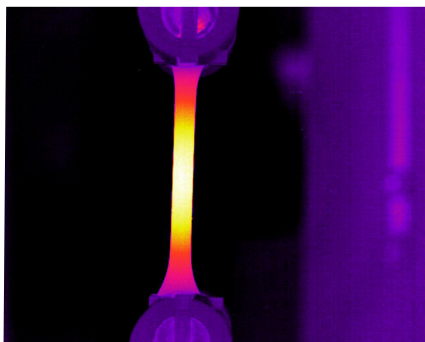
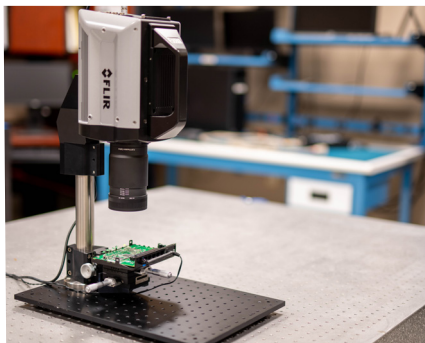
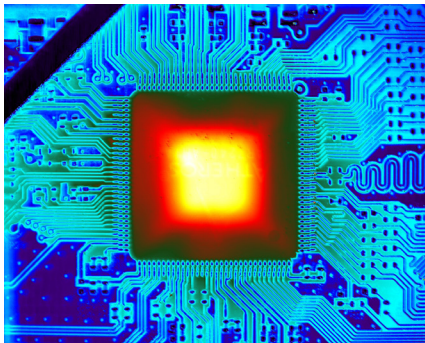


# FLIR X8580™

High Definition MWIR Science-Grade Camera

The FLIR X8580 is a high-speed, high definition 1280 × 1024 resolution midwave IR camera designed for scientists and engineers. It enables users to capture detailed imagery of fast events for accurate thermal analysis, perform custom radiometric measurements, or detect points of failure in composites, solar cells, and electronics. It is also a great tool for thermal mapping of stress in hypervelocity impact testing or other materials research.



## KEY APPLICATIONS

**HIGH RESOLUTION THERMAL IMAGING**  
**PCB TESTING**  
**NON-DESTRUCTIVE TESTING**  
**TARGET SIGNATURE**  
**RADIOMETRY**  
**STRESS MAPPING**

As with the entire line of FLIR X-Series cameras, the X8580 offers advanced recording, triggering, and synchronization capabilities, making it easy to configure and integrate for successful acquisitions in the most demanding applications. With a four-position motorized filter wheel and support for FLIR motorized focus lenses, the X8580 will provide higher quality recordings, save time, and mitigate frustration in dynamic acquisition environments. Plus, by combining HD resolution with high-speed frame rates, this camera allows researchers to capture detailed imagery of the scene and stop motion high-speed events—whether in the lab or on the test range.

### HIGH RESOLUTION, HIGH SENSITIVITY

*Acquire crisp thermal images, even at high speeds*

- Detect minute temperature differences with very low noise
- Capture full 1280 × 1024 pixel resolution data at up to 181 Hz or up to 6,000 Hz in subwindow mode
- Ensure crisp images by remotely focusing the camera using FLIR motorized lenses
- Stream high-speed 14-bit data simultaneously over Gigabit Ethernet, Camera Link, and CoaXPress®

### ON-CAMERA RAM/SSD RECORDING

*Record critical thermal data directly to on-camera memory*

- Save up to 34 seconds of full HD resolution data to on-camera RAM with zero dropped frames
- Record up to 15 minutes of 1280 × 1024 resolution data at 181 Hz direct to the included 512 GB SSD
- Remotely playback and transfer recorded data directly from the SSD over GigE, Camera Link, or CXP
- Rapidly remove sensitive data from the camera with hot-swappable SSD

### SYNCHRONIZATION AND TRIGGERING

*Capture essential imagery by synchronizing with external events or instrumentation*

- Initialize on-camera data recordings using an external record trigger or specific IRIG-B time
- Control precisely when an image frame is generated or synchronize it to other equipment
- Align image capture times with other data using TSPI-accurate IRIG-B time stamping

### MULTIPLE SOFTWARE INTERFACES

*View, record, analyze and share important thermal data*

- Stream thermal data directly to a computer running Windows®, MacOS®, or Linux®
- Make critical decisions quickly using FLIR Research Studio's advanced analysis capabilities
- Integrate camera functionality and recording in third-party software via the FLIR Science Camera SDK
- Collaborate with colleagues by enabling local analysis of shared data with FLIR's free Research Studio Player

### ADVANCED FILTERING OPTIONS

*Maximize camera imagery to meet specific requirements*

- Quickly switch between different filters using the easy access, four-position motorized filter wheel
- Easily install/remove spectral or neutral density filters in the field for optimal camera flexibility
- Ensure the correct filters and calibration association with automatic filter recognition
- Optimize the camera system for unique applications with custom cold filter options

