



WINNER OF:



IsoPlane[®] SCT 320

The IsoPlane SCT 320 spectrograph combines extraordinary imaging with outstanding spectral performance. The patented, advanced optical design has zero astigmatism and reduced coma and spherical aberration across the entire focal plane, increasing spatial and spectral resolution dramatically over traditional Czerny-Turner spectrographs. Large-diameter optics and interchangeable triple-grating turrets permit operation from the UV to Mid-IR even at low light levels and a variety of spectral resolutions. The IsoPlane works seamlessly with Princeton Instruments' industry-leading cameras and detectors, and our LightField[®] with IntelliCal[®] or WinSpec data acquisition software packages. **Spectroscopy reimaged!**

FEATURES	BENEFITS
Patented, astigmatism-free design*	Spectra are free of astigmatism at all wavelengths across the entire focal plane. Can resolve >100 optical fiber channels with minimal crosstalk. Excellent spatial and spectral resolution over the entire area of a 1" square sensor. No other mirror-based scanning spectrograph offers comparable performance.
Outstanding imaging performance	Greatly reduced coma results in spectral linewidths of ~1.5 20 μm pixels across the entire focal plane. The IsoPlane offers the resolution of a 500 mm instrument with twice the light-gathering power.
High fluence	Reduction or elimination of all major aberrations gives high fluence (i.e., photons are concentrated in the peaks of spectral lines rather than in the wings). Peak heights for narrow lines can be 2x or better than with competing instruments. High resolution is maintained when binning over a single row or the entire sensor.
Fixed-position camera mount with micrometer focus adjustment	Easy camera mounting with improved hardware. Fine adjustment for razor-sharp focus.
Kinematic torque-limiting turret mount	Improves reproducibility when changing grating turrets. Up to three turrets with nine gratings are supported.
High efficiency optical coatings	Acton #1900 mirror coating delivers the highest reflectivity from the UV to the NIR. Optional silver, gold or dielectric coatings are available with reflectivities of 98%. See page 5.
Compatible with wide range of cameras	Princeton Instruments PIXIS, PyLoN, Spec-10/LN, PyLoN-IR, ProEM 1600, PI-MAX3/4 and NIRvana cameras with spectroscopy mount and without electronic shutter are supported.
Wide range of accessories	Including fiber bundles, adapters, shutters, filter wheels, purge ports and light sources including the IntelliCal wavelength and intensity calibration system. Accessories sold separately.
Optional: LightField (for Windows 7/8, 64-bit) or WinSpec (for Windows XP/7/8, 32-bit)	Flexible software packages for data acquisition, display and analysis. LightField offers intuitive, cutting edge user interface, IntelliCal, hardware time stamping & more.



Powered by LightField[®]

*US Patent #: US 8,773,659 B2

NOTE: IsoPlane SCT 320 is shown pictured with a Princeton Instruments PIXIS 400 BR_ex camera, optical fiber, and coupling; each sold separately.

Applications:

Multi-channel spectroscopy,
Microspectroscopy, Raman scattering,
Fluorescence, Photoluminescence, LIBS,
Fourier-domain spectroscopy, Biomedical imaging

	IsoPlane SCT 320
Focal length	320 mm
Aperture ratio	f/4.6
Usable wavelength range	190 nm to mid-IR with available mirror coatings, gratings, and detectors (to ~150 nm with optional purge capability)
CCD resolution (20 μm pixels)*	0.08 nm at all points on the focal plane
PMT resolution (10 μm slit)*	0.05 nm at all points on the focal plane
Stray light	$< 2 \times 10^{-5}$
Grating mount / size	Interchangeable triple-grating turrets with on-axis grating rotation: 68 x 68 mm gratings
Focal plane size	27 mm wide x 14 mm high
Astigmatism	Zero (0) at all wavelengths
Spatial resolution (MTF)	≥ 15 line pairs/mm @ 50% modulation, measured at focal plane center ≥ 8 line pairs/mm @ 50% modulation, measured over 27 x 8 mm focal plane
Slits	Entrance and Exit slits: - Standard manual (10 μm – 3 mm) - Optional motorized (10 μm – 3 mm and 10 μm – 12 mm versions) Kinematic entrance slit available for imaging and microspectroscopy.
Wavelength accuracy*	Mechanical: ± 0.2 nm With IntelliCal: ± 0.01 nm
Wavelength repeatability*	Mechanical: ± 0.015 nm With IntelliCal: ± 0.0015 nm
Drive step size*	0.002 nm
Size and weight	20.4" (518 mm) length x 17.7" (450 mm) width x 8.5" (216 mm) height 55 lbs (25 kg) weight
Optical axis height	5.0" to 5.875"
Computer interface	USB and RS232

* With 1200 groove/mm grating @ 435 nm
Specifications subject to change without notice.

