



Direct Conversion

Empowered X-RAY Imaging

РЕНТГЕНОВСКИЕ ДЕТЕКТОРЫ

XC-Hydra FX20, FX35, FX50

ТЕХНИЧЕСКИЕ ХАРАКТЕРИСТИКИ

По вопросам продаж и поддержки обращайтесь:

Архангельск (8182)63-90-72	Калининград (4012)72-03-81	Новосибирск (383)227-86-73	Сочи (862)225-72-31
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Вологда (8172)26-41-59	Магнитогорск (3519)55-03-13	Самара (846)206-03-16	Уфа (347)229-48-12
Воронеж (473)204-51-73	Москва (495)268-04-70	Санкт-Петербург (812)309-46-40	Хабаровск (4212) 92-98-04
Екатеринбург (343)384-55-89	Мурманск (8152)59-64-93	Саратов (845)249-38-78	Челябинск (351)202-03-61
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Казань (843)206-01-48	Новокузнецк (3843)20-46-81	Смоленск (4812)29-41-54	

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XC-Hydra series

The ultra-fast XC-Hydra detectors capable of 2m/s imaging at 100micron resolution bring new dimensions to medical applications and a broad range of NDT applications.

Technology

The XC-Hydra series is the fastest direct-digital, dual-energy, photon-counting X-ray detector on the market. Developed around the Direct Conversion group's powerful CdTe-CMOS hybrid sensor, the Hydra brings new capabilities to fast line-scanning applications. The Hydra sensor provides outstanding imaging in either frame or Time-Delayed Summation (TDS) mode, with a scan speed potential of an incredible 2 m/s without the need for pixel binning.

XC-Hydra detectors come in three active area lengths: 20 cm, 35 cm and 50 cm. Being a detector that is ideal for fast scanning solutions it has a sensor width of 0.6 cm across the range, and comes with two options of CdTe thicknesses: 0.75 mm for standard energy applications and 2 mm for high energy X-ray applications.

Dual-energy acquisition with anti-coincidence technology is a key factor in the advanced capabilities of all XC-Hydra detectors. During dual-energy acquisition, the energy of the detected photon is compared to two independent thresholds which are read out separately. The two energy sets can be used for material differentiation, opening the door to new imaging techniques in both medical and industrial X-ray. Most critically the XC-Hydra series detectors have the fastest commercially available anti-coincidence technology, which produces superior energy resolution by ensuring the attribution of each single photon signal to the correct pixel. This powerful anti-coincidence (charge sharing) technology operates across the full length of the detector at ultra-fast speeds.

Application

The ultra fast imaging capability of XC-Hydra detectors mean that images can be acquired with no compromise of the 100 micron pixel size. This speed, when coupled with the dual energy capability, and the market leading MTF and DQE make the XC-Hydra detector range ideal for in-line inspection applications such as food inspection, PCB inspection and DUPRO.

With its market leading sensitivity, the Hydra captures high quality images at very low radiation exposure making it perfect for medical applications such as full body and extremity scanning and other radiological investigative work.



Integration

The Hydra sensor is connected to the computer via a GigE interface. The detector comes with a fully flexible software development kit which runs on Windows 7 upwards. The detector is bundled with engineering software which exposes the various functionalities available.

- Dual energy for material differentiation
- Unsurpassed levels of MTF and DQE
- Ultra-fast X-ray imaging >2m/s

Technical Specification

Physical

Dimensions l x w x h	
XC-Hydra FX20	276mm x 120mm x 66mm
XC-Hydra FX35	428mm x 120mm x 66mm
XC-Hydra FX50	585mm x 120mm x 66mm
Temperature Control	Internal Peltier Temperature Control + PWM Controlled Fan System
Operating Temperature Range	+15 to +35 °C @ 30% – 85% humidity (non-condensing)
Tile gap	100µm
X-ray window	Carbon fiber, 1.5mm thick
X-ray shielding	Depending on application

Sensor

Sensor type	Dual-Energy Photon Counting CdTe-CMOS
Sensor thickness options	0.75mm : Standard energy applications 2mm : High energy applications
Active area	
XC-Hydra FX20	206mm x 6mm
XC-Hydra FX35	350mm x 6mm
XC-Hydra FX50	510mm x 6mm
Tile gap	100µm
Pixel size	100µm
Pixel fill factor	100%

Performance

Imaging speed (Frame mode)	
XC-Hydra FX20	300fps
XC-Hydra FX35	200fps
XC-Hydra FX50	150fps
Imaging speed (TDS mode)	
XC-Hydra FX20	Up to 10,000 lines/s
XC-Hydra FX35	Up to 10,000 lines/s
XC-Hydra FX50	Up to 5,000 lines/s
Counter output range	16 bits (Frame mode) ; 32 bits (TDS mode)

Detective Quantum Efficiency : DQE (0) typical	RQA5 spectra, 6μGy, SID 1m 0.75mm CdTe 80% 2.0mm CdTe 80%
Modulation Transfer Function : MTF	80% @ 2lp/mm 45% @ 5lp/mm
Lag	0% (after X-ray 6μGy)
Ghosting	0.1% 1 min after x-rays (6 μGy)
Tube kV range	up to 160kVp normal up to 300kVp with added shielding
External Trigger Available	Opto-coupled 5V, 12-24V with external resistor



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