

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 cm² (17 x 17 in²) 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

APPLICATIONS¹

- 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 Gd₂O₂S: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 ²)	Pixel Matrix	Binning	Pixel Pitch (μm ²)	(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% 1st frame

ENVIRONMENTAL

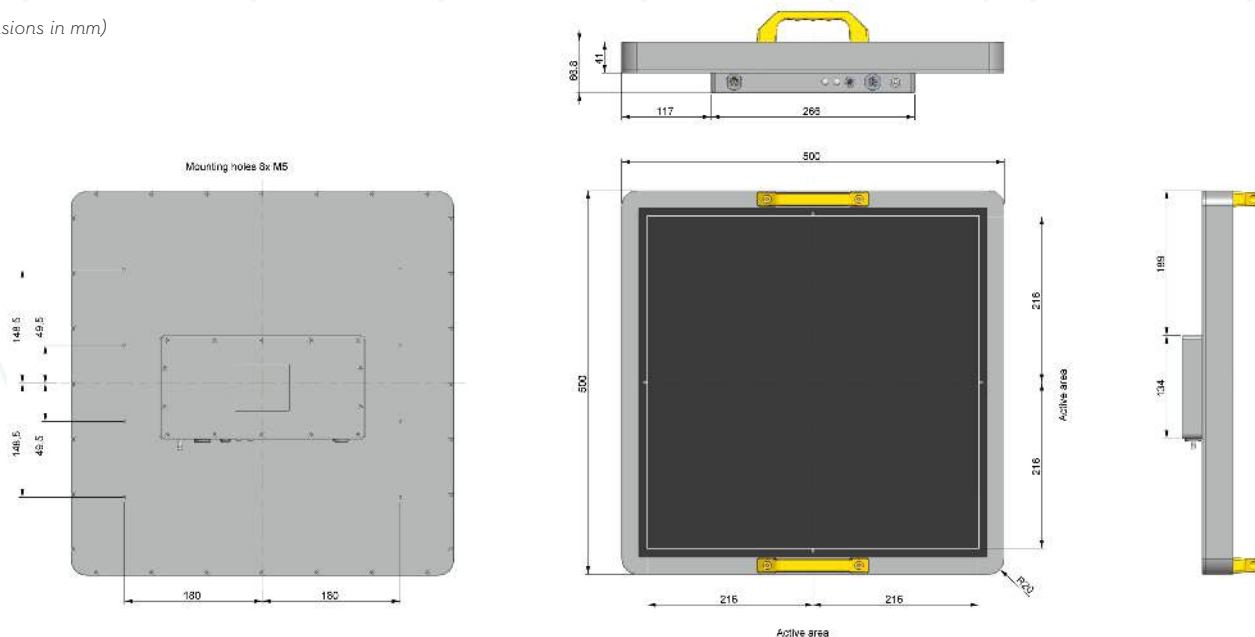
Temperature 10 to 35°C (operating), -10 to 50°C (storage)
 Humidity 30% to 70% RH (operating, non-condensing)
 Vibration IEC/EN 60721-3-7 class 7M2 (10-100 Hz: 1 g)
 Shock IEC/EN 60721-3-7 class 7M3 (11 ms, 30 g)

POWER

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

MECHANICAL CHARACTERISTICS

(Dimensions in mm)



¹ 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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