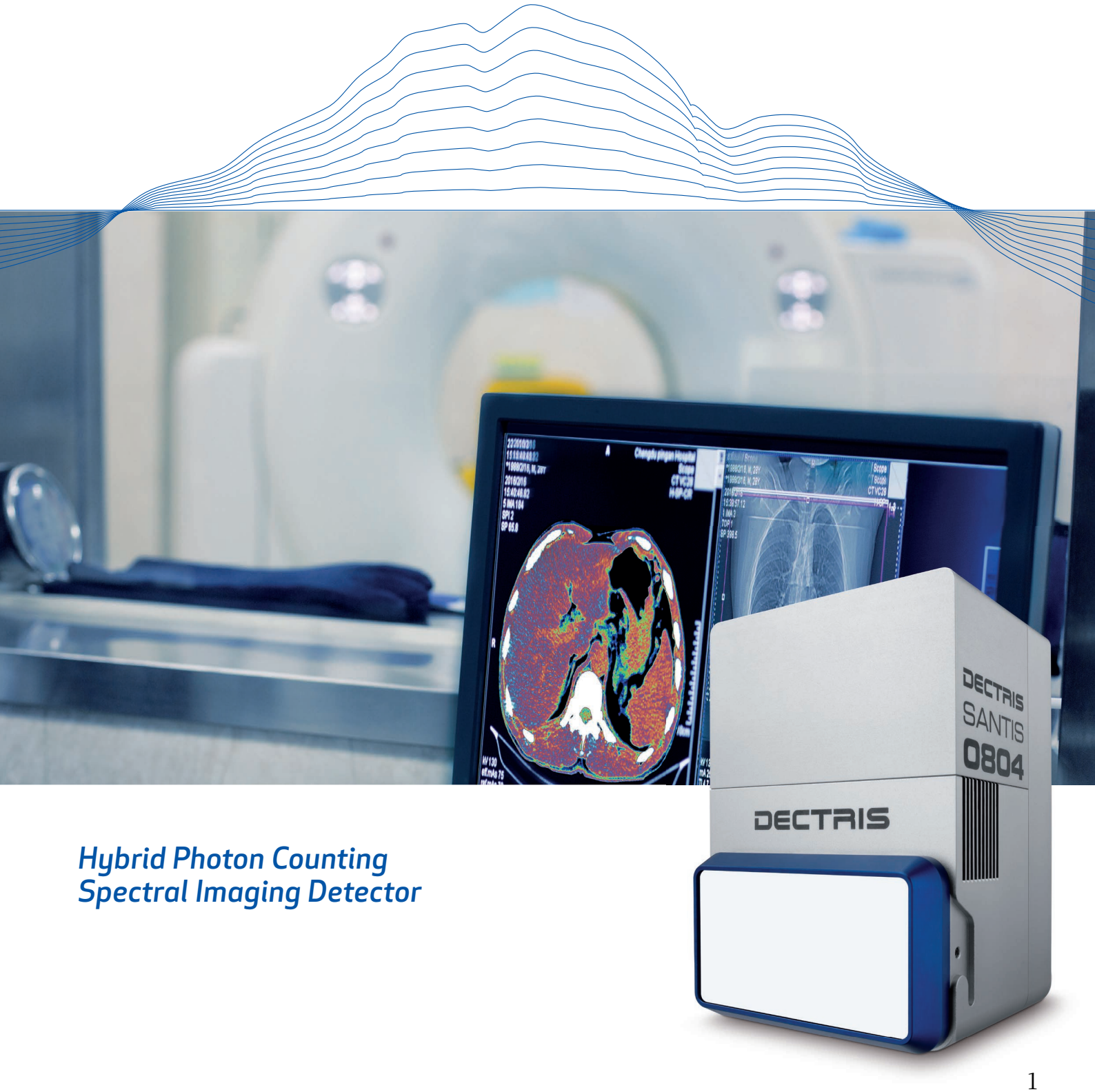
DECTRIS
detecting the future

SANTIS 0804



Hybrid Photon Counting
Spectral Imaging Detector

SANTIS 0804 is a Hybrid Photon Counting (HPC) detector designed and produced by DECTRIS. The absence of electronic noise, the single photon counting mechanism as well as the ability to resolve X-ray energy offers unsurpassed imaging performance.

Compared to conventional integrating detectors, SANTIS 0804 provides higher image quality at lower dose and higher frame rate. Dual and multi-energy imaging can be performed in a single shot.

SANTIS 0804 comes in two configurations: a High Resolution (HR) and a Multi-Energy (ME) mode, both capable to be operated at high frame rates.

Key Advantages

- Direct conversion photon counting with CdTe sensor
- Zero electronic noise
- Multi-energy spectral imaging in a single shot
- Fully calibrated energy thresholds
- Extreme dynamic range
- Radiation hard design
- High frame rate

Imaging Techniques

- Spectral radiography and computed tomography
- High-resolution imaging
- Dynamic imaging
- Low dose imaging
- Contrast enhanced imaging with multiple agents
- Material decomposition

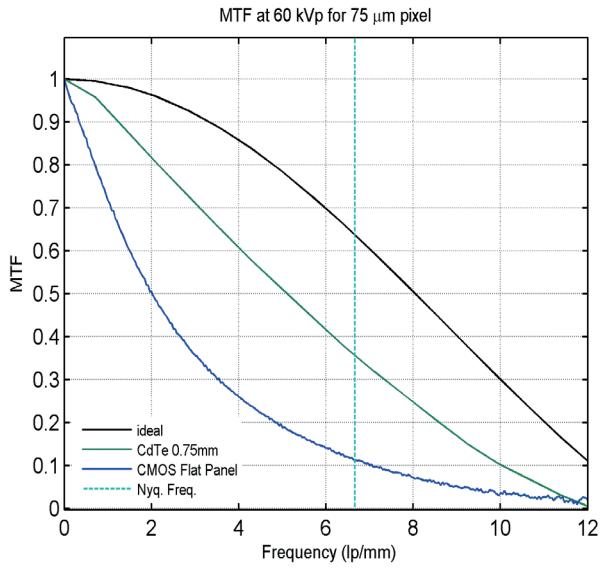
High Resolution (HR)

The HR series of SANTIS 0804 has a pixel size of 75 µm and features two fully calibrated and independently adjustable energy thresholds. It delivers an excellent Modulation Transfer Function (MTF), which approaches near-ideal behavior.

