Overview

The PerkinElmer XRD 0822 Digital X-ray Flat Panel Detectors (FPDs) are part of the PerkinElmer family of 8-inch (20 cm) field of view amorphous silicon (a-Si) digital X-ray FPDs.

Two models of the PerkinElmer XRD 0822 digital X-ray FPDs are available: The PerkinElmer XRD 0822 AO provides over 78 dB of dynamic range and frame rates up to 30 frames per second (fps). The enhanced performance XRD 0822 AP offers over 88 dB of dynamic range and frame rates up to 100 fps via several read-out modes. Both detectors support a broad range of energy levels from 20 keV–15 MeV and are available with several shielding and scintillator options.

Rapid system integration is accomplished via Gigabit Ethernet data communication, integrated trigger and X-ray synchronization circuitry, and a comprehensive software library for image acquisition and processing.

The wide energy range, variable frame rates and shielding options allow the XRD 0822 to meet the component requirements of applications such as industrial non destructive testing, radiation therapy for cancer treatment, as well as veterinary and life and physical science.

We have over 20 years of experience partnering with OEMs integrating FPDs into demanding X-ray applications and can customize our product to meet your specific requirements. Let our digital imaging expertise work for you.
XRD 0822 AO, AP

Sensor
- Panel: Single substrate amorphous silicon active TFT/diode array
- Scintillator: Direct deposition CsI:Tl or various Gd2O2S:Tb (GOS) fluorescent screens
- Pixel Matrix: 1024 x 1024 @ 200 μm pitch

Electronics
- Amplifiers: 8 x 128 channel custom low noise ASICs with 2 (AO) or 6 (AP) user selectable gain settings
- ADC: 14 bit (AO), 16 bit (AP)

Read-out Mode

<table>
<thead>
<tr>
<th>Matrix</th>
<th>Pixel (μm²)</th>
<th>fps AO</th>
<th>fps AP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square</td>
<td>1024 x 1024</td>
<td>200 x 200</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>512 x 512</td>
<td>400 x 400</td>
<td>30</td>
</tr>
<tr>
<td>Rectangular</td>
<td>1024 x 512</td>
<td>200 x 400</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>1024 x 256</td>
<td>200 x 800</td>
<td>n/a</td>
</tr>
<tr>
<td>Sectional</td>
<td>1024 x 512</td>
<td>200 x 200</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>1024 x 256</td>
<td>200 x 200</td>
<td>n/a</td>
</tr>
</tbody>
</table>

Mechanical
- Size: 29.5 cm (w) x 36.0 cm (l) x 2.2 cm (h)
- Weight: 3.7 kg
- Housing: Aluminum
- Shielding: Integrates with shielding cassette for high energy applications (optional)

Communications
- Data I/F: Gigabit Ethernet Vision
- X-ray I/F: Integrated X-ray trigger control
- Software: Support for 32 and 64 bit Windows OS

Imaging Performance
- DQE: 75% (0 cy/mm), 58% (1 cy/mm), 37% (2 cy/mm) for RQA5 with CsI
- MTF: 67% (1 cy/mm), 33% (2 cy/mm) with CsI
- Lag: < 8% 1st frame
- Dynamic Range: > 78 dB (AO), > 88 dB (AP)
- Energy: 20 kV – 15 MV

Environmental
- Temperature: 10 – 40°C (operating), -10 – 50°C (storage)
- Humidity: 10 – 90%RH (non-condensing)
- Ingress: IP-65 rated (total dust and low pressure water jets protection)
- Vibration: IEC/EN 60068-2-6 (10-150 Hz, 0.5 g)
- Shock: IEC/EN 60068-2-27 (11 ms, 2 g)

Power
- Supply: 100 – 240 VAC, 50/60 Hz
- XRD-EPS Power Supply: 215 W
- Dissipation: 25 W

Regulatory
- Standards: UL-60601-1, IEC/EN-60601-1, IEC/EN-60950-1
- Regulations: CE, RoHS

1: Unless otherwise specified, PerkinElmer Flat Panel X-ray Detectors are components intended to be integrated into products by X-ray system manufacturers. System manufacturers are responsible for qualifying and validating their products for their intended uses and meeting all applicable regulatory requirements.

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