XRD 1642 AP

Flat Panel Detector

VAREX IMAGING

Real-time Imaging
High Dynamic Range

XRD 1642 AP Flat Panel Detector belongs to the Varex Imaging product family of 16-inch (41 cm) field of view amorphous silicon FPDs.

OVERVIEW

Varex Imaging XRD 1642 AP offers over 87 dB of dynamic range and frame rates up to 100 fps via multiple read-out modes. A broad range of energy levels from 20 kV to 15 MV is supported 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.

Wide energy range, variable frame rates and multiple shielding options allow the Varex Imaging XRD 1642 AP meet imaging requirements for various applications[1] such as industrial non-destructive testing, radiation therapy, as well as life and physical science.

FEATURES AND BENEFITS

- Radiation-hardened for harsh environments
- 400 µm pixel pitch
- Up to 65,536 gray levels (16-bit ADC)
- X-ray energies from 20 kV to 15 MV
- Selectable gain settings
- Gigabit Ethernet interface

APPLICATIONS[1]

- Radiotherapy, Radiosurgery & Proton Therapy
- Industrial Non Destructive Testing and Evaluation
- 3D Cone Beam CT

Technical Specifications

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 ..... 1024 × 1024 @ 400 µm pitch

ELECTRONICS

Amplifiers ..... 8 × 128 channel custom low noise ASICs with 6 user selectable gain settings
ADC 16-bit

Read-out Mode	Matrix	Pixel (µm²)	fps
Square	1024 × 1024	400 × 400	15
	512 × 512	800 × 800	30
Rectangular	1024 × 512	400 × 800	30
Sectional	1024 × 512	400 × 400	30
	1024 × 256	400 × 400	50
	1024 × 128	400 × 400	100

MECHANICAL

Size ..... 500 mm (w) × 560 mm (l) × 22 mm (h)
Weight ..... 7.5 kg
Housing ..... Aluminum
Shielding ..... Integrates with shielding cassette for high energy applications (optional)

COMMUNICATIONS

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

IMAGING PERFORMANCE

Lag ..... < 8% 1st frame
Radiation Energy ..... 20 kV – 15 MV
DQE ..... 67% (0 cy/mm), 53% (0.5 cy/mm), 36% (1 cy/mm) for RQA5 with CsI
MTF ..... 63% (0.5 cy/mm), 31% (1 cy/mm) for RQA5 with CsI

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

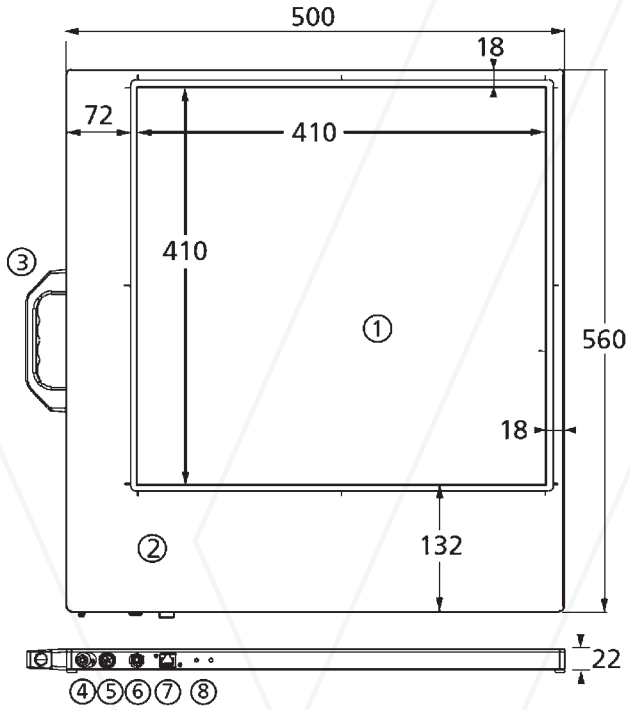
Supply ..... 100 - 240 VAC, 50/60 Hz
XRD-EPS Power Supply 215 W
Dissipation ..... 24 W

REGULATORY

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

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

[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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