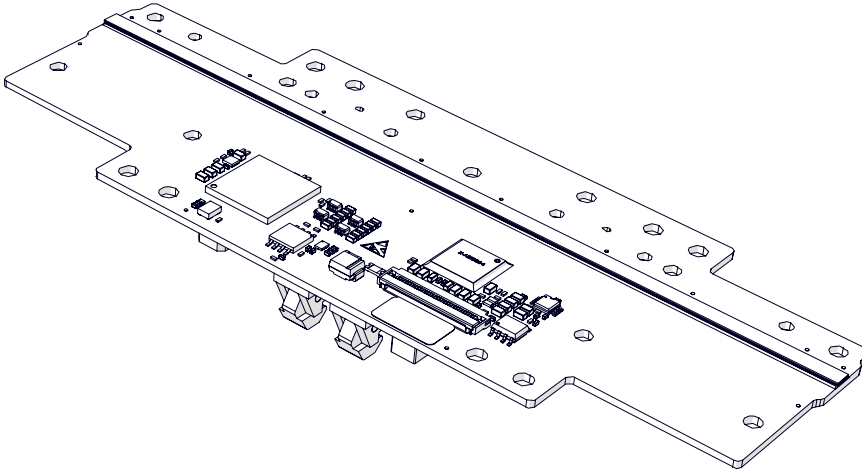


# 1 Data sheet — X-Card L022506410A

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X-Cards are true digital X-ray detector boards with integrated amplifiers and AD converters. They have scintillators attached to photosensors for X-ray detection.

This data sheet describes the 2.5 mm pitch, single energy X-Card L022506410A.



**Figure 1: L022506410A**

## 1.1 Key features

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- Simplified system design
- Lowest-noise solution
- Superior image quality
- Fully digitalized data path
- Very compact mechanical size
- Wide sensitivity range from 0.25 pC to 31.75 pC with 127 steps
- Separately controllable gain setting for each card
- Robust structure with reliable mechanical and electrical interfaces
- Centralized remote firmware update by the X-GCU
- Local diagnostics functions: test patterns, temperature and voltage monitoring
- ROHS and EMC compliance
- Complete subsystems available, including detectors, controllers and software libraries for rapid system development

## 1.2 Typical applications

- Security inspection
- Cargo and vehicle inspection
- Multi-view imaging
- Non-destructive testing
- Food inspection
- Raw material sorting
- Thickness measurement
- Foreign particle detection
- CT imaging

## 2 Ordering information

**Table 1: Ordering information**

Product code	Product name	Product description
3000028609	X-Card L022506410A	2.5 mm pitch, 64 ch, single-energy, GOS screen, 145 mg/cm <sup>2</sup> GOS, 20-bit

## 3 Technical specifications

**Table 2: Technical specifications – X-Card L022506410A**

Card/feature	L022506410A
Pixel size (mm)	2.5
Low Energy (LE) / High Energy (HE) / Dual-energy (DE)	LE
Mechanical length	160.4 mm
Mechanical width	59.5 mm
Mechanical Height	< 25 mm
LE Scintillator material	GOS:Pr, 145 mg/cm <sup>2</sup>
HE Scintillator material	N/A
Copper filter	N/A
Afterglow	N/A
Number of pixels	LE 64 pixels
Scintillator alignment tolerance to reference hole	±0.4 mm
Scintillator LE-HE registration	±0.2 mm
Min integration time	0.2 ms
Max integration time	25 ms. For longer integration times, use the summing function on the X-GCU.

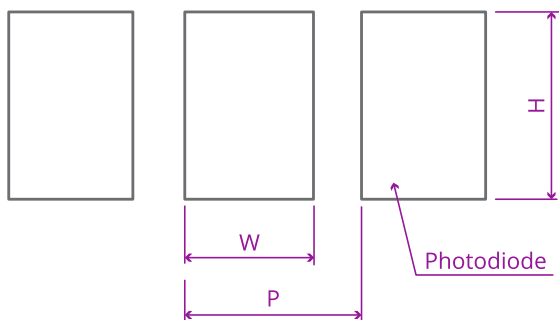
<b>Card/feature</b>	<b>L022506410A</b>
<b>A/D resolution</b>	20 bits
<b>Sensitivity range</b>	0.25 pF—31.75 pF, 127 steps
<b>Interface to control unit</b>	X-Link, 14-pin connector
<b>X-ray Response Non-Uniformity, pixel to pixel</b>	-15 %~+10 %
<b>Dark offset Non-Uniformity, pixel to pixel</b>	-15 %~+10 %
<b>X-ray Response Non-Uniformity, card to card</b>	-15 %~15 %
<b>Dynamic range</b>	13000:1 @ 2 pF 20000:1 @ 10 pF
<b>Radiation hardness</b>	100 kGy  <div style="border: 1px solid black; padding: 5px;"> <p><b>NOTE</b> <b>Note:</b> Radiation hardness is defined as X-ray response drop &lt; 50 % in comparison with the original X-ray response.</p> </div>

