

## X-ray sCMOS 16MP Detector



### High resolution X-ray imaging

Photonic Science high resolution X-ray imaging detector incorporates the latest, state-of-the-art sCMOS technology providing ultra-low read noise, making it the ideal solution for even the most demanding applications.

The 16MP sensor is coupled with a fibre optic plate with active areas up to 66.5mm square. This, combined with a scintillator, optimised to suit the x-ray energy of interest provides a high sensitivity and high resolution system.

Array versions with multiple modules are also available, delivering up to 64 megapixel resolution. The X-ray sCMOS detector delivers up to 4.5 fps full resolution and 18 fps in 2x2 binning mode.

An electronic shutter allows smear free, shutterless acquisition even with exposure time down to millisecond range. Frame rate of >10 fps can be achieved when used in local sub area mode or line scan mode.

### Applications

X-ray microtomography  
X-ray PCB testing  
Phase contrast imaging

### Key Features

- | Input sizes : single module  
37.8 x 37.8mm up to 66.5 x 66.5mm
- | Vacuum flange version available
- | Scintillator:  
Gadox:Tb for operation from 1-55 keV,  
structured CsI scintillator from 20-300 keV
- | Frame rate of up to 1,000 fps  
with sub area or line scan mode  
(using a sub area of 32 x 4096)
- | Device server driver allows remote acquisition  
through existing GUI interface
- | SDK provided
- | OEM versions available

X-ray source qualification

X-ray radiography

X-ray coherent diffraction imaging

## X-ray sCMOS 16MP Detector standard models

Characteristics	sCMOS 16MP_52	sCMOS 16MP_95
Resolution	4096 x 4096	
Input Size (mm)	36.7 x 36.7	66.5 x 66.5
Input Size (µm)	9 x 9	16.4 x 16.4
Dynamic Range	28,000:1 with all corrections	
Frame Rate	4.5 fps at full resolution in binning 1x1, 18 fps in binning 2x2	
Full Well Capacity	70,000 electrons in binning 1x1, 150,000 electrons in binning 2x2	
Read Out Noise	<4.4electrons rms in binning 1x1, <10 electrons rms in binning 2x2	
Dark Current	<1 electron/pixel/second air cooled with all corrections <0.1 electron/pixel/second water cooled with all corrections	
Sensor Temperature (°C)	Operating at 10°C with water cooling	
Digitization	16-bit	
Peak QE	58% at scintillator emission wavelength (without microlens)	
Exposure	50 microseconds up to 60 minute	
Spatial Resolution	sCMOS_16MP_52 with Gadox:Tb (30lp/mm) sCMOS_16MP_95 with Csl (15-20lp/mm)	
Detector Interface	Gigabit Ethernet / Cameralink	
Energy Range	1keV-55keV with Gadox:Tb/20keV-300keV with Csl	

Please Note: All specifications in this document are typical and subject to change without notice.