

MX beamlines at the Photon Factory (2025.10-)

updated on

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Beamline	BL-1A	BL-5A	BL-17A	AR-NW12A	AR-NE3A
Starting year	2010	2004	2006	2003	2009
Status	Operational	Operational	Operational	Operational	Operational
Synchrotron Ring	PF 2.5GeV (450mA@Multi/Hybrid-Bunch)			PF-AR 6.5GeV/5.0GeV (50mA@Single-Bunch)	
Injection	top-up			top-up	
Light Source	Short-gap undulator	Multipole wiggler	Short-gap undulator	Undulator	Undulator
Wavelength (Å)	0.96 - 1.01 1.2 - 1.9, 2.7 - 3.5	0.75 - 1.9	0.9 - 2.1	0.55, 0.75 - 1.9	0.75 - 1.9
Energy resolution ($\Delta E/E$)	-	2.5×10^{-4}	2.5×10^{-4}	2.5×10^{-4}	2.5×10^{-4}
beam size (H x V) (mm)	0.013 x 0.013 - 0.05 x 0.013	0.075 x 0.075 - 0.2 x 0.2	0.02 x 0.016 - 0.04 x 0.02	0.2 x 0.05 - 0.2 x 0.2	ϕ 0.05, ϕ 0.1, ϕ 0.2
Typical beam size (H x V) (mm)	0.013 x 0.013	0.2 x 0.2	0.04 x 0.02	0.2 x 0.2	ϕ 0.1
Photon flux (photons/sec) @ typical beam size	2.5×10^{10} (@ $\lambda=1.03$ Å) 1.4×10^{11} (@ $\lambda=2.7$ Å)	3×10^{11} (@ $\lambda=1.0$ Å)	2.1×10^{11} (@ $\lambda=0.98$ Å)	2.2×10^{11} (@ $\lambda=1.0$ Å) 3.1×10^{11} (@ $\lambda=0.55$ Å)	4.2×10^{11} (@ $\lambda=1.0$ Å)
Detector	EIGER X 4M (x2)	PILATUS3 S6M	EIGER X 16M	PILATUS4 X CdTe 2M	PILATUS 2M-F
Type	PAD	PAD	PAD	PAD	PAD
Active area (mm ²)	155.2 x 162.5	423.6 x 434.6	311.2 x 327.8	233.0 x 244.5	253.7 x 288.8
Pixel size (μm^2)	75 x 75	172 x 172	75 x 75	150 x 150	172 x 172
Pixel number	2070 x 2167	2463 x 2527	4150 x 4371	1553 x 1630	1475 x 1679
Frame data size (MByte)	2	6.2	8	2.5	2.5
Readout time (msec.)	0.003	2.04	0.003	~0	2.3
Max. frame rate (Hz)	750	25	133	950	60
Detector distance (mm)	60 - 400	90 - 950	65 - 650	80 - 950	80 - 500
Detector vertical offset (mm)	-	0 - 150	-	0 - 150	0 - 150
Maximum resolution (Å)	1.2 (@ $\lambda=1.03$ Å) 3.0 (@ $\lambda=2.7$ Å)	0.68 (@ $\lambda=0.75$ Å) 0.91 (@ $\lambda=1.0$ Å)	0.88 (@ $\lambda=0.98$ Å) 1.9 (@ $\lambda=2.1$ Å)	0.59 (@ $\lambda=0.55$ Å) 1.07 (@ $\lambda=1.0$ Å)	0.76 (@ $\lambda=0.75$ Å) 1.0 (@ $\lambda=1.0$ Å)
Sample changer	PAM-HC	PAM			
Software for image processing	XDS, iMosflm, DIALS				