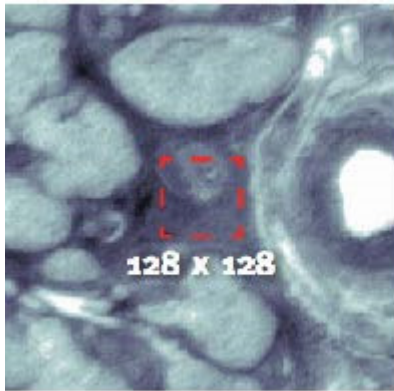
IMAGING MODES	HIGH-RESOLUTION IR (0.7 NA) <sup>1</sup>	WIDE-FIELD IR (0.3 NA)
Wavelength Range	Standard Configuration: 1800 cm <sup>-1</sup> to 950 cm <sup>-1</sup> Other wavelength range options available between 2300 cm <sup>-1</sup> and 800 cm <sup>-1</sup> - Please inquire.	
Image Cube Acquisition Time	950-1800 cm <sup>-1</sup> , 2 cm <sup>-1</sup> steps (426 steps) in less than 45 seconds	
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 Step Size	Variable, down to 2 cm <sup>-1</sup>	
Noise Performance	< 1 mAU per scan <sup>4</sup>	
Working Distance	> 5 mm	> 25 mm
Field of View (FOV)	650 μm × 650 μm (0.7 NA)	2 mm × 2 mm (0.3 NA)

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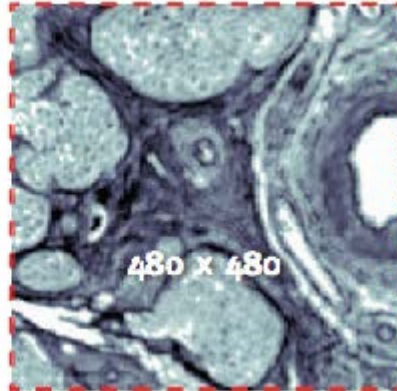
[daylightsolutions.com/products/spero/](https://daylightsolutions.com/products/spero/)

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# FIELD OF VIEW



**FPA FTIR**  
1.1 µm pixel



**QCL-IR**  
1.3 µm pixel



Detector field of view

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

## STAGE

Stage Travel X	> 75 mm <sup>[3]</sup>
Stage Travel Y	> 50 mm <sup>[3]</sup>
Stage Travel Z	> 10 mm
Stage Repeatability	< 1 µm (X,Y)

## UPGRADE OPTIONS

Stage Travel X	> 75 mm <sup>[3]</sup>
Stage Travel Y	> 50 mm <sup>[3]</sup>
Stage Travel Z	> 10 mm
Stage Repeatability	< 1 µm (X,Y)

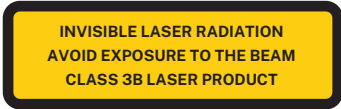
<sup>1</sup>Reflection mode not included in standard configuration of Spero-LT

<sup>2</sup>High-Resolution IR Objective and visible objective not included in standard configuration of Spero-LT

<sup>3</sup>Customizable up to 100 mm

<sup>4</sup>As measured per standard Spero acceptance test protocol; Decadic Absorbance Value

Note: Dry gas purge recommended. Please contact us for installation recommendations.



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

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