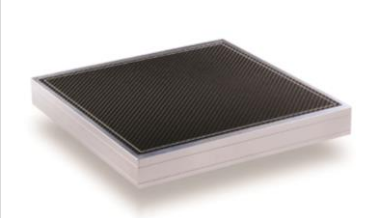

Key Features

- Best in class image quality
- High performance IGZO TFT sensor
- 110.5 or 146µm pixel pitch
- Selectable gain and pixel binning modes
- Programmable ROI readout
- Real-time defect pixel corrections
- NBASE-T 5 Gbps data interface (GigE compatible)

Applications

- Industrial inspection, biomedical and scientific

Rad-Xcam Large-Area Industrial X-Ray Detectors

Overview

Teledyne DALSA, a worldwide leader in high performance X-ray imaging is introducing a new product line of high speed, high performance industrial dynamic detectors, based on our innovative radiation-hard IGZO sensor technology. The Rad-Xcam 1717, 1723 and 3030 detectors are designed to address the demanding needs of Industrial inspection, biomedical and scientific applications, providing compelling integration cost advantages.

Teledyne DALSA's Rad-Xcam 1717, 1723 and 3030 performance exceeds the existent industry benchmarks for legacy amorphous silicon and emerging IGZO technologies by providing higher frame rates and image quality at low dose, lower lag and increased signal-to-noise ratio. The proprietary technology and readout integrated circuits powering this detector provide artifact free images, enable easy integration and ensure reliable performance. The high thermal stability assures an efficient workflow with high productivity and reduced system calibration requirements. These detectors are available with different Gd2O2S (GadOx) scintillator options to address a range of resolution and sensitivity requirements. The Camera interface allows for easy access to feature such as adjusting the frame rate, single or multiple frames acquisition and control of advanced timing modes. Each detector ships with user-friendly software tools for stand-alone operation or easy integration with your application software.

Camera Options

Device	Pixels	Pixel size	Active Area	Max. Frame Rate
Rad-Xcam 1717	1536 x 1536	110.5 µm	16.9 x 16.9 cm	44 fps
Rad-Xcam 1723	1536 x 2048	110.5 µm	16.9 x 22.6 cm	44 fps
Rad-Xcam 3030	2048 x 2048	146 µm	29.9 x 29.9 cm	55 fps

TELEDYNE DALSA
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Specifications

Detector Specifications	Rad-Xcam 1717/1723	Rad-Xcam 3030	Units
Gain modes	2	2	
Read noise (High Gain) (rms)	3.1	1.3	ADU[1]
Typ. dynamic range (High/Low Gain)	62, 67	73, 83	
Digitization	16	16	bits
Image lag (0.1 sec)	1	1	%
Non-linearity (10..90% FS)	1	1	%
Typ. readout period	25	23	ms
Max. frame rate (full res.)	44	55	fps

[1] ADU = Analog-Digital Unit = 1 LSB (Least Significant Bit)
[2] Time required to transfer image from sensor to camera memory

Electrical Specifications	Rad-Xcam 1717/1723	Rad-Xcam 3030	Units
Typical supply voltage	12.0		Volts
Supply voltage range	11 to 26		Volts
Maximum supply current	3.0		Amps
Maximum power dissipation	21	24	Watts
Camera interface	5Gigabit Ethernet		
Trigger connector	TTL		

General Specifications	Rad-Xcam 1717/1723	Rad-Xcam 3030	Units
Operating temperature	+10 to +40		°C
Storage temperature	-10 to +55		°C
Humidity (non-condensing)	20 to 80		% R.H.
Weight	3	9	kg

