

2121HS CMOS X-ray Detector



The 2121HS is a dynamic X-ray detector designed for industrial NDT, pre-clinical and clinical applications, with a pixel pitch of 100 μm and a choice of high-efficiency Csl or Gadox scintillator. It is ideal for CBCT or fluoroscopy.

Innovative sensor design enables a frame rate of 70 fps in full resolution, 84 fps binned 2×2 and higher speeds for a region of interest. The flexible region of interest function allows a region to be configured to optimise the frame rate, for example 2049×1600 pixels can be read at 100 fps.

This detector employs a state-of-the-art CMOS sensor with 14-bit digital outputs and two gain modes offering a high dynamic range 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 houses a conventional or a radiation hardened FOP and contains lead shielding to provide protection against radiation damage.

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

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

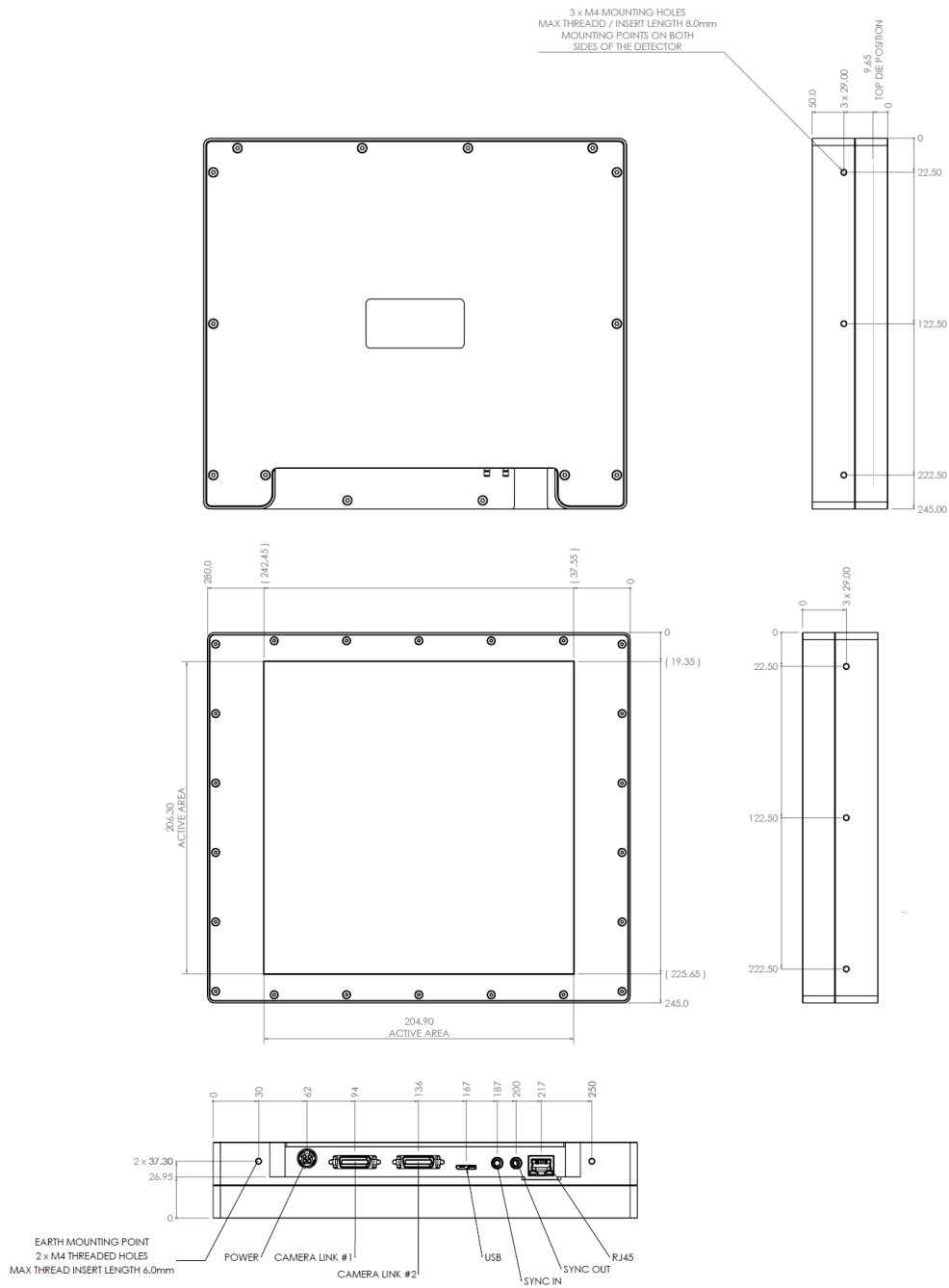
Choice of high resolution / high sensitivity Csl scintillator

Spectrum Logic provides a Windows SDK for rapid design-in

Technical Specifications

SENSOR	
Pixel Size	100 μ m
Sensitive Area	204.9 \times 206.3 mm ²
Pixel Matrix	2049 \times 2063
MAX FRAME RATE	
Frame Rate Full Resolution	70 fps
Frame Rate Binned 2 \times 2	84 fps
IMAGE PERFORMANCE	
Dynamic Range - High Sensitivity Mode	72
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)	8.2 kg
Dimensions	245.0 \times 280.0 \times 50.0 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® OS from Windows 10
POWER	
Power Supply	12 V
Max Dissipation	19 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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SPECTRUM LOGIC Limited
11 Leighton Place London NW5 2QL, UK