X-Scan T01 series

TDI X-ray line detectors

The X-Scan T01 series is a product family of TDI (Time Delay Integration) technology-based X-ray line cameras that are optimized for demanding industrial environments. The X-Scan T01 is an ideal solution for the food industry, which values fast throughput times, precise material discrimination and low power consumption on harsh production lines. For example, the X-Scan T01 is a perfect match for quality inspection in high-speed bottling and canning lines, and bone detection in meat and seafood processes. In addition, the digital detector series serves the battery industry.

The X-Scan T01 provides high sensitivity with a low X-ray dose. As a result, image quality meets the most stringent requirements of industrial applications, yet it halves the required X-ray power and doubles the detector lifetime under X-ray. Furthermore, the low-dose operation mode enables the minimization of shielding of X-ray systems for generating total cost savings and streamlining system designs. It does not compromise on speed either – with the application-optimized readout electronics and pixel sizes, the series runs on the highest scanning speeds in the industry: up to 180 m/min.

The TDI technology features high sensitivity and enhanced contrast resolution. On top of that, the photodiode-based sensor, the fast and sensitive scintillator, and the signal processing chain, which is capable of reading each single pixel, further boost the imaging performance of the detector range.

The modular and easily scalable platform makes it easy to build detector solutions for a variety of system configurations. Equipped with a built-in control unit, embedded TDI algorithm and other data processing functions, the X-Scan T01 is a true plug-and-play type of detector solution.

BENEFITS

- Modular and easily scalable TDI-based platform
- Optimized for demanding industrial environments
- Provides high-sensitivity with low dose
  - Halves the X-ray power needed
  - Doubles detector lifetime under X-ray
  - Minimizes shielding
- Improved image sharpness by application-optimized, fast, and sensitive scintillator technology
- Enhanced contrast resolution
- The highest scanning speed up to 180 m/min
- Robust mechanics and reliable industrial connections
- Bidirectional scanning operation

APPLICATIONS

- Quality control and grading in the food industry e.g.,
  - High-speed bottling and canning lines
  - Bone detection in meat and seafood processing
- Battery inspection and sorting

KEY FEATURES

- Single energy
- X-ray energy range 20–120 kV
- Pixel pitch 0.4 mm
- Optional active area lengths from 307 up to 820 mm
- Dynamic range typically 4500
- Gigabit Ethernet interface
- Diagnostic functions
- Easy system integration with the X-View2 software and development kit available for Windows and Linux
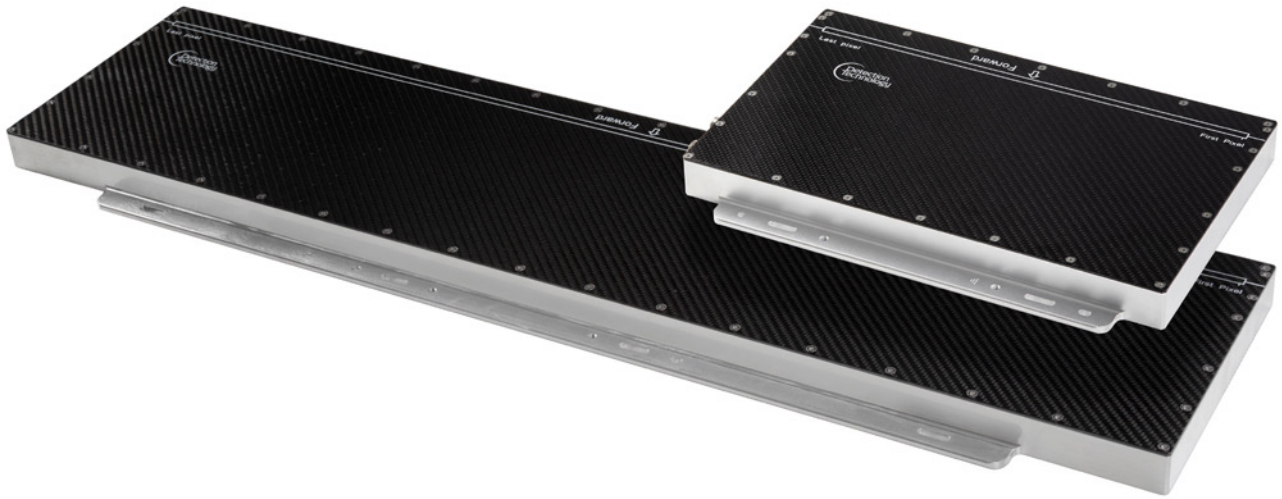
X-Scan T01

PARAMETER	X-Scan T01040307A	X-Scan T01040410A	X-Scan T01040512A	X-Scan T01040614A	X-Scan T01040820A
Product code	3000031876	3000025239	3000031825	3000031827	3100031826
Operational mode	Time delay integration (TDI)				
Number of TDI stages	8				
TDI algorithm	Built-in				
Pixel size	0.4 x 0.4 mm				
Pixel matrix	8×768	8×1024	8×1280	8×1536	8×2048
Active area	307 mm	410 mm	512 mm	614 mm	820 mm
Dynamic range	typ 4500@25 °C				
Maximum scanning speed	180 m/min				
Minimum integration time with TDI mode	133 us				
Maximum integration time	100 ms				
Scintillator, optimal energy range	20kV~120kV				
Mechanical dimensions (LxWxH)	336×240×30	438×240×30	541×240×30	644×240×30	850×240×30
Weight	4.5 kg	5.5 kg	7.0 kg	7.5 kg	9.5 kg
Internal radiation shield	Yes				
Lifetime under X-ray	Max 50% signal drop @ 100kGy cumulative dose				
Collimator	Internal Integrated				
Built-in diagnostic	Yes				
Interface	Gigabit Ethernet (M12X)				
Data output	16 Bits				
External trigger support	Yes				
Operational voltage	24V				
Power consumption	45 W	55 W	65 W	75 W	95 W
IP classification	IP67				
Operational temperature and humidity	0°C ~ 40°C, 30% ~ 85%RH, non-condensing				
Storage temperature	From -10°C up to 60°C				
Compliances	CE, RoHS, China RoHS, WEEE, EMC: IEC61326-1				

TDI-sensor

Image contrast

X-ray source

X-Scan T

Detection Technology
FOREKNOW. FORESAVE®