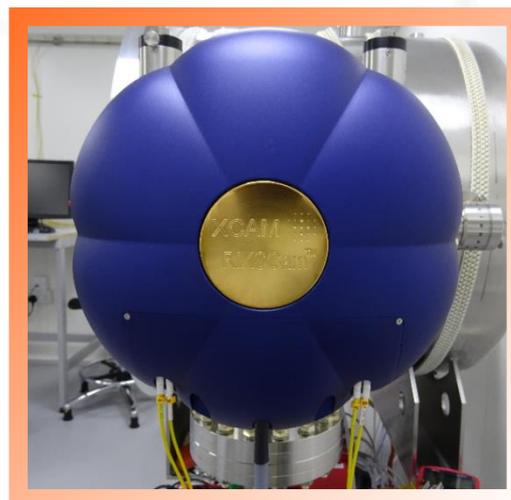# RIXSCam™

Product Information Sheet

High resolution, in-vacuum, soft x-ray, EMCCD RIXS camera system

Key Features

- Soft (250-3000 eV) x-ray detection
- <5 µm spatial resolution
- Single-photon detection
- Sub-electron read noise
- User-controlled effective pixel size
- Variable detector angle of incidence
- Large detector area
- XHV-compatible manufacture
- Up to three back-illuminated EMCCD detectors
- Customisable to individual requirements

Introduction

The RIXSCam™ system, originally designed in collaboration with scientists at the Paul Scherrer Institute for the Swiss Light Source ADRESS beamline, has been specifically developed for use on the latest coherent x-ray beamlines for **resonant inelastic x-ray scattering** (**RIXS**) experiments.

Centroiding technology gives this system an **unbeatable spatial resolution**, ideal for use in spectroscopy experiments with demanding requirements on precision. The rotatable detector bench, which holds **up to three EMCCDs**, allows the user to **control the effective pixel size** by changing the angle of incidence with the beam.

RIXSCam™ builds on **a tradition of collaborative design**, characteristic of many of XCAM's advanced solutions. We pride ourselves on our ability to understand and cater to the individual needs of customers working to the most demanding requirements, particularly where there is no existing solution available.
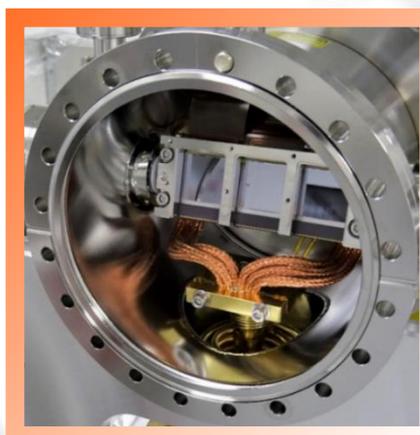
Key Specifications	
Maximum active area	78.33 x 25.73 mm
Active pixels (H x V)	4896 x 1608
Pixel size	16 x 16 µm
Readout rate	3 MHz
System noise with gain	≤1 e-
System noise no gain	≤140 e-
Detector incidence angle	20° to 90°
Vacuum compatibility	10^{-9} mbar
Temperature control	-110°C to -50°C
Post-processed resolution	<5 µm

RIXSCam™

Product Information Sheet

Specifications

Model	RIXSCam1	RIXSCam2	RIXSCam3
Number of detectors	1	2	3
Total active area	26.11 x 25.73 mm	52.22 x 25.73 mm	78.33 x 25.73 mm
Active pixels (H x V)	1632 x 1608	3264 x 1608	4896 x 1608
Pixel size	16 x 16 µm		
Readout rate	3 MHz		
System noise (LS gain of 150)	≤1 e-		
System noise (no LS gain)	≤140 e-		
System noise HR output	≤25 e-		
Detector angle of incidence	20° to 90°		
Vacuum compatibility	10^{-9} mbar		
Detector temperature control	-110°C to -50°C		
Post-processed resolution[1]	<5µm		
Weight	25 kg		
Mechanical interface	DN100CF		
Data interface	Cameralink interface via fibre optic cables		
Housing material	304L stainless steel		
Cooling	Cryogenic		
Operating environment	2°C to 35°C temperature 20% to 90% relative humidity (non-condensing)		
Warranty	24 months		
Certification	CE		

