

## 1412HR CMOS X-ray Detector



The 1412HR is a dynamic X-ray detector designed for electronics inspection, industrial NDT, pre-clinical and clinical applications, with a pixel pitch of 50  $\mu\text{m}$  and a choice of high-efficiency CsI or Gadox scintillator. It is ideal for CBCT or fluoroscopy.

This detector employs a state-of-the-art 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 is housed in a low-profile enclosure incorporating lead shielding.

Innovative sensor design enables a frame rate of up to 29 fps can be achieved with Camera Link or 5 GigE. A programmable region of Interest (ROI) gives higher frame rates, for example with an ROI of  $2804 \times 1200$  pixels can be read out at 58 frames per second.

For developers, a windows-based SDK is available with DLLs for Windows x64. 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)**

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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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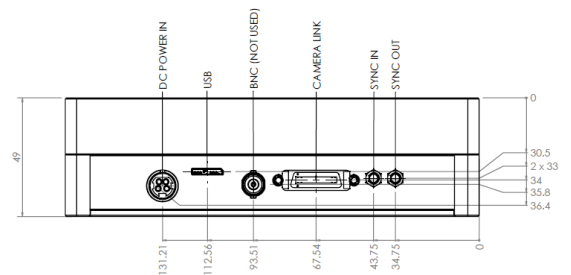
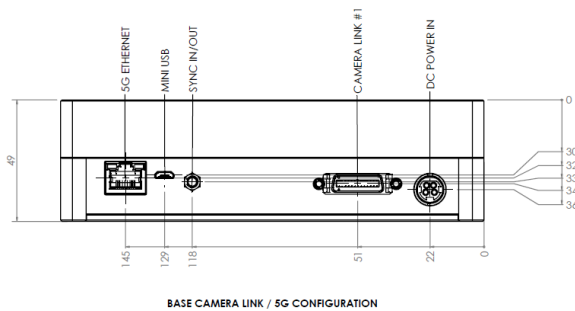
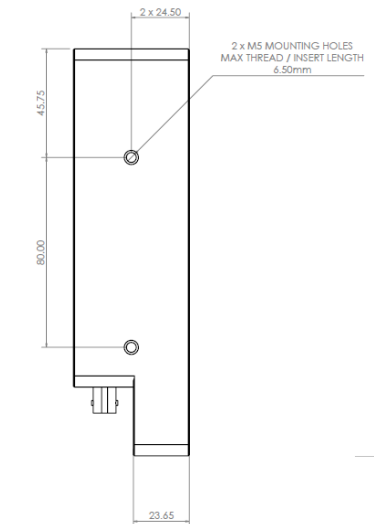
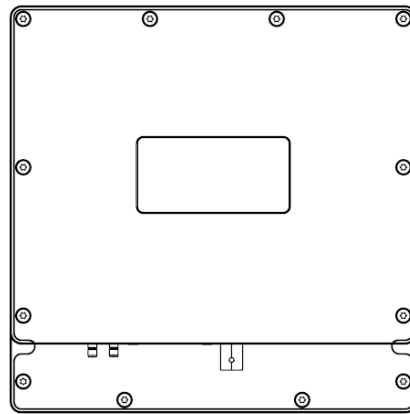
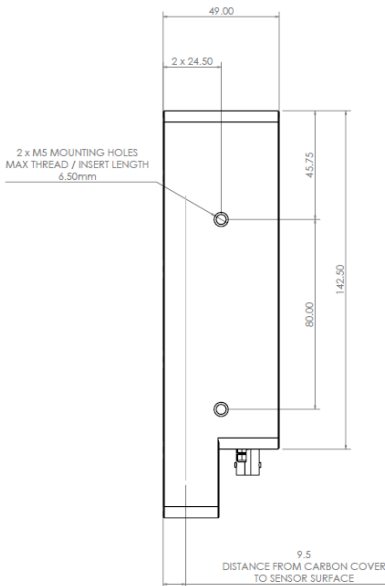
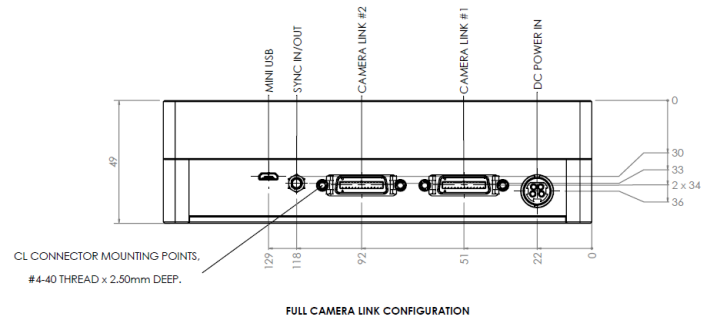
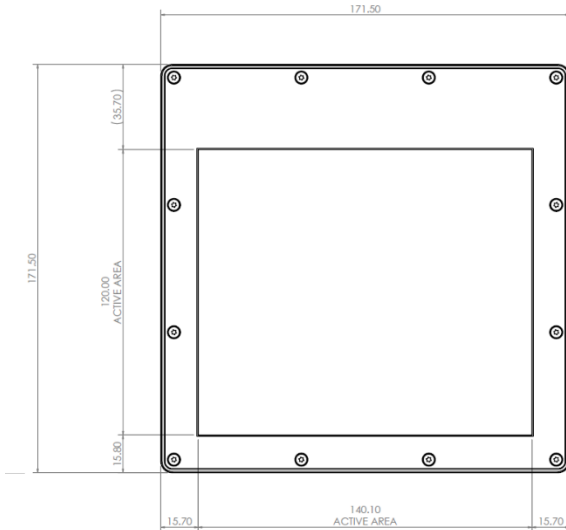
**Spectrum Logic provides a Windows SDK for rapid design-in**

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## Technical Specifications

<b>SENSOR</b>	
Pixel Size	50 $\mu\text{m}$
Sensitive Area	140.1 $\times$ 120.0 mm <sup>2</sup>
Pixel Matrix	2802 $\times$ 2400
<b>MAX FRAME RATE</b>	
Frame Rate Full Resolution	29 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)	2.9 kg
Dimensions	171.5 $\times$ 171.5 $\times$ 49.0 mm <sup>3</sup>
<b>COMMUNICATIONS</b>	
Camera Link	Full @ 75 Mpixel/s
GigE	5 GigE
USB	High Speed USB 3.0
Trigger Mode	Continuous, SW, External Trigger
Software Support	64-bit Windows® OS from Windows 10
<b>POWER</b>	
Power Supply	24 V
Max Dissipation	10 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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