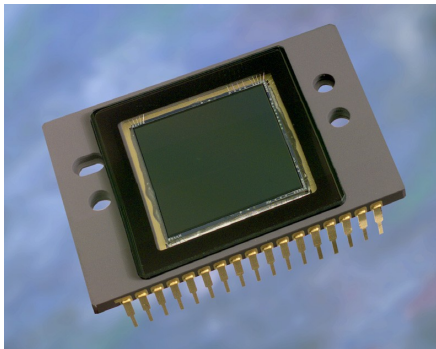


X-ray High Resolution cameras

PSL has supplied X-ray High Resolution CCD cameras for the last 7 years to end users and OEMs. A selection of high responsivity CCDs, combined with low noise characteristics, enables optimum photonic collection with best possible signal to noise ratio. Special read whilst expose mode allows 100% shutterless duty cycle and high sensitivity operation in low light level conditions.



Applications:

- Microdiffraction
- X-ray imaging
- X-ray micro CT
- Laue imaging
- Protein crystallography at up to 50 keV
- Gisaxs
- Powder Diffraction
- Non Destructive Testing
- Phase Contrast Imaging
- Small animal imaging

Photonic Science

Millham, Mountfield
Robertsbridge, East Sussex
TN32 5JU
UK

Tel main office : +44 (0)1 580 88 11 99
sales : +33 (0)4 76 93 57 20
info@photonic-science.co.uk

Photonic Science

**Information /
products and
services**

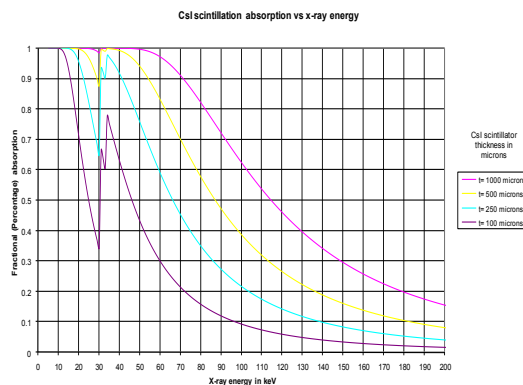


Scientific detector
systems

X-ray HR CCD cameras

Photonic Science Ltd selects premium grade CCD sensors and fibre optic bundles:

- Small pixel size less < 26 microns pixel size at the detector input
- Cooled CCD sensor with 55 degrees C delta T
- Software switchable 10 and 20 MHz scanning frequencies
- Small area sensor with taper input varying from 5.6 mm up to 40 mm diagonal
- Low readout noise < 7 electrons with noise interpolation reduction
- Very low dark current with less than 0.01 electron per pixel per second
- Gating time from milliseconds to > 30 minutes
- Simultaneous integration / readout enabling 100% duty cycle acquisition
- GdOS polycrystalline or structured CsI scintillators
- On chip binning
- Camera link and GigE digital interface
- Peltier / fan cut off option
- Low profile electronics
- Air cooled / water cooled option



X-ray megapixel HR CCD camera

- 1392 (h) x 1040 (v) CCD array
- Input pixel size : available from 3.22 x 3.22; 6.45 x 6.45; 10.37 x 10.37; 14.39 x 14.39 and up to 23.03 x 23.03 microns
- Input size : available from 4.49 x 3.35 mm; 8.98 x 6.71 mm; 14.43 x 10.78 mm; 20.04 x 14.97 mm and 32.06 x 23.96 mm respectively
- 11 fps at full resolution @ 20 MHz and 5 fps @ 10 MHz
- Readout noise : 4 - 5 electrons @ 10 MHz with interpolation noise reduction
- Full well capacity : 13,000 electrons in binning 1x1; 22,000 electrons in binning 2x2
- Dark current : < 0,01 electrons / pixel / second
- 12-bit digitisation
- 16-bit extended dynamic range
- GdOS:Tb scintillator for operation from 5-55 keV with minimum feature recognition of 10 lp / mm: typically 12 microns for the smallest input size up to 50 microns for the largest input size.
- CsI:Tl structured scintillator for operation from 30 -100 keV
- Camera link / GigE interface
- Synchronisation / control : via TTL pulse

X-ray 4 megapixel HR CCD camera

- 2048 (h) x 2048 (v) CCD array
- Input pixel size : available from 3.8 x 3.8; 7.4 x 7.4; 17.3 x 17.3; 25.9 x 25.9 microns
- Input size: available from 7.8 x 7.8 mm; 15.2 x 15.2 mm; 35.4 x 35.4 mm; 53.04 x 53.04 mm respectively
- 2 fps at full resolution @ 12 MHz
- 3.5 fps in binning 2x2 @ 1024x1024 resolution
- Readout noise: 7 - 9 electrons @ 12 MHz with interpolation noise reduction
- Full well capacity : 40,000 electrons in binning 1x1; 80,000 electrons in binning 2x2
- Dark current : 0,05 electrons / pixel / second
- 16-bit extended dynamic range
- USB 2.0 interface
- Synchronisation / control : via TTL pulse

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Millham, Mountfield
Robertsbridge, East Sussex
TN32 5JU
UK

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