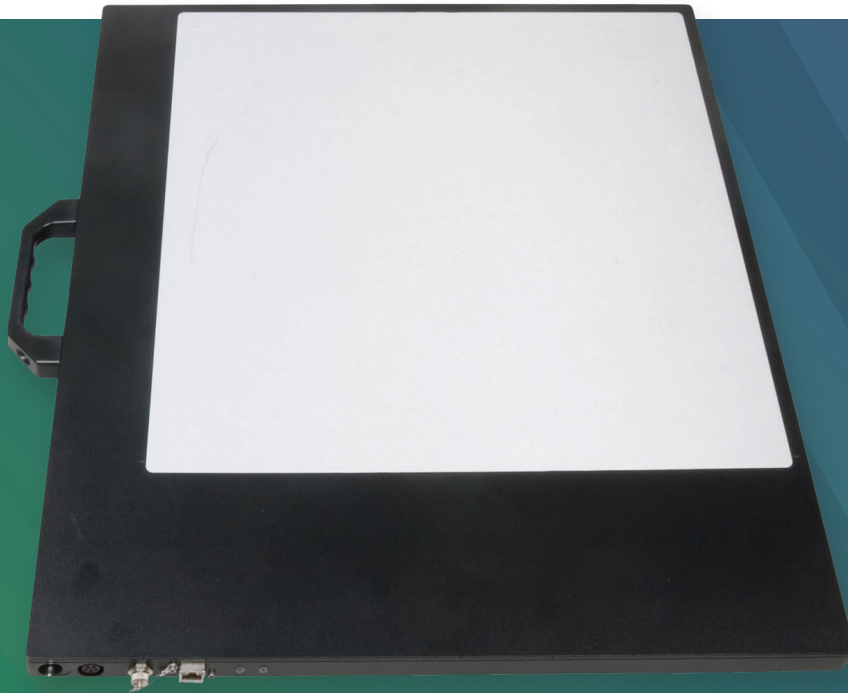


# XRD 1642 AP

## Flat Panel Detector



## 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<sup>1</sup> such as industrial non-destructive testing, radiation therapy, as well as life and physical science.

### FEATURES AND BENEFITS

- Radiation-hardened for harsh environments
- 400  $\mu\text{m}$  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<sup>1</sup>

- 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<sub>2</sub>O<sub>2</sub>S: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 (μm <sup>2</sup> ) | 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% 1<sup>st</sup> 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-EPSS Power Supply 215 W  
 Dissipation . . . . . 24 W

### REGULATORY

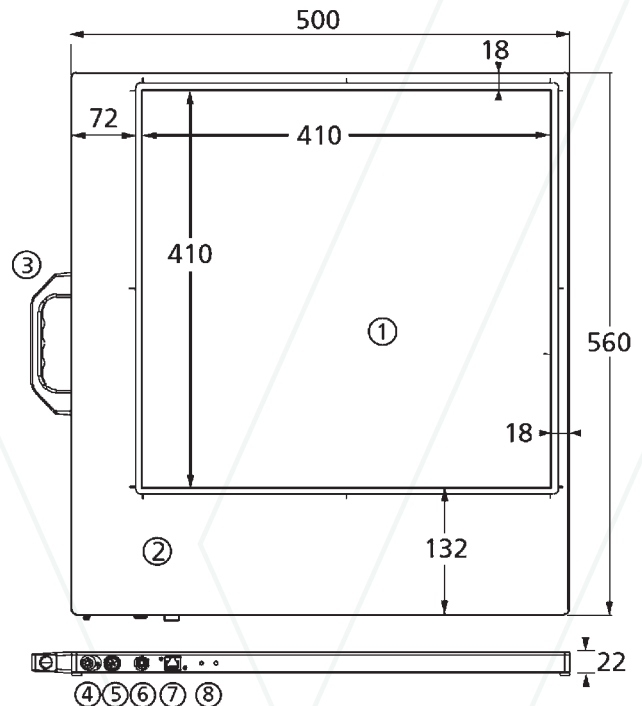
Standards . . . . . UL-60601-1, IEC/EN-60601-1, IEC/EN-60950-1  
 Regulations . . . . . CE, RoHS

<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.

### 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

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