...SEE the Future

Princeton Instruments

PIXIS-XF: 1024F

1024 x 1024 imaging array | 13 x 13 µm pixels

The Princeton Instruments **PIXIS-XF: 1024F** is a fully integrated, low noise camera designed for lensless, direct imaging of phosphor screens and other lambertian sources. This advanced design based on PI's exclusive XP cooling technology offers up to -35°C cooling with air or water. The unique camera design with fiberoptic faceplate extended outside the vacuum offers outstanding flexibility to optimize system performance at any X-ray energy. The ultra low-noise electronics and compact design makes this camera perfect for OEM applications. The dual speed operation at 100 kHz or 2 MHz means that the camera can be used for steady state as well as high speed applications. The 1:1 fiberoptic ratio offers resolution of 38 lp/mm.

Applications: X-ray microtomography, streak tube and CRT readout, industrial and medical imaging

Features	Benefits
1:1 fiberoptic ratio*	Distortion and vignetting-free optical coupling
Deep cooling	Low dark noise allows detection of faint signals No need for bulky chilled water circulators CoolCUBE, a compact room temperature coolant circulator is available for vibration sensitive environments
Custom phosphors*	Gd_2O_2S:Tb Available for 8 keV and 17 keV Resolution of 60 to 80 µm Emission wavelength ~550 nm
1024 x 1024 imaging array 13 µm x 13 µm pixels	Highest spatial resolution
Scientific grade CCD	Low noise, few defects, linear response
Front illuminated CCD (1024F)	Affordable technology for moderate light level applications
Low noise electronics	Best performance for low light level applications
Dual digitizers	Dual-speed digitization allows complete freedom to select between "slow operation" for low noise and highest SNR or "fast operation" for rapid image acquisition
Software selectable system gains	Flexibility to optimize signal-to-noise ratio and dynamic range
Thermoelectric cooling	Choice of air or water cooling
Flexible ROI/binning	Allows faster frame rate and/or sensitivity
USB 2.0 data interface Optional fiber optic interface	Plug-n-play operation. Use it with laptop. Easy OEM integration. Ideal for remote operation
Renowned WinView/Spec software	Powerful, yet easy to use software packages for acquisition, display and analysis
Linux driver and PVCAM interface	Universal programming interface for easy custom programming. Compatible with Windows 2000/XP and Linux
LabView® Scientific Imaging Toolkit (SITK™)	Predefined VIS for easy integration of camera controls into large experiment

*Contact PI for information about additional fiberoptics, fiber ratios and phosphors.

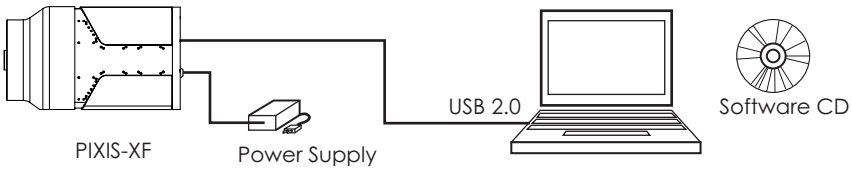
PIXIS-XF: 1024F Specifications

CCD image sensor	e2v CCD47-10; front-illuminated, grade 1, AIMO
CCD format	1024 x 1024 imaging pixels 13 x 13 µm pixels 100% fill factor 13.3 x 13.3 mm imaging area (optically centered)
Deepest cooling temperature	-35 °C typical; -30 °C guaranteed, Specified at ambient temperature of +20 °C
Thermostating precision	±0.05 °C
Cooling method	Thermoelectric Air (standard); Water cooling option available
Dark Current @ -40 °C	0.06 e-/p/sec (typical), 0.12 e-/p/sec (max)
Full well	
Single pixel	100 ke- (typical), 60 ke- (min)
Output mode	250 ke- (typical), 220 ke- (min)
ADC speed/bits	100 kHz/16-bit and 2 MHz/16-bit
System read noise	
@100 kHz	4.0 e- rms (typical); 6.0 e- rms (max)
@2 MHz	10.0 e- rms (typical); 16.0 e- rms (max)
Vertical shift speed	18 µsec/row; variable via software
Non-linearity	< 2% @100 kHz
Software selectable gains	1, 2, 4 e-/ADU; available at all speeds
Operating systems supported	Windows 2000/XP/VISTA; Linux
Data interface	USB 2.0 (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
Operating environment	+5 to +30 °C non-condensing
Certification	CE
Dimensions	19.17 cm (7.547") x 11.81 cm (4.65") x 11.38 cm (4.48") (L x W x H)
Weight	3.64 kg (5.85 lbs)

