

FLIR X8400sc

HD thermal imaging camera



The FLIR X8400sc thermal imaging camera is designed to provide the best thermal measurement performance together with the most advanced connectivity. It is ideal for Scientists and R&D professionals that are working on the most demanding applications. State-of-the-art connectivity and ease of use allow the user to concentrate on the experiment and not on the camera.

HD THERMAL IMAGING WITH HIGH SENSITIVITY

The FLIR X8400sc is equipped with a cooled Indium Antimonide detector that produces crisp thermal images of 1280 x 1024 pixels. It allows seeing the smallest of details and offers 4 times more thermal data than the standard 640 x 512 pixels images. FLIR X8400sc detects temperature differences smaller than 25mK (18mK typically). With the "lock-in" process temperatures differences as small as 1mK will become clearly visible. The camera automatically adjusts its temperature range to best fit the thermal scene.

The FLIR X8000sc Series contain a 4 slots motorized filter wheel with automatic filter recognition and measurement parameter adjustment. A temperature probe is integrated for improved measurement accuracy.

ULTRA HIGH FRAME RATE WITH WINDOWING

The FLIR X8400sc has an adjustable frame rate of up to 106 Hz full frame. It can deliver images up to a speed of 4,500 Hz in windowing. The sub-sample windows can be arbitrarily chosen and are easily defined.

CONNECTIVITY

The FLIR X8000sc Series offer a wide range of connectivity options such as Camera Link medium for full bandwidth data acquisition, Gigabit Ethernet for simple connectivity, Standard BNC connectors for often used features such as Detector Sync, Acquisition trigger, analog lockin input, MicroSD-card slot, DVI-output 1080p and IRIG-B connector for external time stamping. An extension port with advanced features and connections is available.

SOFTWARE

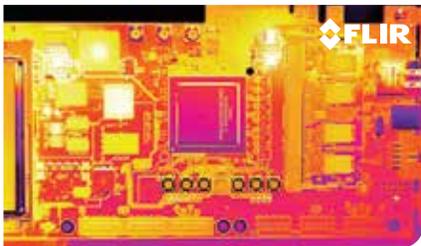
FLIR X8400sc camera works seamlessly together with FLIR ResearchIR Max software enabling intuitive viewing, recording and advanced processing of the thermal data provided by the camera. Each camera comes standard with this especially for R&D applications developed software. A Software Developers Kit (SDK) is optionally available.

KEY FEATURES

- Cooled Indium Antimonide detector (InSb): 1280 x 1024 pixels
- High frame rates with windowing
- Removable touchscreen LCD
- Motorized filter wheel



Thermal image of the Arc de Triomphe, Paris, France.



This thermal image of an electronic board shows even the smallest detail.



Imaging Specifications

System Overview		X8400sc
Resolution		1280 x 1024
Frame rate		106 Hz
Motorized focus mechanism		no
Well Capacity		5.8 M electrons
Digital Data Streaming		Simultaneous Gigabit Ethernet and Camera Link Base Camera Link Medium
Focus		Manual
Detector		
Detector Type		Indium Antimonide (InSb)
Operability		>99.5%
Spectral Range		1.5 – 5.1 μ m
Detector Pitch		15 μ m
NETD		<25 mk (20 mk Typical)
Sensor Cooling		Closed Cycle Rotary
Electronics / Imaging		
Readout		Snapshot Digital
Readout Modes		Asynchronous Integrate While Read; Asynchronous Integrate Then Read
Synchronization Modes		IRIG-B; Sync In, Trigger In
Image Time Stamp		Internal IRIG-B Decoder Clock / TSPI Accurate Time Stamp
Integration Time		500 ns to Full Frame rate, with auto exposure
Subwindow Mode		User-Defined
Dynamic Range		14-bit, 16 bits with DRX
HD Video		DVI 1080p
Command and Control		Gigabit Ethernet, Camera Link, Detachable LCD Display, WiFi
Measurement		
Accuracy		$\pm 1^{\circ}\text{C}$ or $\pm 1\%$ of Reading
Calibration		Custom calibration on request
Standard Temperature Range		+5 $^{\circ}\text{C}$ to +300 $^{\circ}\text{C}$
Optional Temperature Range		Up to +3,000 $^{\circ}\text{C}$ / From -20 $^{\circ}\text{C}$
Optics		
Available optics		28mm - 38 $^{\circ}$ x 31 $^{\circ}$ / 50mm - 22 $^{\circ}$ x 17 $^{\circ}$ 100mm - 11 $^{\circ}$ x 9 $^{\circ}$ / 200mm - 5.5 $^{\circ}$ x 4.4 $^{\circ}$ Close up x3 - 6.4 x 5.1 mm
Camera f/#		2.0
Filtering		4x Position Motorized, with drift compensation and automatic identification
Image Presentation		
On-Camera Display		Detachable Touchscreen LCD Display (800 x 480)
Analog Palettes		Selectable 8-bit
Automatic Gain Control		Manual, Linear, ROI
Display Overlay		Temperature Measurement & Scale
Image Analysis		On-Camera Temperature Analysis
General		
Operating Temperature Range		-20 $^{\circ}\text{C}$ to +50 $^{\circ}\text{C}$
Shock / Vibration		operational 15G, IEC 68-2-29 / Operational 2G, IEC 68-2-26
Power		24 VDC
Weight w/o Lens		5.05 kg
Size (L x W x H) w/o Lens		280 x 150 x 180 mm
Mounting		UNC 1/4" -20 + 3xM5 threads
X8400sc Packages		
X8400sc Advanced Package: X8400sc, 50 mm Lens, Temperature Calibration, Multi-IT, Triggering, IRIG-B, ResearchIR Max Software		



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