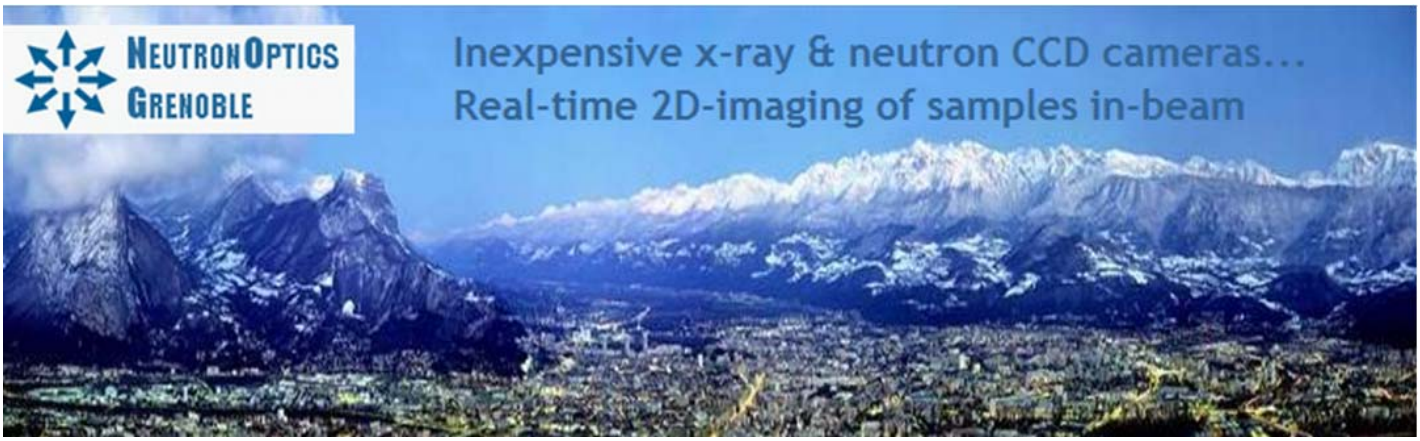
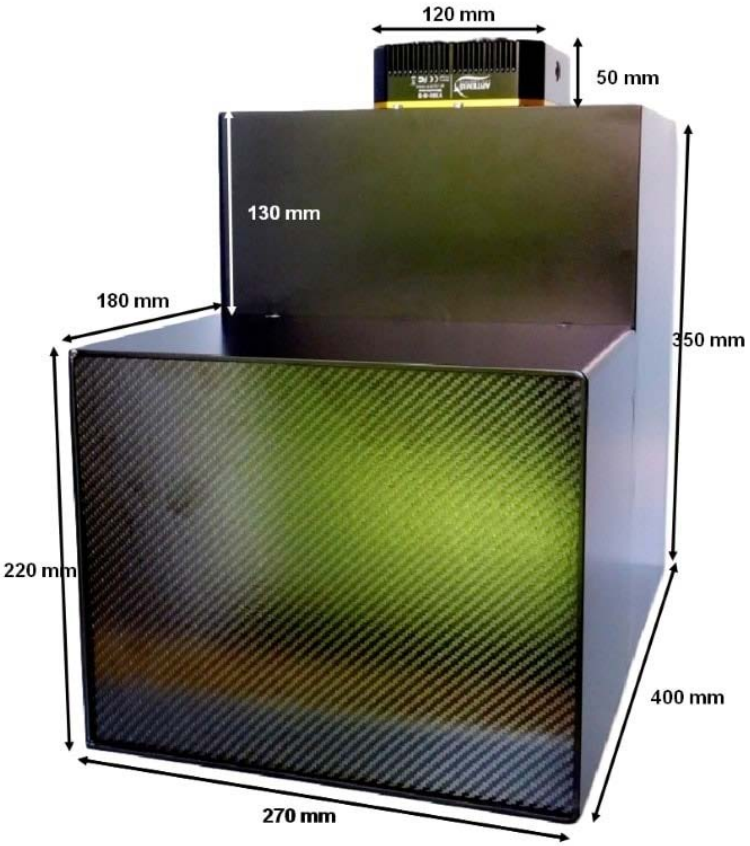
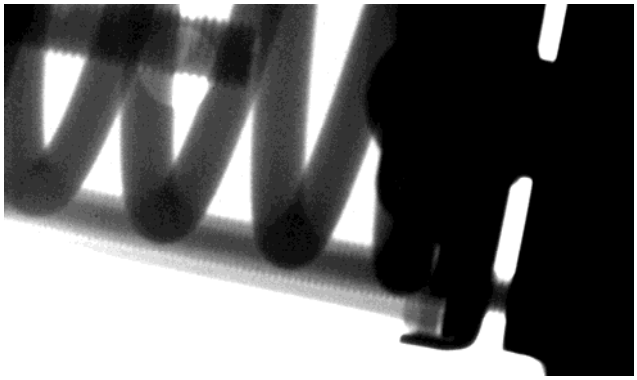


