SiX 650 HD/SiX 650 HD-E
CMOS detectors for combined panoramic and CBCT X-Ray systems

THE OPTIMAL SOLUTION TO COVER BOTH 3D AND PANORAMIC IMAGING

› SiX 650 HD and HD-E are CMOS digital detectors designed by Thales for combined CBCT/panoramic X-Ray systems used in dentistry.
› They offer critical advantages for patients and practitioners alike: low dose and quick acquisition of high-resolution images.
› The CMOS technology is behind the detector’s outstanding performance, with very low image noise, absence of artifacts, high sensitivity and low-power consumption.
CMOS TECHNOLOGY FOR CBCT/PANORAMIC APPLICATIONS

3D imaging is becoming more widespread in dentistry, and Cone Beam CT reduces significantly dose exposure compared to scanners. Thales new SiX 650 HD based on CMOS dual-gain technology is designed to meet the requirements of both CBCT and panoramic imaging.

REDUCED DOSE, LOW NOISE

All SiX 650 HD and HD-E features contribute to a significant dose reduction:
- two different sensitivity levels for an optimal image quality (high for panoramic, standard for CBCT)
- low noise in the image, and broad dynamic range
- possibility to reduce the exam zone to a specific area.

HIGH IMAGE QUALITY, QUICK ACQUISITION

The SiX 650 HD/E deliver a 145 x 118 mm image and this size can be easily reduced according to the area of interest. They feature high image acquisition speed, at 40 frames per second (fps) in high resolution mode, and up to 300 fps for 10 mm region of interest. The 70% DQE (Detection Quantum Efficiency) confirms the outstanding overall performance of this detector.

LIGHT, COMPACT, EASY TO USE, EASY TO INTEGRATE

All SiX 650 HD/E are light, compact, and easy to use as the distance from detector edge to sensing area is only 12 mm. Mechanical interface and integrated passive cooling facilitate its integration in x-ray systems. The detector is delivered with a software development kit.

SIX SPECIFICATION

<table>
<thead>
<tr>
<th>Scintillator</th>
<th>CSI</th>
<th>GS/GP (Gadox Standard/Gadox Plus)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pixel size</td>
<td>150 µm</td>
<td></td>
</tr>
<tr>
<td>Active image area</td>
<td>145 x 118 mm</td>
<td></td>
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<tr>
<td>DQE</td>
<td>&gt; 70 % @0lp/mm RQA5</td>
<td>&gt; 30 % @0 lp/mm RQA5 (HD-E-GP)</td>
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<tr>
<td>MTF @1 lp/mm, RQA 5</td>
<td>&gt; 55 %</td>
<td>&gt; 20 % @ 0lp/mm RQA5 (HD-E-GS)</td>
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<tr>
<td>Dynamic range</td>
<td>&gt; 76 dB with high gain</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; 78 dB with low gain</td>
<td></td>
</tr>
<tr>
<td>A/D Conversion</td>
<td>14 bits</td>
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</tbody>
</table>

MODES

Capture modes: Pulsed, Continuous
Frame rate: Up to 40 (full resolution), Up to 300 fps for 10 mm ROI
ROI setting: Configurable size and position

OPERATING CONDITIONS

X-ray maximum linear dose:
- 1.5 to 2.3 with high gain (high sensitivity mode) (SiX 650 HD/E-GP)
- 2.1 to 3.1 (HD-E-GS) and 1.7 to 2.5 (HD-E-GP) with high gain (high sensitivity mode) (SiX 650 HD/E-GP)
- 11.4 to 17.1 with low gain (high saturation mode) (SiX 650 HD/E-GP)
- 15.8 to 23.8 (HD-E-GS) and 12.4 to 18.6 (HD-E-GP) with low gain (high saturation mode) (SiX 650 HD/E-GP)
Temperature range: 10 - 40°C

INTERFACES

DC input power: 5 V
Power consumption: 7.5 W
Data interface:
- SiX 650 HD: Camera-link base configuration
- SiX 650 HD-E: GigE-Vision (Gigabit Ethernet)
SDK: Detector management and calibration, image correction

MECHANICAL CHARACTERISTICS

Overall dimensions: 183 x 168 x 27 mm
Distance from edge to sensing area: 12 mm (3 sides)
Weight: 1.7 kg

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