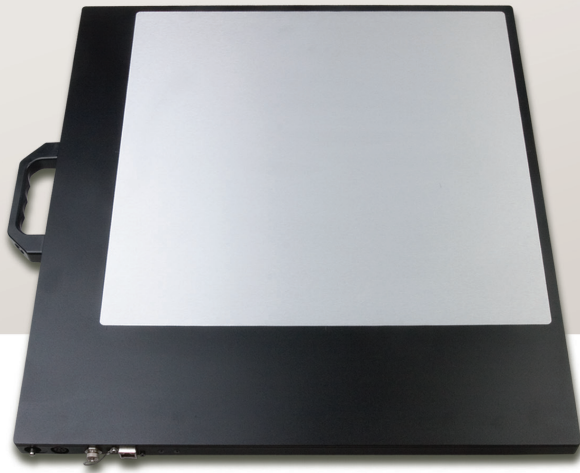# Digital X-ray Flat Panel Detectors

XRD 1622 AO, AP

Features and Benefits

- Complete digital X-ray detector
- Radiation-hardened for harsh environments
- 4 Million pixels
- 200 µm pixel pitch
- Up to 65,536 gray levels
- X-ray energies from 20 keV – 15 MeV
- Selectable gain settings
- Gigabit Ethernet interface
- RoHS-compliant

Applications

- Radiation Therapy, Radiosurgery & Proton Therapy
- Industrial Non Destructive Testing & Evaluation
- Veterinary
- Life & Physical Science

Superior Image Quality, High Dynamic Range

Overview

The XRD 1622 Digital X-ray Flat Panel Detectors (FPDs) are the newest additions to the PerkinElmer family of 16-inch (41 cm) field of view amorphous silicon (a-Si) digital X-ray FPDs.

Two models of the XRD 1622 digital X-ray FPDs are available: The XRD 1622 AO provides over 74 dB of dynamic range and 1 frame per second (fps). The enhanced performance XRD 1622 AP offers over 87 dB of dynamic range and frame rates up to 4 fps via multiple 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 sync circuitry for X-ray control, and a comprehensive software library for image acquisition and processing.

The wide energy range, variable frame rates and shielding options allow the XRD 1622 to meet the 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 15 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.

Contact us for more information at fpd@perkinelmer.com.

PerkinElmer®
For the Better

XRD 1622 AO,AP

Sensor

Panel	Single substrate amorphous silicon active TFT/diode array
Scintillator	Direct deposition CsI:Tl or various Gd_2O_2S:Tb (GOS) fluorescent screens
Pixel Matrix	2048 × 2048 @ 200 µm pitch

Electronics

Amplifiers	16 × 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		Matrix	Pixel (µm²)	fps AO	fps AP
	Square	2048 × 2048	200 × 200	1	1
		1024 × 1024	400 × 400	n/a	4
	Rectangular	2048 × 1024	200 × 400	n/a	2

Mechanical

Size	50.0 cm (w) × 56.0 cm (l) × 2.2 cm (h)
Weight	8.8 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

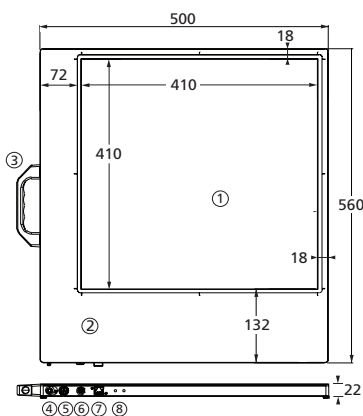## Imaging Performance

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	< 6% 1st frame
Dynamic Range	> 74 dB (AO), > 87 db (AP)
Energy	20 keV − 15 MeV

Environmental

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

Power

Supply	90 − 264 VAC, 47 − 63 Hz XRD-LPM Power Supply 40 W
Dissipation	32 W

Regulatory

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

Note: PerkinElmer Digital X-ray Flat Panel Detectors and accessories are designed as components to be integrated into a complete X-ray system by imaging systems manufacturers. Manufacturers are responsible for qualifying, validating, certifying their intended use in their specific applications and meeting all applicable regulatory requirements established by country and local government authorities.

Contents in this document are subject to change without notice.

Mechanical Characteristics (Dimensions in mm)

1. Active sensor area
2. Electronics area
3. Removable handle
4. Ground stud
5. Power connector
6. X-ray trigger connector
7. Ethernet connector (RJ45)
8. Diagnostic LEDs

For further information visit www.perkinelmer.com or contact us at fpd@perkinelmer.com