

# 2824HR

## CMOS X-ray Detector



The 2824HR is a dynamic X-ray detector designed specifically for industrial NDT, pathology and other CT applications such as X-ray diffraction, with a pixel pitch of 50  $\mu\text{m}$  and high-resolution CsI or Gadox scintillator. This detector employs a state-of-the-art high-resolution CMOS sensor with 14-bit digital outputs and two gain modes offering a high dynamic mode or a high sensitivity mode ideal for low dose, real-time imaging.

The sensor is permanently bonded to a fibre optic plate (FOP) to enhance image quality and make the device more radiation tolerant. The detector housing has lead shielding to provide protection against radiation damage. The detector offers a Camera Link interface enabling 12 fps at full resolution of 5606  $\times$  4800 pixels and a 10 GigE interface supporting 22 fps. Our built-in customised high-speed USB interface enables the rapid integration of the detector for demonstration and imaging evaluation.

For developers, an SDK is available with DLLs for 64-bit Windows and Linux. These include C++ and .NET wrappers for easy integration with customised software. Library functions include dark subtraction, gain correction and defect correction. Example code is provided, including a simple Graphical User Interface. The SDK supports Camera Link, 5 GigE and USB 3.0 communications.

## Key Features

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**Fast, low noise imaging with minimal image lag**

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**CMOS sensor bonded to fibre optic plate (FOP) for radiation tolerance**

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**High Sensitivity and High Dynamic Range modes**

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**High speed, flexible region of interest**

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**Choice of high resolution / high sensitivity CsI scintillator**

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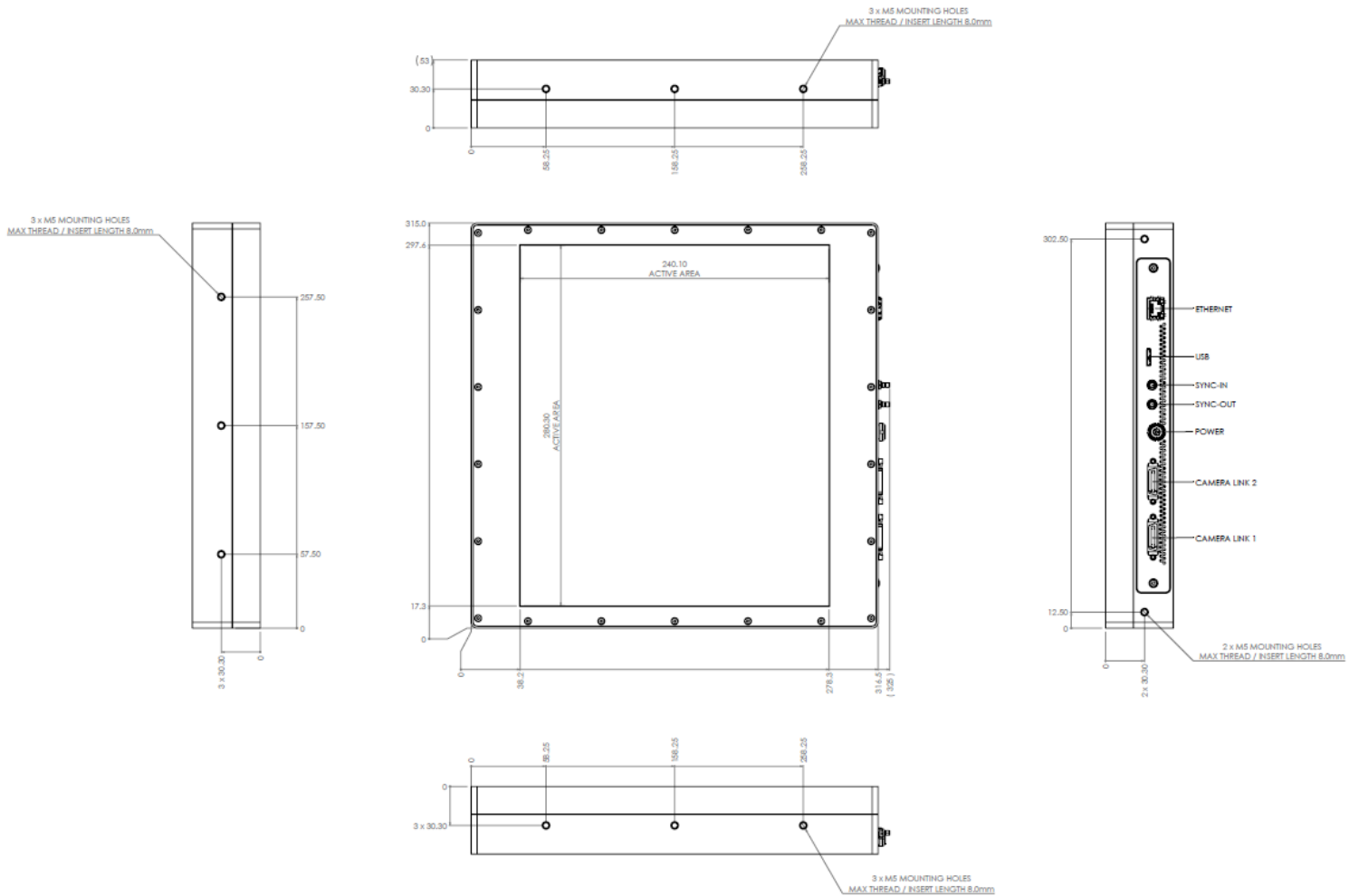
**Windows and Linux SDK available for rapid design-in**

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## Technical Specifications

<b>SENSOR</b>	
Pixel Size	50 $\mu\text{m}$
Sensitive Area	280.3 $\times$ 240.0 mm <sup>2</sup>
Pixel Matrix	5606 $\times$ 4802
<b>MAX FRAME RATE</b>	
Frame Rate Full Resolution	22 fps
<b>IMAGE PERFORMANCE</b>	
Dynamic Range - High Sensitivity Mode	70
Dynamic Range - High Dynamic Range Mode	74
Bit Depth	14-bit
Max Energy	225 kV
<b>SCINTILLATOR, WINDOW &amp; FOP OPTIONS</b>	
Scintillator	High Efficiency Csl
	High Resolution Csl
	Various Gadox Screens
X-ray Window Material	Carbon Fibre
FOP	2 to 5 mm
<b>MECHANICAL</b>	
Weight (3 mm FOP)	10 kg
Dimensions	315.0 $\times$ 316.5 $\times$ 53.0 mm <sup>3</sup>
<b>COMMUNICATIONS</b>	
Camera Link	Full @ 75 Mpixel/s
GigE	10 GigE
USB	High Speed USB 3.0
Trigger Mode	Continuous, SW, External Trigger
Software Support	64-bit Windows® and Linux
<b>POWER</b>	
Power Supply	12 to 24 V
Max Dissipation	22 W
<b>TEMPERATURE RANGE</b>	
Operating Range	+5 °C to +40 °C
Storage Range	-20 °C to +55 °C

# SpectrumLogic



Unless otherwise specified, Spectrum Logic 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.

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