



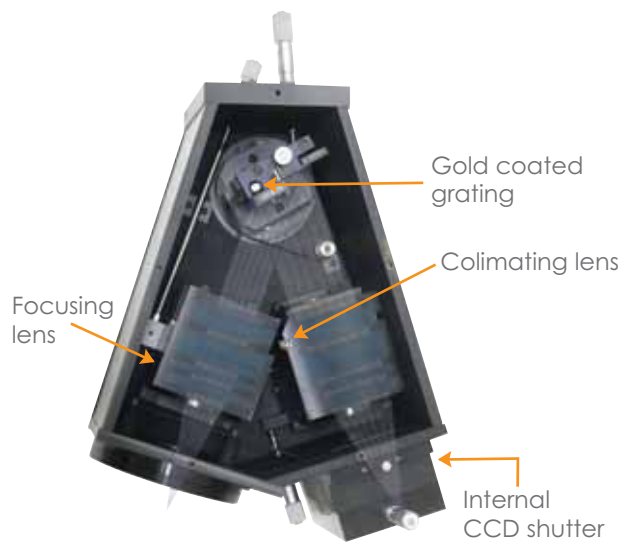
From conception Princeton Instrument's Acton LS 785 design was specifically optimized for use in the NIR. The unique f/2 lenses, designed in-house, feature proprietary coatings developed by Acton Research Coatings group. Each surface of the five element lenses has a better than 99% antireflection coating. The high aperture and transmission provides more than twice the throughput of the closest competitive product. The lenses were designed for best MTF in the region between 750nm and 1000nm. The result is unmatched image quality and the lowest aberrations possible over its 27 mm x 8 mm focal plane. The Raman Pro 785 provides a significant advantage in acquisition time and spatial integrity in demanding Raman imaging applications. A very compact footprint and 5cm⁻¹ resolution make it well suited for transportable applications such as medical and process diagnostics.

Applications: NIR Raman spectroscopy and imaging / NIR fluorescence

| Features | Benefits |
|---|--|
| Working range between 750 nm and 1000 nm | Provides wide spectral coverage for 785 nm to 830 nm lasers: 400 cm ⁻¹ to 2,300 cm ⁻¹ with a 785nm laser; 300 cm ⁻¹ to 2000 cm ⁻¹ with an 830 nm laser Coverage can be adjusted via micrometer drive |
| 5cm⁻¹ resolution | Sufficient resolution for the most demanding biological, medical, and analytical applications |
| NIR optimized f/2 refractive optics | Provides the highest throughput and spatial integrity available in the NIR |
| Gold grating | Offers the highest efficiency as well as flattest response in the working spectral region |
| Custom designed AR coatings | Every optical surface in the lens assemblies have better than 99% transmission over the entire working range of the spectrograph |
| No moving parts | Extremely reproducible and stable |
| Internal Raman edge filter | A Raman edge filter with 8OD rejection incorporated in lens design reduces the need for several optical and mechanical components and increases efficiency |
| Offered with the widest range of CCD detects | Couples with all Princeton Instruments CCD detectors including TE and LN cooled as well as intensified and EMCCD models. An optional internal CCD shutter mechanism is available |
| Wide range of accessories available | Including fiber adapters, filter assemblies, micro and micro Raman sampling systems, and lasers |

Acton LS 785 Specifications

| | |
|----------------------------|---|
| Focal length | 85 mm |
| Aperture | f/2 |
| Optics | Proprietary designed and AR coated refractive lenses |
| Grating | Gold coated 1200g/mm |
| Focal plane | 27 mm x 8 mm |
| Wavelength coverage | 785 nm to 1000 nm manually tunable via removable micrometer |
| Dispersion | 6.23 nm/mm |
| Resolution | 5 cm ⁻¹ with 25µm fiber |
| Throughput | > 75% (unpolarized light) |
| Size | 370 mm long 180 mm high 234 mm wide |
| Weight | 7.5 kg |