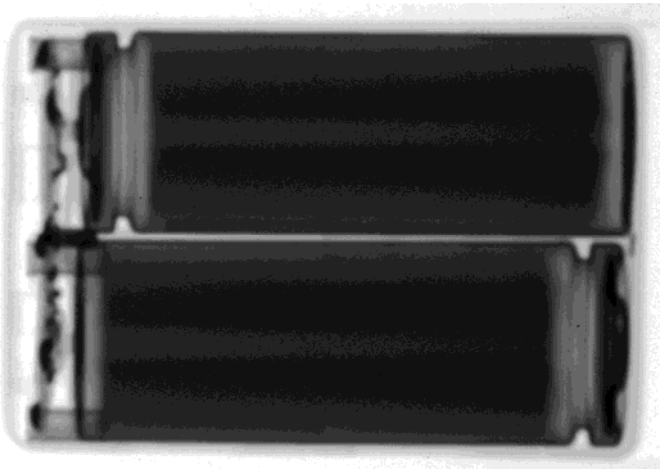
High Resolution X-ray or Neutron Imaging Camera

Our latest camera is designed for **low noise, high resolution and fast imaging over large areas**. We use the new 1 inch Sony ICX694ALG *EXview HAD CCD II* to give a resolution of 2750x2200 pixels over an area of 250x200mm (90 µm resolution). Dark current is virtually eliminated by thermo-electric cooling by -35C, and high speed readout noise is reduced with new generation electronics.

The photos below right show images from our smaller 100x100mm x-ray camera used by the Colorado School of Mines (USA) for imaging thick objects with hard x-rays (a valve with a spring and lithium batteries) from only fifty 50-nanosecond pulses from a Golden Engineering 350 kVP portable x-ray generator.



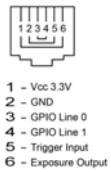




250x200mm x-ray camera with images from thick objects using a portable 350kVP pulsed generator

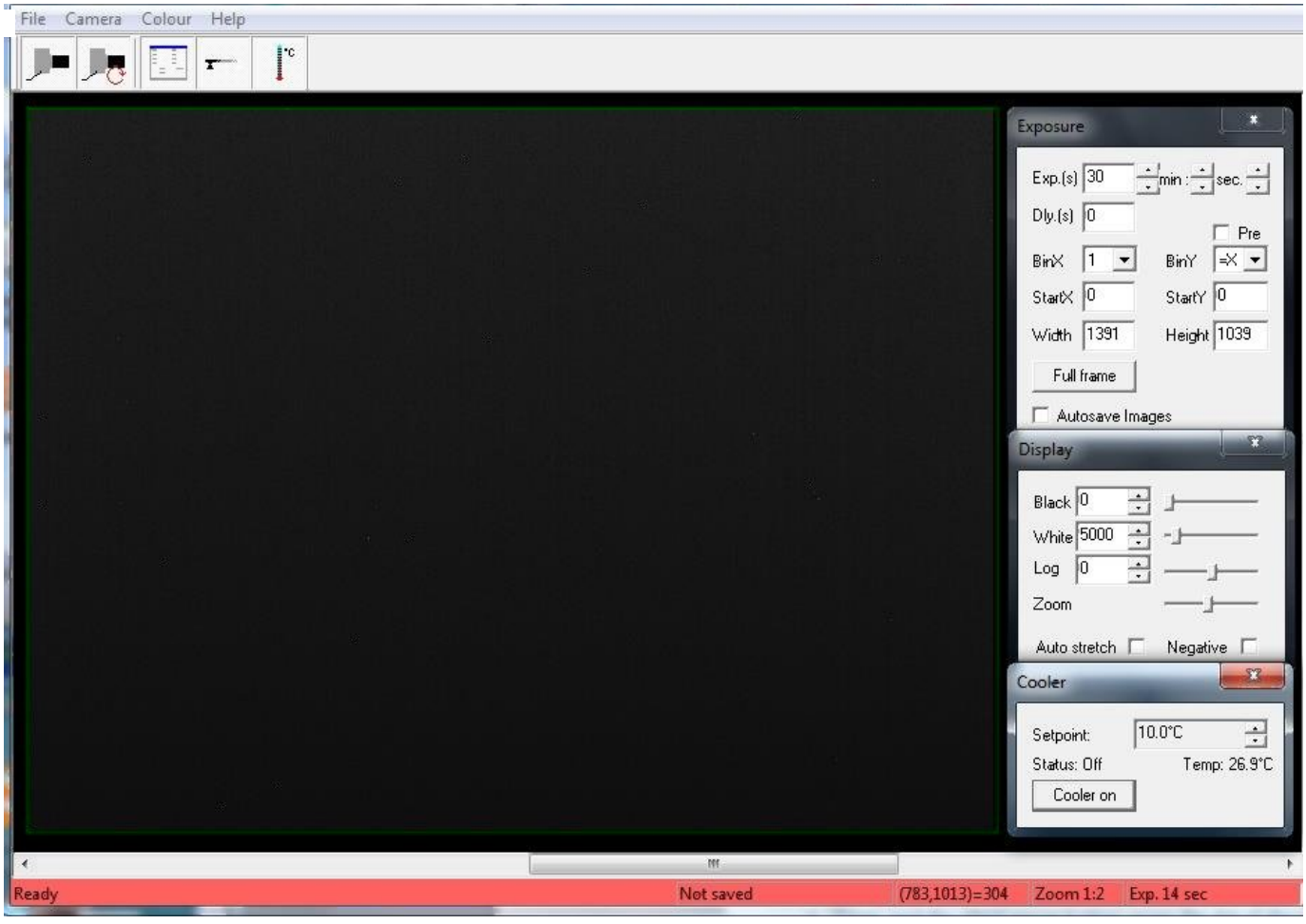
The main body of the **250x200mm camera** is 270x220mm x350mm high. The 270x220mm x180mm long front section with the 0.5mm thick carbon fibre window can easily be removed to change the high resolution scintillator, so **x-ray and neutron scintillators** can be interchanged. A front-surfaced Al/SiO-protected optical glass mirror reflects the image through a high resolution 25mm f/1.4 low-light lens to a fast thermo-electric cooled camera using the latest 1" Sony ICX694ALG CCD. Smaller versions from **200x200mm to 120x90mm** can also be supplied, with higher resolution and efficiency.

