

rayonix SX165

High Resolution X-ray detector

For synchrotron & home laboratory X-ray sources

- ▶ Single CCD, large detecting surface
- ▶ Low noise
- ▶ Ultra-low dark current
- ▶ Baseline software option for SAXS/WAXS



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The new incarnation of the trusted Rayonix 165mm X-ray detector has higher gain, enhanced reliability and new software options. The sx165 is renowned for excellent data quality in home labs and at synchrotrons worldwide. This is the detector of choice for X-ray science applications from crystallography to material science. The updated sx165 design has several options available:

- ▶ Baseline stabilization for SAXS/WAXS
- ▶ High resolution calibration (1 x 1 binning)
- ▶ Custom phosphors
- ▶ Frameshift software for time-resolved imaging



A view inside the sx165.

User-Configurable Imaging Parameters

On-Chip Binning	Pixel Size	Readout Time	Number of Pixels in Image
2 x 2 (standard)	80µm	2.5 sec	2048 x 2048
4 x 4	160µm	1.2 sec	1024 x 1024
8 x 8	320µm	0.8 sec	512 x 512
Noise	9 e-/pixel @ 3.5 sec readout; 13 e-/pixel @ 2.5 sec readout		

Technical Parameters

Type	Single CCD; single fiber-optic taper	
Full Well Capacity (standard 2 x 2 binning)	360k e ⁻ /pixel = 45,000 12keV photons/pixel @ 2048 x 2048 pixels	
Dark Current	<0.01 e ⁻ /pixel/sec. @ 2048 x 2048 pixels	
PSF, FWHM	100µm with 40µm thick phosphor, ~65µm with 25µm thick phosphor	
Cooling	Closed-cycle refrigeration	
Sensor Operating Temperature	-70° C	
Electro-optical Gain	8e ⁻ /12keV photon	
Fiber-optic Taper Demagnification Ratio	2.7:1	
DQE (Detective Quantum Efficiency)	Up to 0.8 for 8keV to 12keV radiation	
Dynamic Range	16 bits	
CCD Chip	61mm x 61mm; 4096 x 4096 15µm pixels	
Computer Interface	Proprietary PCI full-frame DMA; single fiber-optic cable	
X-ray Sensitive Surface	Round, 165mm diameter (21,000mm ²)	
Readout electronics	4-channel readout; 16-bit ADCs	
Physical Dimensions:		
Detector Head	Height x Width x Depth	21.5cm diameter x 34cm
	Approximate Weight	18kg
Electronics/ Cooling Assembly	Height x Width x Depth	70cm x 57cm x 65cm
	Approximate Weight	60kg