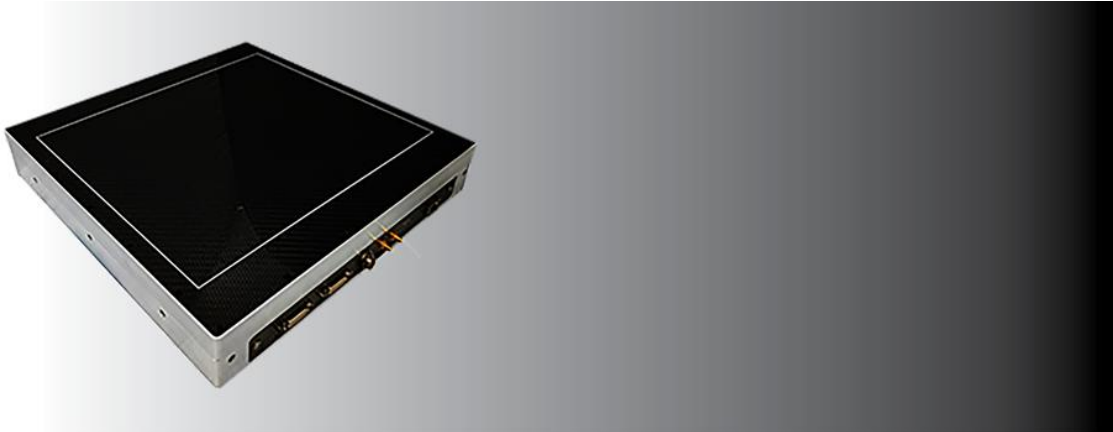# 2824HR
CMOS X-ray Detector

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 μm 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 Cameral Link interface enabling 12 fps at full resolution of 5606 × 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, 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) for radiation tolerance

High Sensitivity and High Dynamic Range modes

High speed, flexible region of interest

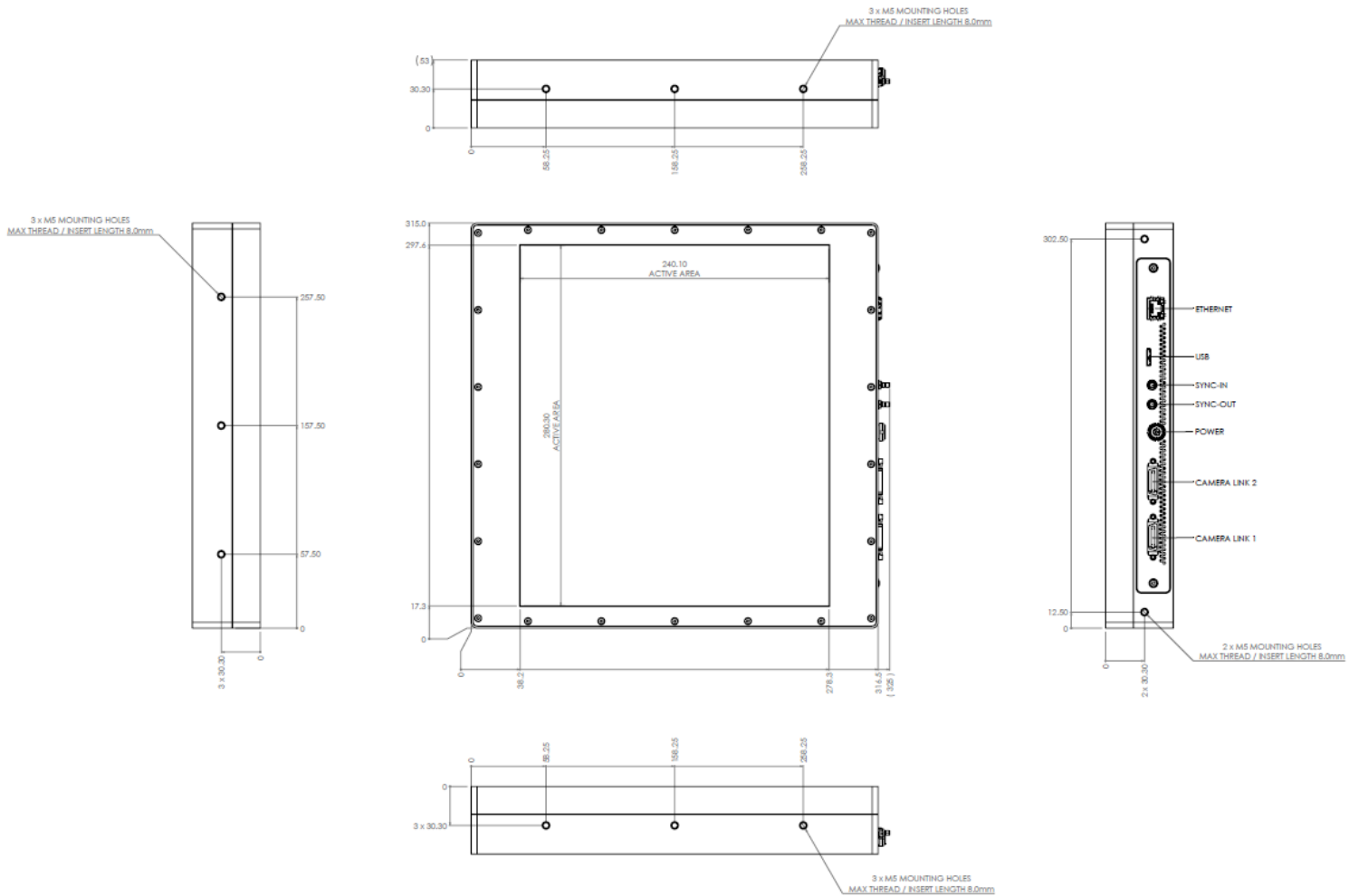**Choice of high resolution / high sensitivity CsI scintillator**

Spectrum Logic provides a Windows SDK for rapid design-in

Technical Specifications

SENSOR	
Pixel Size	50 μm
Sensitive Area	280.3 × 240.0 mm²
Pixel Matrix	5608 × 4800
MAX FRAME RATE	
Frame Rate Full Resolution	22 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 Csl
	High Resolution Csl
	Various Gadox Screens
X-ray Window Material	Carbon Fibre
FOP	2 to 5 mm
MECHANICAL	
Weight (3 mm FOP)	10 kg
Dimensions	315.0 × 316.5 × 53.0 mm³
COMMUNICATIONS	
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® OS from Windows 10
POWER	
Power Supply	12 to 24 V
Max Dissipation	22 W
TEMPERATURE RANGE	
Operating Range	+5 °C to +40 °C
Storage Range	-20 °C to +55 °C

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3 x M5 MOUNTING HOLES
MAX THREAD / INSERT LENGTH 8.0mm

3 x M5 MOUNTING HOLES
MAX THREAD / INSERT LENGTH 8.0mm

240.10
ACTIVE AREA

280.30
ACTIVE AREA

ETHERNET
USB
SYNC-IN
SYNC-OUT
POWER
CAMERA LINK 2
CAMERA LINK 1

2 x M5 MOUNTING HOLES
MAX THREAD / INSERT LENGTH 8.0mm

3 x M5 MOUNTING HOLES
MAX THREAD / INSERT LENGTH 8.0mm

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
Highgate Business Centre, 33 Greenwood Place, London NW5 1LB, UK