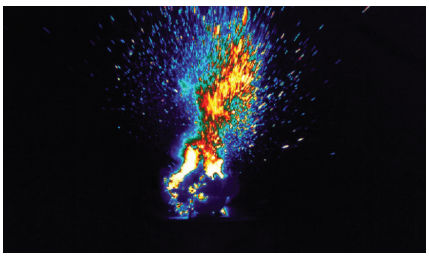
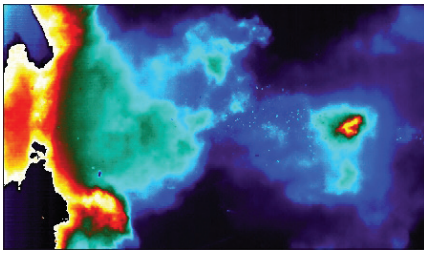
FLIR X8500sc

High-Speed, High Definition Thermal Cameras

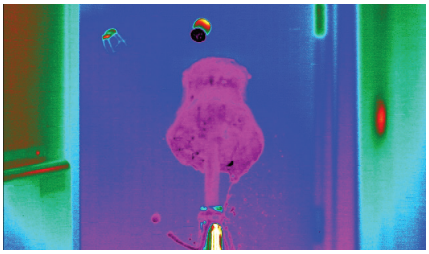
The FLIR X8500sc is a highly sensitive, high-speed, high definition MWIR camera designed for scientists, researchers, and engineers. It has all the features needed for research and science: from on-camera RAM/SSD recording to a four-position motorized filter wheel. Plus, by combining HD resolution with high-speed frame rates, the X8500sc allows researchers to fully image the scene and stop motion on high-speed events – whether they're in the lab or on the test range.



Synchronizes with events or external instruments



Measures temperatures up to 3000°C (optional calibration)



Fast frame rates and integration time needed to freeze action

High-Speed HD Recording

The X8500sc can record 180 frames per second at a full 1280 x 1024 pixel resolution, for true HD high-speed thermal imaging. Windowing allows for even faster frame rates, up to 29,134 Hz. Integration times down to 270 ns at full frame allow for stop-motion action on fast moving and ensure accurate measurements. The X8500sc records up to 36 seconds to on-camera RAM with zero dropped frames. Playback from RAM or save to the removable FLIR DVIR solid-state drive in just 90 seconds, and be ready to begin a new recording.

Advanced Spectral Filtering Options

The FLIR X8500sc incorporates an easy access, four-position motorized filter wheel that permits filter exchange in any environment. The camera automatically determines filter ID and corresponding calibrations. Add custom cold filters for more tailored spectral filtering requirements.

Streaming, Synchronizing, and Triggering

The X8500sc streams high-speed 14-bit data simultaneously over Gigabit Ethernet, Camera Link, and CoaXpress for live viewing, analysis, or recording. Trigger options such as the external BNC connector input make the X8500sc ideal for high-speed, high sensitivity applications. Sync In/Out allows for precisely coordinated image capture of each frame of data.

Software

The X8500sc camera works seamlessly with FLIR ResearchIR Max software, enabling intuitive viewing and recording, and advanced processing of the thermal data. The GigE Vision®/GenICam compliant Ethernet allows you to plug and play with ResearchIR or third-party software programs, such as Mathworks® MATLAB. An optional Software Developers Kit (SDK) is available, or use industry-standard GigE Vision toolkits.

Key Features

- 180 Hz, 1280 x 1024 resolution high-speed imaging
- Up to 36 seconds of on-camera RAM recording with FLIR DVIR
- Synchronization with other instruments and events
- Full GenICam support over GigE, CXP, and Camera Link interfaces
- Four-position motorized filter wheel with automatic filter recognition

