



The Princeton Instruments/Acton PIXIS-XO: 100B is a fully integrated, innovative imaging system that utilizes a CCD without AR coating for very low energy x-ray detection. With 1340 x 100, 20 μm pixels, 100% fill factor, deep thermoelectric cooling with air and low noise electronics this system is ideal for worry-free operation in research and OEM environments. The Conflat flange with high-vacuum-seal design, software-selectable gains and readout speeds make the camera well suited for ultra-high vacuum applications.

Applications: X-ray spectroscopy, EUV lithography, X-ray plasma diagnostics



Features	Benefits
Back illuminated CCD, no AR coating, direct detection technology	Provides very low x-ray flux imaging, high sensitivity and high spatial resolution
2 Mhz / 16-bit readout 100 kHz / 16 bit readout	High speed readout for rapid image acquisition Slow speed readout for high sensitivity with wide dynamic range, high signal-to-noise ratio (SNR) and excellent energy resolution
Software selectable gains for each digitization speed	Allows optimization of system performance for lowest noise to highest SNR
1340 x 100 image area, 20 x 20 μm pixels	Spectroscopy format designed for high-frame-rate imaging
Ultra low noise electronics	Best possible system performance
Flexible user selectable binning and readout	Total flexibility to optimize experiments and SNR
Deep thermoelectric air cooling	Maintenance-free operation without the need for a liquid circulator or an additional power supply
Conflat vacuum interface	Industry-standard, high-vacuum compatibility
TTL inout and output	External Trigger input with programmable polarity TTL output with exposure or readout monitor
"USB 2.0 interface" configuration	Seamless, plug-and-play connection to PC notebooks and desktops Easy OEM integration
WinView and PVCAM®	Offers powerful, easy-to-use set of Windows® GUI controls Automates data acquisition, analysis, and display
Linux® drivers and SITK™ plug-in for National Instruments' LabVIEW™	Extends system utility



PIXIS-XO: 100B Specifications

CCD image sensor	Princeton Instruments exclusive; scientific grade 1; MPP; back-illuminated device; without AR coating					
CCD format	1340 x 100 imaging pixels 20 x 20- μ m pixels 100% fill factor 26.8 x 2.0-mm imaging area (optically centered)					
	Minimum		Typical		Maximum	
	High Sensitivity	High Capacity	High Sensitivity	High Capacity	High Sensitivity	High Capacity
System read noise @ 100-kHz digitization @ 2-MHz digitization			3.5 e- rms 13 e- rms	10 e- 25 e-	5 e- rms 16 e- rms	12 e- 30 e-
Spectrometric well capacity	250 ke-	800 ke-	300 ke-	1 Me-		
Dark current @ -70°C operation			0.0025 e-/p/s		0.005 e-/p/s	
Deepest cooling temperature [#]	-75°C		-80°C			
Thermostating precision	\pm 0.05°C across entire temperature range					
Software-selectable gains (e-/count)	1, 2, 4 (high sensitivity mode) 4, 8, 16 (high capacity mode)					
Dynamic range	16 bits					
Nonlinearity	<1% @ 100 kHz, <2% @ 2 MHz					
Vertical shift rate	12 μ sec per row					
Spectral rates* @100-kHz digitization @2-MHz digitization	54Hz 228Hz					
Operating environment	+5 to +30°C non-condensing					

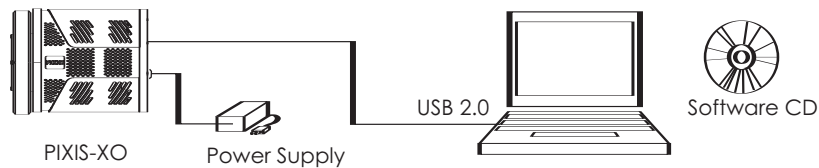
Notes: All specifications subject to change.

* Spectral rates measured with all rows vertically binned.