Relative wavenumber coverage

| Laser (nm) | working range (cm ⁻¹)* | Coverage (cm ⁻¹) | Lowest range covered (cm ⁻¹) | Highest range covered (cm ⁻¹) |
|------------|------------------------------------|------------------------------|--|---|
| 785 | 250 to 3215 | 1985 | 250 to 2234 | 1230 to 3215 |
| 805 | 250 to 2898 | 1884 | 250 to 2134 | 1015 to 2898 |
| 830 | 250 to 2524 | 1768 | 250 to 2018 | 756 to 2524 |

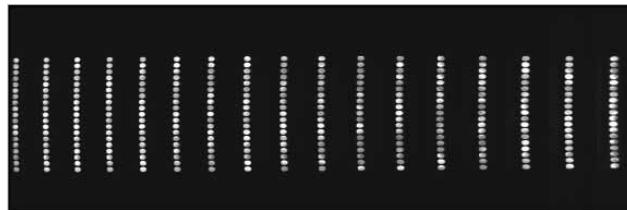
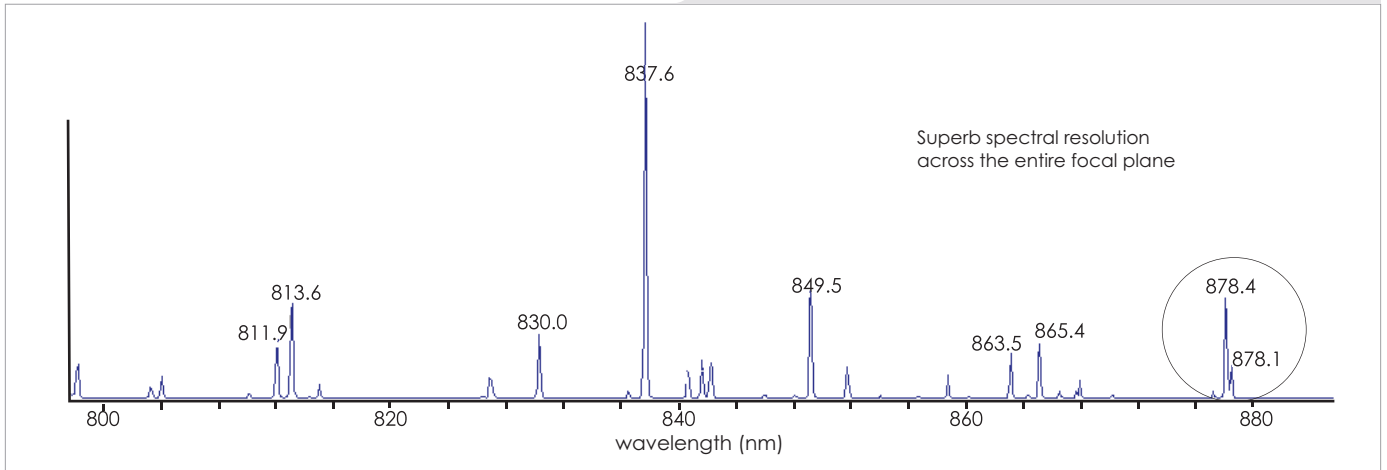
* Range limited by edge filter cut off and 1050 nm practical detection wavelength of Si based CCD cameras

Recommended Detectors

| | |
|--------------------------|--|
| PIXIS: 100/400 BR | 100/400 x 1340 20 x 20µm pixels back illuminated deep depletion CCDs |
| PIXIS: 256 BR | 1024 x 256 26x26µm pixels back illuminated deep depletion CCD |
| Spec 10: 100LN BR | Liquid nitrogen cooled version of the PIXIS: 100 BR |
| Spec 10: 256LN BR | Liquid nitrogen cooled version of the PIXIS: 256 BR |

