

# FLIR X6800sc

## High-Speed MWIR Science Grade Thermal Camera



The FLIR X6800sc is a fast, highly sensitive MWIR camera designed for scientists, researchers, and engineers. With advanced triggering and on-camera RAM/SSD recording, this camera offers the functionality to stop motion on high speed events both in the lab and at the test range.

### High-Speed, High Sensitivity

The X6800sc captures full 640 x 512 images at 502 frames per second, or up to 29,134 Hz with windowing. The cooled FLIR indium antimonide (InSb) detector offers a sensitivity of < 20 mK for the detection of subtle temperature changes at any frame speed.

### On-Camera Recording or Digital Streaming

Save more than 51 seconds of full resolution data to on-camera RAM with a guarantee of zero dropped frames. Play back from RAM or save to the removable solid-state drive (SSD) in just 90 seconds, enabling you to quickly rearm for a new recording. The X6800sc also streams high speed 14-bit data simultaneously over Gigabit Ethernet, Camera Link, and CoaXPress for live viewing, analysis, or recording.

### Advanced Filtering Options

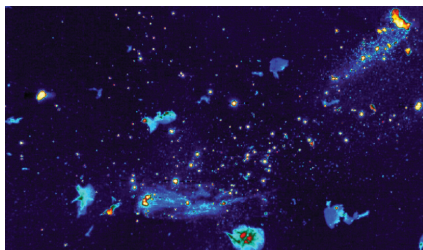
The FLIR X6800sc incorporates an easy access, four-position motorized filter wheel that permits filter exchange in any environment. With automatic filter recognition, the camera knows the filter location, spectral band, and associated calibrations, making it easy to select a filter and load a custom calibration and configuration to the camera.

### Synchronization, Triggering, and Software

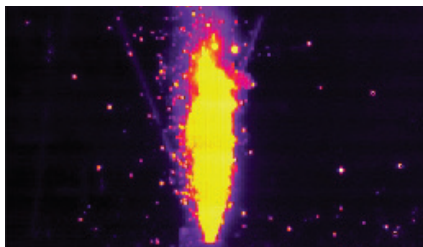
The FLIR X6800sc can trigger using an external BNC input, a software trigger, or an IRIG-B time stamp, offering maximum versatility for synchronizing and triggering to external events or instrumentation. The camera works seamlessly with FLIR ResearchIR Max or third-party software such as Mathworks® MATLAB, for intuitive viewing, recording, and advanced processing of the thermal data. An optional Software Developers Kit (SDK) is available, or use industry-standard GigE Vision® toolkits.

### Key Features

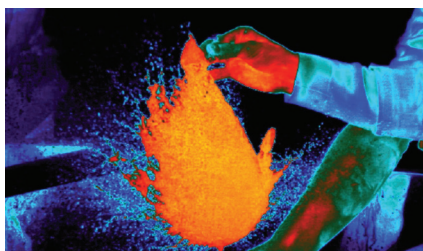
- 502 Hz full-frame high speed imaging
- On-camera RAM recording
- Synchronization with other instruments and events
- Full GenICam support over GigE and CXP interfaces
- Filter wheel with auto filter recognition



Synchronizes with events or external instruments



Measures temperatures up to 3000°C (optional calibration)