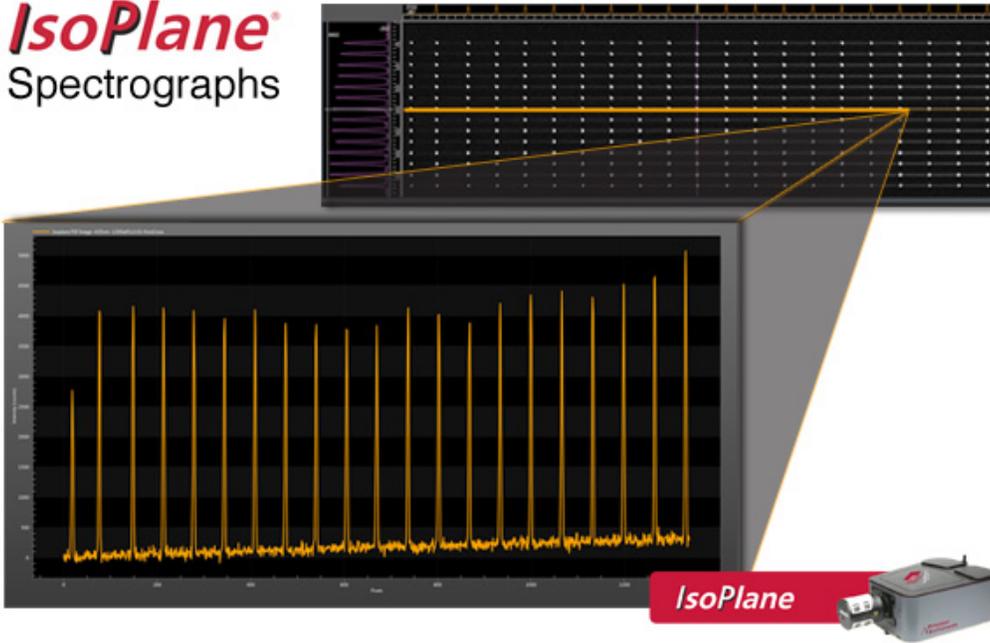
Use the Grating Dispersion Calculator on our website:

www.princetoninstruments.com/spectroscopy/calculator/ for information on IsoPlane 320 performance with various gratings and Princeton Instruments cameras.

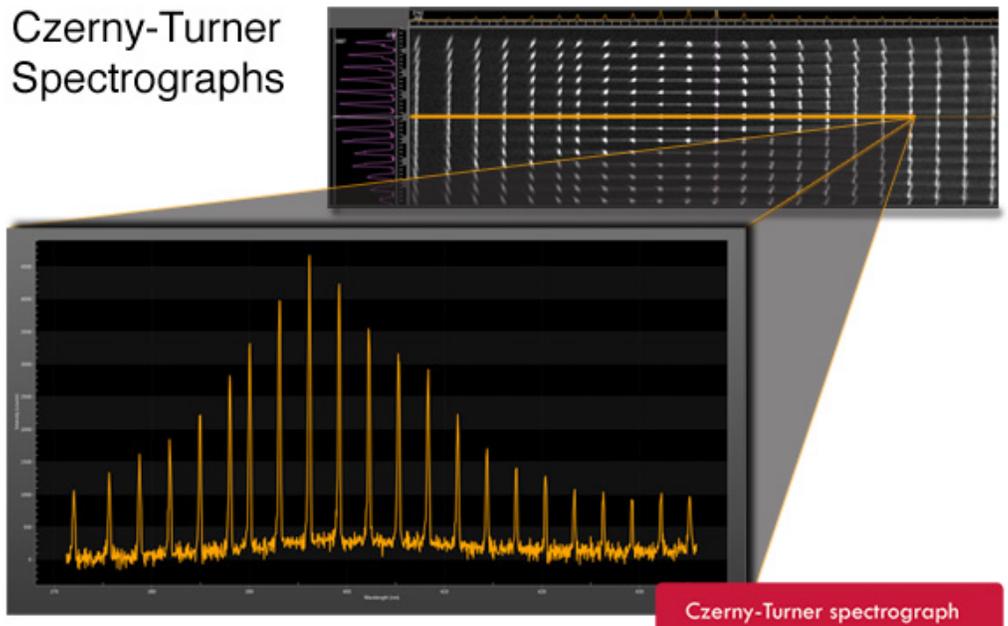
Perfected Performance - Preserving Intensity

IsoPlane produces sharp spectral lines of constant width and height across the focal plane, whereas Czerny-Turner spectrographs do not.

