

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 μm 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, 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, GigE and USB communications.

Key Features

Fast, low noise imaging with minimal image lag

CMOS sensor bonded to fibre optic plate (FOP)

High Sensitivity and High Dynamic Range modes

High speed, flexible region of interest

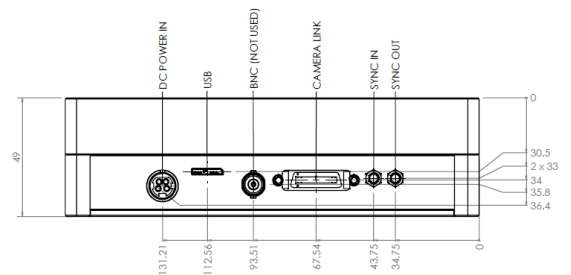
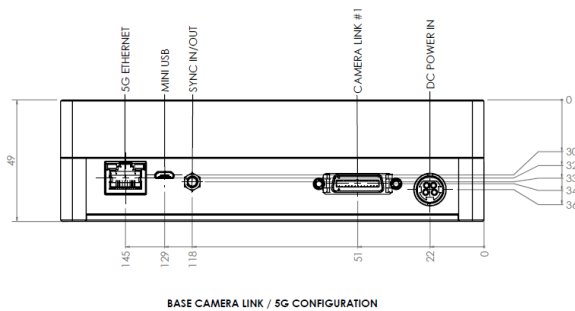
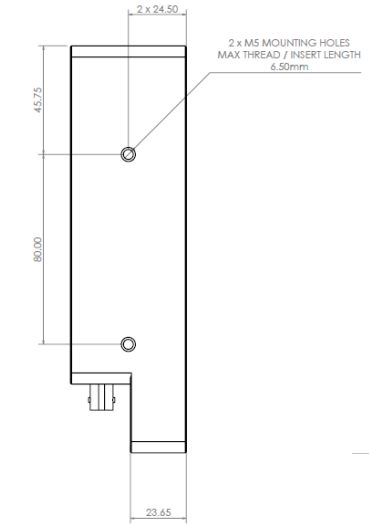
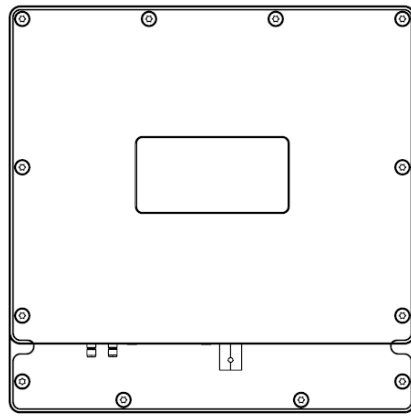
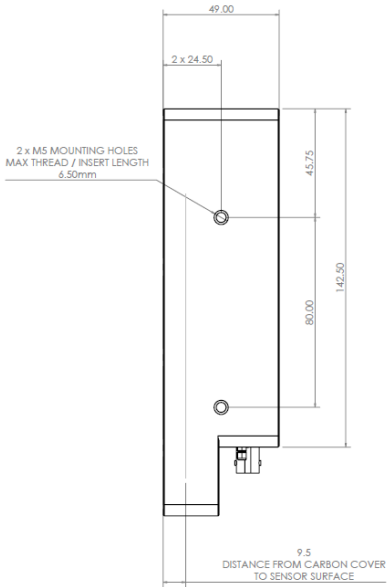
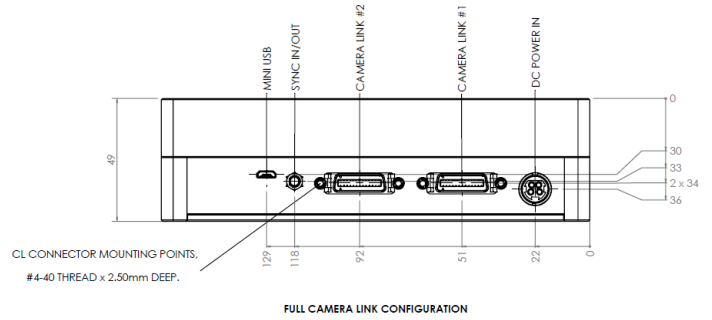
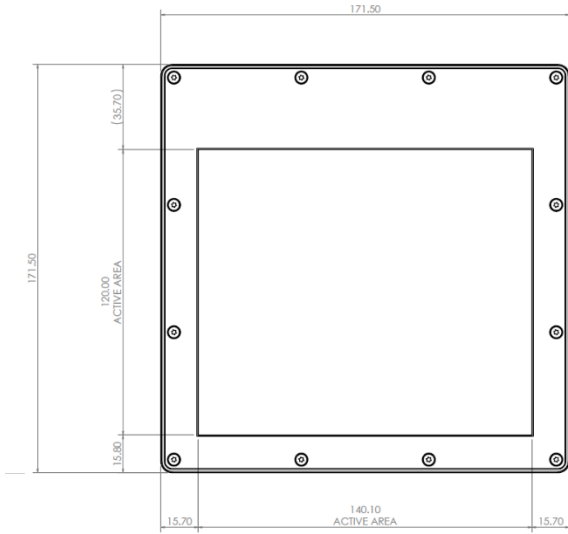
Choice of high resolution / high sensitivity CsI scintillator

Windows and Linux SDK available for rapid design-in

Technical Specifications

SENSOR	
Pixel Size	50 μ m
Sensitive Area	140.1 \times 120.0 mm ²
Pixel Matrix	2802 \times 2400
MAX FRAME RATE	
Frame Rate Full Resolution	29 fps
IMAGE PERFORMANCE	
Dynamic Range - High Sensitivity Mode	70
Dynamic Range - High Dynamic Range Mode	74
Bit Depth	14-bit
Max Energy	225 kV
SCINTILLATOR, WINDOW & FOP OPTIONS	
Scintillator	High Efficiency CsI
	High Resolution CsI
	Various Gadox Screens
X-ray Window Material	Carbon Fibre
FOP	2 to 5 mm
MECHANICAL	
Weight (3 mm FOP)	2.9 kg
Dimensions	171.5 \times 171.5 \times 49.0 mm ³
COMMUNICATIONS	
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® and Linux
POWER	
Power Supply	24 V
Max Dissipation	10 W
TEMPERATURE RANGE	
Operating Range	+5 °C to +40 °C
Storage Range	-20 °C to +55 °C

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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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