Fast frame rates and integration time needed to freeze action



## Specifications

System Overview		X6800sc MWIR	
Detector Type	FLIR indium antimonide (InSb)		
Spectral Range	3.0 – 5.0 $\mu\text{m}$ or 1.5 – 5.0 $\mu\text{m}$		
Resolution	640 x 512		
Detector Pitch	25 $\mu\text{m}$		
Thermal Sensitivity/NE $\Delta$ T	< 20 mK*		
Well Capacity	11.0 M electrons		
Operability	> 99.8% (> 99.95% typical)		
Sensor Cooling	Closed cycle rotary		
Electronics/Imaging			
Readout	Snapshot		
Readout Modes	Asynchronous integrate while read Asynchronous integrate then read		
Synchronization Modes	Sync-in, Sync-out		
Image Time Stamp	Hi resolution timestamp, sync to internal clock		
Minimum Integration Time	270 ns		
Pixel Clock	355 MHz		
Frame Rate (Full Window)	Programmable; 0.0015 Hz to 502Hz		
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 26,000 frames, full frame, SSD (non-volatile): 512 GB (supports >4 TB)		
Radiometric Data Streaming	Simultaneous Gigabit Ethernet (GigE Vision®), Camera Link Full		
Standard Video	HDMI		
Command and Control	GigE, USB, RS-232, Camera Link		
Temperature Measurement			
Standard Temperature Range	-20°C to 350°C (-4°F to 662°F)		
Optional Temperature Range	Up to 1,500°C (2,732°F) Up to 2,000°C (3,632°F)		
Accuracy	$\pm 2^\circ\text{C}$ or $\pm 2\%$ of reading		
Optics			
Camera f/Number	f/2.5 or f/4.1		
Available Lenses (Uses FLIR HDC Optics)	3-5 $\mu\text{m}$ : 17 mm, 25 mm, 50 mm, 100 mm, 200 mm Broadband (1-5 $\mu\text{m}$ ): 25 mm, 50 mm, 100mm		
Close-up Lenses/Microscopes	1x, 4x (3-5 $\mu\text{m}$ , requires f/4.1 camera)		
Lens Interface	FLIR HDC (4-tab bayonet)		
Focus	Manual		
Filtering	Filter wheel, standard 1-inch filters		
Image/Video Presentation			
Palettes	Selectable 8-bit		
Automatic Gain Control	Manual, Linear, Plateau equalization, ROI, DDE		
Overlay	Customizable (Timestamp, Date, Integration time, Internal temp, Frame rate, Sync mode, Cooler hours)		
Video Modes	HD: 720p/50/59.9 Hz, 1080p/25/29.9 Hz		
Digital Zoom	1x, 4x, 4:3		
General			
Operating Temperature Range	-20°C to 50°C (-4°F to 122°F)		
Storage Temperature Range	-40°C to 80°C (-40°F to 176°F)		
Shock / Vibration	40 g, 11 msec ½ sine pulse/4.3 g RMS random vibration, all 3 axes		
Power	24 VDC (< 50 W steady state)		
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 ¼ in. -20		
	1 x 3/8 in. -16		
	4 x #10 -24		
	Side: 3x ¼ in. -20 (each side)		

\* NE $\Delta$ T 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](http://www.flir.com)



Your authorized FLIR distributor:

**MOVITHERM**  
advanced thermography solutions

15540 Rockfield Blvd, Suite C-110  
Irvine, CA 92618

Phone: (949) 699-6600

Fax: (949) 699-6601

Email: [info@movitherm.com](mailto:info@movitherm.com)

<http://www.movitherm.com>

**PORTLAND**  
Corporate Headquarters  
FLIR Systems, Inc.  
27700 SW Parkway Ave.  
Wilsonville, OR 97070 USA  
PH: +1 866.477.3687

**NASHUA**  
FLIR Systems, Inc.  
9 Townsend West  
Nashua, NH 03063 USA  
PH: +1 866.477.3687

**EUROPE**  
FLIR Systems  
Luxemburgstraat 2  
2321 Meer  
Belgium  
PH: +32 (0) 3665 5100

**CANADA**  
FLIR Systems, Ltd.  
920 Sheldon Court  
Burlington, ON L7L 5K6  
Canada  
PH: +1 800.613.0507

**CHINA**  
FLIR Systems Co., Ltd  
Rm 1613-16, Tower II  
Grand Central Plaza  
13B Shatin Rural  
Committee Road Shatin  
New Territories  
Hong Kong  
PH: +852 2792 895

**LATIN AMERICA**  
FLIR Systems Brasil  
Av. Antonio Bardella, 320  
Sorocaba, SP 18085-852  
Brasil  
PH: +55 15 3238 7080

[www.flir.com/science](http://www.flir.com/science)  
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