

PIXIS-XO: 100B

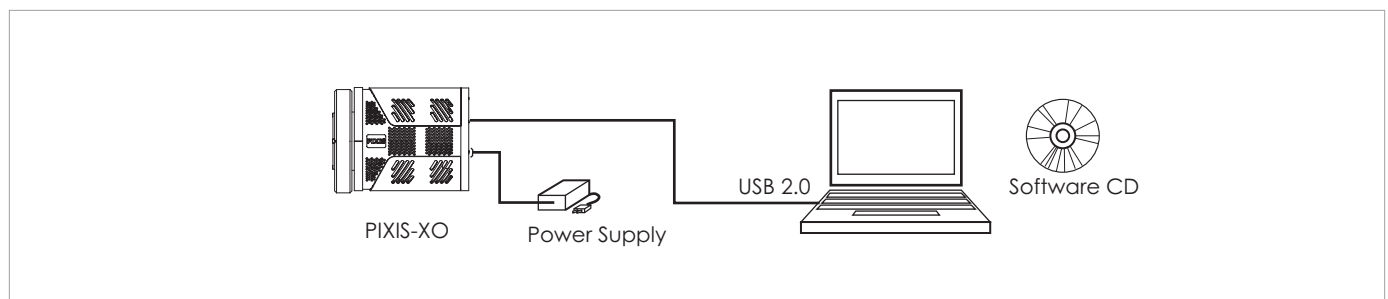
1340 x 100 imaging array | 20 x 20 μm pixels



The Princeton Instruments 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
Deep thermoelectric water cooling	Vibration free operation
Conflat vacuum interface	Industry-standard, high-vacuum compatibility
TTL input 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



