

Making the Invisible Visible

## DC-TDI

Photon Counting Detectors



Superior Image Quality with High Resolution  
for Non-Destructive Testing

### OVERVIEW

The DC-TDI series of industrial photon counting detectors are designed and optimized for high-speed scanning applications. The DC-TDI detectors natively support highly efficient scanning mode imaging, but they can also be operated in the frame read-out mode needed in, for example, helical CT applications.

High production line throughput can be maintained because of the advanced, direct conversion technology, which ensures excellent sensitivity. The images are true, high resolution and free of the blur typical of current scintillator-based detectors.

The detectors support native dual energy imaging with excellent spatial registration and energy separation. Energy information allows improved detection of foreign materials which appear very similar in conventional X-ray images.

The modular DC-TDI technology is available in many sizes and configurations for different applications using a wide range of X-ray energies.

### FEATURES AND BENEFITS

- Scanning speed up to 120 m/min
- 100  $\mu\text{m}$  resolution at all speeds
- Native dual energy imaging
- High efficiency
- Available in many sizes and energy options

### APPLICATIONS<sup>1</sup>

- Food inspection
- Waste sorting
- Battery
- Pipeline corrosion detection

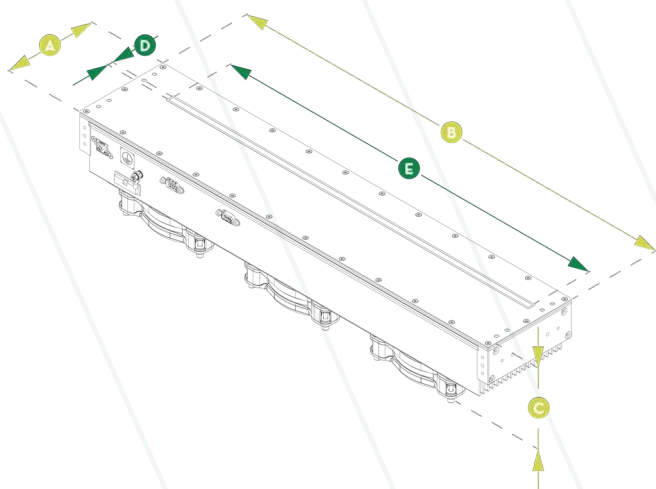
## SEEING MORE

The Varex Imaging photon counting technology sees more with less. The high sensitivity and noise free read-out allow the reduction of X-ray power or the use of lower power, smaller focal spot X-ray sources to fully exploit the high pixel resolution, even with additional magnification.

The DC-TDI detectors maintain the native pixel resolution, even at fast imaging speeds, due to the absence of lag. This is true even in detector models intended for higher energy applications, which is not the case with conventional detectors.

Photon counting detectors are very stable over time and radiation dosing. This translates into longer calibration and service intervals, lowering the total cost of ownership.

## MECHANICAL CHARACTERISTICS



### PHYSICAL DIMENSIONS

Active Area Length (E)	102, 154, 205, 359, 411, 513, 688, 1027 mm
Active Area Width (D)	6 mm
Length (B)	277 - 1098 mm <sup>1</sup>
Width (A)	120 mm
Thickness (C)	99 mm <sup>2</sup>
Weight	3 - 17 kg <sup>1</sup>

<sup>1</sup> Depending on the model

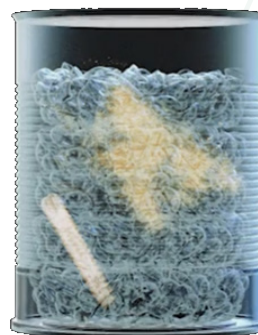
<sup>2</sup> Including the cooling fans, but not the free space required for air-flow.

Unless otherwise specified, Varex Imaging Flat Panel 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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## DUAL ENERGY IMAGING

Each incoming photon in every pixel is separately counted in one of the two energy bins producing three simultaneous energy-domain images (low, high and total energy). These images can be used for material discrimination, scatter reduction or energy domain artificial intelligence.



## SPECIFICATION HIGHLIGHTS

### SENSOR

Scanning Width	102 to 1027 mm
Technology	Photon Counting Dual Energy
Energy Ranges	40 - 300 kVp
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	54 - 120 m/min <sup>1</sup>
Dual Energy	27 - 60 m/min <sup>1</sup>
Lag	0% (after 6 ·Gy)

### COMMUNICATION

Data Interface	1000Base-T
SDK Support	Windows, Linux

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