

PIXIS-XO: 2KB

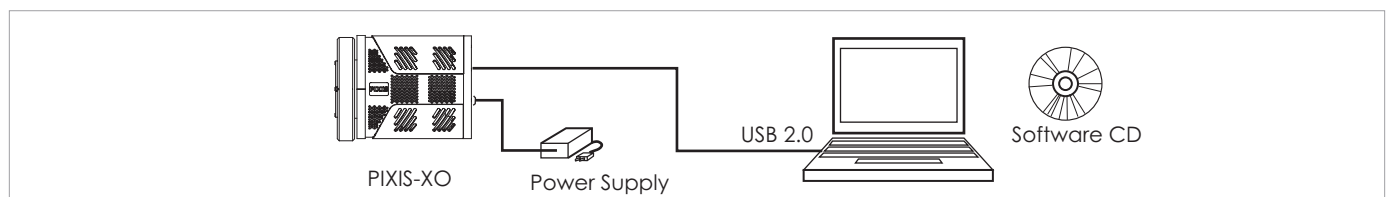
2048 x 512 imaging array | 13.5 x 13.5 μm pixels



The Princeton Instruments PIXIS-XO: 2KB is a fully integrated, innovative imaging system that utilizes a CCD without AR coating for very low energy X-ray detection. With 2048 x 512, 13.5 μm pixels, 100% fill factor, deep thermoelectric cooling with air or water 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 |
| 2048 x 512 image area, 13.5 x 13.5 | 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 |



PIXIS-XO: 2KB Specifications

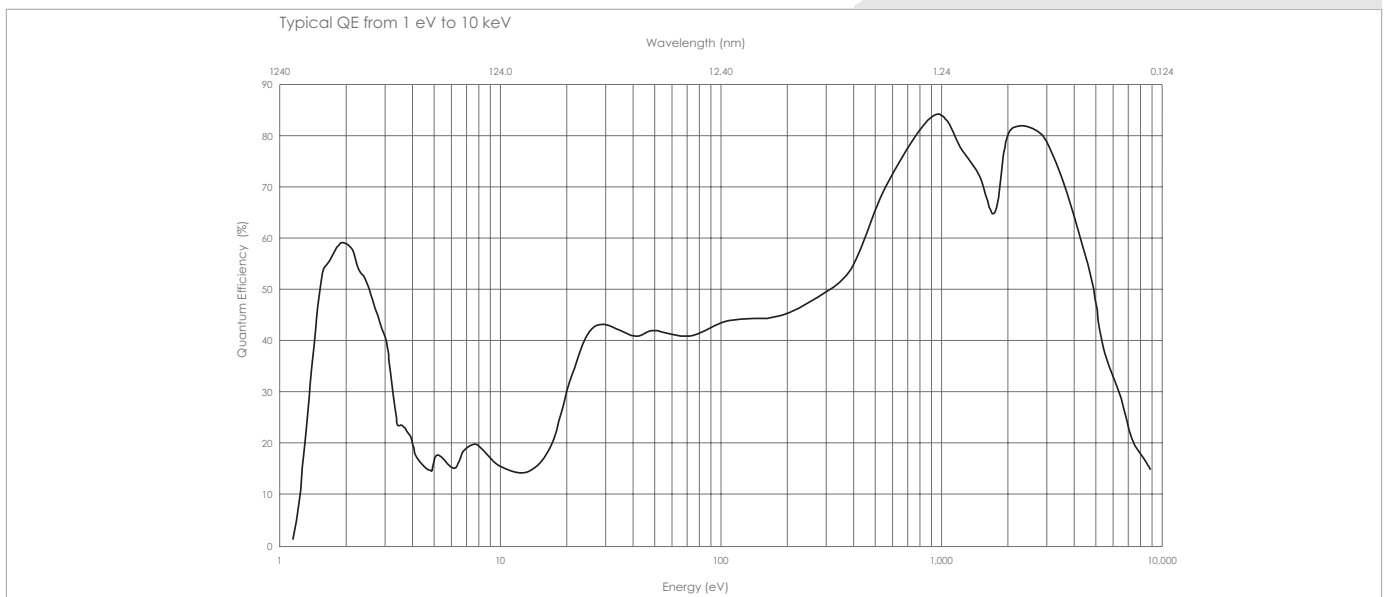
| | | | | |
|--|--|---------------|------------------|---------------|
| CCD image sensor | Princeton Instruments exclusive; scientific grade 1; MPP; back-illuminated device; without AR coating | | | |
| CCD format | 2048 x 512 imaging pixels 13.5 x 13.5 μm pixels 100% fill factor 27.6 x 6.9 mm imaging area (optically centered) | | | |
| | Minimum | | Typical | |
| System read noise | | | | |
| @ 100 kHz digitization | | | 3.5 e- rms | |
| @ 2 MHz digitization | | | 18 e- rms | |
| | | | 5 e- rms | |
| | | | 20 e- rms | |
| | High Sensitivity | High Capacity | High Sensitivity | High Capacity |
| Spectrometric well capacity | 150 ke- | 600 ke- | 250 ke- | 800 Me- |
| Dark current @ -75°C operation | 0.003 e-/p/s | | | 0.008 e-/p/s |
| Cooling Method | Thermoelectric Air (standard); Water cooled (optional) | | | |
| Deepest cooling temperature [#] | -70°C | | -75°C | |
| Thermostating precision | $\pm 0.05^\circ\text{C}$ across entire temperature range | | | |
| Software-selectable gains (e-/count) | 1.5, 3, 6 (high sensitivity mode) 6, 12, 24 (high capacity mode) | | | |
| Operating system support | Windows 2000/XP; Linux | | | |
| Data interface | USB2.0 (5 m 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 | < 2% @100 kHz, < 2% @ 2 MHz | | | |
| Vertical shift rate | 15.2 μsec per row | | | |
| Spectral rates [*] | | | | |
| @ 100 kHz digitization | 35 spectra/sec | | | |
| @ 2 MHz digitization | 90 spectra/sec | | | |
| Operating environment | +5 to +30°C non-condensing | | | |
| Bakeout temp. | 70°C (max) | | | |
| Vacuum compatibility | 10^{-8} Torr. | | | |

