

Product Sheet SC-XRD 32

PLATINUM¹³⁵ CCD Detector For Macromolecular Crystallography

You've worked hard to grow the best crystals. They deserve the best detector. PLATINUM¹³⁵ detectors deliver unprecedented performance.



High sensitivity, ultra-low noise PLATINUM¹³⁵ CCD Detector

- High-speed screening requires fast detector readout. With optimized 4-port readout for high throughput, the PLATINUM¹³⁵ is faster than most synchrotron detectors (down to 0.2 sec frame readout).
- Small crystals require high detector sensitivity. The PLATINUM¹³⁵ features the highest available quantum sensitivity (40 electrons/X-ray at Cu K α) to deliver higher data quality with shorter exposures.

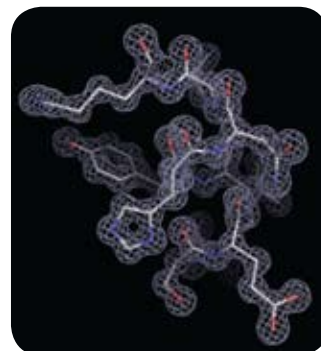
- SAD phasing requires accurate detection of extremely weak anomalous signals. Digitally stabilized, low-noise readout (down to eight electrons typical) allows you to solve protein structures in your home laboratory with a single wavelength.
- Resolving long unit cells requires superior spatial resolution. The PLATINUM¹³⁵ features the new nano-structured scintillator screen and 15- μ m pixels for the best available point spread function.

Other new features include:

- The 16-megapixel Fairchild CCD6161. The most advanced scientific-grade CCD available, exclusively from Bruker.
- Ultra-low dark current. After nine hours integration the dark noise is less than the signal from only one Cu K α X-ray.
- Advanced, low-maintenance Joule-Thomson cooling.
- Higher dynamic range. Nearly eight times higher than the nearest competitor for fewer saturated reflections and better data.
- Anti-blooming. The PLATINUM¹³⁵ is the only available CCD detector to feature anti-blooming to preserve the integrity of weak reflections near neighboring strong reflections.

Technical Specifications

Active area (mm²)	92 × 92
CCD	Fairchild CCD6161
CCD format	4k × 4k (16 Megapixel)
Pixel size (µm)	15
Demagnification	1.5
Binning (user selectable)	2 × 2, 4 × 4, 8 × 8
Frame read time (minimum, sec)	1.7 (2 × 2 binning) 0.5 (4 × 4 binning) 0.2 (8 × 8 binning)
Quantum gain (electrons/X-ray)	37 (Cu K α) 80 (Mo K α)
Total noise, 20 sec exposure (electrons rms, typical)	8 (2 × 2 binning) 14 (4 × 4, 8 × 8 binning)
Dark current (electrons/pixel-sec @ -60 °C typical)	<0.01
Operating temperature (°C)	-60
Cooling	Joule-Thomson
Nonlinearity (%)	<1
Maximum resolution at detector edge (Å)¹	1.02
ADC resolution (bits)	16
Linear full well (electrons, typical)	350,000 (2 × 2 binning) 750,000 (4 × 4, 8 × 8 binning)
Dynamic range (N_{fullwell}/noise)	up to 50,000
Computer interface	USB 2.0
Lab temperature (°C)	15-30
Lab relative humidity (%)	20-60
Weight (kg)	16



Advanced high sensitivity CCD design produces ultra-high resolution data in the home lab.

¹At a single 2 θ position, Cu K α . Higher resolution is possible by acquiring multiple 2 θ shells.

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