

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

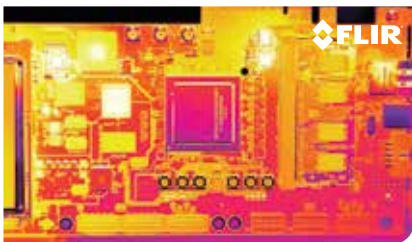
FLIR X8400sc camera works seamlessly together with FLIR ResearchIR Max software enabling intuitive viewing, recording and advanced processing of the thermal data provided by the camera. Each camera comes standard with this especially for R&D applications developed software. A Software Developers Kit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