

X-Scan D01 Series

High energy detector modules



X-Scan D01 Series is an enhanced product family of line detectors for high-energy X-ray imaging applications utilizing linear accelerators, betatrons or isotopic radiation sources.

X-Scan D01 is optimized specifically for high throughput portal (HTP) applications with the options of single and dual row detector module designs. The basic detection element of X-Scan D01 detector module is formed by pixelated Cesium Iodide (CsI) scintillators coupled to low leakage current silicon photodiodes.

With separated detector elements and absorption length of 40 to 50 mm pixelated Cesium Iodide scintillators, it can achieve best light collection, minimized optical crosstalk and very high conversion efficiency with up to 15 MeV sources.

APPLICATIONS

- Cargo, container, vehicle and train screening
- Industrial high energy NDT
- Industrial CT

KEY FEATURES

- Optimized for energy range 1..9MeV, supporting 450kVp to 15MeV
- Fast scan speed for high through-put systems, up to 1000 Hz pulse rates
- Dual-row option for fast speed and improved resolution
- Supports switching dual or multienergy imaging for material recognition
- Extremely high conversion efficiency and dynamic range with DT's ASIC and photodiode design
- Module-to-module and pulse-to-pulse controllable sensitivity
- GigE interface and fiber as an option
- Real-time dark level drift compensation
- Remote upgrade and diagnostics functions
- Monitoring for humidity temperature and detector health/status
- Rapid evaluation and software development with DT's X-View2 SDK including control library and sample source code



KEY CHARACTERISTICS

PARAMETER	Specification		
PRODUCT	X-Scan D01920147A	X-Scan D01920147B	X-Scan D01460147B
Scintillator material	Cesium Iodide, CsI(Tl)		
Number of row(s) per DM	1	2	
Number of read-out channels per DM	16	32 (16 pixels per row x 2)	64 (32 pixels per row x 2)
Max DM quantity	16 DMs per segment, 5 segments per X-GCU max 80 DMs total per system		
Max number of read-out channels for the system @ max 80 DMs	1280	2560	5120
Pixel pitch	9.2 mm		4.6 mm
Pixel height	15.1 mm	7.1 mm	7.4 mm
Pixel width	8.6 mm		4.0 mm
Pixel absorption length	40 mm		50 mm
Row pitch	N/A	8.0 mm	8.0 mm
Max scanning speed	1000 lines/sec (1 kHz pulse rate)		
Min integration time (per pulse)	100 us		
Number of sensitivity setting steps	63		
Min range	12 pC/pixel	6 pC/pixel	3 pC/pixel
Max range	756 pC/pixel	378 pC/pixel	189 pC/pixel
Range step	12 pC/pixel	6 pC/pixel	3 pC/pixel
A/D resolution	18-bits, Typical dynamic range >14 bits		
Linearity	> 99.9 %		
Operational voltage	12 to 24 V DC		
Power consumption per DM	DM 1.2 W/module (typ), X-GCU EX-H: 3.2 W (typ)		
Weight	DM: 1.3 kg, X-GCU EX-H: 1kg		

DETECTOR MODULE DIMENSIONS