1 The actual spatial resolution achieved will also depend on the local experimental set-up.
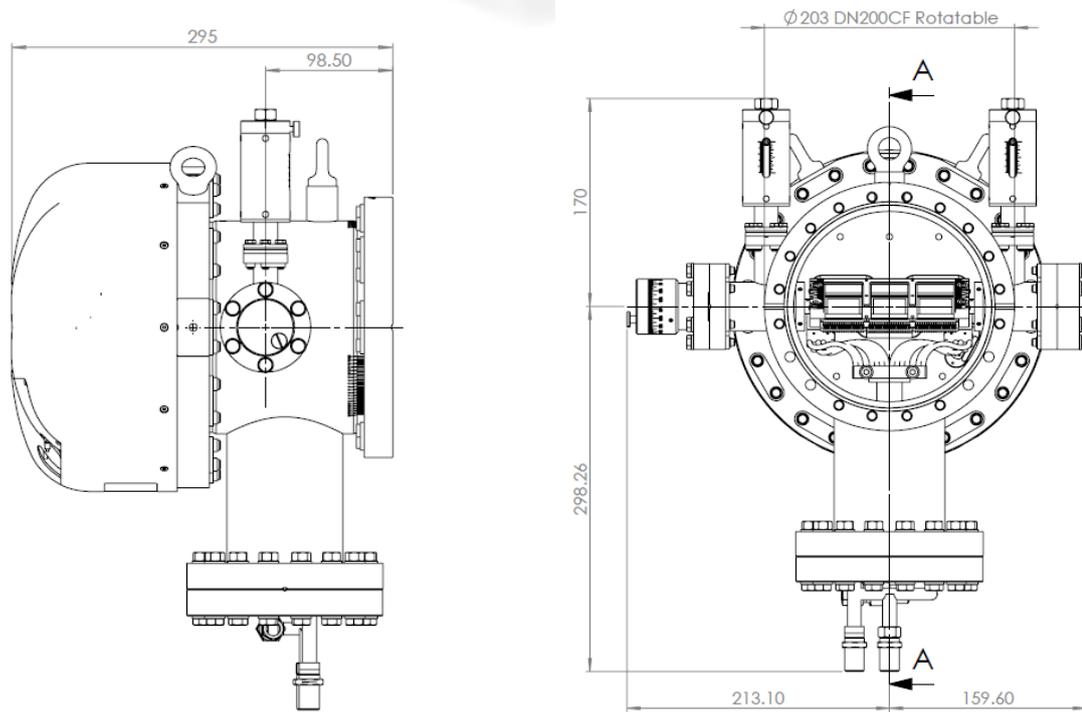
Quantum Efficiency Curve
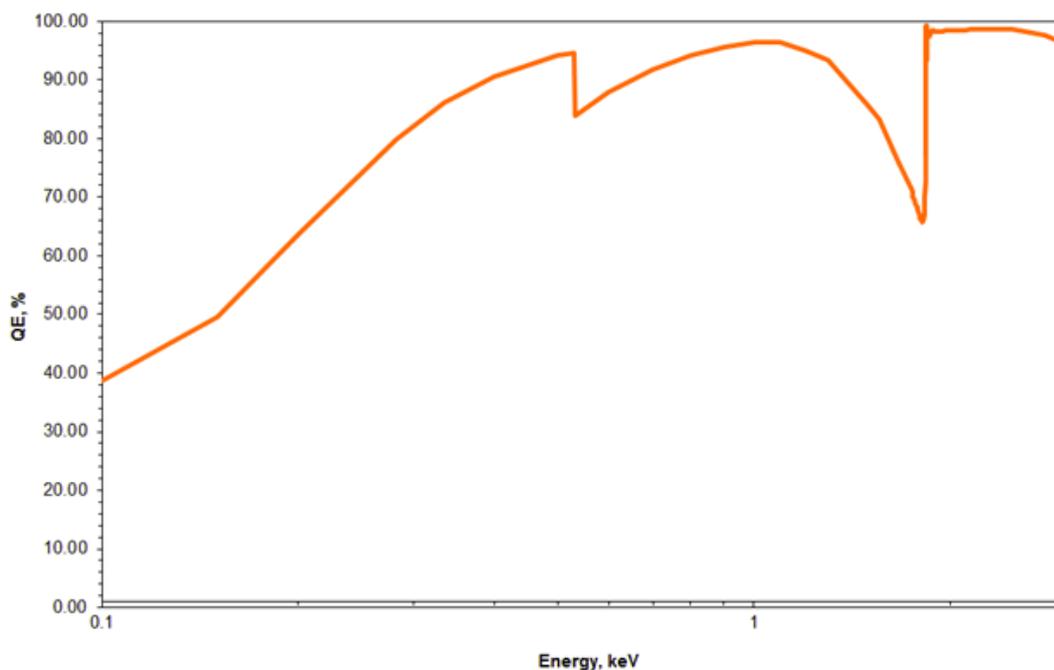
Technical Drawings

Operator Requirements

- Frame grabber cards (National Instruments, PCIe 1427), one per detector
- PC:
  - Windows 7 or above, 64-bit
  - Minimum i7 with 4 hyperthreaded cores (2nd gen or later)
  - 2.5GHz
  - 8MB L3 cache
  - 16GB RAM
  - PCIe slots, one per detector
  - USB2 ports, one per detector

Software Control

XCAM Application Software

Enquiries

Please use the email address opposite or visit the Contact Us page of our website to submit an enquiry.