Princeton Instruments

SPECTROSCOPY GROUP

IsoPlane® 160 Spectrometer

The IsoPlane 160 spectrometer brings Princeton Instruments' award-winning IsoPlane SCT-320 performance to a new, smaller platform. The IsoPlane 160 is the first compact spectrometer that provides outstanding imaging, high spectral resolution and excellent light-gathering power from the vacuum UV to the mid-IR without compromises. The IsoPlane 160 is ideally suited for multifiber spectroscopy and can resolve dozens of spatially separate spectral channels without crosstalk. It works seamlessly with Princeton Instruments' industry-leading cameras and detectors, and our LightField with IntelliCal or WinSpec data acquisition software packages. **Spectroscopy reimagined!**

FEATURES	BENEFITS
Aberration-reduced design	Greatly reduced astigmatism and coma at all wavelengths across the entire focal plane. Resolve up to100 optical fiber channels with minimal crosstalk. Excellent spatial and spectral resolution with CCD cameras with heights of up to 14 mm. No other mirror-based scanning spectrograph offers comparable performance.
Outstanding imaging performance and large f/3.88 entrance aperture	Spectral linewidths of 2.0 20 µm pixels or better across the 27 mm wide focal plane. The IsoPlane 160 offers the resolution of a 300 mm instrument with equal or better light-gathering power.
High fluence	The IsoPlane 160 is a high-fluence instrument: photons are diffracted to the peaks of spectral lines rather than to the wings. High resolution is maintained when binning over a single row or the entire sensor height.
Sliding tube camera mount	Easy camera mounting with improved split-clamp hardware. Fine adjustment for razor-sharp focus.
Kinematic torque-limiting turret mount	Improves reproducibility when changing grating turrets. Up to three triple-grating turrets supported.
High efficiency optical coatings	Acton #1900 mirror coating gives highest reflectivity from UV to NIR. Optional silver, gold, or dielectric coatings are available with reflectivities of 98% or better. See page 4 for details.
Compatible with wide variety of cameras	Princeton Instruments PIXIS, PyLoN, Spec-10/LN, PyLoN-IR, ProEM 1600, PI-MAX3/4 and NIRvana cameras with spectroscopy or C mount.
Wide range of accessories	Including fiber bundles, adapters, shutters, filter wheels, purge ports, and light sources such as the IntelliCal® spectrograph wavelength and intensity calibration system. Accessories sold separately.
Optional: LightField® (for Windows® 7/8, 64-bit) or WinSpec (forWindows 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, and more. Software sold separately.

Powered by LightField ®

NOTE: *IsoPlane 160 is shown pictured with a Princeton Instruments PIXIS:400BR_eXcelon camera - sold separately.*

Applications:

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

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Specifications

	IsoPlane 160
Focal length	203 mm
Aperture ratio	f/3.88
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)*	0.16 nm or better across a 27 mm wide focal plane
PMT resolution (10 μm slit)*	0.13 nm
Stray light	$< 4 \times 10^{-5}$
Grating mount /size	Interchangeable triple grating turret with on-axis grating rotation: 40 x 40 mm gratings
Focal plane size	27 mm wide x 14 mm high
Astigmatism	<100 μm at all wavelengths across the entire focal plane
Spatial resolution (MTF)	≥12 line pairs/mm @ 50% modulation, measured at focal plane center ≥ 6 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 (using fixed wavelength calibration): ± 0.02 nm
Wavelength repeatability*	Mechanical: ± 0.025 nm | With IntelliCal (using fixed wavelength calibration): ± 0.0025 nm
Drive step size*	0.005 nm
Size Weight	8.5" x 9.25" x 8" height 15 lbs.
Optical axis height	Adjustable: 5.0" to 5.875"
Computer interface	USB and RS232

* With 1200 groove/mm grating @ 435 nm

Use the Grating Dispersion Calculator on our website:
www.princetoninstruments.com/spectroscopy/calculator/ for information on IsoPlane 160 performance with various gratings and Princeton Instruments cameras.

Specifications subject to change without notice.

