Xineos CMOS X-Ray Flat Detectors: Better Images, Lower Dose

Utilizing Teledyne DALSA’s latest generation proprietary radiation-hard CMOS Active Pixel design, the Xineos-HS Flat X-ray Detectors are the industry’s first to beat the low-dose clinical imaging performance of Image Intensified cameras, and combine this industry benchmark with the form factor advantages of traditional amorphous silicon flat panels. Offering temperature-stable imaging characteristics, and eliminating the need for forced cooling, these Xineos detectors are easy to integrate and reliable, reducing system recalibration and maintenance requirements for mobile and fixed interventional imaging systems.

The Xineos-HS range is specifically designed to meet the demanding needs of both Surgical and Cardiac interventions, by using an advanced switchable pixel design that combines a high dynamic range with unsurpassed signal-to-noise performance at the lowest exposure levels. These dynamic, pulsed x-ray clinical applications benefit from the increased detectability of small or low-contrast features while imaging lag-free in full resolution. Flexible zoom modes can be used to capture regions-of-interest at 150 fps, or even faster. Instantly after power-on, the detectors are ready to output crystal clean images and switching between modes is instant, making life so much easier for the physician – and the patient.

Specifications (Typical Values @ RQA5)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Xineos-2222HS</th>
<th>Xineos-3030HS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pixel Pitch</td>
<td>151.8 μm</td>
<td></td>
</tr>
<tr>
<td>Active Area</td>
<td>215x215 mm²</td>
<td>295x295 mm²</td>
</tr>
<tr>
<td>Resolution</td>
<td>1416x1420</td>
<td>1952x1952</td>
</tr>
<tr>
<td>Binning support</td>
<td>1x1 / 2x2</td>
<td></td>
</tr>
<tr>
<td>Scintillator</td>
<td>Medical-grade columnar CsI</td>
<td></td>
</tr>
<tr>
<td>Saturation Dose, RQA5 (per mode)</td>
<td>2u Gy / 10u Gy / 45u Gy</td>
<td></td>
</tr>
<tr>
<td>Dynamic Range (per mode)</td>
<td>70 dB / 75 dB / 77 dB</td>
<td></td>
</tr>
<tr>
<td>MTF @ 1 lp/mm / 2 lp/mm</td>
<td>60% / 27%</td>
<td>58% / 25%</td>
</tr>
<tr>
<td>DQE(0) @ 1u Gy, RQA5</td>
<td>75%</td>
<td>72%</td>
</tr>
<tr>
<td>DQE(0) @ 10n Gy, RQA5</td>
<td>68%</td>
<td>64%</td>
</tr>
<tr>
<td>Image Bit Depth</td>
<td></td>
<td>16 bit</td>
</tr>
<tr>
<td>Data Interface</td>
<td>Gigabit Ethernet (GigE)</td>
<td></td>
</tr>
<tr>
<td>Frame Rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Full FOV (100%), 1x1 / 2x2</td>
<td>27 fps / 80 fps</td>
<td>14 fps / 57 fps</td>
</tr>
<tr>
<td>- Mag0 (96%), 1x1 / 2x2</td>
<td>30 fps / 90 fps</td>
<td>15 fps / 60 fps</td>
</tr>
<tr>
<td>- Mag1 (70%), 1x1 / 2x2</td>
<td>57 fps / 160 fps</td>
<td>30 fps / 115 fps</td>
</tr>
<tr>
<td>- Mag 2 (50%), 1x1 / 2x2</td>
<td>115 fps / 220 fps</td>
<td>55 fps / 150 fps</td>
</tr>
<tr>
<td>ROI readout</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trigger modes</td>
<td>Internal or External (Continuous or Pulsed)</td>
<td></td>
</tr>
<tr>
<td>X-Ray Energy Range</td>
<td>15.150 kV</td>
<td></td>
</tr>
<tr>
<td>Power Consumption (active)</td>
<td>&lt;15 W</td>
<td>&lt;18 W</td>
</tr>
<tr>
<td>Dimensions (WxHxD)</td>
<td>235x292x56 mm</td>
<td>327x377x58 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>6 kg</td>
<td>9 kg</td>
</tr>
</tbody>
</table>

Key Features

- Best in class low-dose image quality
- 152 μm pixel pitch
- 30 fps at full resolution
- Up to 150 fps in binned ROI modes
- Negligible image lag
- Instant mode switching
- No warm-up time needed
- Stable offset calibration
- Low power dissipation
- Support for gain, offset- and defect pixel correction
- Gigabit Ethernet data interface
  (other options available on request)

Typical Applications

- Surgery
- Orthopedics
- Cardiology
- Vascular
- Skull/ENT
- Veterinary
Xineos-3030HS

Dimensions:
- (160) x (160)
- (96.5)
- (103.5) x (3.5)
- (8)
- (9)
- (11)
- (7.2)
- (5.8)
- (2X) THIS SIDE
- (2X) FAR SIDE
- (45.9)
- (296.3) IMAGING AREA
- (377)
- (296.3) IMAGING AREA

Features:
- M5x0.8 - 6H
- 8
- (6X)
- IMAGING PLANE
- CONNECTOR COVER PLATE REVISED. APR 06/2016 AC

Note:
- UNLESS OTHERWISE SPECIFIED
- UNITS: MM
- DRAWING PER ASME Y14.5M-1994
- TOLERANCES:
  - LINEAR ±0.15
  - ANGLES ±0.5
  - SURFACE FINISH

Approval Information:
- S. COX
- CASTOR
- AUG 21/2014

Contact Information:
- 605 McMurray Road
  - Waterloo, ON
  - CANADA, N2V 2E9
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  - Fax: (519) 886-8023
  - www.teledynedalsa.com

Third Angle Projection

Imaging Plane

IMAGING PLANE

XINEOS 3030HS (GigE) CUSTOMER DRAWING

DATE
REV DESCRIPTION DATE DWN. BY

(327) (377) (132.5) (57.5) (58) (10.1) (46.5)

XINEOS-3030HS
CMOS Flat X-ray Detectors for Fluoroscopy