PHOTONIC SCIENCE

X-ray sCMOS 16MP Detector (Cooled)



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.

This camera can be supplied either air or water cooled. The X-ray sCMOS detector delivers up to 4.5 fps full resolution and 18 fps in 2x2 binning mode with a **1GigE** interface or 20 fps full resolution and 80 fps in 2x2 binning mode with a **5GigE** interface.

Key Features

- Standard input sizes*:
  36.9 x 36.9mm up to 66.5 x 66.5mm
- Scintillator:
  Gadox:Tb for operation from 3-100 keV,
  Structured CsI scintillator from 20-300 keV
- Device server driver allows remote acquisition through existing GUI interface
- Window SDK and Viewer software provided allowing both image corrected acquisition and control of the hardware. Correction functions include bright pixel, flat fielding and dark current removal. Robust basic camera control is also available using GEV commands.
- Labview and Linux support available on request
- Vacuum flange version available

* other sizes available on request

Applications

X-ray microtomography

X-ray PCB testing

Phase contrast imaging

X-ray source qualification

X-ray radiography

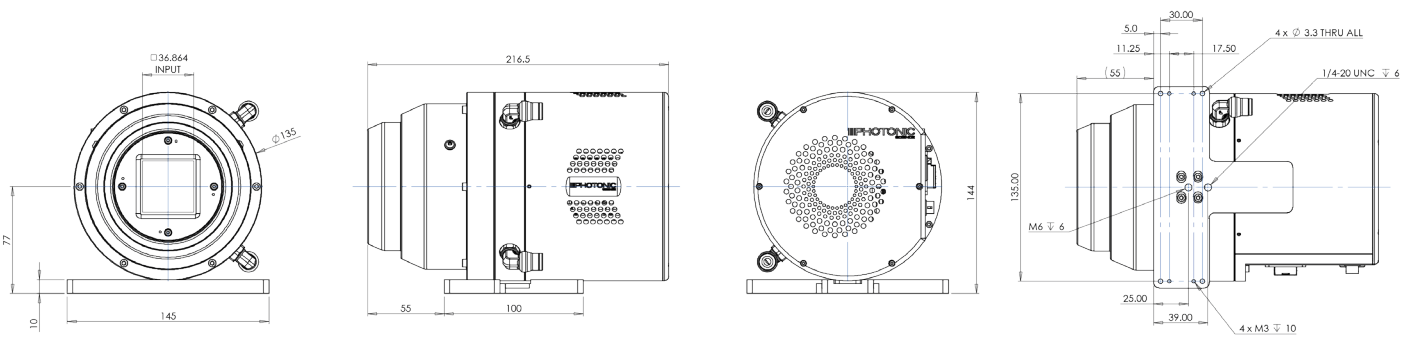
X-ray coherent diffraction imaging

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X-ray sCMOS 16MP Detector (Cooled) standard models

Characteristics	sCMOS 16MP_52	sCMOS 16MP_95
Resolution	4096 x 4096	
Input Size (mm)	36.9 x 36.9	66.5 x 66.5
Effective Pixel Size (µm)	9 x 9	16.4 x 16.4
Dynamic Range	13,000:1 (in HDR mode)	
Frame Rate	**1GigE:** 4.5 fps at full resolution, 18 fps in binning 2x2 **5GigE:** 20 fps at full resolution, 80 fps in binning 2x2	
Full Well Capacity	64,000 electrons in binning 1x1, 130,000 electrons in binning 2x2	
Read Out Noise	<5.5 electrons rms in binning 1x1, <11 electrons rms in binning 2x2	
Dark Current	<1 electron/pixel/second air cooled [**] <0.1 electron/pixel/second water cooled	
Sensor Temperature (°C)	Typically 35°C (air cooled) and 45°C (water cooled) below ambient	
Digitization	12/16-bit	
Exposure	50 microseconds up to 60 minutes	
Line Spread Function (FWHM) [***]	32µm (Gadox:Tb) 45µm (Structured CsI)	75µm (Gadox:Tb) 75µm (Structured CsI)
Detector Interface	1 GigE or 5 GigE	
Energy Range [****]	3keV-100keV with Gadox:Tb / 20keV-300keV with CsI	
Other Notes	[**] 1.5 electrons/pix/sec for 5 GigE camera [***] Other resolution optimised scintillators are available on request [****] This is light exclusion window dependent. A range of options are available.	



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

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