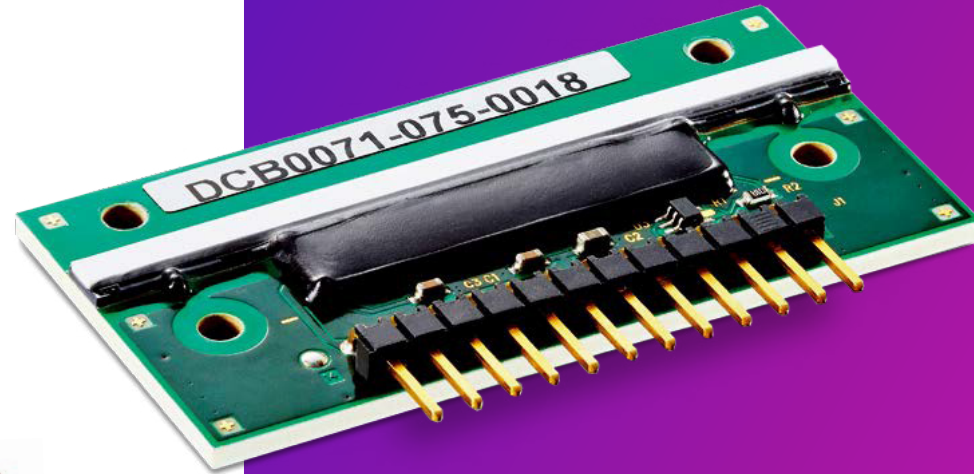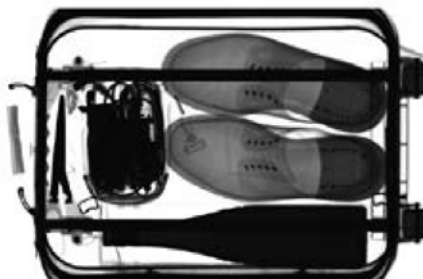# X-Card2 Series

X-ray detector boards

DT

X-Card2 Series The X-Card2 Series is an enhanced product family of linear array X-ray detector boards for Industrial and Security applications including Food and Pharmaceutical Inspection and Industrial Non-Destructive Testing (NDT).

The X-Card2 provides improved imaging performance with lower dark image noise and increased dynamic range and sensitivity.

Key features

- X-ray energy range: 30–160 kVp
- Pixel pitch options: 0.2 mm, 0.4 mm and 0.8 mm
- Dynamic range: >16 000:1 depending on sensitivity settings
- Suitable for diverse Industrial and Security applications including Food, Pharmaceutical Inspection and Industrial Non-Destructive testing
- Increased radiation hardness improvement for longer detector lifespan and reduced life time costs
- Increased protection against ESD and moisture for ease of handling
- Industry leading image quality and speed with high performance DT proprietary photodiode and ASIC designs
- Increased sensitivity and reduced dark image noise for improved image quality
- Complete subsystems available, including detectors, controllers and software libraries for rapid system development
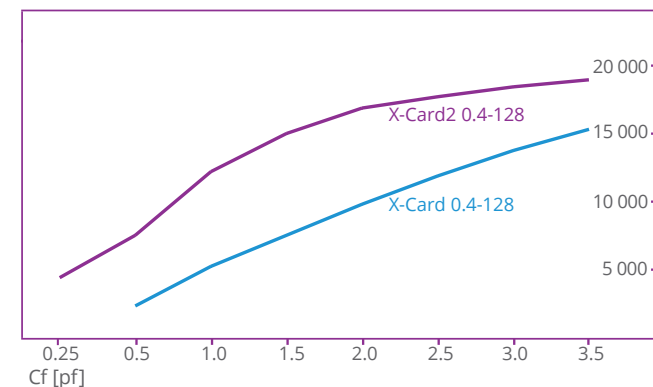
Applications

- Food inspection
- Pharmaceutical inspection
- Tire inspection
- Security screening
- Non-destructive testing
- Raw material sorting
- Foreign particle detection
- Industrial CT imaging

General characteristics

Product	X-Card2 0.4-128	X-Card2 0.2-256	X-Card2 0.8-64	X-Card2 0.8-128
X-ray energy range	30–160 kVp, 160–600 kVp or 600 kVp to 15 MeV			
Scintillator	GOS screen, Ceramic GOS or CdWO4			
X-Card2 length	51.3 +/- 0.05 mm	51.3 +/- 0.05 mm	51.3 +/- 0.05 mm	102.5 +/- 0.05 mm
X-Card2 width	25.0 +/- 0.10 mm	30.0 +/- 0.10 mm	25.0 +/- 0.10 mm	25.0 +/- 0.10 mm
X-Card2 thickness	1.6 +/- 0.10 mm	1.6 +/- 0.10 mm	1.6 +/- 0.10 mm	1.6 +/- 0.10 mm
Active area length	51.18 mm	51.18 mm	51.18 mm	102.36 mm
Number of pixels	128	256	64	128
Pixel pitch	0.40 mm	0.20 mm	0.80 mm	0.80 mm
Pixel height	0.60 mm	0.30 mm	0.80 mm	0.80 mm
Pixel width	0.32 mm	0.15 mm	0.72 mm	0.72 mm
Minimum integration time	0.14 ms	0.28 ms	0.14 ms	0.14 ms
Maximum integration time	2 s			
Maximum read out rate	1 MHz			
Dynamic range	>16 000:1 depending on sensitivity settings			
Linearity	> 99 %			
ESD immunity	> 2K volts			
Operational voltage	+5 V DC			
Radiation hardness	10 MRad			
Operational temperature	-5–+60 °C			
Storage temperature	+10–+70 °C			
Relative humidity (noncondensing)	< 85 %			

Dynamic range comparison with gain selections

X-ray response drop with radiation dose

Detection Technology