Fast high resolution thermo-electrically cooled Sony 2750x2200 pixel CCD unit



- **X-ray Scintillator:** Interchangeable fast, fine x-ray scintillator
- **Neutron Scintillator:** Interchangeable high resolution neutron scintillator
- **Optics:** Interchangeable high resolution 25mm f/1.4 low-light lens
- **CCD Sensor:** 1 inch Sony ICX694ALG *EXview HAD CCD II*
- **Chip size:** 12.40x9.99 mm, diagonal 16 mm (Type 1")
- **Resolution:** 2750x2200 pixels (**90 µm resolution over 250x200mm**)
- **Pixel Size:** 4.54x4.54 µM (larger pixels & micro-lenses collect more light)
- **Binning:** from 2x2 to 8x8 (for boosted frame-rate and efficiency)
- **Region-of-Interest:** fully variable (for full resolution at higher frame-rate)
- **High sensitivity** (QE~75% at 500-600nm), low smear
- **Low dark current:** 0.002 electron/pixel/sec @ -10 °C
- **Full well capacity:** 20,000 electrons (large dynamic range)
- **A/D Conversion: 16-bit 65536 levels** in Flexible Image Transport System
- **LiveView Mode:** 8 bit readout mode for faster readout
- **Digitisation Speed:** 6-12 MPixels/s
- **Readout Noise:** 6 e- at -10°C
- **Interface:** USB 2.0 High Speed with 10-20m amplified USB cables
- **Power:** Regulated 12v DC 2.5A, to EU, UK, US/Japan, AU/CN standards
- **Minimum Exposure Length:** 0.001 seconds
- **Maximum Exposure Length:** Unlimited
- **Cooling:** Regulated dual fan thermo-electric Peltier with max ΔT = -35°C
- **External Trigger:** For synchronisation with sample environment
- **CCD Unit:** 120x120mm dimensions, 50mm height, 800g weight
- **SDK:** C++, VB Wrapper, .net Wrapper, ImageJ, LabView drivers

Simple Capture control for Looping, Exposure, Binning, ROI, Display, & Regulated Cooling



A simple MS-Windows camera control and image capture application allows operation by non-skilled operators. The exposure can be set from 0.001s up, acquisition can be looped with auto-saving of images, which can be binned for high speed and restricted to a smaller Region-of-Interest (ROI) at full resolution. The CCD temperature can be controlled, and the image display levels set.