



## Acton Series LS 785 Tunable NIR Spectrometer

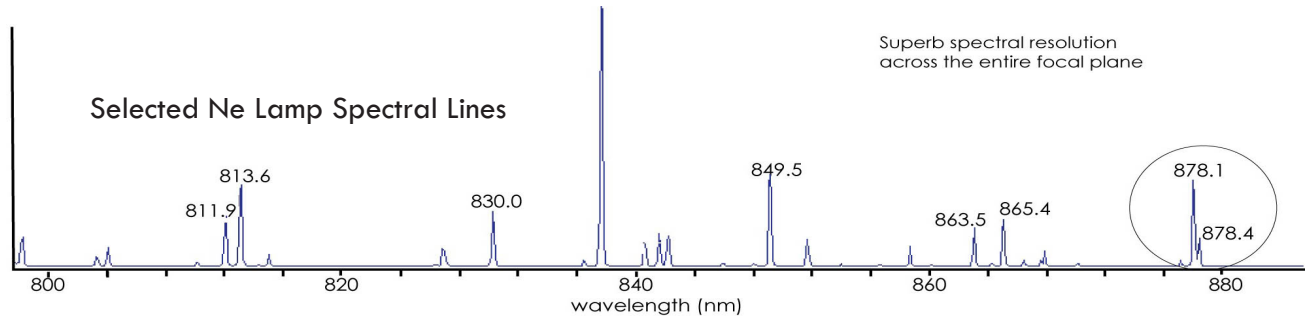
The Acton LS 785 from Princeton Instruments is a powerful lens-based instrument ideal for spectroscopists working in the near-IR region. The LS 785 is a high-throughput tunable Raman spectrometer that features a micrometer controlled grating, allowing the user to access the NIR between 750 nm and 1100 nm. At an aperture of f/2, the LS 785 is perfectly matched to an optical fiber input and offers >4X the throughput of a standard f/4 mirror-based spectrograph. With its fast AR-coated compound lenses from our Acton Optics group, and a custom gold-coated grating, the LS 785 provides the highest throughput and best imaging commercially available in the NIR.

FEATURE	BENEFITS
Complete system offerings with Princeton Instruments deep depletion CCD detectors	Choose from various camera models for the highest performance and sensitivity, with a peak QE of 95%
Working range between 750 nm and 1100 nm, with micrometer adjustable coverage	Provides wide spectral coverage when using lasers from 785nm to 830nm: with Raman shifts of 126 cm <sup>-1</sup> to 2340 cm <sup>-1</sup> with 785nm excitation and 126 cm <sup>-1</sup> to 2040 cm <sup>-1</sup> with 830nm excitation
NIR optimized f/2 refractive optics	Provides the highest throughput and imaging quality available in the NIR
Gold-coated 1200 gr/mm grating Optional 830 gr/mm grating	Offers the highest efficiency as well as the flattest response in the working spectral region, with resolution of 5 cm <sup>-1</sup> or better
Custom designed AR coatings	Every optical surface in the lens assemblies has over 99% transmission throughout the entire working range of the spectrograph
<b>Optional:</b> LightField® 64-bit software with IntelliCal™ spectrograph calibration system	Powerful cutting-edge user interface, complete control over spectrometers & cameras, easy-to-use tools for experimental setup, data acquisition and post-processing.
Wide range of accessories available	Including slit shutter, fiber adapters, edge/notch filter assemblies
SPECIFICATIONS	
Aperture Ratio:	f/2
Spectral Resolution:	5 cm <sup>-1</sup> with 25 micron fiber
Dispersion (nm/mm):	6.12 nm/mm at 900 nm
Wavelength Coverage:	785 - 1100 nm
Image Curvature:	2.5 Pixels or less
Astigmatism:	120 μm or less with 1200 gr/mm grating
Total System Throughput	68% or greater
Dimensions	Height: 6", Width: 18", Depth: 12", Weight: 24.5 lbs (11.2 kg)

## Outstanding Spectral Resolution

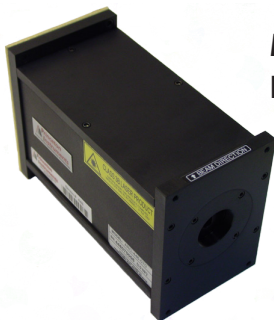
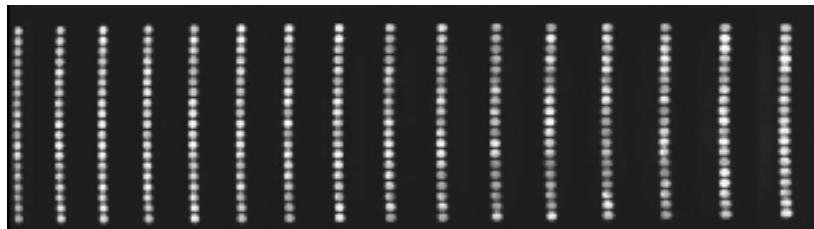
5  $\text{cm}^{-1}$  resolution accommodates a wide variety of NIR Raman applications

Superb spectral resolution across the entire focal plane



## Outstanding Image Performance

An array of 200  $\mu\text{m}$  fibers imaged across the 27 x 4 mm focal plane demonstrates outstanding field flatness and imaging quality



**Model ARC 446-070  
Raman Filter Chamber**

**Model FC-446-021-U:  
Universal Fiber Adapter**  
Will accommodate SMA, FC  
or 10 mm ferrules



## Raman Shift Coverage

Excitation Wavelength (nm)	Working Range ( $\text{cm}^{-1}$ ) *	Coverage ( $\text{cm}^{-1}$ )	Lowest Range Covered ( $\text{cm}^{-1}$ )	Highest Range Covered ( $\text{cm}^{-1}$ )
785	126 to 3635	3500	126 to 2340	2000 to 3635
830	126 to 2950	2824	126 to 2040	1400 to 2950

\* With optional edge filter assembly.

## Acton LS 785 with Universal Fiber Adapter and PIXIS 400BR\_eXcelon Deep Depletion CCD Camera



### Acton LS 785 Spectrometer Configurations

The Acton LS 785 can be purchased with a Princeton Instruments PIXIS or PyLoN deep depletion CCD detector, creating a complete system. The PIXIS and PyLoN® deep depletion CCDs are proprietary CCDs that feature dual readout amplifiers (low noise and high capacity) and 3 software selectable gains for superior sensitivity or high signal to noise.

### CCD SPECIFICATIONS (See individual CCD datasheets for more information)

Models	CCD Detector	Pixel Formats available (model)	Pixel Size (μm)	Image Area (mm x mm)	Max. Cooling	Peak QE @ 800nm	Typical Dark Current
100BR_eXcelon 400BR_eXcelon	PIXIS (TE cooled)	1340 x 100 1340 x 400	20 x 20 20 x 20	26.8 x 2.0 26.8 x 8.0	-80°C -75°C	98% 98%	0.03 e-/p/s 0.03 e-/p/s
100BR_eXcelon 400BR_eXcelon	PyLoN (LN cooled)	1340 x 100 1340 x 400	20 x 20 20 x 20	26.8 x 2.0 26.8 x 8.0	-120°C -120°C	98% 98%	2 e-/p/hr 2 e-/p/hr