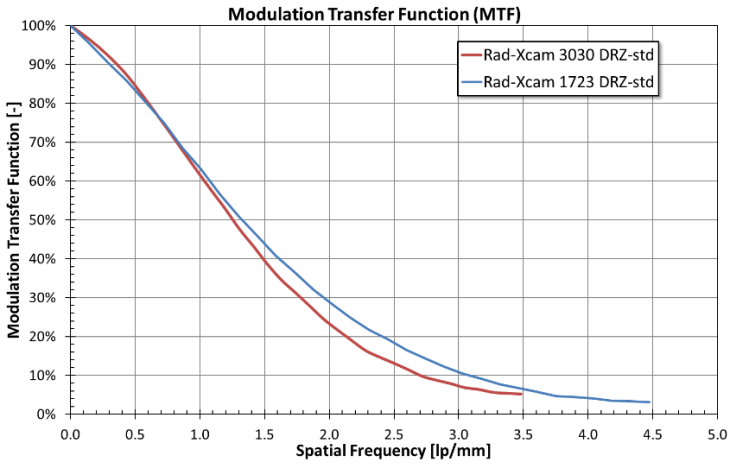
Resolution & Sensitivity

The Rad-Xcam detectors are designed to work with x-ray sources operating at a wide range of kVp settings. X-ray energies as low as 10-15 keV can be detected. The cameras can be used with x-ray energies as high as 225kV, although we recommend the use of additional shielding and/or collimation at higher energies in order to protect the sensor element and electronics from damage.

The pixel spacing of each camera model determines the limiting resolution of the sensor. The actual Modulation Transfer Function (MTF) of the detector depends on the type of scintillator that is installed. A thicker phosphor screen will produce more signal, but at the expense of high-frequency contrast. Typical MTF curves for the two detector types are shown in the graph below.

Detector	Typical Sensitivity [ADU/nGy] (1)
Rad-Xcam 1717/1723 (With DRZ-Std)	0.8
Rad-Xcam 3030 (with DRZ-Std)	1.2