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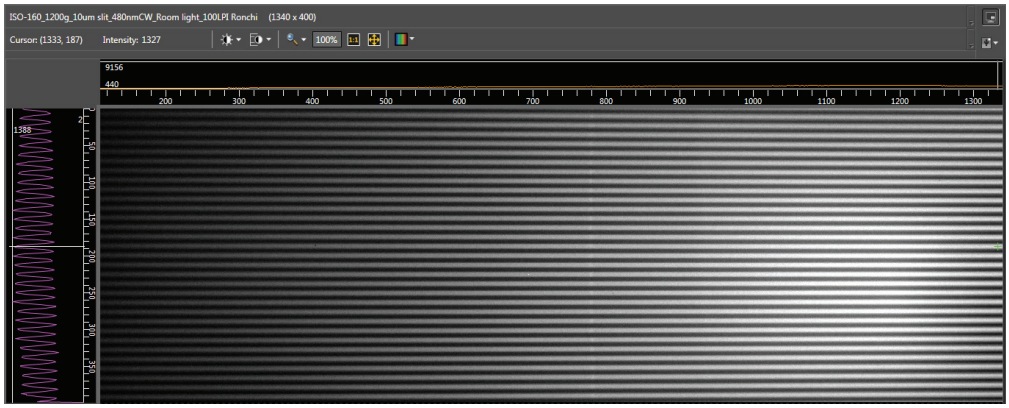
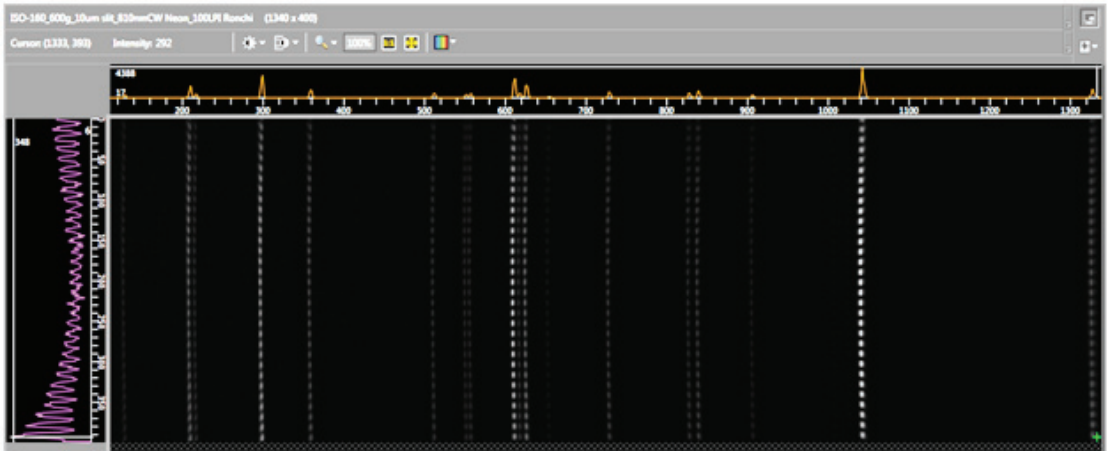
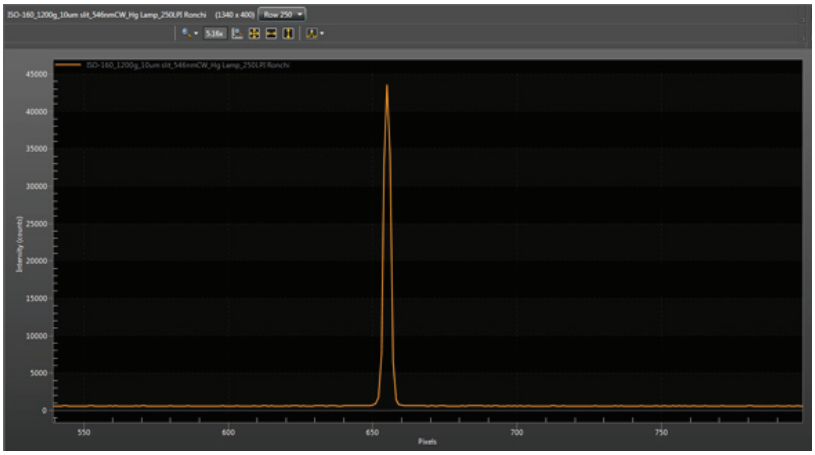
IsoPlane 160:
Oustanding Imaging & Spectral Resolution



