1 Data sheet — Aurora CT SDBB-ST16SE

Aurora CT are multi-slice X-ray detectors, with integrated amplifiers and AD converters. They have scintillators attached to photosensors for X-ray detection. Aurora CT detector provides data for 3D computed tomography imaging.

This data sheet describes the SDBB-ST16SE detector with Sparse configuration of 16 slices.

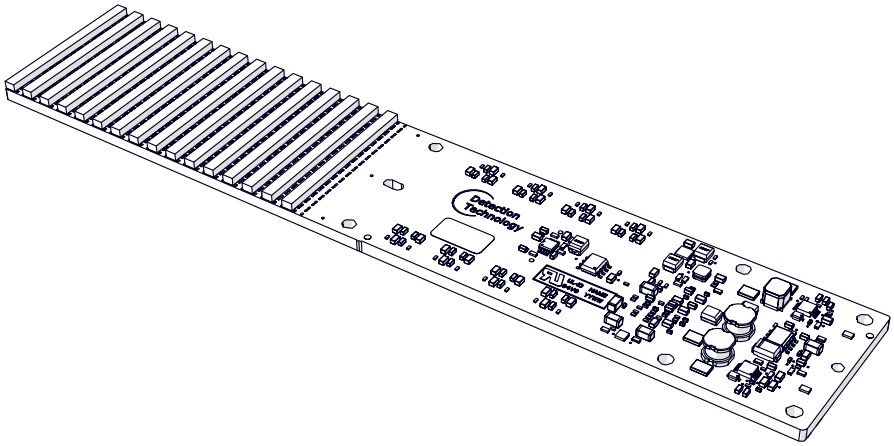

Figure 1: SDBB-ST16SE detector with Sparse configuration

1.1 Key features

- Head-to-head and side-by-side tileable detector modules for 16 to 32 slice system
- Flexible single and dual energy configurations
- Detector matrix built on individual low-noise BSI photodiodes
- High-light-output, afterglow-free scintillator matrix
- Wide sensitivity range from 0.25 pF to 31.75 pF with 127 steps
- Robust structure with reliable mechanical and electrical interfaces
- Centralized remote firmware update by the X-DCB
- Local diagnostics functions: test patterns, temperature and voltage monitoring
- ROHS and EMC compliance
- Complete subsystems available, including detectors and a controller and software library for rapid system development

1.2 Typical applications

- Cabin Baggage (CB) or Hold Baggage (HB) inspection in Aviation
- Hi-end air cargo and logistics scanning
- Fast 3D-imaging for in-line industrial scanning

2 Ordering information

Table 1: Ordering information

Product code	Product name	Product description
3000026770	SDBB-ST16SE	16 pixels x 16 rows, 2.5 x 5.5 mm pitch, single-energy, copper filter configurable by system for dual-energy

3 Technical specifications

Table 2: Technical specifications — SDBB-ST16SE

Feature	SDBB-ST16SE
Pixel size in X-axis (mm)	2.5
Pixel size in Y-axis (mm)	2.75
Pixel active area (PD) (mm)	2.3 x 2.55
Row pitch (mm)	5.5
Scintillator material	1.8 mm ceramic GOS
Mechanical width (X-axis)	40.3 mm ± 0.1 mm
Mechanical length (Z-axis)	208.4 mm ± 0.2 mm
Mechanical height (Y-axis)	<15 mm
Number of pixels	256
Number of pixels in X-axis	16
Number of pixels in Z-axis	16
Min integration time	0.35 ms
A/D resolution	20 bits with 16-bit data transmission
Sensitivity range	0.25 pF—31.75 pF, 127 steps
Interface to control unit	X-Link, 14-pin connector
X-ray Response Non-Uniformity, within row	-15 % ~+15 %
X-ray Response Non-Uniformity, row to row	-20 % ~+20 %
X-ray Response Non-Uniformity, detector to detector	-20 % ~+20 %
Dynamic range	>10000:1 @ 6 pF
Operation voltage	+24 VDC
Power consumption	2.4 W (typical)
Weight	210 g
G-force	Max 20 G

Feature	SDBB-ST16SE
Radiation hardness	Signal drop <30 % @ 100 kGy, 160-180 KV For electronics, the maximum allowed X-ray dose after shielding: 200 Gy

Photosensitive area specifications

The photosensitive area specifications are:

Table 3: Photosensitive area specifications

Parameter	Value
Pixel pitch (P)	2.5 mm
Row pitch (R)	5.5 mm
Pixel width (W)	2.3 mm
Pixel height (H)	2.55 mm
Pixel active area	8.87 mm^2

