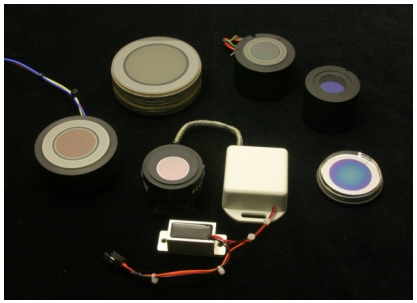
Intensified CCD / CMOS cameras

PSL has supplied intensified cameras for the last 24 years to end users and OEMs. Fibre optic coupling of the intensifier enables optimum photonic transmission down to CCDs or fast CMOS sensors and best possible signal to noise ratio. Special gating options down to few ns and high respetition rates: ie 30 kHZ (MHz on option) allows fast digital acquisition of transcient and / or low light level events.



Applications:

- Fluorescence lifetime imaging
- Particle Image Velocimetry (PIV)
- Spray imaging
- Flame analysis
- Bioluminescence / chemiluminescence
- Luminescence spectroscopy
- Spectroscopy
- Ballistics
- LIF laser induced fluorescence
- Combustion imaging
- Fusion plasma
- Laser induced breakdown spectroscopy (LIBS)

Photonic Science

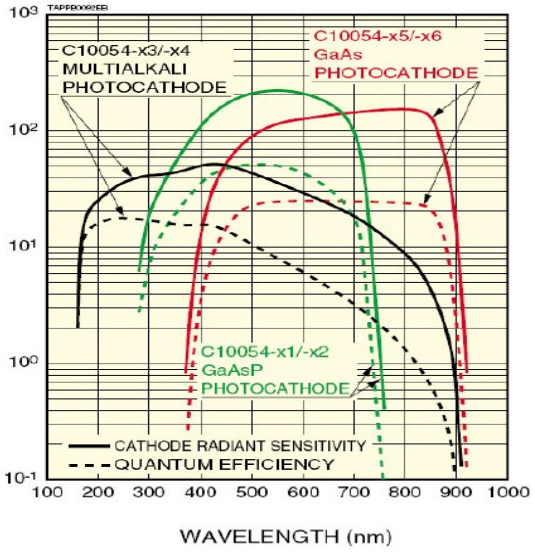
Information / products and services

Scientific detector systems

Intensified cameras

Photonic Science Ltd selects premium grade intensifiers with:

- 4 or 6 microns pore size
- Fast P43 (1ms decay at 10%) and P46 (0.2 µs at 10%) phopshor screens
- Single micro channel plate (MCP) resolution above >60 lp/mm, high modulation contrast, and up to 8,000 luminous gain
- Dual MCP stack giving photon counting sensitivity with up to 300,000 luminous gain
- Input size varies from 18mm up to 25mm diagonal
- Quartz, glass and or fibre optic input windows, fibre optic output windows
- Multi-alkali photocathodes, with Equivalent Background Illumination (EBI) noise down to 3 10^{-3} counts per pixel per second, are used for UV and blue response cameras
- GaAsP and GaAs photocathodes are selected for visible and red response cameras respectively, EBI noise with 6 10^{-2} counts per pixel per second (cooling options for reduced noise operation)
- Standard gating option : 100ns 30 kHz repetition rate
- Ultra fast gating down to 3 ns using special conductive underlaying coatings, MHz repetition rate is achieved using dedicated pulsers / gated power supply unit with adjustable gate time / delays down to nanosecond steps



Intensified CCD cameras

- 1392 (h) x 1040 (v) CCD array
- Input pixel size : 6.45 x 6.45 microns
- 1:1 (11mm) - 1.6:1 (18mm) and 2.2:1 (25mm) demagnification ratio between intensifier and CCD diagonal
- 13 fps at full resolution @ 25 MHz
- 32 fps in binning 2x2 @ 12.5 MHz
- Readout noise : 8-9 electrons @ 12.5 MHz and 11-13 electrons @ 25 MHz
- Full well capacity : 18,000 electrons in binning 1x1 and 32,000 electrons in binning 2x2
- Dark current : 3 electrons / pixel / second
- Full vertical binning for 1D spectroscopy
- 12-bit digitisation
- Camera link / GigE interface
- Synchronisation / control : via TTL pulse

Intensified CMOS cameras

- 1280 (h) x 1024 (v) CMOS array
- Input pixel size : 12 x 12 microns
- 1.27:1 (25mm) demagnification ratio between intensifier and CMOS diagonal
- 500 fps at full resolution @ 67 MHz
- > 1000 fps with ROI VGA format
- Max frame rate : 25 kHz at 1024x16 resolution
- Readout noise : 43 electrons @ 67 MHz
- Full well capacity : 63,000 electrons
- Dark current : 12 electrons / pixel / frame at full resolution
- 12-bit digitisation
- Up to 4 Gb on board memory
- Camera link / GigE interface
- Synchronisation / control: via TTL pulse

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