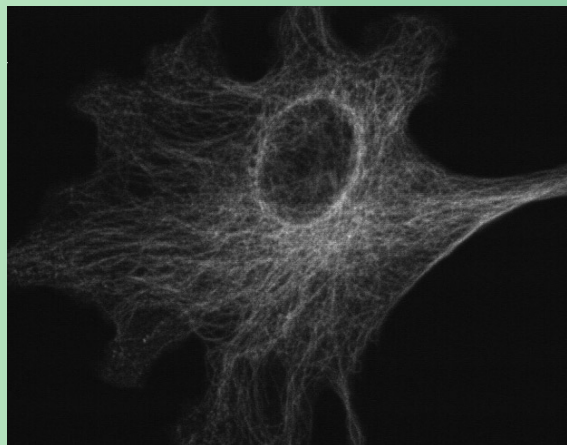


# Photonic Science

## CoolView EM/1000

Photonic Science's latest camera has near photon counting capabilities, using the NEW Impactron™ CCD from Texas Instruments. This high resolution digital camera gives crisp, fast images and can be run binned for fast 16-bit higher speed readout. In this device on chip charge multiplication within the CCD, an "impact ionisation process", allows the charge to be amplified in the CCD before the sensor is read out thereby dramatically increasing signal above the readout noise.



Cooling of  $\Delta -50^{\circ}\text{C}$  produces minimised readout noise that provides near photon counting sensitivity that does not require either an image intensifier or long integrations and slow scan read out. The deep chilling allows for 12 and 16-bit digitisation and benefits from negligible dark current.

The CoolView EM gives fast, low light level, high-resolution images, processed to 12 or 16 bits, with the flexibility of windowing, binning, software and hardware triggering.

The CoolView EM/1000 is a new state of the art camera bringing the latest of CCD developments to produce a powerful, flexible and outstandingly sensitive camera.

### Features

- ▶ High sensitivity Impactron™ CCD
- ▶ High Resolution 1000x1000 pixels
- ▶ Electronically Variable Charge Domain Gain
- ▶ Very Low Noise operation
- ▶ No shutter required
- ▶ Peak Quantum Efficiency of over 60%

### Applications

With its small pixel size, the camera is ideal for live cell and confocal microscopy, single molecule fluorescence or calcium ratio imaging.

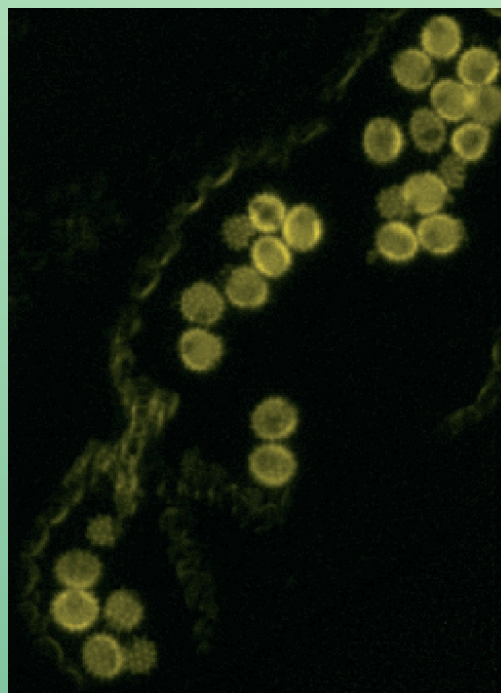
On chip signal amplification up to 1000:1 will benefit flux hungry applications such as in vivo luminescence imaging, chemi-luminescent gel analysis where traditionally photon-counting techniques are used.

This high quantum efficiency camera permits detection of bacteria colonies or multi-labelled low light fluorescence imaging, as in high throughput screening, by providing considerable exposure time reduction and improved duty cycles.

# CoolView EM/1000

## Technical Specification

Resolution	1004x1002 pixels EM-CCD
Pixel size	8 micron pixels
Read out rate	20MHz
Digitisation	12-bit or 16-bit digitisation
Readout noise	Less than one electron at high gain
Frame rate	17 f.p.s at 20MHz
Cooling	Delta of -50 degrees, to minimise dark current.
Peltier cooling	Fan can be switch off for short periods
Read out modes	Full CCD, windowing (any size/shape) and binning, with 100 frames a second or better
Gain	Electron multiplier gain from 1 up to 1000 times
Hermetically sealed housing	designed for deep cooling
Spectral response	400nm-1080nm (See graph)
Read out	LVDS or FireWire 1394
Trigger mode	Allows image capture on demand
Camera size	Head 180mm (L) x 95mm (W) x 68mm (D)
Camera Weight	1.25Kg
Mains voltage	via small power supply

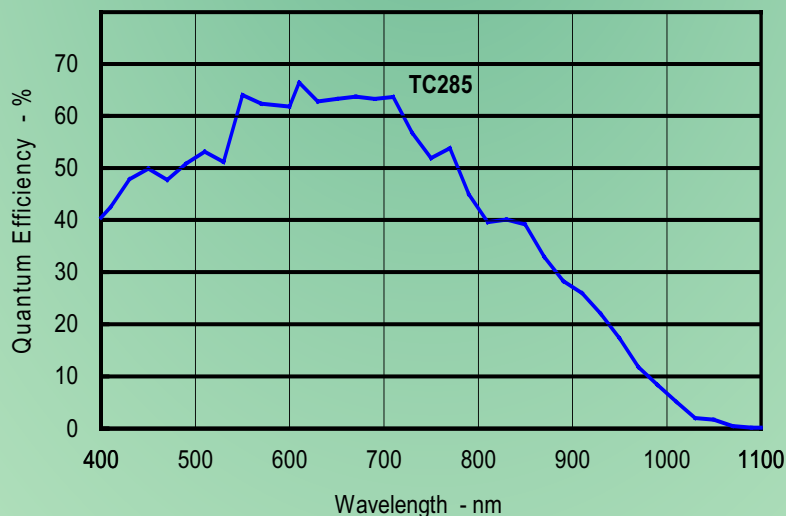


## System Specification

A choice of LVDS or FireWire interface will guarantee system performance, integrity and ease of integration. The CoolView EM/1000 comes complete with a comprehensive range of software

drivers and generic hardware which enable straightforward camera/system integration and upgrades.

Quantum Efficiency of Impactron™ CCD



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