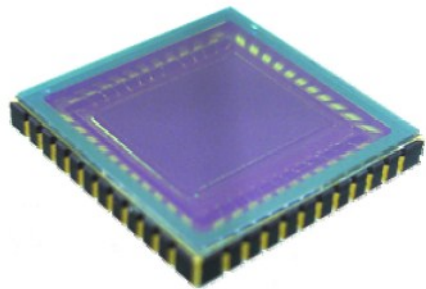


## SWIR 1/4 VGA cameras

PSL is supplying Short Wave Infra Red (SWIR) cameras to end users and OEMs for the last couple of years. A selection of high responsivity InGaAs sensors, combined with low noise electronics and deep cooling, 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:

- 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

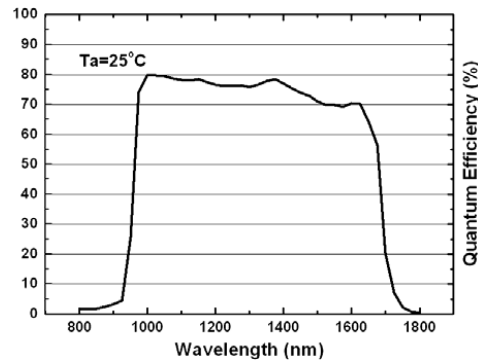
## SWIR 1/4 VGA cameras

Photonic Science Ltd selects premium grade InGaAs sensors :

- 320 (h) x 256 (v) InGaAs array
- Input pixel size : 30 x 30 microns
- Input size : 9.6 x 7.68 mm
- Cooled sensors with 45 degrees C delta T, includes hermetically sealed package
- 10Mhz scanning frequency
- Dynamic range > 1000:1
- Gating time from microseconds to second
- Pixel operability: > 99.5%
- Simultaneous integration / readout enabling 100% duty cycle acquisition
- Multiple integrated read out mode
- 65 fps at full resolution @ 10 MHz
- 100 fps on a 320 (h) x 200(v) ROI
- Responsivity in low gain mode:  $0.7\mu\text{V} / \text{electron}$
- Responsivity in high gain mode:  $13.3\mu\text{V} / \text{electron}$
- Readout noise : 120 electrons @ 10 MHz with interpolation noise reduction in high gain mode, 380 electrons in low gain mode
- Full well capacity : 170,000 electrons in high gain mode; 3,500,000 electrons in in low gain mode
- Video CCIR and GigE digital interface
- Air cooled / water cooled option
- Synchronisation / control : via TTL pulse
- Integrated Non Uniformity Correction, bright pixel, gain and offset corrections

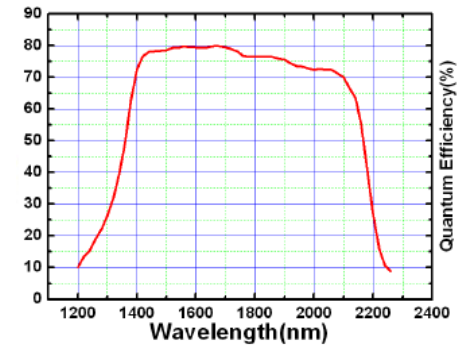
## SWIR 1/4 VGA standard

- Sensitivity: >  $5 \cdot 10^{12}$  Jones with 16ms integration time @ 1550 nm
- 16-bit extended dynamic range
- Peak QE: 80% @1000nm, > 70% from 1000 to 1600 nm
- Dark current at  $-20$  degree C operating temperature (air cooled): 3fA
- Dark current at  $-40$  degree C operating temperature (water cooled): 0.41fA



## SWIR 1/4 VGA extended

- Sensitivity: >  $10^{12}$  Jones with 1ms integration time @ 2000 nm
- 16-bit extended dynamic range
- Peak QE: 80% @1600nm, > 70% from 1400 to 2100 nm
- Dark current at  $-20$  degree C operating temperature (air cooled): 10pA
- Dark current at  $-40$  degree C operating temperature (water cooled): 1.37pA



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