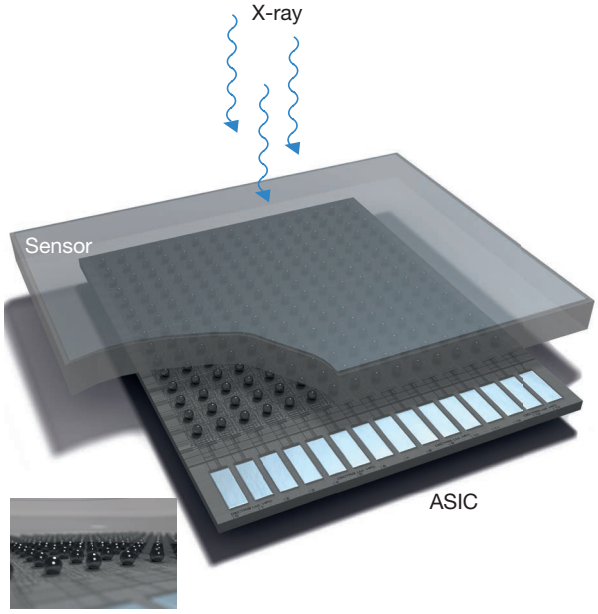
The HR version is perfectly suited for dual energy and high spatial-resolution applications such as micro-CT, stent imaging and breast imaging (mammography, tomosynthesis, and breast-CT)

Multi-Energy (ME)

The ME series of the SANTIS 0804 features four fully calibrated and independently adjustable thresholds and a pixel size of 150 µm. It delivers improved spectral performance reaching high energies and is suited for material decomposition including multiple contrast agents.

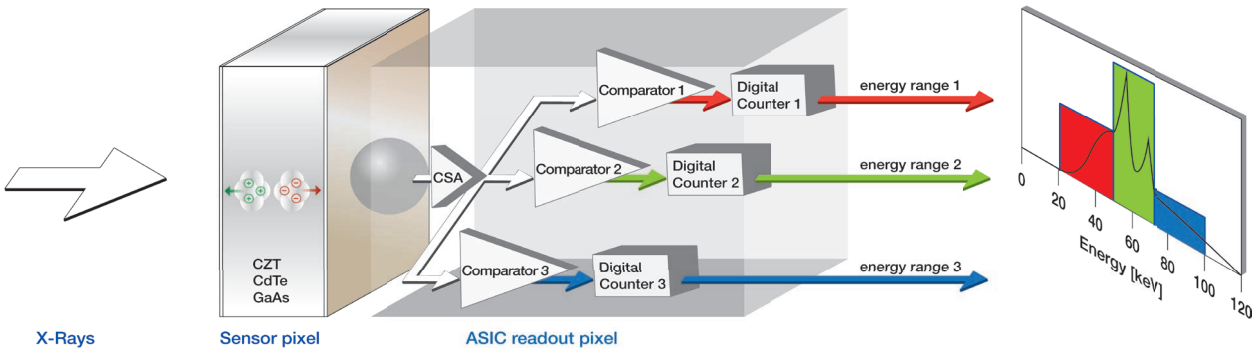


Measured MTF characteristics of High Resolution (HR) SANTIS 0804



Hybrid Photon Counting detector: Sensor connected to the readout ASIC chip via bump bonding technology

Spectral Hybrid Photon Counting Technology



Technical specifications

Version	High Resolution (HR)	Multi Energy (ME)
Sensor	CdTe 0.75 mm	CdTe 1.0 mm
Active area	8 x 4 cm^2	8 x 4 cm^2
Pixel matrix	1030 x 514	515 x 257
Pixel size	75 μm^2	150 μm^2
MTF at 1 lp/mm	> 90%	> 90%
Energy range	up to 120 kVp	up to 160 kVp
Number of energy thresholds	2	4
Energy resolution	1.9 at 22 keV (FWHM)	1.9 at 22 keV (FWHM)
Fill factor	100%	100%
Dynamic range	32 bit	32 bit
Frame rate	up to 40 Hz	up to 40 Hz
Maximum input count rate	1.5 * 10^9 photons/s/mm^2	0.4 * 10^9 photons/s/mm^2

All specifications are subject to change without notice.

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About DECTRIS

DECTRIS is the leader in X-ray photon counting detection technology. Our Hybrid Photon Counting technology has radically transformed basic research at synchrotron light sources and in X-ray laboratories during the past years. Over 1500 detector systems have been installed worldwide, proving the maturity of this technology. These detectors outperform the current integrating detectors used for the most advanced medical imaging systems in terms of quantum efficiency (DQE), sensitivity, spectral decomposition, resolution (MTF) and readout speed. DECTRIS' latest detector generation is ready to provide photon-counting capability for low-dose X-ray medical imaging including CT, mammography, fluoroscopy and preclinical imaging.

To find out more about partnering with DECTRIS to transform your medical imaging capabilities, contact medical@dectris.com or visit dectris.com/medical.

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