X-RAY DIFFRACTION

The LYNXEYE Detector Family

The highest performance detectors for X-ray diffraction

The LYNXEYE family of detectors represents the pinnacle of compound strip detector technology for the full spectrum of X-ray diffraction and scattering applications.

The **SSD160-2**, **LYNXEYE-2**, and **LYNXEYE XE-T** feature advanced 500 µm silicon strip sensors, compatible with all common X-ray wavelengths—from Cr to Ag—and are fully integrated into Bruker's D6 and D8 diffractometers.

The **LYNXEYE HE** employs a high efficiency, air-cooled CdTe sensor optimized for applications requiring Mo or Ag radiation, like pair distribution function (PDF) analysis or operando studies on battery cells.

For ultimate data quality, the LYNXEYE XE-T delivers superior energy resolution, enabling effective filtering of sample fluorescence and eliminating the need for Kβ filters.

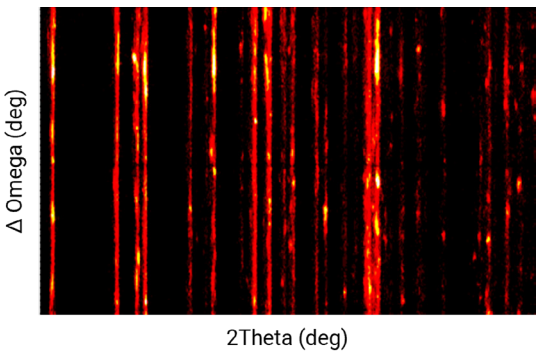
All detectors are engineered to meet the highest standards in technical precision, manufacturing quality, and system/software integration—ensuring unmatched versatility, reliability, and data quality across all applications.

Features

- Operation with all common X-ray wavelengths: Cr, Co, Cu, Mo, Ag
- 0D, 1D, and 2D diffraction modes
- Si or CdTe: different sensor types optimized to application needs
- Excellent energy resolution provides best filtering of sample fluorescence
- Fully radiation hard design
- Air-cooled sensor requiring zero maintenance or external media like water or dry air
- Very low background noise for highest sensitivity on weak diffraction signals
- LYNXEYE-2, LYNXEYE XE-T, LYNXEYE HE: Zero defective strips – guaranteed

Key Benefits

- One detector for all applications
- Up to 450x faster than conventional detector systems
- No maintenance and no additional costs for consumables
- CdTe sensor version for best efficiency with hard radiation
- LYNXEYE XE-T: Best Kβ filtering of any detector on the market



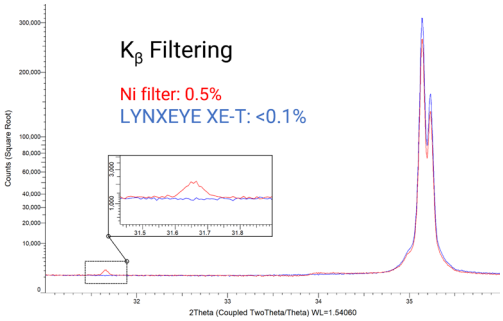


Figure 1
The LYNXEYE XE-T filters Cu Kβ radiation more effectively than any metal filter, and better than any other high energy resolution detector on the market – guaranteed!

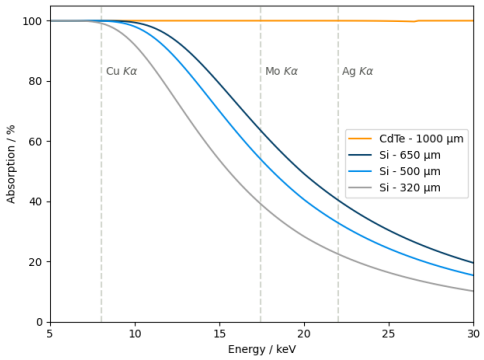


Figure 2 (left)
BRAGG2D scan showing large crystallite size for easy sample preparation assessment.

Figure 3 (right)
The 1000 µm thick CdTe sensor of the LYNXEYE HE absorbs Mo and Ag Kα X-rays more effectively than Si sensors.

Key Specifications	SSD160-2	LYNXEYE-2	LYNXEYE XE-T	LYNXEYE HE
Nr. of channels [1]	160 (up to 2400)	192 (up to 2880)	192 (up to 2880)	190 (up to 2850)
Active window size	12 x 16 mm	14.4 x 16 mm	14.4 x 16 mm	14.25 x 16 mm
Angular coverage [2]	>2.4° 2θ	>2.9° 2θ	>2.9° 2θ	~2.9° 2θ
Spatial resolution	75 µm	75 µm	75 µm	75 µm
Energy resolution [3]	<1000 eV	<1000 eV	<380 eV [5]	<1600 eV
K-beta filtering [4]	N/A	N/A	<0.1%	N/A
Maximum global count rate	~125,000,000 cps	~150,000,000 cps	~150,000,000 cps	~150,000,000 cps
Background noise	<0.05 cps			<0.05 cps
Wavelengths	Cr, Co, Cu, Mo, Ag			Cu, Mo, Ag
Sensor thickness (material)	500 µm (Si)			1000 µm (CdTe)
Detection efficiency	>99% for Cr, Co, Cu; ~50% for Mo, ~30% for Ag			>99% for all WL
Nr. of defective channels	max. 1	0	0	0

[1] Channels (subchannels)

[2] @ 280 mm goniometer radius

[3] @ ~8 keV, FWHM

[4] for Cu radiation

[5] Guaranteed energy resolution, typical energy resolution ~ 340 eV.

The LYNXEYE detector family is developed in collaboration with the AGH University of Science and Technology, Faculty of Physics and Applied Computer Science, Krakow, Poland.

Bruker AXS is continually improving its products and reserves the right to change specifications without notice.
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