X-Scan C01 series

Digital X-ray line cameras

- **Robust plug-and-play-type standalone solution**
- **Slim and compact mechanics**
- **Water-resistant, IP67-classified**
- **Modular and easily scalable**
- **Fast and sensitive**
- **Optimized for demanding industrial applications**
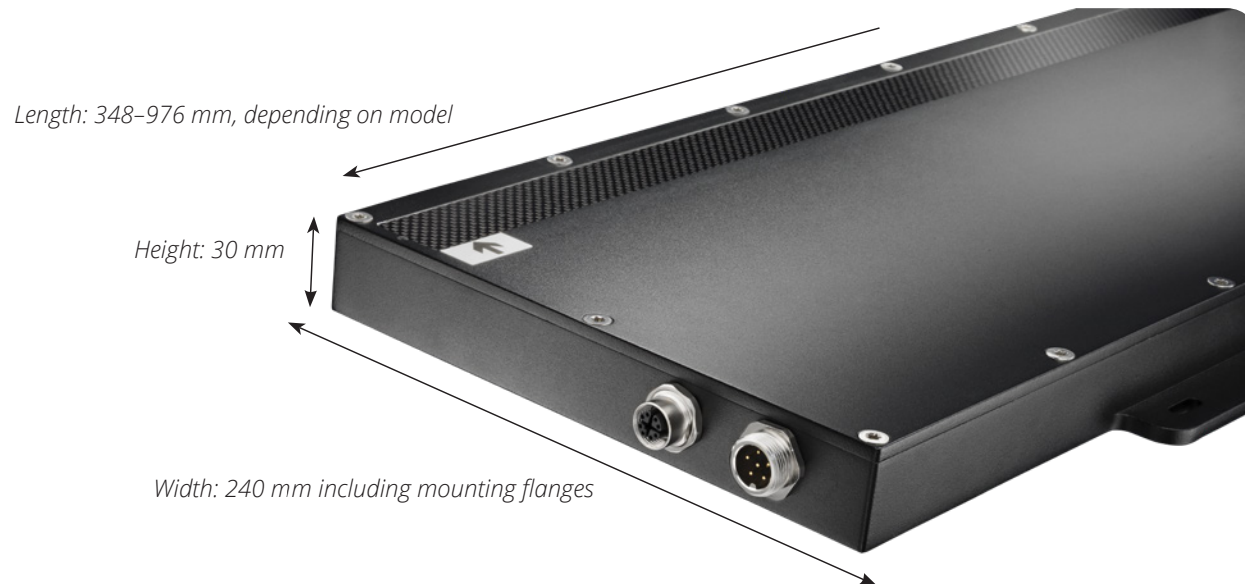- **Various detector lengths up to 920 mm long active area**

The X-Scan C is a product family of robust and reliable X-ray line cameras. The plug-and-play-type series is a perfect fit for the quality control, sorting, and grading of various goods in very harsh and demanding industrial environments, such as the food and pharmaceutical industries, with high quality and throughput time requirements.

X-Scan C01 is equipped with slim, IP67-classified water-resistant mechanics and a built-in control unit. This stand-alone detector series enables easy X-ray system configurations, streamlines system designs, and minimizes the number of components for speeding up time-to-market and delivering total cost savings.

The series utilizes a secure GigE interface for improved data and control communication, and is well protected against electrical interferences. The X-Scan C comes with fast and sensitive scintillators that enable the high image quality. The image quality is further boosted by pixel discontinuity correction and pixel binning functions embedded in the linear array detectors. These features help to provide edgeless images, as well as to balance the resolution and contrast of X-ray images.

The X-Scan C is built on a modular, digital platform, making it easily scalable to various system configurations. Several different detector lengths are available to cover a wide range of conveyor widths and object sizes to be inspected with a single line camera. X-Scan C is mechanically compatible with the previous product generation.

Length: 348–976 mm, depending on model

Height: 30 mm

Width: 240 mm including mounting flanges

Key features

- Single energy
- 40-160 kVp optimized
- Pixel pitches 0.4 & 0.8
- Active area lengths:
  - 307 – 922 mm with 0.4 mm pixel pitch
  - 307 – 512 mm with 0.8 mm pixel pitch
- Scanning speed
  - 2 m/s with 0.4 mm pixel pitch
  - 6 m/s with 0.8 mm pixel pitch
- Gigabit Ethernet with industrial M12X connectors
- Pixel binning function
- Pixel discontinuity correction
- Diagnostic functions

Applications

- Quality control, sorting and grading of packaged and loose food, raw ingredients, and agricultural products in the food industry
- Inspection of vials, tablets, and devices in the pharmaceutical industry
- Battery inspection and sorting
- Quality control in versatile manufacturing and service industries

Key characteristics

Product	Specification	
Product	C0104	C0108
X-ray tube voltage Vp range	40–160 kVp	
Scintillator material	GOS screen	
Active area lengths, single module	307, 410, 512, 614, 922 mm	307, 512 mm
Total pixel number per module	768-1536, 2304	384,640
Pixel size (photodiode)	0.3 x 0.6 mm	0.7 x 0.8 mm
Scanning speed		
Maximum scanning speed	2 m/s	6 m/s
Integration time range	0.19 - 100 ms	0.12 - 100 ms
Line averaging and summing	Yes, up to 256x	
Pixel binning	Yes, 1, 2 or 4 pixels	
A/D resolution	16 bits	
Overall X-ray response non-uniformity, dark offset subtracted at detector level	+/- 15%	
X-ray response linearity	>99%	
Max number of dead pixels	Zero, no dead pixels	
Channel electronic crosstalk	< 0.5%	
Dynamic range	Typically >16 000:1 depending on sensitivity settings	
Sensitivity settings	0.75 - 10.5 pC range 8 settings 1.5 pC / step, except between setting 7-8, which is 0.75 pC	
Interface	IP67 M12 X-code connector	
EMC compliance	EMC compliance EN61326-1, EN61000-3-2, EN61000-3-3	
Ingress protection class	IP67	
RoHS compliance	Yes	
Operational voltage and power	24 VDC, max 35 W per module Industrial power supply units available from DT	
Operational temperature and humidity	0–50 °C, 30–93% (non-condensing)	
Storage temperature	-10–60 °C	
Lifetime under X-ray	Typically 100 kGy	
Weight per module	5 to 10 kg	
Power on time recording	Yes, up to 100,000 hours	

Detection Technology