### Photosensitive area specifications

The photosensitive area specifications are:

**Table 3: Photosensitive area specifications for X-Card L022506410A**

Parameter	Value
Pixel pitch (P)	1.575 mm
Pixel width (W)	1.4 mm
Pixel height (H)	3 mm
Pixel active area	4.2 mm <sup>2</sup>



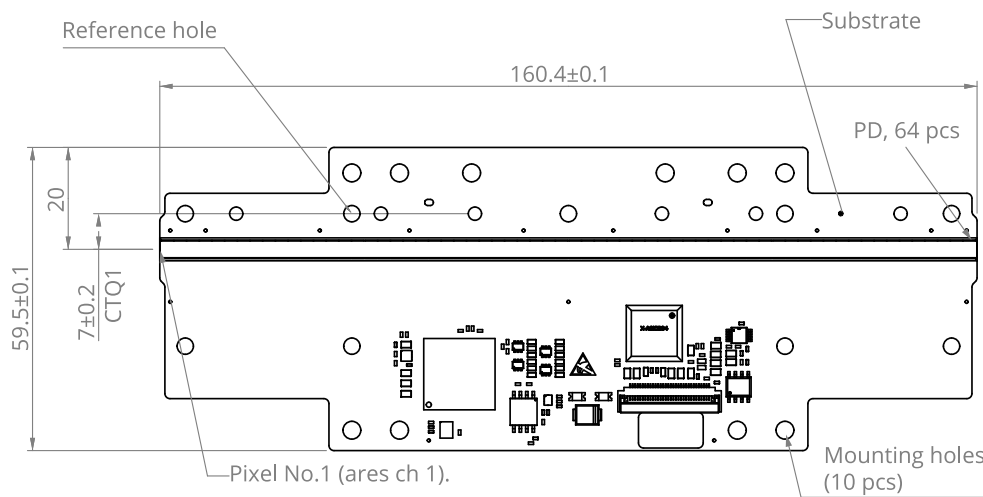
**Figure 2: Photosensitive area**

## 4 Environmental specifications

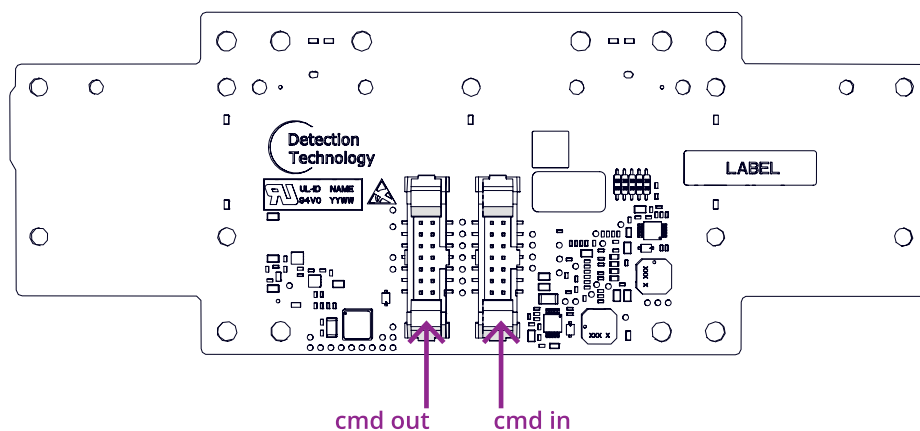
The environmental specifications of the X-Card series are:

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

## 5 Mechanical outline drawing



**Figure 3: Mechanical outline drawing of L022506410A**



**Figure 4: Connectors of L022506410A**

The command interfaces are:

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

## 6 Disclaimer

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### 6.3 Contact information

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