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# X-ray Line-Scan Camera Series

# Crane XIRH High Energy Detector

## CRANE

The X-Scan Imaging XIRH8800 series of linear array x-ray cameras offer high performance for high-energy x-ray and gamma-ray scanning applications in a compact form factor. A heavy-metal housing shields diode arrays and electronics ensuring long-life reliability under extreme radiation conditions. A wide selection of scintillation material converts high-energy photons into visible light, fiber optics convey the visible light to a shielded, off-axis CMOS imaging linear diode array (LDA) while providing a wide dynamic range, optimization of sensitivity and resolution, and solid-state reliability. The close proximity of the analog-to-digital converters (ADC) to the detector chips and the use of low-voltage-differential-signal technology minimize interference noise. A collection of hardware for interfacing to computers and software including drivers, an intuitive application programming interface (API), and example code software expedite developments of x-ray scanning systems.

## Key Features

Off-axis, fiber-optic design for high-energy reliability in a compact form factor
50 KeV to 15 MeV energy range
Choice of scintillators: GOS:Tb, CsI:Tl, CWO
Wide range of resolutions & selection of lengths
Incorporates X-Scan Imaging's proprietary photodiode arrays
- Selectable resolution
- Low noise, wide dynamic range, high sensitivity
- High MTF
16-bit analog-to-digital conversion
Supports variable scan speed with position synchronization
Software development kit
    Device drivers, libraries, standard API
GigE/Camera Link/USB3 interface

## Applications

Industrial non-destructive testing (NDT)
Weld and corrosion inspection
Fan-beam computed tomography (CT)

## Model: XIRH88__-[*LLL*]<sup>i</sup>

| Model series | XIRH8850 | XIRH8801 | XIRH8802 | XIRH8804 | XIRH8808 | XIRH8816 |
|---|---|---|---|---|---|---|
| Resolution | 50 µm | 0.1 mm | 0.2 mm | 0.4 mm | 0.8 mm | 1.6 mm |
| Number of pixels | LLL × 512 | LLL × 256 | LLL × 128 | LLL × 64 | LLL × 32 | LLL × 16 |
| Maximum line rate | 550 Hz | 1500 Hz | 3 KHz | 6 KHz | 12 KHz | 23 KHz |

[i] Active Length is (25.6 mm × *LLL*) where *LLL* is a multiple of 6 and *LLL* ≥ 12 (minimum length is 308 mm and no maximum length limit).
The maximum line rate is available for *LLL*≤18 (461 mm).  Also depending in scintillator choice, image quality may be degraded at line rates greater than 1 KHz.

## Standard Options
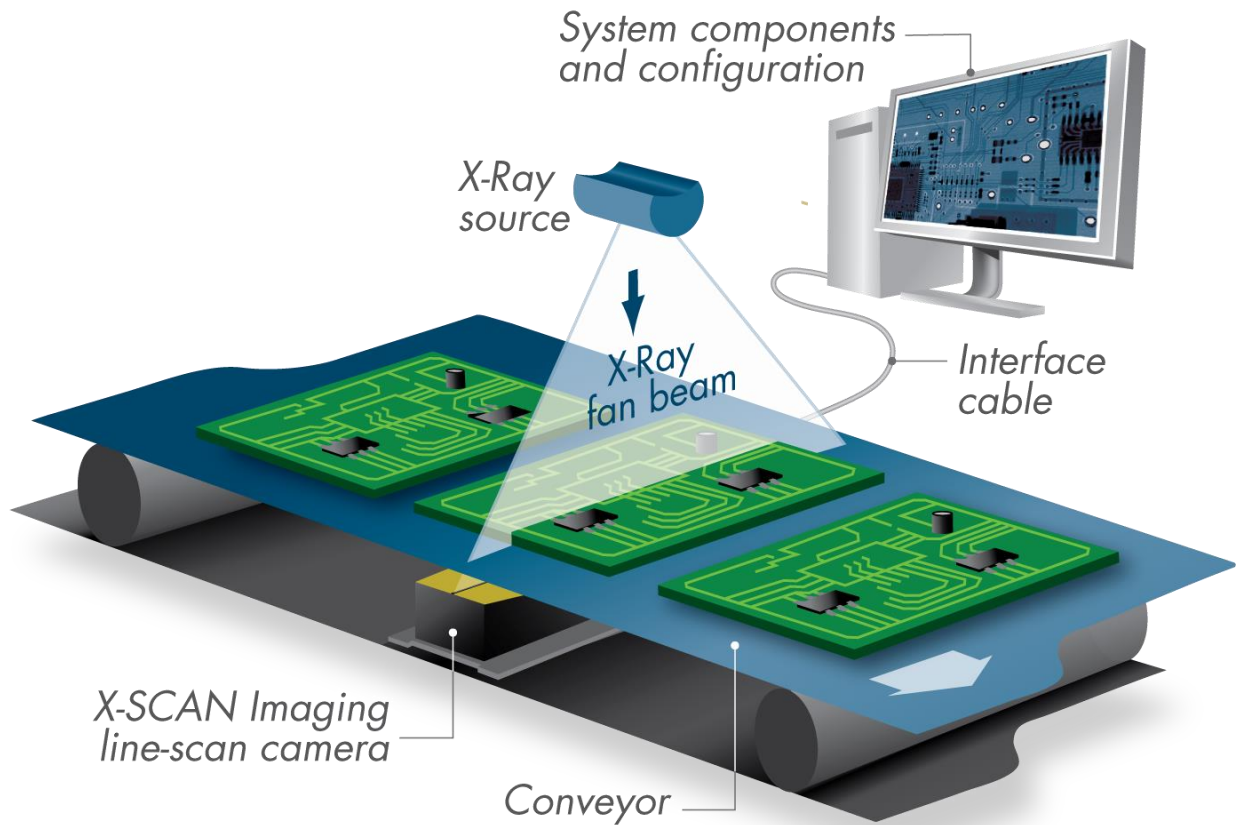
Part Numbering:

Example: XIRH8802W15/600-024-GX-FGE

Definitions:
```
X    I   RH   88   02   W15  /   600  –   024  –   DS  –   GX  -  FGE
[1] [2] [3]  [4]  [5]  [6]    [7]      [8]     [9]    [10]    [11]   [12]
```

| Position | Description | Position | Description |
|---|---|---|---|
| [1] | Product Family | [7] | Scintillator Code |
| [2] | Array Type | [8] | Energy Rating |
| [3] | Shape | [9] | Detector Length (Inches) |
| [4] | Energy Option H= With FOP | [10] | Housing Aspect |
| [5] | Array Series | [11] | Interface G=GigE C=CameraLink U=USB |
| [6] | Pixel Pitch 02=200um, 04=400um, etc | [12] | PC Frame Grabber Card |

## Setup

The XIRH8800 series camera system includes a camera unit, a software development kit, power adapter and cabling. The frame-grabber to be installed in the computer is provided optionally. The objects to be scanned should be passed between the x-ray source and the camera.

System components
and configuration

X-Ray
source

X-Ray
fan beam

Interface
cable

X-SCAN Imaging
line-scan camera

Conveyor

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