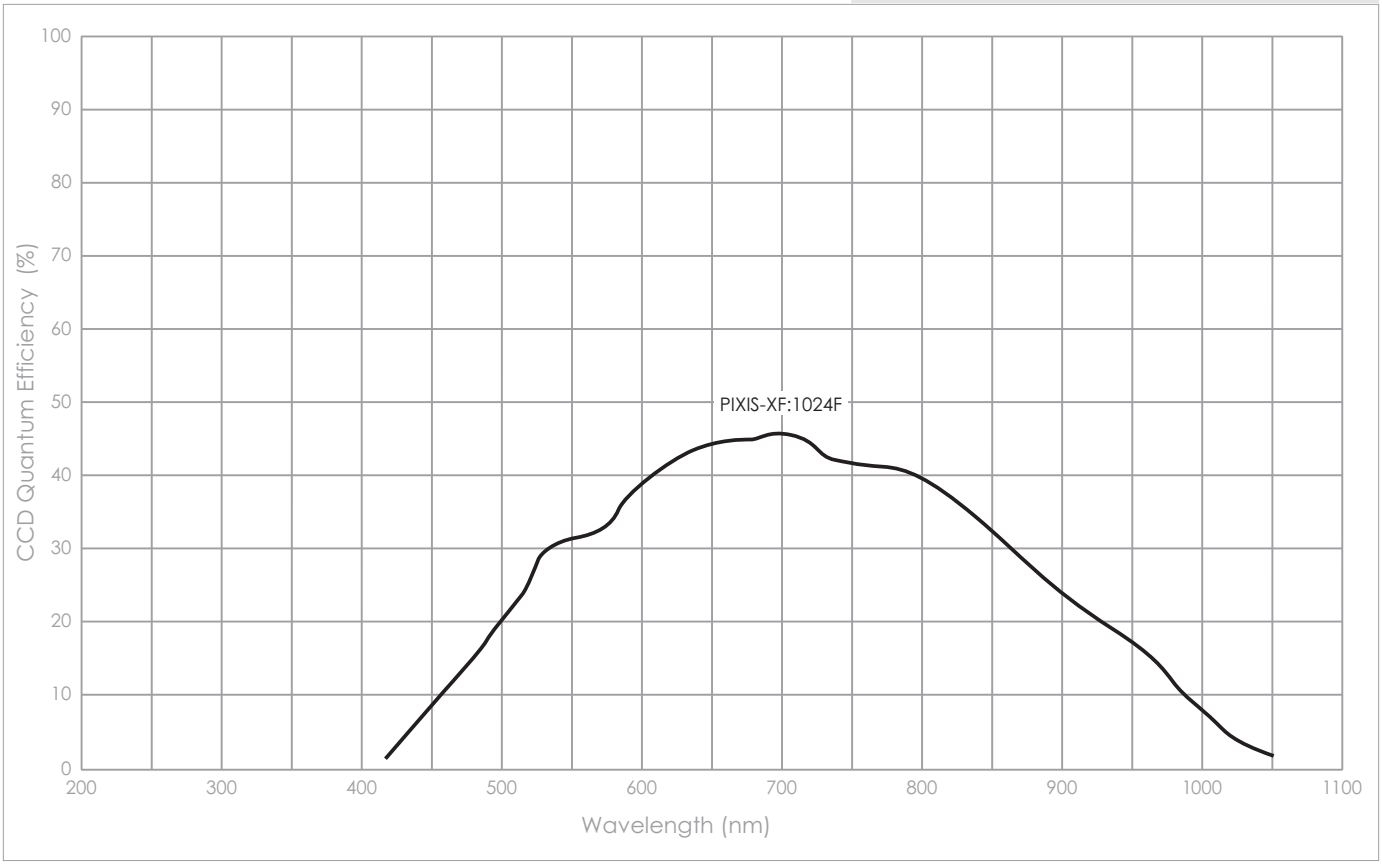
Notes: All specifications subject to change.