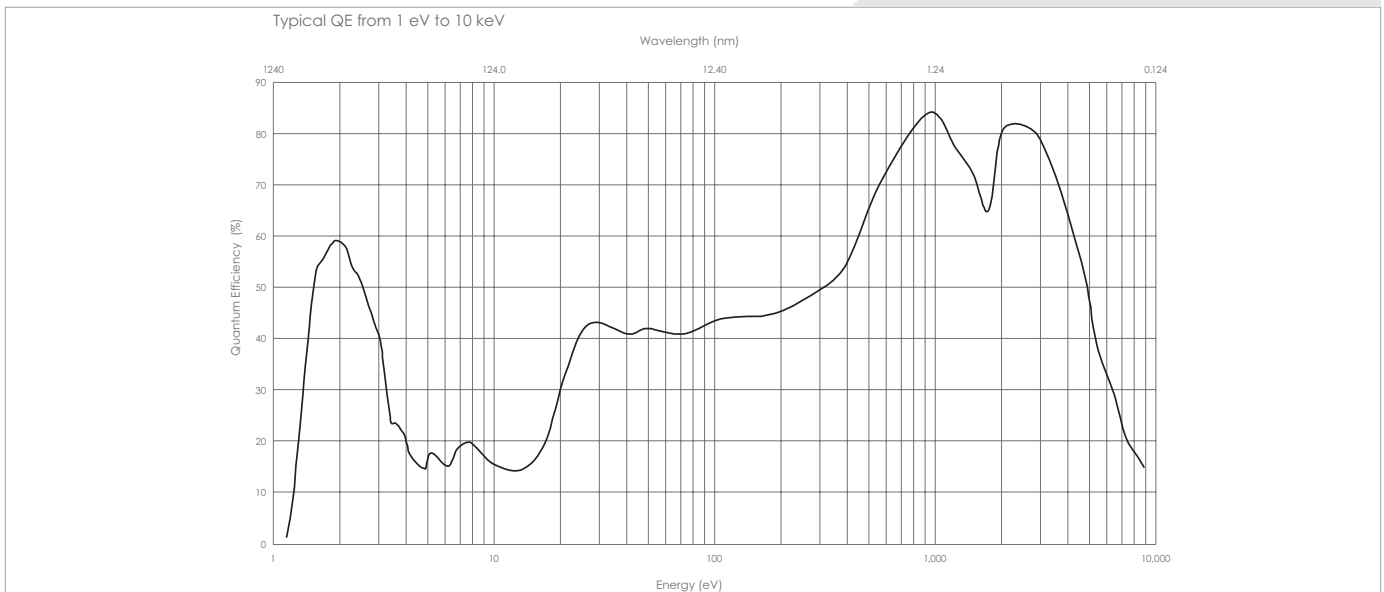
CCD image sensor	Princeton Instruments exclusive; scientific grade 1; MPP; back-illuminated device; without AR coating					
CCD format	1340 x 100 imaging pixels 20 x 20 μm pixels 100% fill factor 26.8 x 2.0 mm imaging area (optically centered)					
	Minimum		Typical		Maximum	
	High Sensitivity	High Capacity	High Sensitivity	High Capacity	High Sensitivity	High Capacity
System read noise @ 100 kHz digitization			3.5 e- rms	10 e-	5 e- rms	12 e-
@ 2 MHz digitization			13 e- rms	25 e-	16 e- rms	30 e-
Spectrometric well capacity	250 ke-	800 ke-	300 ke-	1 Me-		
Dark current @ -80°C operation				0.0025 e-/p/s	0.005 e-/p/s	
Cooling Method	Thermoelectric Air (standard)					
Deepest cooling temperature*	-75°C			-80°C		
Thermostating precision	$\pm 0.05^\circ\text{C}$ across entire temperature range					
Software-selectable gains (e-/count)	1, 2, 4 (high sensitivity mode) 4, 8, 16 (high capacity mode)					
Operating system support	Windows 2000/XP; Linux					
Data interface	USB2.0 (5m interface cable provided) Optional Fiberoptic interface is available for remote operation					
I/O signals	Two MCX connectors for programmable frame readout, shutter trigger in					
Certification	CE					
Dynamic range	16 bits					
Nonlinearity	< 1% @ 100 kHz, < 2% @ 2 MHz					
Vertical shift rate	30 μsec per row					
Spectral rates*						
@100 kHz digitization	56 spectra/sec (FVB)					
@2 MHz digitization	387 spectra/sec (FVB); 1000 spectra/sec (0.5 mm high)					
Operating environment	+5 to +30°C non-condensing					
Bakeout temp.	70°C (max)					
Vacuum compatibility	10 ⁻⁸ Torr.					

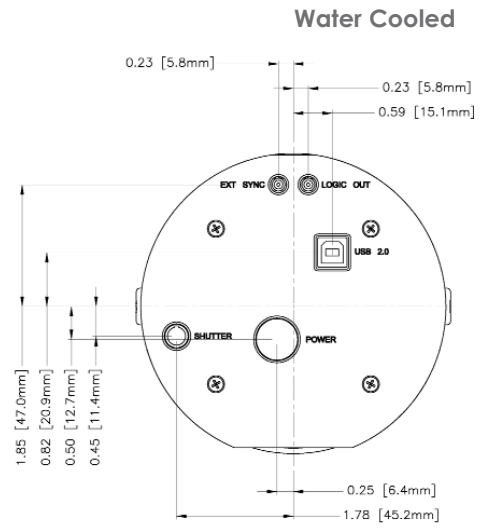
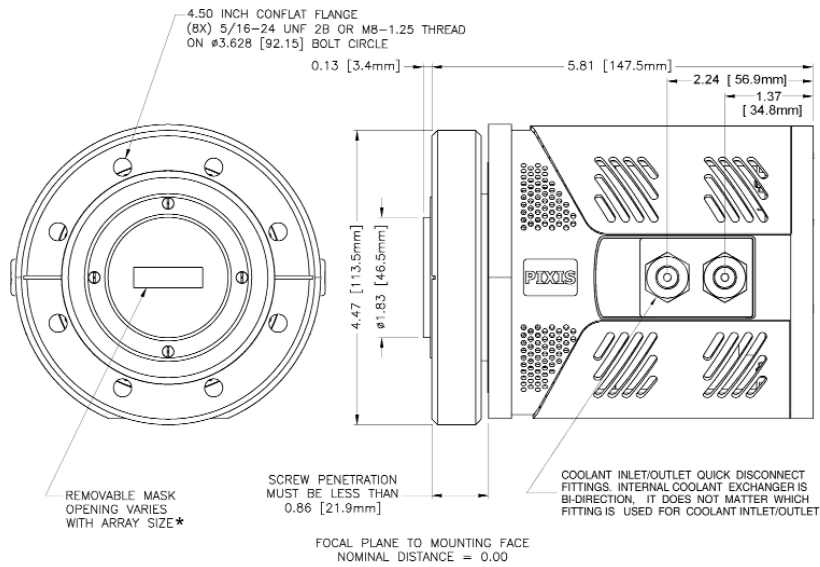
Notes: All specifications subject to change.