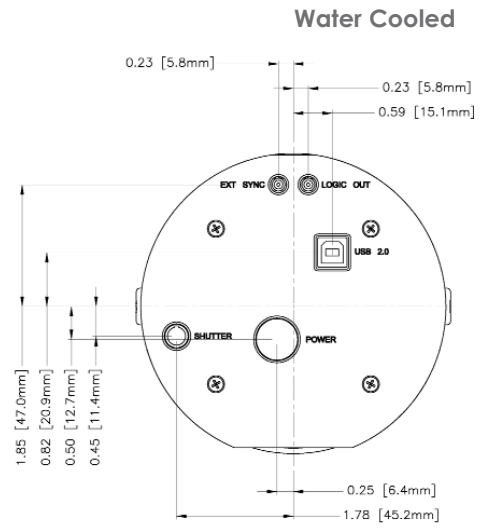
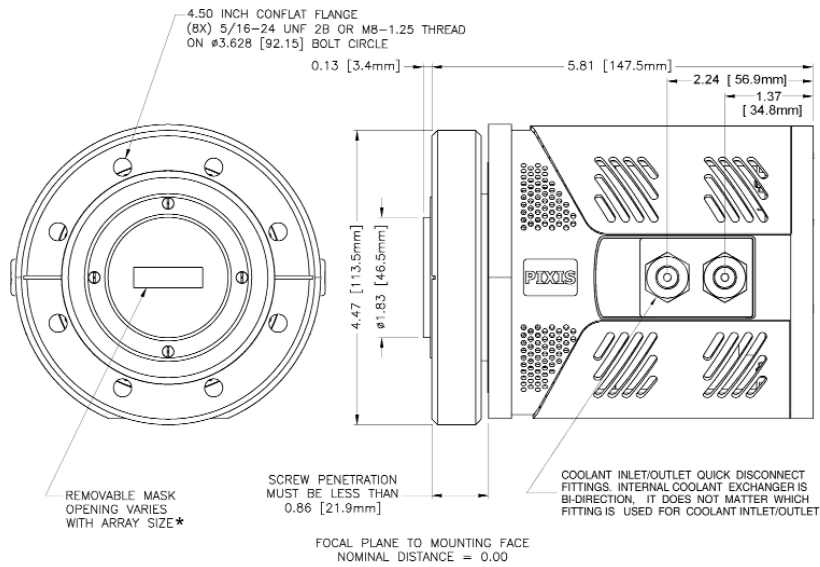
Notes: All specifications subject to change.

* Spectral rates measured with all rows vertically binned.

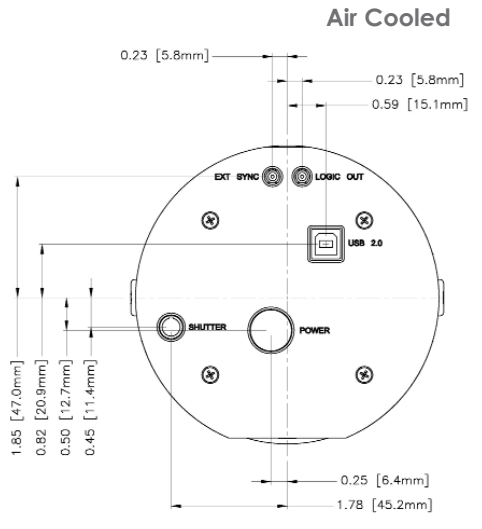
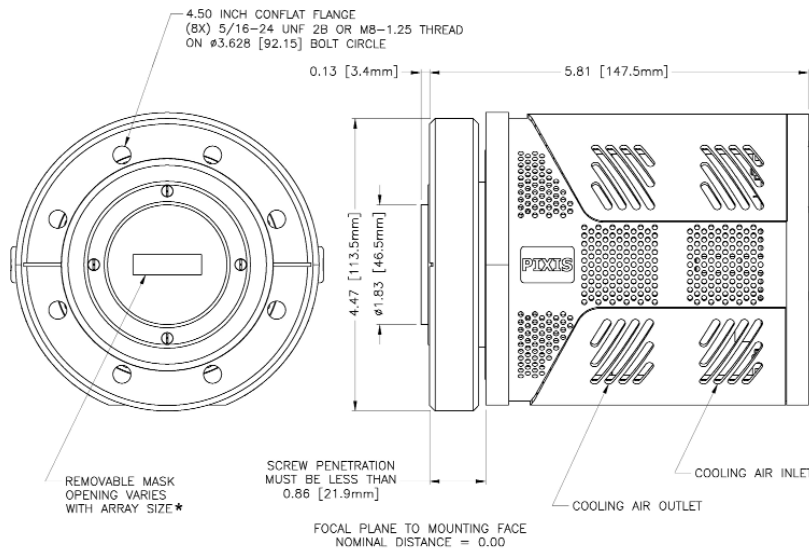
[#]The minimum temperature attainable is dependent on the vacuum condition (can be lowered with lower vacuum).

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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