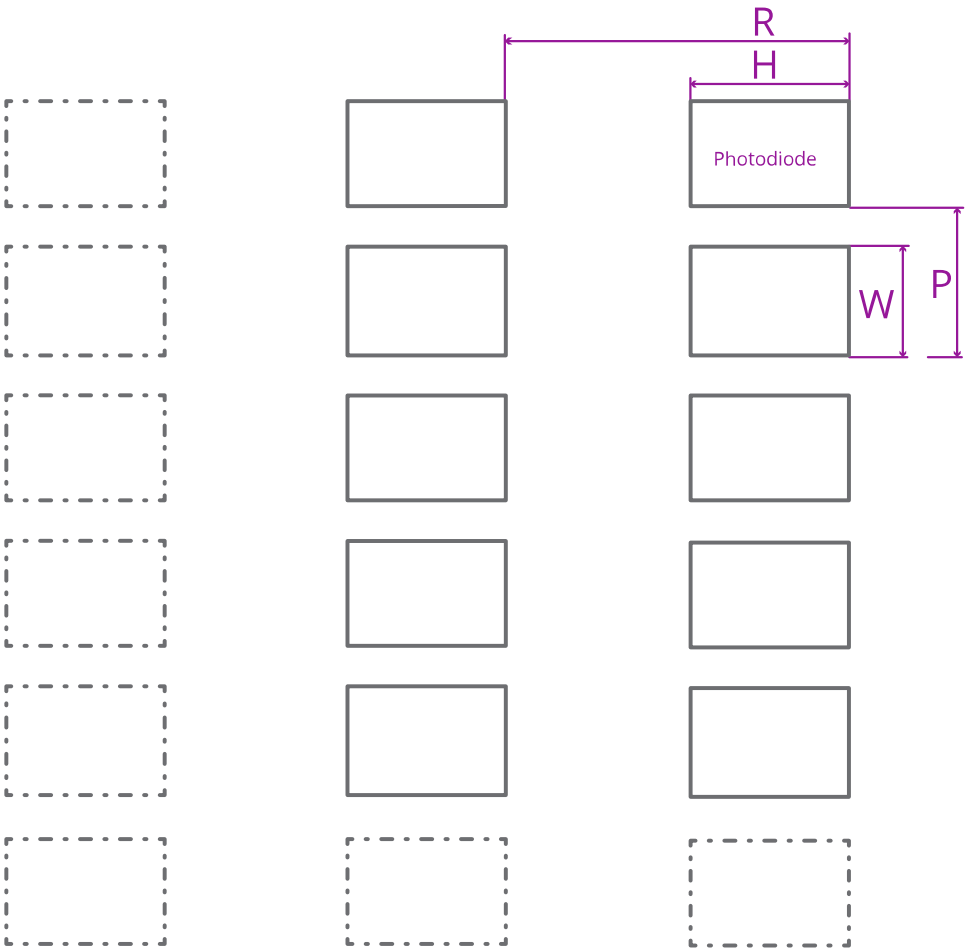

Figure 2: Photosensitive area

4 Environmental specifications

The environmental specifications of the CT series are:

- Operating temperature: 0 °C—+50 °C
- Operating humidity: 5 %—85 % RH (non-condensing)
- Storage temperature: -40 °C—+60 °C
- Storage humidity: 5 %—95 % RH (non-condensing)

5 Mechanical outline drawing

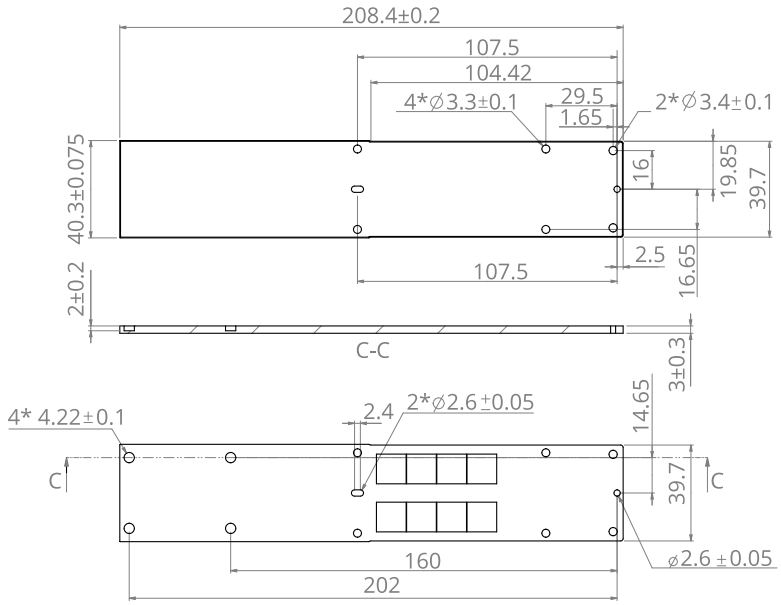

Figure 3: Mechanical outline drawing of SDBB-ST16SE

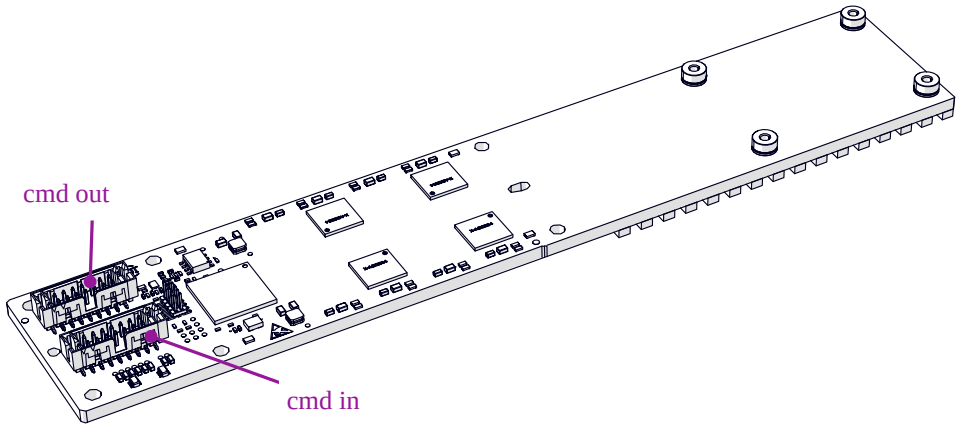

Figure 4: Connectors of SDBB-ST16SE

The command interfaces are:

- cmd in — The command input from X-DCB or the previous detector, and image data output to X-DCB or the previous detector. If this is the first card of the X-Link segment, always connect this connector to the X-Link connector on the X-DCB.
- cmd out — The image data input from the next detector and command output to the next detector. Never connect this connector to the X-DCB. If this is the last card of the X-Link segment, this connector will be empty.

6 Disclaimer

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