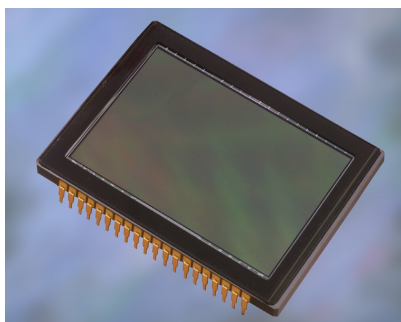


X-ray Very High Resolution CCD cameras

PSL is supplying Very High Resolution CCD cameras for TEM 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:

- Biologic imaging
- Low dose imaging
- Micro-diffraction / metallurgy / electronics
- Semiconductor analysis
- Geology
- Forensics
- Research in nano / photonic materials

Photonic Science



Information / products and services



Photonic Science



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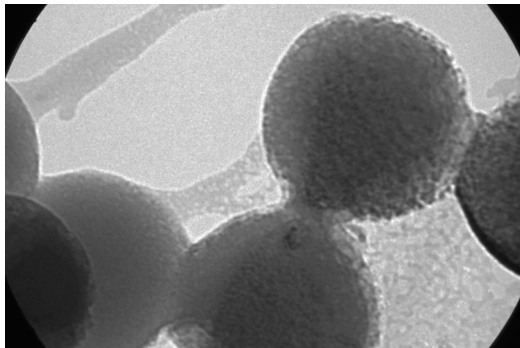
Tel main office : +44 (0)1 580 88 11 99
sales : +33 (0)4 76 93 57 20
info@photonic-science.co.uk

Scientific detector
systems

TEM CCD cameras

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

- Small pixel size less at the detector input < 20 microns
- Cooled CCD sensor with 55 degrees C delta T
- 10-20MHz scanning frequency
- Large area sensors
- 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 minutes
- Simultaneous integration / readout enabling 100% duty cycle acquisition for Interline transfer sensors
- Virtual shutter for full frame devices
- Very high antiblooming factor: > 100x
- Custom scintillators
- On chip binning



- **200 nm microball, 200kV, 100ms exposure, 250,000 magnification**

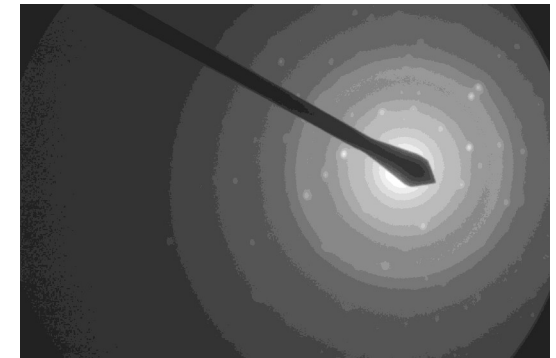
X-ray 11 megapixel VHR CCD camera

- 4008 (h) x 2672 (v) CCD array
- Input pixel size : 9 or 18 microns
- Input size : 36 x 24 mm; 72 x 48 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 : 50,000 electrons in binning 1x1 - 90,000 electrons in binning 2x2
- Dark current : < 0,05 electrons / pixel / second
- 12-bit digitisation
- 16-bit and 20-bit extended dynamic range
- GdOS:Tb scintillator for operation up to 300kV
- Camera link / GigE interface
- Synchronisation / control : via TTL pulse

X-ray 16 megapixel CCD cameras

- 4096 (h) x 4096 (v) CCD array
- Input pixel size : 15 x 15 microns
- Input size : 60 x 60 mm
- 0.33 fps at full resolution
- 1 fps in binning 4x4 @ 1024 x 1024 resolution
- Readout noise: 10-12 electrons @ 12 MHz with interpolation noise reduction
- Full well capacity : 100,000 electrons in binning 1x1; 400,000 electrons in binning 2x2

- Dark current : 0,05 electrons / pixel / second
- 16-bit digitisation
- 20-bit extended dynamic range
- GdOS:Tb scintillator for operation up to 300kV
- USB2.0 / GigE interface
- Synchronisation / control : via TTL pulse



Diffraction at 200kV, 1200ms exposure, full 20-bit dynamic range

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