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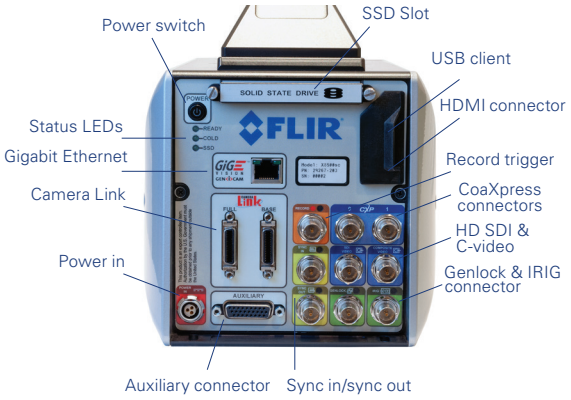
Specifications

System Overview	X8500sc MWIR
Detector Type	FLIR indium antimonide (InSb)
Spectral Range	3.0 – 5.0 µm or 1.5 – 5.0 µm
Resolution	1280 x 1024
Detector Pitch	12 µm
Thermal Sensitivity/NEdT	< 20 mK*
Well Capacity	3 M electrons/11.5 M electrons
Operability	> 99.5% (> 99.95% typical)
Sensor Cooling	Closed cycle linear
Electronics/Imaging	
Readout	Snapshot
Readout Modes	Asynchronous integrate while read Asynchronous integrate then read
Synchronization Modes	Genlock, Sync-in, Sync-out
Image Time Stamp	Internal IRIG-B decoder clock TSPI accurate time stamp
Minimum Integration Time	270 ns
Pixel Clock	355 MHz
Frame Rate (Full Window)	Programmable; 0.0015 Hz to 180 Hz
Subwindow Mode	Flexible windowing down to 64 x 4 (steps of 32 columns, 4 rows)
Dynamic Range	14-bit
On-Camera Image Storage	RAM (volatile): 16 GB, up to 6500 frames, full frame SSD (non-volatile): >4 TB
Radiometric Data Streaming	Simultaneous Gigabit Ethernet (GigE Vision®), Camera Link, CoaXPress (CXP)
Standard Video	HDMI, SDI, NTSC, PAL
Command and Control	GigE, RS-232, Camera Link, CXP (GenICam protocol supported over GigE, CXP, or Camera Link)
Temperature Measurement	
Standard Temperature Range	-20°C to 350°C (-4°F to 662°F)
Optional Temperature Range	Up to 3000°C (5,432°F)
Accuracy	± 2°C or ± 2% of reading
Optics	
Camera f/Number	f/2.5 or f/4
Available Lenses (Uses FLIR HDC Optics)	3-5 µm: 17 mm, 25 mm, 50 mm, 100 mm, 200 mm Broadband (1.5-5 µm): 25 mm, 50 mm, 100 mm
Close-up Lenses/ Microscopes	1x, 4x (3–5 µm, requires f/4.1 camera)
Lens Interface	FLIR HDC (4-tab bayonet)
Focus	Manual
Filtering	Filter wheel, standard 1-inch filters (2 filters/wheel position)
Image/Video Presentation	
Palettes	Selectable 8-bit
Automatic Gain Control	Manual, Linear, Plateau equalization, ROI, DDE
Overlay	Customizable (IRIG-B, Date, Integration time, Internal temp, Frame rate, Sync mode, Cooler hours)
Video Modes	HDMI/HD-SDI: 720p/25/29.9/50/59.9 Hz, 1080p/25/29.9 Hz Composite: NTSC, PAL
Digital Zoom	1x, 4x, 4:3
General	
Operating Temperature Range	-20°C to 50°C (-4°F to 122°F)
Shock / Vibration	40 g, 11 msec ½ sine pulse/4.3 g RMS random vibration all 3 axes
Weight w/Handle, w/o Lens	6.35 kg (14 lbs)
Size (L x W x H) w/o Lens, Handle	249 x 158 x 147 mm (9.8 x 6.2 x 5.8 in.)
Mounting	2 x 1/4-20 tapped holes 1 x 3/8-16 taped holes 4 x 10-24 tapped holes Side: 3x 1/4-20 tapped holes



* NEdT is measured at 50% well-fill, using a 25°C scene

Specifications are subject to change without notice.

For the most up-to-date specifications, go to www.flir.com

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