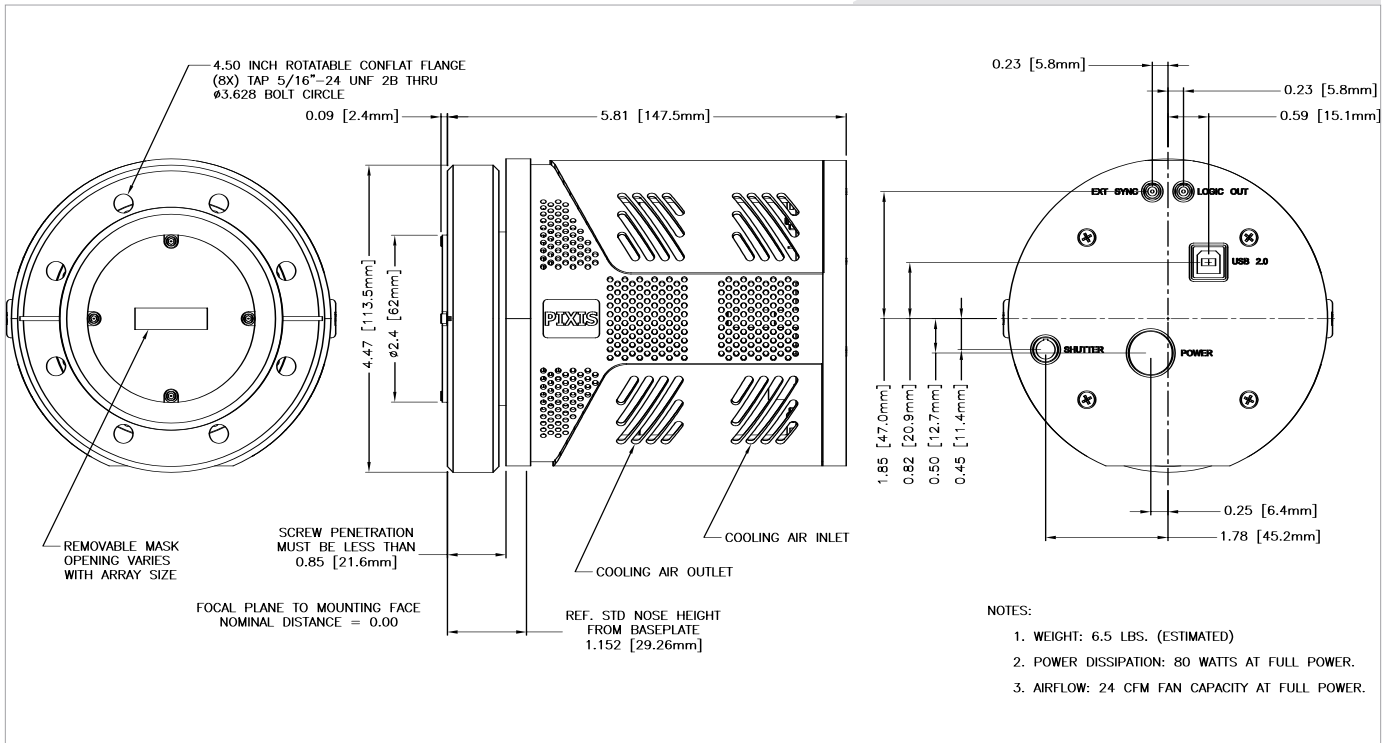
[#]The minimum temperature attainable is dependent on the vacuum condition (can be lowered with lower vacuum).

Spectral Rates

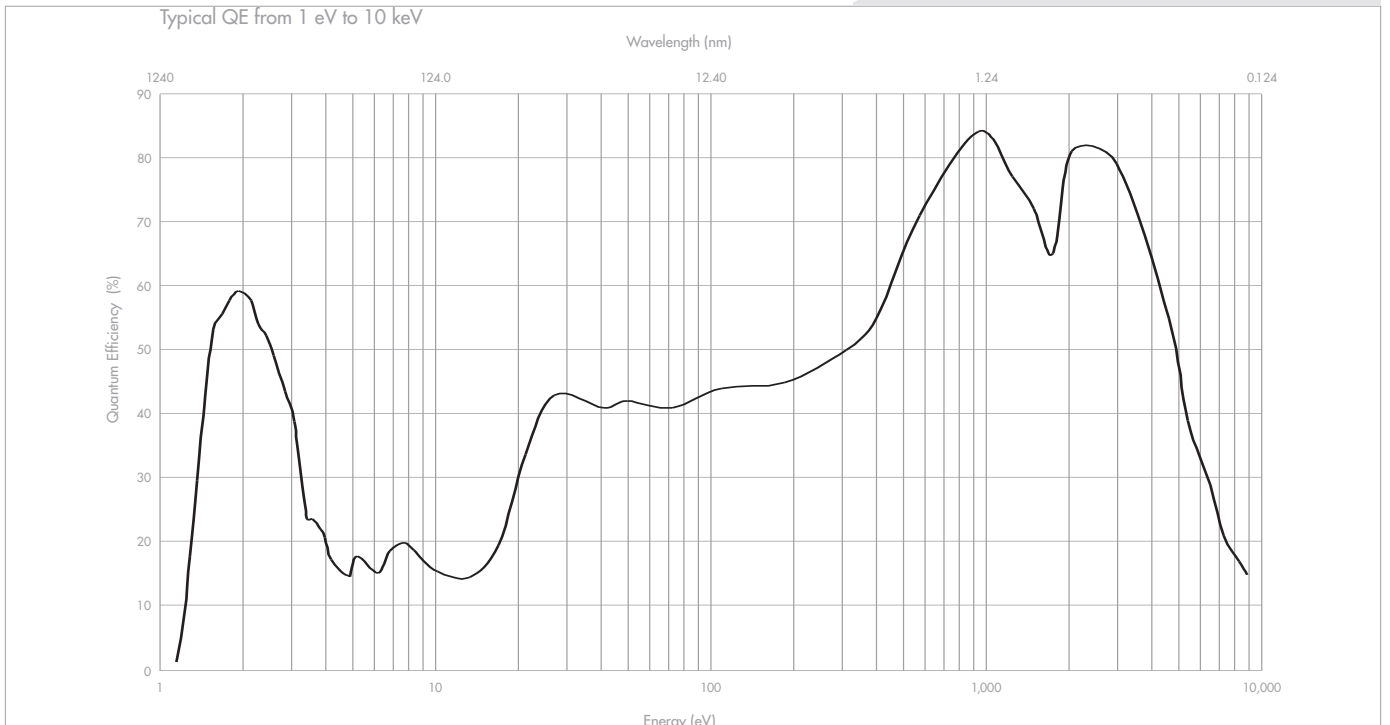
Binning	@ 2 MHz	@ 100 kHz
1 x 1	77.53 msec	1.35 sec
2 x 2	34.27 msec	369.6 msec
1340 x 1	4.38 msec	18.22 msec



PIXIS-XO Drawing



Quantum Efficiency Curve



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