IsoPlane[®] Spectrographs

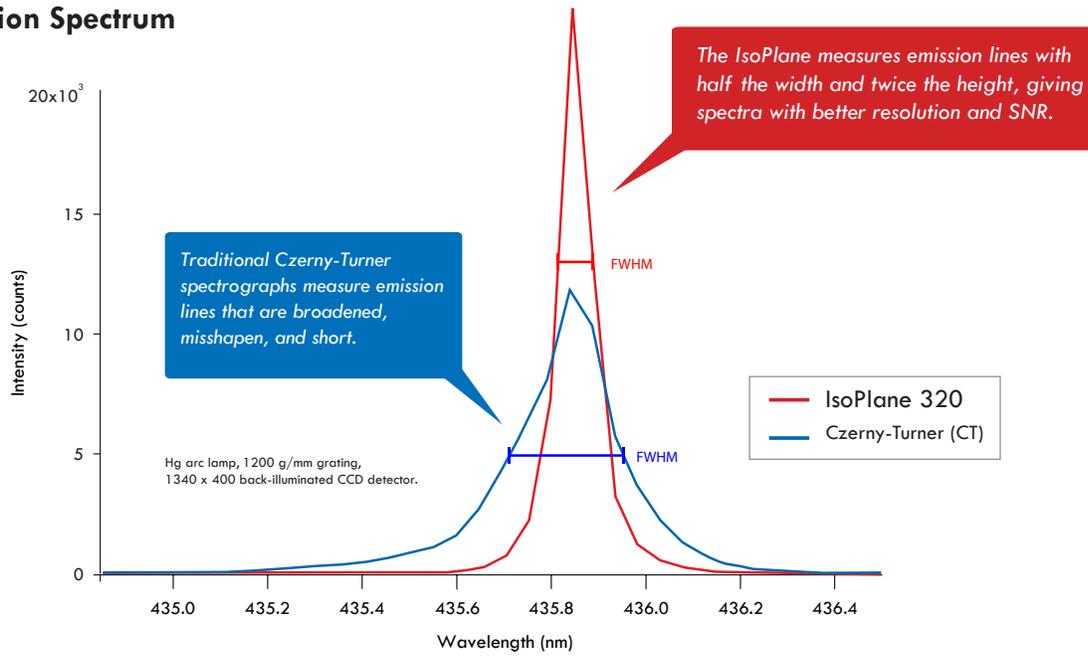


Czerny-Turner Spectrographs

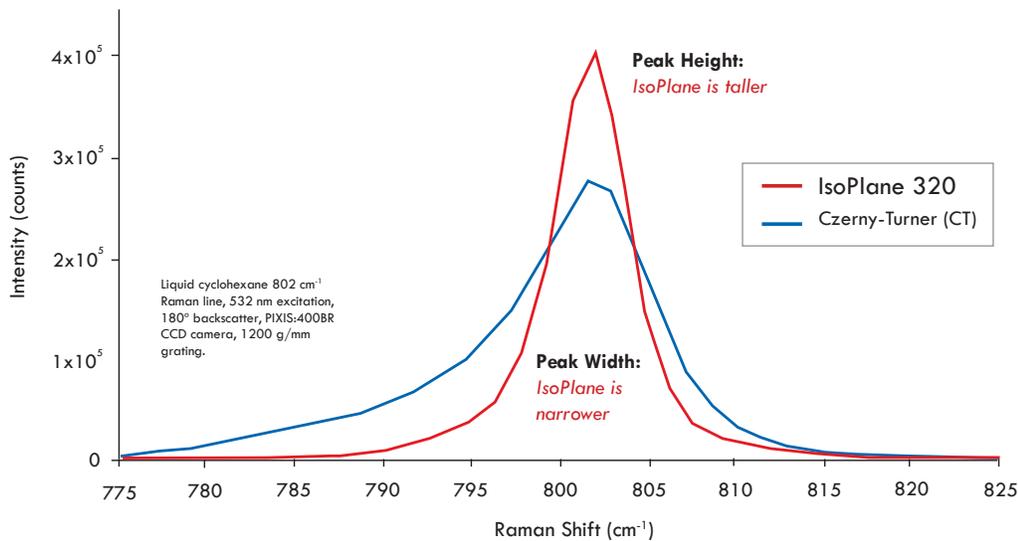


Examples of the signal to background ratio superiority of the IsoPlane 320 spectrograph vs. a traditional Czerny-Turner spectrograph

