

## XRD 4343N

### Flat Panel Detector



**Superior Image Quality**  
**Large Field of View**  
**High-Speed Real-time Imaging**

#### OVERVIEW

Varex Imaging's XRD 4343N is a high speed, large area amorphous silicon (a-Si) Flat Panel X-ray detector for high dose industrial applications.

The XRD 4343N supports a full 43 x 43 cm<sup>2</sup> (17 x 17 in<sup>2</sup>) field of view, is available with several scintillator options and is shielded for high-dose non-destructive testing - including inline Cone Beam Computed Tomography (CBCT) - using energies up to 450 kV. This detector has a 150 μm native pixel pitch and operates at 15 fps at full resolution and full field of view; it also supports 7 different fields of view and 4 binning modes with frame rates up to 115 fps.

Rapid system integration is accomplished with integrated trigger and X-ray synchronization circuitry, a frame grabber providing real-time image-processing and a comprehensive software library for image acquisition and processing.

#### FEATURES AND BENEFITS

- 15 fps @ 150 μm, 30 fps @ 300 μm (full FOV)
- 115 fps @ 600 μm (432 mm x 72 mm FOV)
- 150 μm pixel pitch, 2880 x 2880 pixel matrix
- 4 binning and 7 FOV options
- 65,536 grey levels (16-bit ADC)
- Ultra high sensitivity
- Selectable gain settings
- Up to 450 kV
- Shielded from the effects of MV radiation scatter (Radiotherapy)
- Fiber optical interface
- Real time corrections

#### APPLICATIONS<sup>1</sup>

- Non-destructive testing (NDT)
- Inline Cone Beam Computed Tomography (CBCT)
- Metrology
- Scientific applications
- Radiotherapy & Radiosurgery

## Technical Specifications

### SENSOR

Panel ..... Single substrate amorphous silicon active TFT-diode array  
 Scintillator ..... CsI: Tl or various Gd<sub>2</sub>O<sub>2</sub>S:Tb (Gadox)  
 Pixel Matrix ..... 2880 × 2880 @ 150 μm pitch  
 Total Area ..... 432 mm × 432 mm

### ELECTRONICS

Amplifiers ..... Low noise ASICs with 6 user selectable gain settings  
 ADC ..... 16-bit

Read-out Modes (Other Field of view/binning combinations are available)

Field of View (mm <sup>2</sup> )	Pixel Matrix	Binning	Pixel Pitch (μm <sup>2</sup> )	(fps)
432 × 432	2880 × 2880	1 × 1	150	15
	1440 × 1440	2 × 2	300	30
	960 × 960	3 × 3	450	45
	704 × 720	4 × 4	600	60
288 × 288	1920 × 1920	1 × 1	150	20
	960 × 960	2 × 2	300	40
	640 × 640	3 × 3	450	60
	480 × 480	4 × 4	600	75
216 × 216	1440 × 1440	1 × 1	150	25
	736 × 720	2 × 2	300	50
	480 × 480	3 × 3	450	70
	384 × 360	4 × 4	600	85
432 × 216	2880 × 1440	1 × 1	150	25
	704 × 240	4 × 4	600	100
432 × 72	2880 × 480	1 × 1	150	60
	704 × 120	4 × 4	600	115

### MECHANICAL

Size ..... 500 mm (w) × 500 mm (l) × 66.8 mm (h)  
 Weight (approx.) ..... 29 kg  
 Housing ..... Aluminum with carbon-fiber entrance window

### COMMUNICATIONS

Data I/F ..... Fiber optic to PCIe frame grabber  
 X-ray I/F ..... Integrated X-ray trigger control  
 Software ..... Support for 32 and 64 bit Windows® OS

### IMAGE PROCESSING

Type .. Real time offset, gain, defective pixel corrections on frame grabber

### IMAGING PERFORMANCE

Typical DQE (CsI) ..... 76% (0 cy/mm), 60% (1 cy/mm), 44% (2 cy/mm),  
 32% (3 cy/mm) for RQA5  
 Typical MTF (CsI) ..... 66% (1 cy/mm), 34% (2 cy/mm), 18% (3 cy/mm)  
 Energy Range ..... 20 - 450 kV  
 Lag (typical) ..... < 5% 1<sup>st</sup> frame

### ENVIRONMENTAL

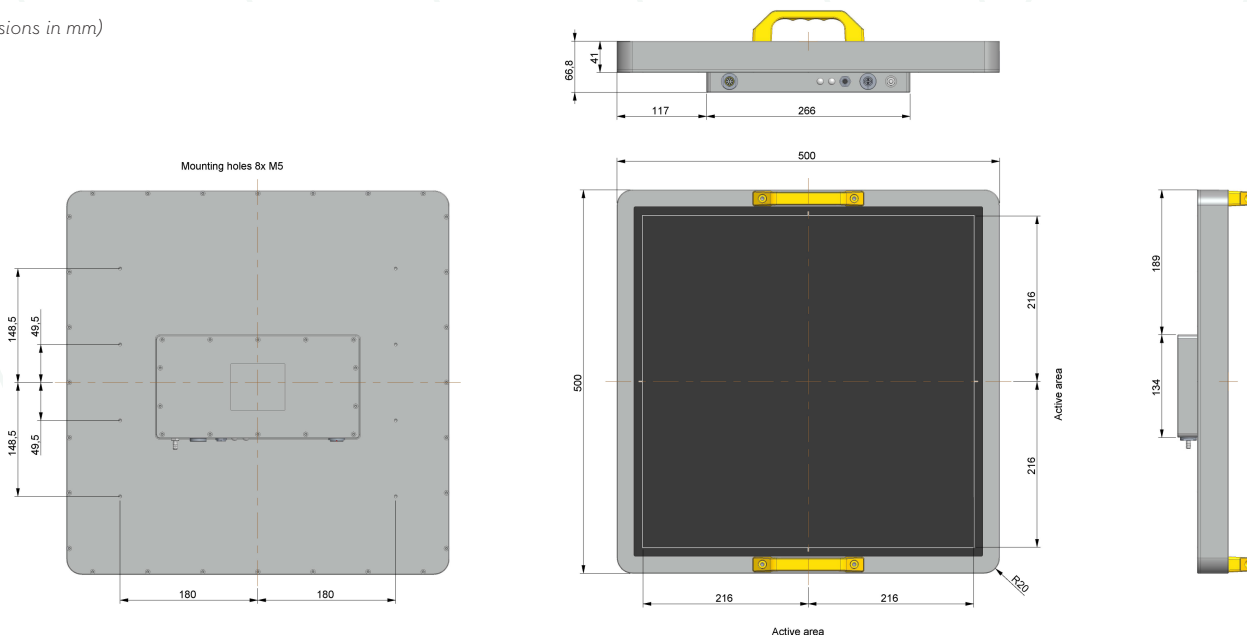
Temperature ..... 10 to 35°C (operating), -10 to 50°C (storage)  
 Humidity ..... 30% to 70% RH (operating, non-condensing)  
 Vibration ..... IEC/EN 60721-3-7 class 7M2 (10-100 Hz: 1 g)  
 Shock ..... IEC/EN 60721-3-7 class 7M3 (11 ms, 30 g)

### POWER

Supply ..... 100 – 240 VAC, 50/60 Hz, XRD-EPS Power Supply  
 Dissipation ..... 31 W

## MECHANICAL CHARACTERISTICS

(Dimensions in mm)



<sup>1</sup> Unless otherwise specified, Varex Imaging 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.

Contents in this document are subject to change without notice.

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