VAREX IMAGING

Making the Invisible Visible

DC-HYDRA

Photon Counting Detectors

OVERVIEW

The DC-Hydra series of medical photon counting detectors is designed and optimized for high quality, single and dual energy scanning applications.

The proprietary, direct conversion photon technology offers high sensitivity and true 100 µm pixel resolution, even at faster scanning speeds. Direct conversion technology does not suffer from blur or image lag typically caused by the scintillator used in conventional detectors. Photon counting makes efficient use of the received X-rays, making it possible to reduce patient dose or to increase scanning speed depending on the application preference.

One key benefit of photon counting is the dual energy imaging functionality, which allows separation of different tissue types, such as bone and soft tissue, without artificial software processing. There is no need for kVp modulation, dual sources or additional beam filters as the dual energy is natively in each and every pixel. This produces excellent spatial registration unlike multi-layer detectors.

FEATURES AND BENEFITS

- 100 µm resolution
- Scanning speed up to 700 mm/sec
- Native dual energy imaging
- Reduced radiation dose
- Available in many sizes and energy options

APPLICATION EXAMPLES

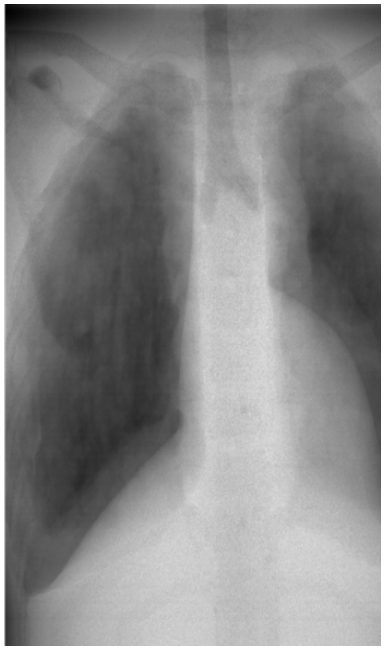
- Full body scanning
- Extremity scanning
- Bone mineral densitometry

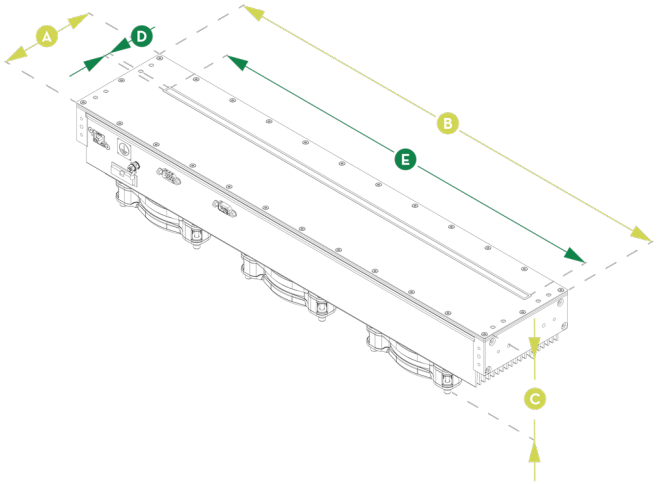
FAST DUAL ENERGY SCANNING

The Varex Imaging photon counting technology enables remarkably fast scanning of any part of the anatomy. Speeds of up to 700 mm/sec can be achieved at true 100 µm resolution because the performance is not limited by a scintillating layer.

The dual energy feature produces more information for each scan. In addition to the conventional greyscale image from all the registered photons, there are two additional images: Low and high energy. The combination of these images offers potential for improved diagnostics or completely new clinical applications.

The custom anti-coincidence logic built into the pixels produces high energy resolution, even at the small pixel size, providing a set of images without a compromise.





PHYSICAL DIMENSIONS

Active Area Length (E)	513, 770 mm
Active Area Width (D)	6 mm
Length (B)	585 – 833 mm [1]
Width (A)	120 mm
Thickness (C)	99 mm [2]
Weight	3.5 – 12 kg [1]

[1] Depending on the model

[2] Including the cooling fans, but not the free space required for air-flow.

SPECIFICATION HIGHLIGHTS

SENSOR

Scanning Width	513 to 770 mm
Technology	Photon Counting Dual Energy
Energy Ranges	40 – 160 kVp [1]
Converter	Cadmium Telluride (CdTe)
Pixel Size	100 µm (100% fill-factor)
Pixel Depth	up to 18 bits/pixel
Temperature Control	Active

OPERATION

Mode	Digital TDS Scanning Frame Output
Binning	1x2, 2x2, 4x4

PERFORMANCE

	Maximum Speed @ 100 µm:
Single Energy	700 mm/sec [1]
Dual Energy	350 mm/sec [1]
Lag	0% (after 6 µGy)

COMMUNICATION

Data Interface	1000Base-T
SDK Support	Windows, Linux

Contents in this document are subject to change without notice.

Unless otherwise specified, Varex Imaging Photon Counting X-ray Detectors are components intended to be integrated into products by X-ray system manufacturers. System manufacturers are responsible for qualifying and validating their products for their intended uses and meeting all applicable regulatory requirements.

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