Emission Spectrum

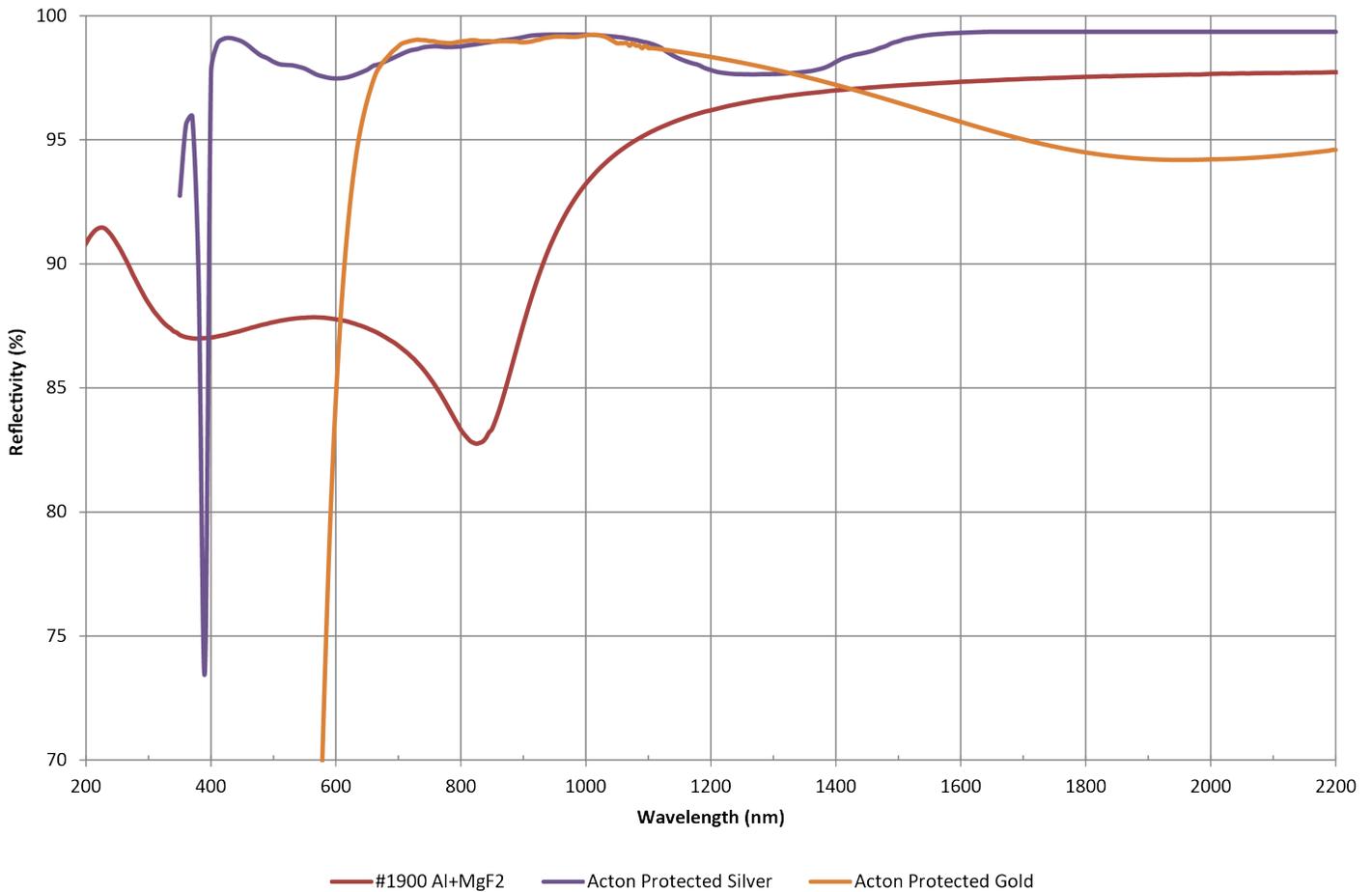


Raman Spectrum



Mirror Coatings: Reflectance Curves

Acton Optics & Coatings Protected Al and Broadband Metallic Coatings



NOTE: #1900 coating is standard on IsoPlane mirrors. Gold and silver coatings are offered as an option at an additional fee.



IsoPlane spectrograph shown interfaced to Olympus IX-71 inverted microscope with the IsoPlane microspectroscopy interface (spectrograph, microscope, camera, and interface all sold separately). Contact your local sales engineer for more information.

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