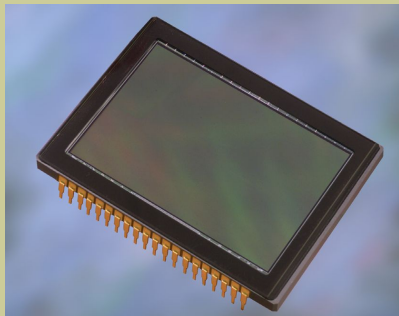


## X-ray Very High Resolution CCD cameras

PSL has supplied X-ray Very High Resolution CCD cameras for the last 5 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 Ltd*

Millham, Mountfield  
Robertsbridge, East Sussex  
TN32 5LA 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 Ltd*

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*Information /  
products and  
services*



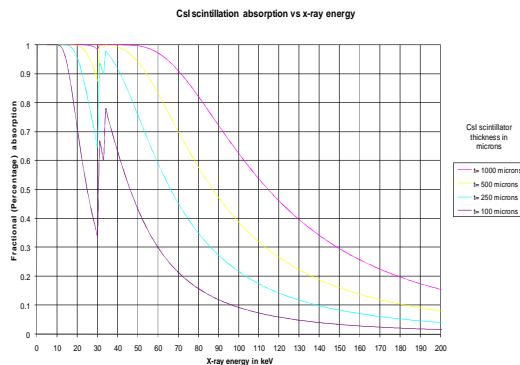
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Scientific detector  
systems

## X-ray VHR CCD cameras

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

- Small pixel size less < 32 microns pixel size at the detector input
- Cooled CCD sensor with 55 degrees C delta T
- 20MHz scanning frequency
- Large area sensor with taper input varying 21.65mm up to 150mm diagonal
- Low readout noise < 15 electrons with noise interpolation reduction
- Very low dark current with less than 0.05 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



## X-ray 11 megapixel VHR CCD camera

- 4008 (h) x 2672 (v) CCD array
- Input pixel size : available from 4.5 x 4.5; 9 x 9 18.7 x 18.7; 26 x 26 and up to 31.18 x 31.18 microns
- Input size : available from 18 x 12 mm; 36 x 24 mm; 75 x 50 mm; 104.13 x 69.42 mm and 124.96 x 83.31 mm respectively
- 1.8 fps at full resolution @ 20 MHz
- 5 fps in binning 4x4 @ 1002 x 668 resolution
- Readout noise : 14-18 electrons @ 20 MHz with interpolation noise reduction
- Full well capacity : 45,000 electrons in binning 1x1 - 90,000 electrons in binning 2x2
- Dark current : < 0,05 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 10lp/mm : typically 12 microns for the smallest input size up to 55 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 16 megapixel CCD cameras

- 4872 (h) x 3248 (v) CCD array
- Input pixel size : available from 4.5 x 4.5; 9 x 9; 18.7 x 18.7; 26 x 26 and up to 31.18 x 31.18 microns
- Input size : available from 18 x 12 mm; 36 x 24 mm; 75 x 50 mm; 104.13 x 69.42 mm and 124.96 x 83.31 mm respectively
- 1.1 fps at full resolution @ 20 MHz
- 3 fps in binning 4x4 @ 1218 x 812 resolution
- Readout noise: 12-16 electrons @ 20 MHz with interpolation noise reduction
- Full well capacity : 25,000 electrons in binning 1x1; 50,000 electrons in binning 2x2
- Dark current : 0,05 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 10lp/mm : typically 12 microns for the smallest input size up to 55 microns for the largest input size.
- Camera link / GigE interface
- Synchronisation / control : via TTL pulse

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