(1) 80kVp, W target, 2 mm glass window, no filtration

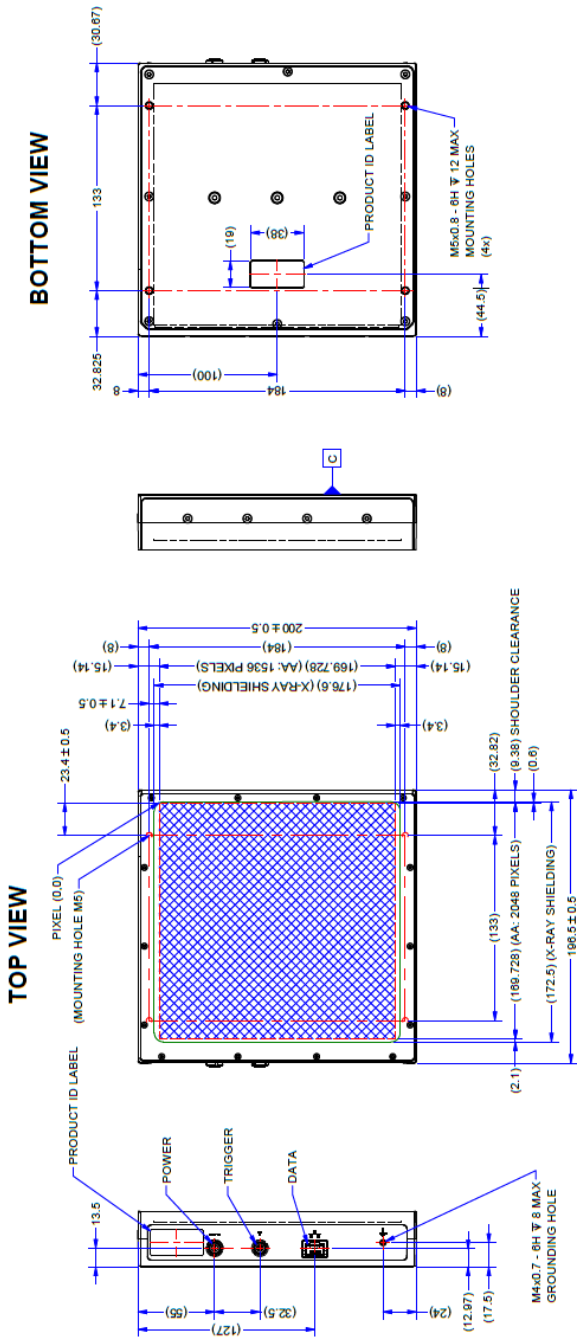


Software

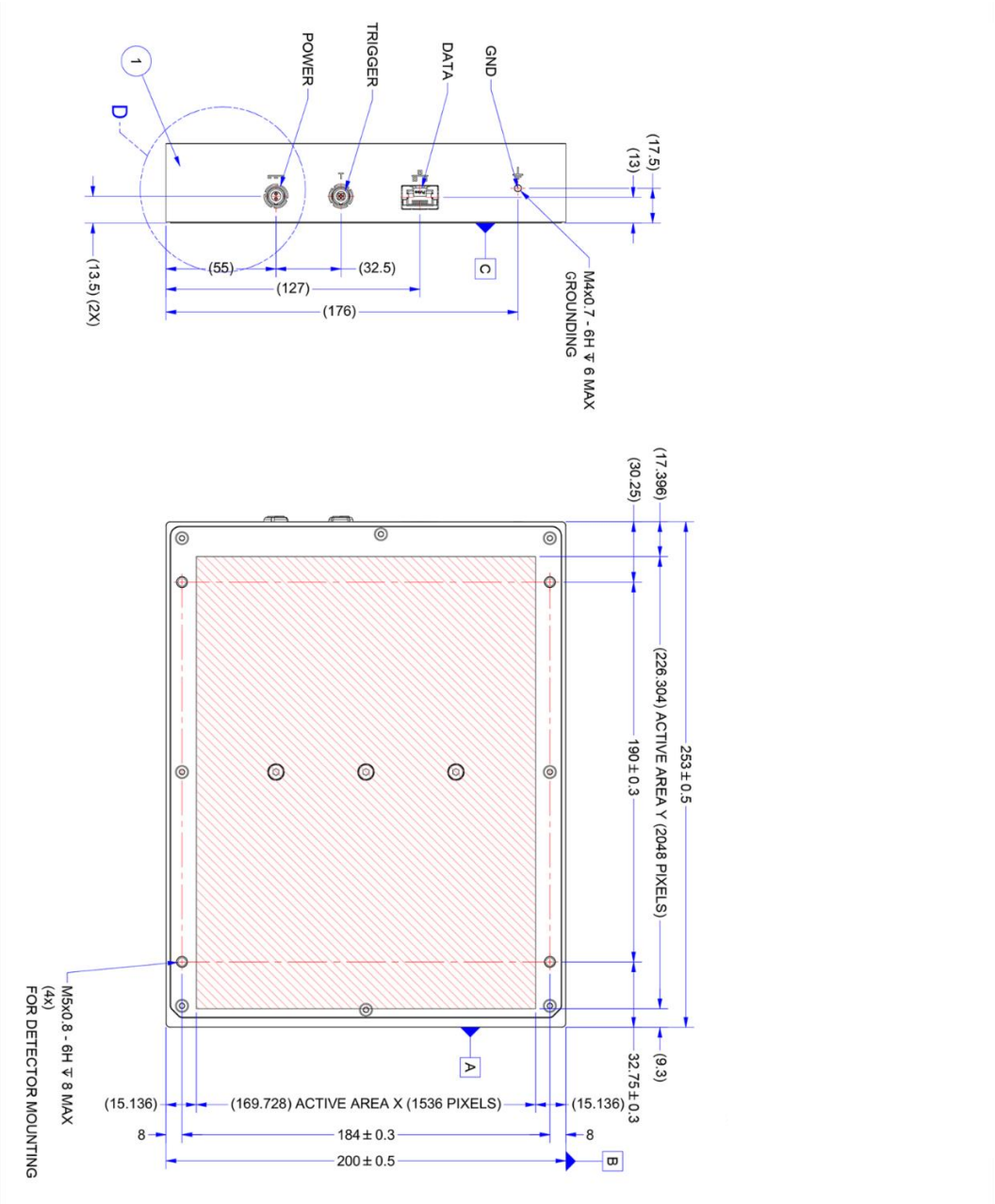
Each Rad-Xcam detector ships with our ShadoCam Imaging application, Teledyne DALSA's CamExpert software and a Gigabit Ethernet driver (if applicable). The software is compatible with Windows 7, 8 and 10. Check with your sales representative for compatibility with other Windows versions or with the Linux operating system. The Ethernet models can be connected on a network, but for optimal performance a dedicated network adapter is highly recommended.