* Spectral rates measured with all rows vertically binned.

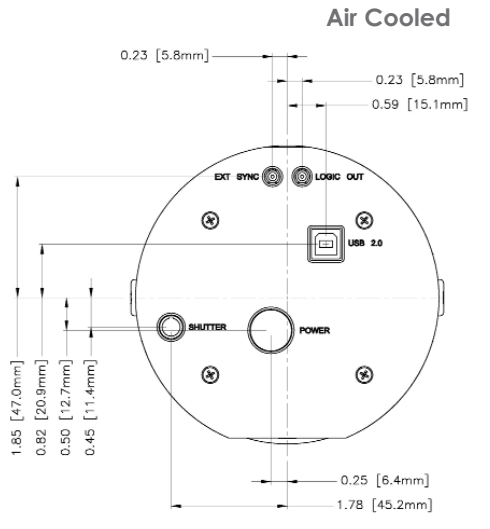
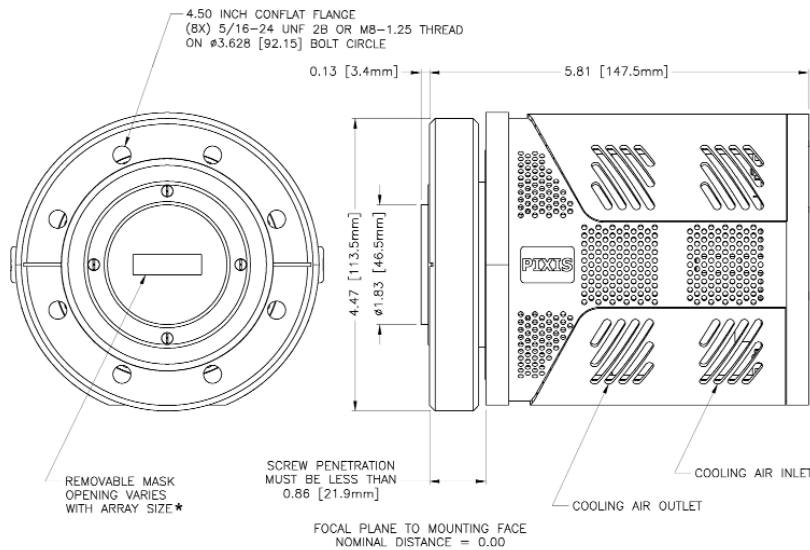
* The minimum temperature attainable is dependent on the vacuum condition (can be lowered with lower vacuum).

Quantum Efficiency Curve





- NOTES:
1. WEIGHT: 7.0 LBS. (ESTIMATED)
 2. POWER DISSIPATION: 80 WATTS AT FULL POWER.



- NOTES:
1. WEIGHT: 6.5 LBS. (ESTIMATED)
 2. POWER DISSIPATION: 80 WATTS AT FULL POWER.
 3. AIRFLOW: 24 CFM FAN CAPACITY AT FULL POWER.



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