



X-Scan c5 Series is an enhanced product family of fast and compact linear array detectors for Food, Pharmaceutical and Industrial inspection applications. In order to cut down the overall system cost and to simplify the structure of industrial X-ray machines, the X-Scan c5 not only introduces a broad range of new features, but also significantly improved radiation hardness for the detector lifetime and reduced dark image noise to achieve better quality.

With more and more demanding market requirements, the X-Scan c5 can also be cost-optimized for the X-ray machines targeted to replacing metal detectors in the food processing lines.

Features:

- x Detectable X-ray energy range: 20KeV - 160KeV
- x Active length: from 102 mm to 614 mm
- x Pixel size options 0.2 mm, 0.4 mm and 0.8 mm
- x Conveyor speed: up to 3.3 m/s
- x Up to 14-bit AD, Dynamic range: > 4000
- x Firmware upgrade via USB 2.0 interface
- x Command set compatible with f3 and c4 series products
- x Compact, water resistance enclosure with IP67 classification
- x High tolerance (up to 6K volts contact discharge) to electrostatic discharge (ESD)
- x USB interface support for multi-view systems (up to 4pcs detector to single PC)
- x Enhanced features including binning function and temperature drift correction
- x Significantly improved radiation hardness

Benefits:

- x Versatile in Food, Pharmaceutical and Industrial inspection applications
- x Simplify X-ray system design in order to cut down overall system cost
- x Radiation hardness improvement for detector lifetime
- x Robust design for harsh environment
- x Industry leading sensitivity and speed
- x Optimized design for food and other fast low energy applications
- x Cost-effective solution with high performance DT proprietary photodiode and ASIC designs
- x Software with USB 2.0 interface as easy plug-and-play system
- x Easy software design based on DT control library and sample codes

Enclosures of the x-scan c5 Series

Enclosure Model	Active length	Length	Width	Height	Max Weight
X-Scan 0.xc5-102	102 mm (4")	230 mm (9.1")	200 mm (7.9")	30 mm (1.2")	2.5 kg (5.5 lbs)
X-Scan 0.xc5-154	154 mm (6")	230 mm (9.1")	200 mm (7.9")	30 mm (1.2")	2.5 kg (5.5 lbs)
X-Scan 0.xc5-205	205 mm (8.1")	230 mm (9.1")	200 mm (7.9")	30 mm (1.2")	2.5 kg (5.5 lbs)
X-Scan 0.xc5-256	256 mm (10.1")	355 mm (13.2")	200 mm (7.9")	30 mm (1.2")	3.1 kg (6.8 lbs)
X-Scan 0.xc5-307	307 mm (12.1")	335 mm (13.2")	200 mm (7.9")	30 mm (1.2")	3.7 kg (8.2 lbs)
X-Scan 0.xc5-410	410 mm (16.1")	438 mm (17.2")	200 mm (7.9")	30 mm (1.2")	4.8 kg (10.6 lbs)
X-Scan 0.xc5-512	512 mm (20.2")	540 mm (21.3")	200 mm (7.9")	30 mm (1.2")	5.9 kg (13.0 lbs)
X-Scan 0.xc5-614	614 mm (24.2")	643 mm (25.3")	200 mm (7.9")	30 mm (1.2")	7.0 kg (15 lbs)



X-Scan c5 Series

X-ray linear array detector



General Characteristics				
Product	X-Scan 0.2c5	X-Scan 0.4 c5	X-Scan 0.8c5	Notes
X-ray tube voltage Vp Range	40-160 kVp			
Scintillator material	GOS			
Active area lengths	102-614 mm			
Number of pixels	512-3072	256-1536	128-768	
Pixel pitch (spacing)	0.2 mm	0.4 mm	0.8 mm	
Pixel height	0.3 mm	0.6 mm	0.8 mm	
Pixel width	0.15 mm	0.32 mm	0.72 mm	
Maximum scanning speed				
- Active lengths of (102-307 mm)	60 cm/s	167 cm/s	333 cm/s	
- Active lengths of (410-614 mm)	32 cm/s	121 cm/s	333 cm/s	
Minimum integration time				
- Active lengths of (102-307 mm)	0.33 ms	0.24 ms	0.24 ms	
- Active lengths of (410-614 mm)	0.62 ms	0.33 ms	0.24 ms	
Maximum integration time	128 ms			
A/D resolution	14 bits			1)
Dynamic range	> 4000			1)
Data digital interface	16 bits			2)
Interface	USB 2.0			
Non-linearity	< 1 %			3)
Operational voltage	+12 V DC			4)
Power consumption	10 W max			
IP classification	IP67			5)
Operational temperature	0 - 40 °C			
Relative humidity	30-80 %			
Storage temperature	-10-50 °C			
ESD immunity	6K Volts			6)
On-board calibration	Yes			
Constant integration time	Yes			7)
Binning function	Yes			
AD Gain / Offset calibration	Yes			
Averaging and summing function	Yes			
Temperature drift compensation	Yes			
USB upgrading function	Yes			
Support multi USB detectors	Yes			

Note 1) Dynamic range is defined as Saturation signal/RMS Noise, with the default gain setting (feedback capacitance 1pf) of ASIC. Available gain options are listed below:

GSO	0	1
Cf [pf]	1	0,5

Note 2) Digital interface uses 16-bit per pixel, but user can select actual output data to be 16,14,12,10 or 8 bits. The default value is 16-bits.

Note 3) Non-Linearity is defined as max deviation from ideal response line defined by zero offset and signals at 80% of dynamic range.

Note 4) The Operational voltage to be supplied to module. External power supply for 100-240 AC is provided if requested.

Note 5) Not corrosive environment

Note 6) The ESD immunity level of contact charge is 6K volts, and its air charge is below 8K volts, which is ESD IEEE std C62.38-1994 compliance.

Note 7) The detector output can adapt for the variation of conveyor speed by using constant integration time mode with external line trigger.