

rayonix

High-performance X-ray technology

rayonix
mx HE

High Efficiency Series



mx325 HE
mx300 HE

mx225 HE



Technical Specifications for Individual Detectors		mx225 HE	mx300 HE	mx325 HE
Type	Multiple back-lit CCDs; seamlessly tiled fiber-optic tapers	9 CCDs; 9 tapers	16 CCDs; 16 tapers	16 CCDs; 16 tapers
On-chip Binning		Number of Pixels in Image (Pixel Size)		
	2 × 2	3072 × 3072 (73μm)	4096 × 4096 (73μm)	4096 × 4096 (79μm)
	3 × 3	2046 × 2046 (110μm)	2728 × 2728 (110μm)	2730 × 2728 (119μm)
	4 × 4	1536 × 1536 (146μm)	2048 × 2048 (146μm)	2048 × 2048 (159μm)
Fiber-optic Tapers		2.85:1	2.85:1	3.09:1
Active Imaging Surface		225mm × 225mm (50,625mm ²)	300mm × 300mm (90,000mm ²)	325mm × 325mm (105,625mm ²)
Readout Electronics	2 channels per CCD	18-channel readout	32-channel readout	32-channel readout
Electro-optical Gain		11 e ⁻ /12keV photon	11 e ⁻ /12keV photon	9.4 e ⁻ /12keV photon
Full Well Capacity	At 2x2 binning, High Speed Mode: 350ke-/pixel	30000 12 keV photons/pixel	30000 12 keV photons/pixel	37000 12 keV photons/pixel
Physical Dimensions:				
Detector Head	Height × Width × Depth	46cm × 32cm × 40cm	58cm × 42cm × 43cm	58cm × 42cm × 43cm
	Approximate Weight	52kg	115kg	125kg
Electronics/ Cooling Assembly	Height × Width × Depth	175cm × 64cm × 64cm	175cm × 64cm × 64cm (x2)	175cm × 64cm × 64cm (x2)
	Approximate Weight	215kg	215kg (x2)	215kg (x2)

Common Technical Specifications for All mx HE Detectors

On-chip Binning	Read Noise	Dynamic range (2x2 binning)	Readout Time 2 × 2	Readout Time 3 × 3	Readout Time 4 × 4
Low Noise Readout Mode	3.5e ⁻	120 ke ⁻ /3.5e ⁻ → 34000	3.5 sec	2.0 sec	1.0 sec
High Speed Readout Mode	7.7e ⁻	350 ke ⁻ /7.7e ⁻ → 45000	1.0 sec	0.5 sec	0.3 sec
PSF, FWHM	~100 microns				
Dark current at 2x2 binning	< 0.005 e ⁻ /pixel/sec or 0.0005 12 keV photon/pixel/sec				
Standard phosphor	Gd ₂ O ₂ S:Tb, 40 micron thick				
Cooling	Closed cycle refrigeration				
CCD operating temperature	-70° C				
CCDs	2048x2048 pixels, back-illuminated				
Computer	Single control computer running Linux O/S				
Computer interface	PCI DMA; single fiber-optic cable				

Additional Options:

- High resolution calibration (1x1 binning)
- Phosphor Options
- Baseline stabilization for SAXS/WAXS

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