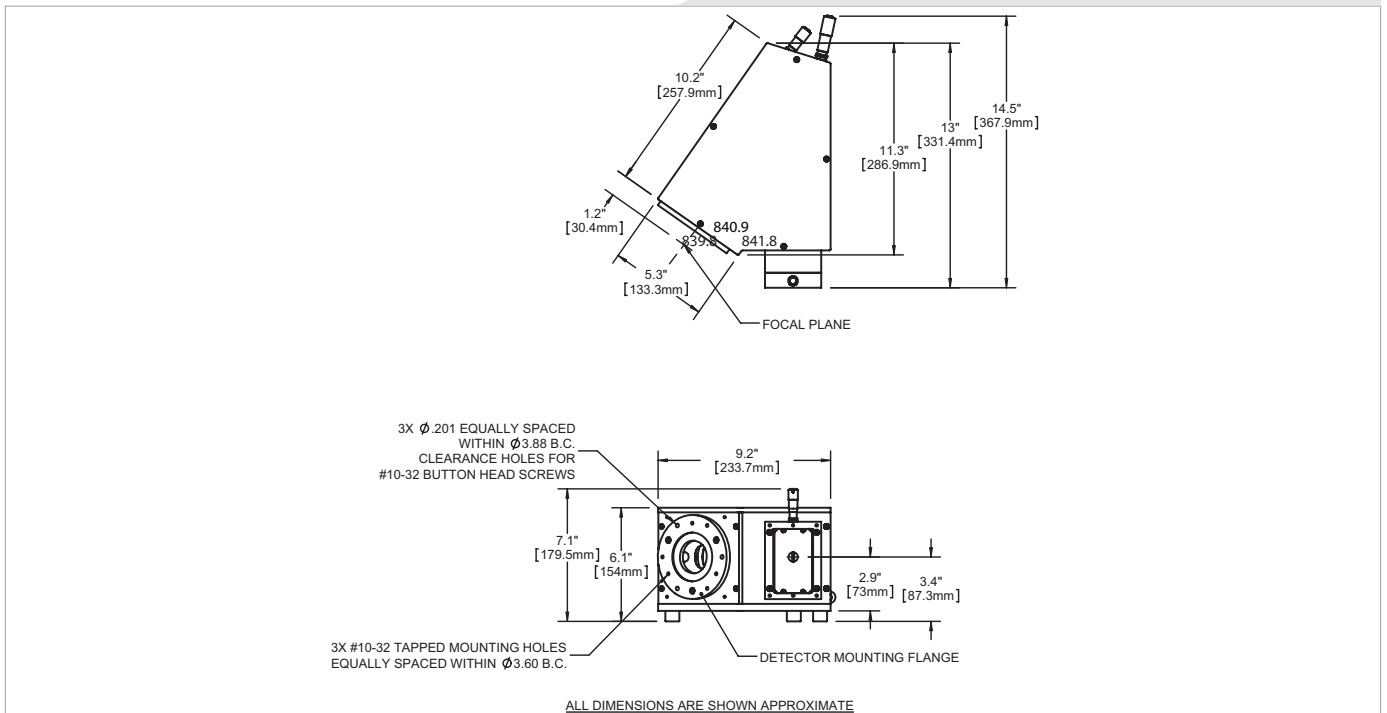
Note: Sensitivity is a critical issue in NIR Raman spectroscopy. Not only is the Raman signal weak due to the longer excitation wavelengths, the efficiency of CCD based detectors fall off very quickly in the NIR. Princeton Instruments recommends that back illuminated deep depletion sensors be used in this region. The following models will give you the highest sensitivity in the NIR.

Selected Ne Lamp NIR Spectral Lines



A line of 19 200 micron fibers imaged across the 27 mm by 8 mm focal plane demonstrates the field flatness

Acton LS 785 Drawings



www.piaction.com

email: moreinfo@piaction.com

USA +1.877.4 PIACTION | Benelux +31 (347) 324989

France +33 (1) 60.86.03.65 | Germany +49 (0) 89.660.779.3

Japan +81.3.5639.2741 | UK +44 (0) 28.38310171

Asia/Pacific +65.6293.3130