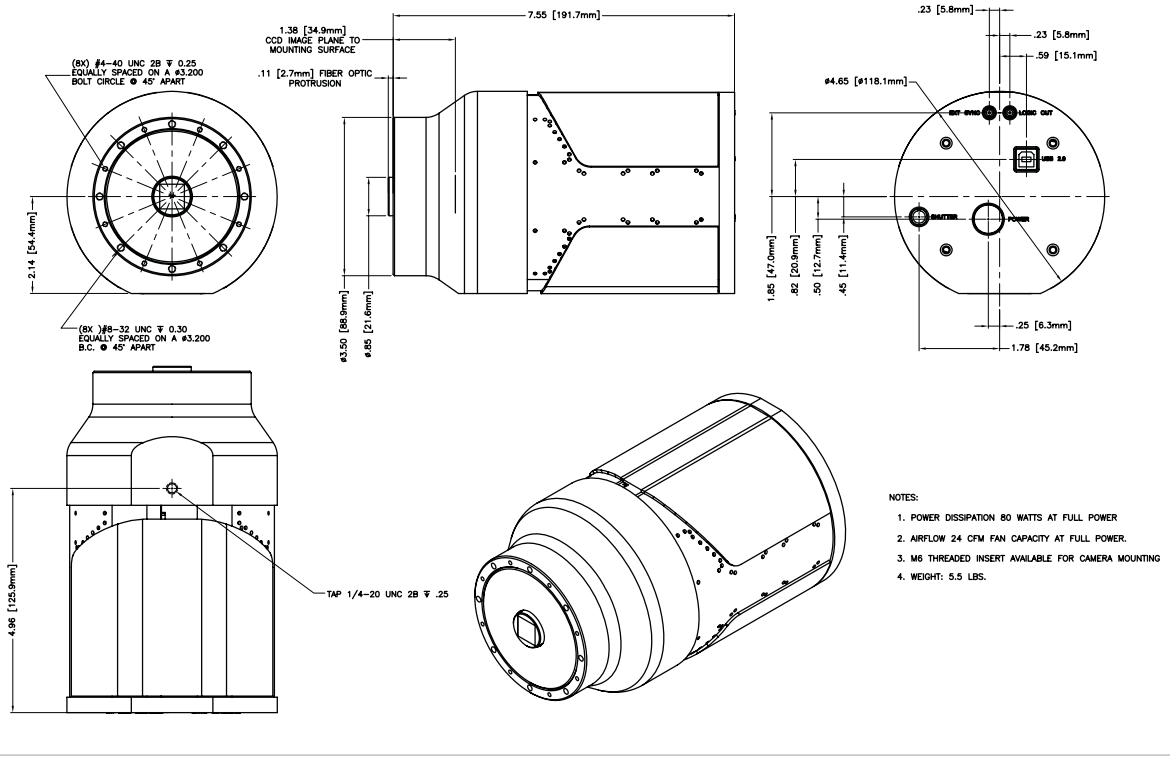
Readout Rates

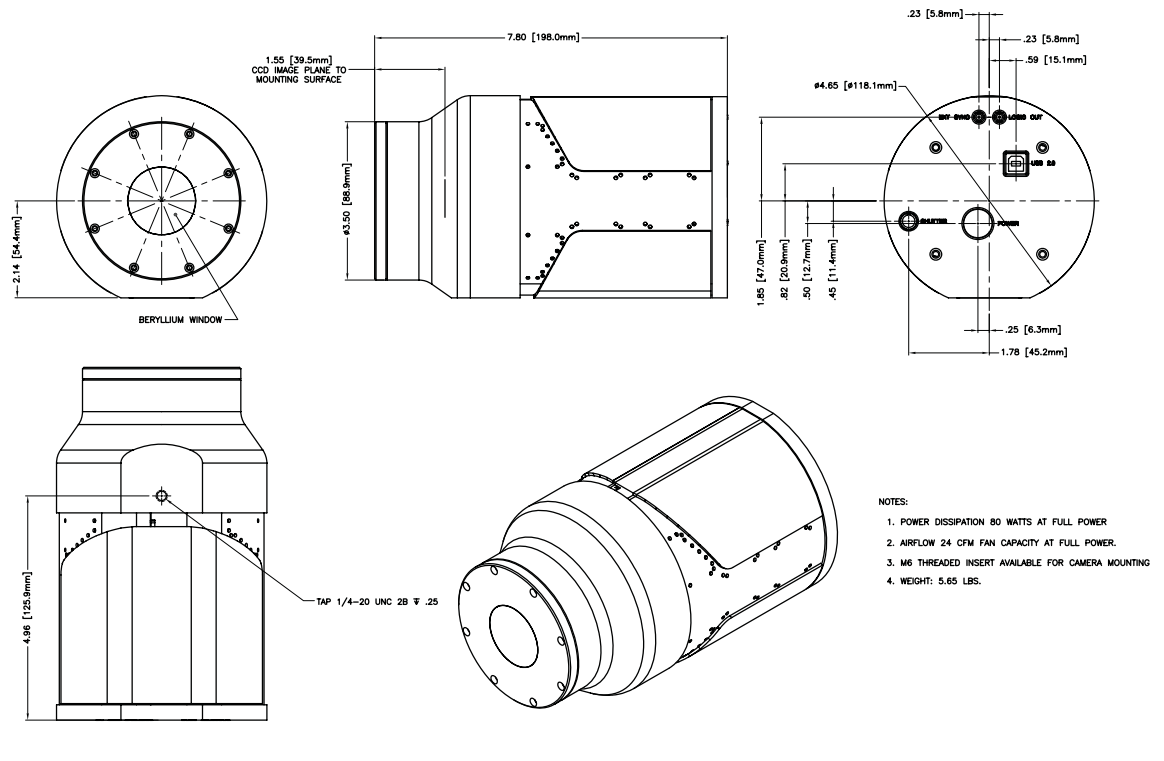
Binning	@ 2 MHz	@ 100 kHz
1 x 1	0.58 sec	10.0 sec
2 x 2	0.28 sec	2.8 sec
8 x 8	0.14 sec	0.85 sec



Quantum Efficiency Curve







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