For writing custom applications to acquire images from the detector, we recommend using Teledyne DALSA's Sapera Essential, or the Sapera LT SDK (free download available at http://www.teledynedalsa.com/imaging/products/software/sapera/lt/).

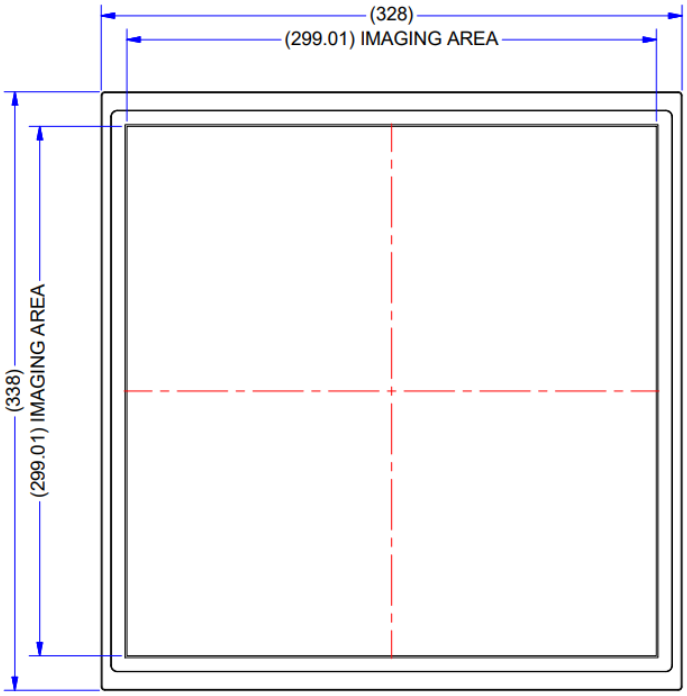
Mechanical Dimensions Rad-Xcam 1717



Mechanical Dimensions Rad-Xcam 1723



Mechanical Dimensions Rad-Xcam 3030



I/O Connectors

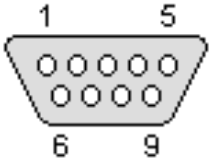
Data Connector:

RJ45: HALO HFJ11-1G16E-L12RL

Power Connectors:

2-pin LEMO[1]
EGG.0B.302
Pin 1 +12 VDC
Pin 2 ground

Male 9pin D-sub Pinout[2]

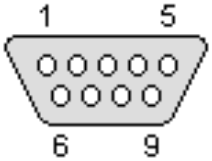


Pin 1 & 3 +12V
Pin 2 & 4 Ground-

Trigger I/O Connectors

4-pin LEMO EGG.0B.304[1]
TTL (open collector), opto-isolated
Pin 1 Trig out+
Pin 2 Trig out–
Pin 3 Trig in+
Pin 4 Trig in–

Female 9pin D-sub Pinout[2].



Pin 1 Trig out+
Pin 2 Trig out–
Pin 3 Trig in+
Pin 4 Trig in–

[1] Rad-Xcam 1717/1723
[2] Rad-Xcam 3030

Ordering Information

Rad-Xcam detectors are available in a single, industrial image quality grade (blemish specification available on request). Specify option -01 for Mitsubishi Chemical DRZ-fine, or option -02 for a Mitsubishi Chemical DRZ-Std scintillator.

All detectors ship with a universal input power supply (90-264V, 50-60Hz), power cord, Ethernet cable (if applicable) and software CD. For international orders, please specify the type of power cord you require. Camera Link models require a CameraLink (full) frame grabber and cables (sold separately). Please contact your Teledyne DALSA sales representative for more information

P/N	Description
RT1763	Rad-Xcam 1717 (17 x 17 cm, 110.5 µm pixel)
RT1753	Rad-Xcam 1723 (17 x 23 cm, 110.5 µm pixel)
RT1743	Rad-Xcam 3030 (30 x 30 cm, 146 µm pixel)

Contact Information

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