

**XRD 1611 xP**

## Industrial Flat Panel Detector

**Superior Image Quality  
High Dynamic Range**

XRD 1611 xP is the next generation of Varex Imaging's family of 16-inch (41 cm) amorphous silicon Flat Panel X-ray Detectors.

**OVERVIEW**

Varex Imaging XRD 1611 xP Flat Panel X-ray Detectors provide a dynamic range of over 84 dB and frame rates up to 15 frames per second. XRD 1611 xP supports a broad range of energy levels from 20 kV to 16 MV and is available with several scintillator options. System integration is accomplished via a frame grabber with a customized fiber-optical interface. The frame grabber is designed to perform on-board corrections including Multiple Gain Correction at up to 10 signal levels. Rapid system integration is accomplished via optical data communication with integrated trigger and X-ray synchronization circuitry. A comprehensive software library for image acquisition and processing is also provided.

Wide energy range, variable frame rates and multiple scintillator options allow the Varex Imaging XRD 1611 xP to meet demanding component requirements of industrial non-destructive testing, as well as life and physical science applications<sup>1</sup>.

**FEATURES AND BENEFITS**

- Greater than 16 million pixels
- 100  $\mu\text{m}$  pixel pitch
- 65,536 grey levels (16-bit ADC)
- Ultra high sensitivity
- Live images @ 15 fps
- Suitable for a wide range of X-ray energies
- Selectable gain setting
- Galvanic isolation by fiber-optical interface

**APPLICATIONS<sup>1</sup>**

- Non-destructive testing
- 3D Cone Beam CT
- Metrology
- Scientific applications

## 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		
Pixel Matrix	4096 × 4096 @ 100 μm pixel pitch		
Total Area	409.6 × 409.6 mm <sup>2</sup>		

### ELECTRONICS

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

Read-out Mode	Matrix	Pixel (μm <sup>2</sup> )	fps
	4096 × 4096	100 × 100	3.75
	2048 × 2048	200 × 200	7.5
	1024 × 1024	400 × 400	15

### MECHANICAL

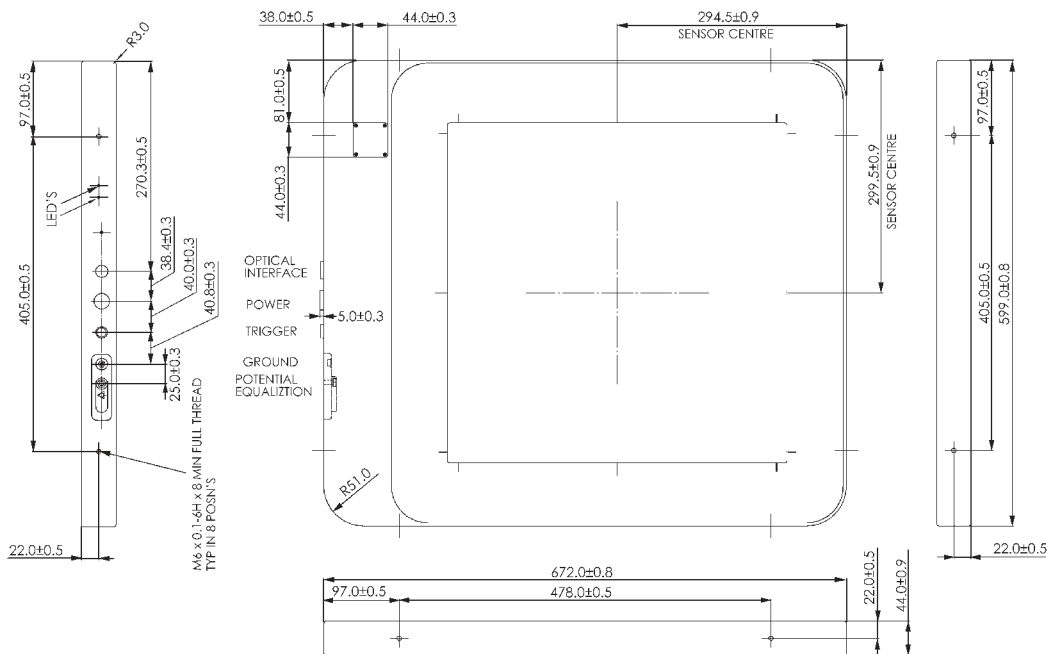
Size ..... 672 mm × 599 mm × 44 mm  
Weight ..... 25 kg  
Housing ..... Aluminum housing with Aluminum (1611 AP) or carbon-fiber (1611 CP) entrance window

### COMMUNICATION I/F

Data I/F ..... Fiber-optical to PCIe frame grabber  
X-ray I/F ..... Integrated Trigger control  
Software ..... Support for 32 bit and 64 bit Windows® OS  
Laser ..... Class 1

### MECHANICAL CHARACTERISTICS

(Dimensions in mm)



### IMAGE PERFORMANCE

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

### IMAGE PERFORMANCE

Dynamic Range ..... > 84 dB  
Radiation Energy ..... 40 kV – 16 MV (XRD 1611 AP)  
20 kV – 16 MV (XRD 1611 CP)  
Lag ..... < 8% 1<sup>st</sup> frame

### ENVIRONMENTAL

Temperature ..... 10 – 35°C (operating), -10 – 50°C (storage)  
Humidity ..... 30 – 70% RH (non-condensing)  
Vibration ..... IEC/EN 60068-2-6 (10 – 150 Hz, 0.5 g)  
Shock ..... IEC/EN 60068-2-27 (11 ms, 2 g)

### POWER

Supply ..... XRD EPS Power Supply 215 W  
Dissipation ..... 90W

### REGULATORY

Standards ..... IEC/EN 61010-1, UL/CSA 61010-1, EN 61326-1, EN 60825-1  
Regulations ..... 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.

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