IsoPlane 160 - high resolution across the entire focal plane



IsoPlane 160 clearly resolves multiple channels with no crosstalk



IsoPlane 160 outstanding line shape
546 nm Hg line with 1200 g/mm grating

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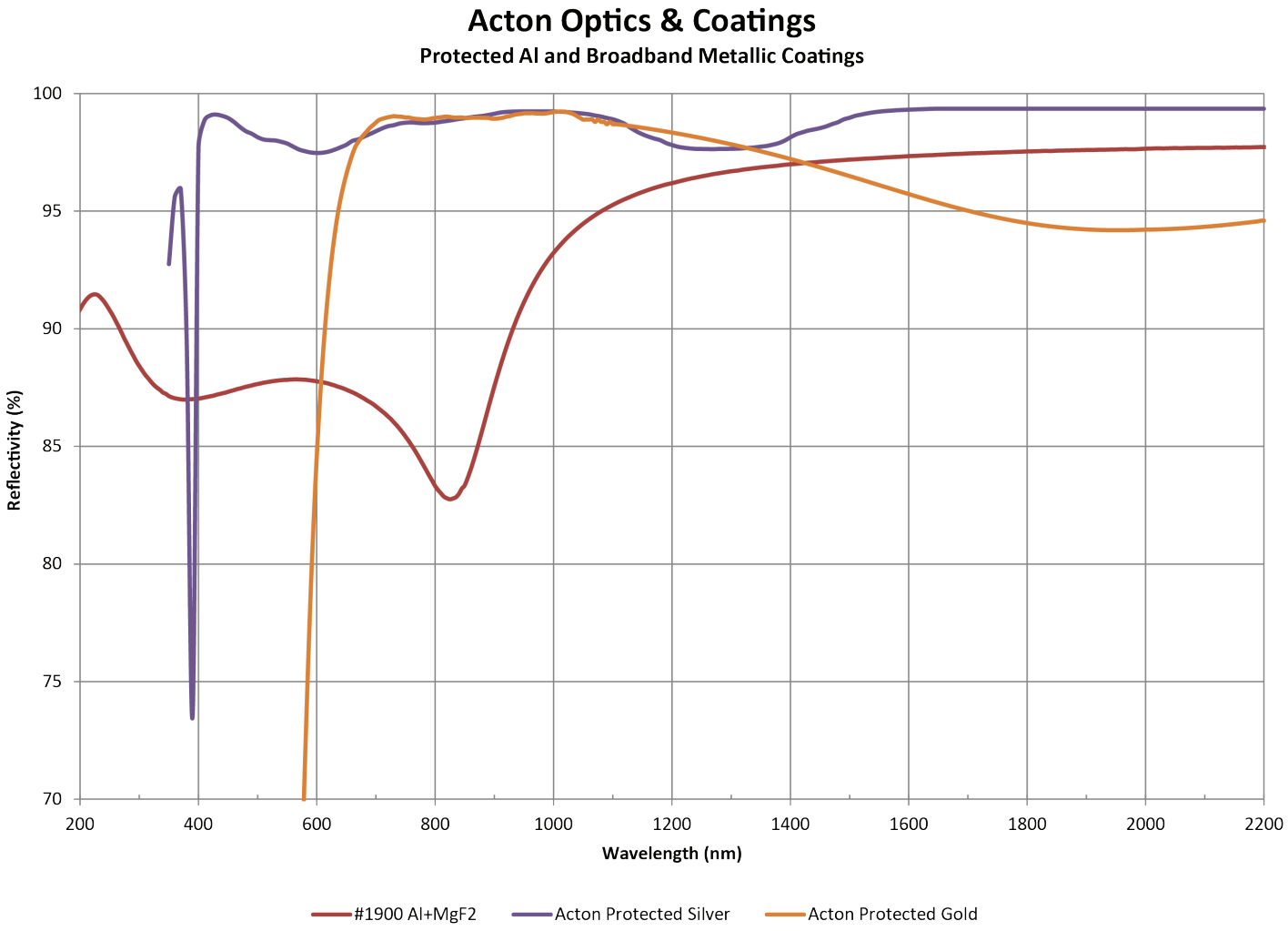
Mirror Coatings: Reflectance Curves



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