



PHOTON II 7 Detector Upgrade

- Enhance Performance of Your System

The APEX II CCD detector—typically installed with SMART APEX II or KAPPA APEX II systems—was by far the most advanced and successful detector of its time. But, time marches on and today the APEX II CCD can only be supported on a best effort basis. However, the good news is that you can extend your investment by upgrading your diffractometer to the latest CPAD technology. The new PHOTON II 7 detector will modernize your diffractometer and significantly enhance its performance.

Shutterless data collection

The large, high sensitivity PHOTON II 7 CPAD detector, only available from Bruker, runs in shutterless mode just like all our current D8 QUEST and D8 VENTURE systems. Shutterless mode collects data while the sample rotates continuously, eliminating overhead time and mechanical jitter of the stop-start shuttered-mode operation. Shutterless mode leads to faster data acquisition and higher data quality. **Better data – faster.**

Two times larger active area

The new PHOTON II 7 features an active area of 70 cm², almost twice the size of your existing APEX II detector. The larger active area of 10 cm × 7 cm means the PHOTON II 7 detects many more reflections per frame, providing faster data collection and higher redundancy data for even better quality structures. The PHOTON II 7 has one monolithic sensor, and consequently has no gaps or dead spaces between modules. This results in increased data collection efficiency, which is crucial for shared facilities or service crystallography laboratories.

Optimized for the home laboratory

The PHOTON II 7 CPAD detector has a unique design embedding a scintillator optimized for home laboratory wavelengths. This design ensures highest sensitivity, minimizes parallax and becomes especially relevant for collecting weak intensities.

Air-cooled and environmentally friendly

The PHOTON II 7 detector is completely air-cooled. This makes your detector chiller obsolete. Removing the liquid chilling of the detector reduces mechanical stress at the detector, which improves stability and uptime. It also eliminates the cost-of-ownership and maintenance of a chiller. Air-cooling not only saves you money, it also has a large positive impact on the environment.

The PHOTON II 7 detector takes advantage of latest, patented technologies:

- US Patent 8680473 "Multiply-sampled CMOS sensor for X-ray diffraction measurements with corrections for non-ideal sensor behavior", awarded Mar 25, 2014.
- US Patent 8903043 Method for correcting timing skew in X-ray data read out of an X-ray detector in rolling shutter mode", awarded Dec 2, 2014.

Full system integration – perfect service

The PHOTON II 7 is not only developed and manufactured solely by Bruker, it is also fully integrated into the diffractometer's control and operating software. This makes it the perfect option of upgrading your system. Available through our worldwide sales and service organization, a PHOTON II 7 upgrade is backed by our expert service engineers, providing you with the best customer support for years to come.

Invest in the future

If in the future you decide to replace your SMART APEX II or KAPPA APEX II system, your new PHOTON II 7 detector can be installed in a new D8 QUEST or D8 VENTURE system to achieve a completely up-to-date, state-of-the-art crystallography system at significantly reduced cost.

Overview of Features and Benefits

PHOTON II 7 Detector	CPAD Sensor, latest pixel array detector technology	4th generation Charge Integration Pixel Array technology for higher speed and sensitivity, best data quality
Active area [cm²]	70	Large area for efficient data collection and high redundancy
Cooling	Air-cooled	Low maintenance and positive environmental impact
Sensor format [pixels]	768 × 512	Landscape format for wide angular range
Pixel size [μm]	135	Optimally matched point spread function for best signal-to-noise ratio
Operation mode	Shutterless	Fast, efficient, high-quality data collection
Warranty	3 years	Peace of mind



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