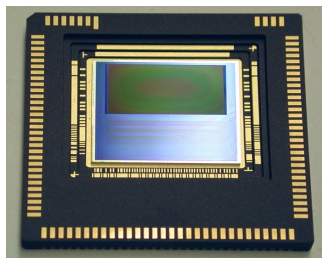


Cooled sCMOS cameras

PSL is starting to develop cooled sCMOS cameras to end users and OEMs. A selection of high responsivity sCMOS, sensors with intrinsic noise floor down to Single Electron enables optimum photonic collection with best possible signal to noise ratio up to 16-bit dynamic range. Special read whilst expose mode allows 100% duty cycle and high sensitivity operation in low light level conditions.



Applications

- Fluorescence imaging
- Astronomy
- TIRF / Super resolution microscopy
- Confocal microscopy / cell screening
- Chemiluminescence
- Spectroscopy
- Single molecule imaging
- Cell motility / live cell recording
- Hyper spectral imaging
- Electron microscopy
- Biochip reader
- Raman spectroscopy

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Photonic Science

Information / products and services



Scientific detector
systems

Cooled sCMOS cameras

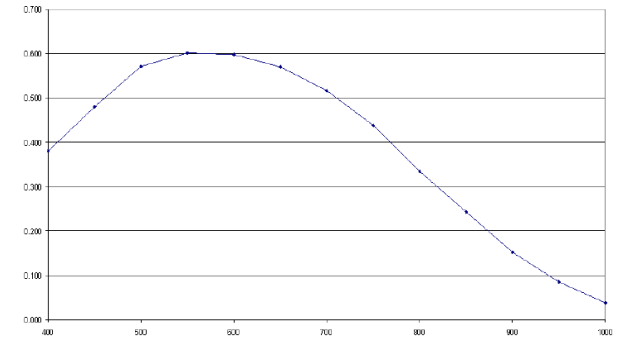
Photonic Science Ltd selects premium grade sCMOS sensors :

- Sensor size 14,31 mm diagonal
- Quartz, glass and or fibre optic input window
- Small pixel size: 6.5microns pixel size
- Cooled sensor with 40 degrees C delta T
- 100MHz global frequency (200 MHz maximum rate, option to be discussed ARO)
- Parallel column bus read out
- Dual on chip ADC allowing simultaneous sensitivity and dynamic range
- Very low readout noise ~1.2 electrons in rolling shutter mode
- Dynamic range: up to >20,000:1
- Very low dark current with less than 0.5 electrons per pixel per second (cooling options for further noise reduction)
- Simultaneous integration / readout enabling 100% duty cycle acquisition in hardware triggered mode
- Peltier / fan cut off option
- Low profile electronics
- Air cooled / water cooled option

Cooled two megapixel sCMOS camera

- 1920 (h) x 1080 (v) sCMOS array
- Input pixel size : 6.5 x 6.5 microns
- 12.48mm x 7.02mm
- 18 fps at full resolution in rolling shutter mode 16-bit dynamic range (dual high and low gain channels multiplexed), 37 fps in rolling shutter 12-bit dynamic range (single channel high or low gain mode) @ 100MHz with Gigabit Ethernet interface
- Readout noise : ~1.2 electron in rolling shutter
- High gain channel: 10x or 30x
- Low gain channel: 1x or 2x
- Full well capacity : >30,000 electrons at full resolution
- Dark current : < 0,5 electrons / pixel / second
- Peak Quantum efficiency: 60% @ 550nm
- On chip ADC multiplexing
- ROI read out allowing faster frame rate: ie 50fps single channel (low or high gain) with 1920x800 resolution
- Gigabyte Ethernet
- Single / full base camera link interface for faster version (to be discussed ARO)
- Synchronisation / control : via TTL pulse

Quantum Efficiency



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