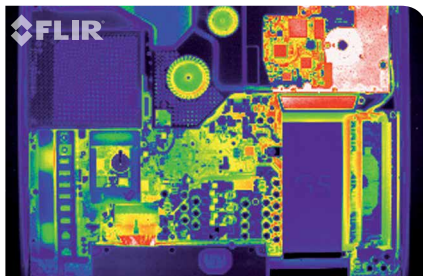




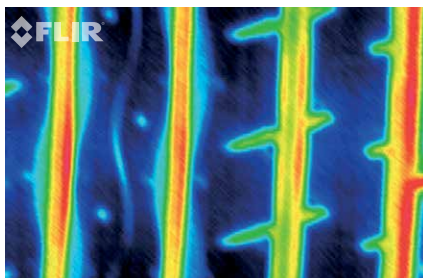
# FLIR X6000sc Series

## High-Speed MWIR Performance Camera

FLIR X6000sc Series thermal imaging cameras provide superior thermal measurement performance paired with the most advanced connectivity. Whether you need to analyze high-speed processes with microsecond precision, or monitor fast temperature spikes, these cameras have the integration time and frame speed needed to collect the most accurate data. In addition, the X6000sc Series offers state-of-the-art connectivity and an intuitive user experience, so researchers can focus on their experiments instead of on camera controls.



Electronic board, wafer and cells inspection



Rolling tire structure thermal evaluation



Fast integration time allows the X6000sc Series cameras accurately record rapid temperature shifts

### High Sensitivity Thermal Imaging

The X6540sc, X6580sc and X6581sc are equipped with cooled indium antimonide detectors that can detect temperature differences of less than 25 mK, or as small as 1 mK by using measurement techniques such as lock-in thermography. The camera produces temperature measurements with an accuracy of  $\pm 1^\circ\text{C}/1\%$  and boasts a wide temperature range that it automatically adjusts to best fit the thermal scene. Add an optional filter to the motorized 4-slot filter wheel to uncover hidden spectral detail, or attach a close-up lens to resolve details as small as 3  $\mu\text{m}$ .

### Ultra-Fast Frame Rates

X6000sc cameras produce crisp, 640 x 512 full-frame imagery at up to 355 Hz, with the short integration time needed to accurately measure high speed processes. User-defined subwindowing allows for even faster frame rates, up to 4500 Hz. View thermal imagery live on the detachable touchscreen LCD monitor, or stream high-speed data to a computer for live viewing, analysis, or recording.

### Connectivity and Compatibility

This camera works seamlessly with the supplied FLIR ResearchIR Max software for both viewing and processing thermal data. Connect over Camera Link Medium for full-bandwidth data acquisition, Gigabit Ethernet for simple connectivity, or standard BNC for frequently-used features such as detector sync, acquisition trigger, and analog lock-in input.

### Key Features

- Indium antimonide (InSb) detector
- Excellent image quality: 640 x 512 pixels
- Frame rates up to 4500 Hz with windowing
- Removable touchscreen LCD
- Range of connectivity options including Camera Link and Gigabit Ethernet
- Motorized 4-position filter wheel
- Optional temperature calibration

## Specifications

System Overview	X6540sc	X6580sc	X6581sc
IR Resolution	640 x 512		
Sensor Material	Indium antimonide (InSb)		
Pitch	15 $\mu$ m		
Spectral Range	1.5 – 5.5 $\mu$ m		
Thermal Sensitivity/NETD	< 25 mK (18 mK typical)	< 25 mK (20 mK typical)	< 25 mK (20 mK typical)
Well Capacity (e-)	6.5 Me-	5.8 Me-	5.8 Me-
Sensor Cooler Type	Closed cycle (rotary) Stirling cooler		
Operability	> 99.5%		
Electronics/Imaging			
Synchronization Modes	IRIG-B, Sync In, Trigger In		
Integration Time	160 ns to 20,000 $\mu$ s	500 ns to 20,000 $\mu$ s	500 ns to 20,000 $\mu$ s
Max Frame Rate (Full Frame)	126 Hz	355 Hz	303 Hz
Subwindow Modes	320 x 256 160 x 128 Arbitrary size, down to 64 x 8	320 x 256 160 x 128 Arbitrary size, down to 2 x 2	321 x 256 160 x 128 Arbitrary size, down to 2 x 2
Max Frame Rate (Subwindow Mode)	320 x 256: 410 Hz 160 x 128: 1087 Hz 64 x 8: 4011 Hz	320 x 256: 670 Hz 160 x 128: 1205 Hz 320 x 8: 4500 Hz	320 x 256: 574 Hz 160 x 128: 1037 Hz 320 x 8: 4276 Hz
Dynamic Range	14-bit	13-bit	14-bit
Digital Data Streaming	Simultaneous Gigabit Ethernet and Camera Link Base	Simultaneous Gigabit Ethernet and Camera Link Base / Camera Link Medium	Simultaneous Gigabit Ethernet and Camera Link Base / Camera Link Medium
Video Output	DVI 1080p		
Command & Control	Gigabit Ethernet, Camera Link, detachable LCD display, WiFi		
Measurement			
Accuracy	$\pm 1^{\circ}\text{C}$ or $\pm 1\%$ of the reading		
Standard Temperature Range	5 $^{\circ}\text{C}$ to 300 $^{\circ}\text{C}$ (41 $^{\circ}\text{F}$ to 572 $^{\circ}\text{F}$ )		
Optics			
Camera f/number	f/3.0		
Available Lenses	25 mm – 22 $^{\circ}$ x 17 $^{\circ}$ – USL Motorized 50 mm – 11 $^{\circ}$ x 8.8 $^{\circ}$ – USL Motorized 100 mm – 5.5 $^{\circ}$ x 4.4 $^{\circ}$ – USL Motorized 200 mm – 2.75 $^{\circ}$ x 2.2 $^{\circ}$ – USL Motorized Close up x1 WD=300 mm – 9.6 mm x 7.68 mm Close up x3 – 3.2 mm x 2.56 mm Close up x5 – 1.92 mm x 1.53 mm		
Focus	USL mechanism, manual		
Filtering	4-slot motorized filter wheel		
Image Presentation			
On-Camera Display	Detachable touchscreen LCD display (800 x 480 pixel)		
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 $^{\circ}\text{C}$ (-4 $^{\circ}\text{F}$ to 122 $^{\circ}\text{F}$ )		
Shock / Vibration	Operational 15 g, IEC 68-2-29 Operational 2 g, IEC 68-2-26		
Power	24 VDC		
Weight w/o Lens	4.80 kg (10.58 lbs) with LCD 4.3 kg (9.47 lbs) without LCD		
Size (L x W x H) w/o Lens	23 x 15 x 22 cm (9 x 6 x 8.6 in) with LCD 23 x 15 x 18 cm (9 x 6 x 7 in) w/o LCD		
Mounting	UNC 1/4"-20		

Specifications are subject to change without notice.

For the most up-to-date specifications, go to [www.flir.com](http://www.flir.com)



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