For more information, visit: [flir.com/X8580](http://flir.com/X8580)

[www.teledyneflir.com](http://www.teledyneflir.com)

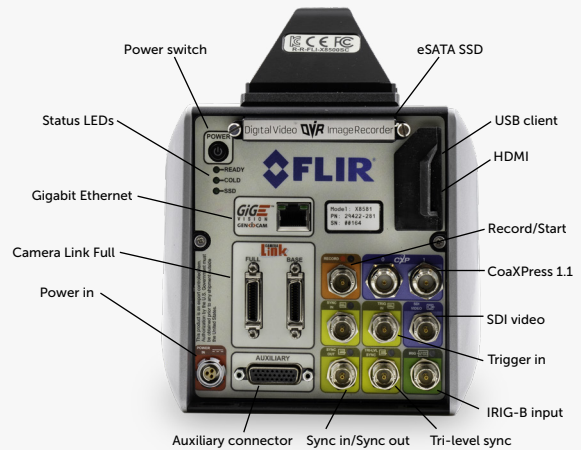
Imagery for illustration purposes only. Equipment described herein is subject to US export regulations and may require a license prior to export. Diversion contrary to US law is prohibited. ©2021 Teledyne FLIR LLC, Inc. All rights reserved. 12/2021

## SPECIFICATIONS

System overview	X8580 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	1280 $\times$ 1024
Detector pitch	12 $\mu\text{m}$
Thermal sensitivity/NETD	30 mK typical
Operability	$\geq 99.95\%$ typical
Sensor cooling	Linear sterling cooler
<b>Electronics</b>	
Readout type	Snapshot
Readout modes	Asynchronous integrate while read, Asynchronous integrate then read
Synchronization modes	Sync-in, Tri-Level Sync, Sync-out
Image time stamp	Internal IRIG-B decoder clock TSPI accurate time stamp
Trigger modes	Trigger In, Record Start, Header based
Minimum integration time	270 ns
Pixel clock	355 MHz
Frame rate (full window)	Programmable; -0.5 Hz to 181 Hz
Subwindow mode	Flexible windowing down to 64 $\times$ 4 (steps of 64 columns, 4 rows)
Dynamic range	14-bit
On-camera image storage	RAM (volatile): 16 GB RAM included SSD (non-volatile): 512 GB included (compatible with 4 TB) Data transfer: SSD to Research Studio via data streaming buses
Radiometric data streaming	Simultaneous Gigabit Ethernet (GigE Vision), Camera Link, CoaXPress <sup>®</sup> 1.1, dual 5 Gb links
Standard video	HDMI, SDI
Command and control	GigE, USB, RS-232, Camera Link, CXP (GenICam protocol supported over GigE or CXP)
<b>Temperature measurement</b>	
Standard temperature range	-20°C to 350°C (-4°F to 662°F)
Optional temperature range	Up to 3,000°C (5,432°F)
Accuracy	$\leq 100^\circ\text{C}/212^\circ\text{F}$ : $\pm 2^\circ\text{C}$ ( $\pm 1^\circ\text{C}$ typical) $> 100^\circ\text{C}/212^\circ\text{F}$ : $\pm 2\%$ of reading ( $\pm 1\%$ typical)

<b>Optics</b>	
Camera f/Number	f/2.5 or f/4.1
Motorized lenses	3.0–5.0 $\mu\text{m}$ : 17 mm, 25 mm, 50 mm, 100 mm, 200 mm
Manual lenses	3.0–5.0 $\mu\text{m}$ : 17 mm, 25 mm, 50 mm, 100 mm, 200 mm Broadband (1.0–5.0 $\mu\text{m}$ ): 25 mm, 50 mm, 100 mm
Micro/Macro lenses	3.0–5.0 $\mu\text{m}$ : 1x, 3x, 50 mm close focus f/4.1 only: 1x20 cm long working distance (LWD)
Lens interface	FLIR FPO-M (4-tab bayonet, motorized)
Focus	Motorized (compatible with manual)
Filtering	4-Position warm filter wheel, standard 1-inch filters
<b>Image/video presentation</b>	
Palettes	Selectable 8-bit
Automatic gain control	Manual, Linear, Plateau equalization, ROI, DDE
Overlay	Customizable (ability to toggle off)
Video Modes	SDI: 720p@50/59.9, 1080p@25/29.97
Digital Zoom	1x, Auto (best fit)
<b>General</b>	
Operating temperature range	-20°C to 50°C (-4°F to 122°F)
Power	24 VDC (< 50 W steady state)
Weight w/handle, w/o lens	6.35 kg (14 lbs)
Size (L $\times$ W $\times$ H) w/o lens or handle	249 $\times$ 157 $\times$ 147 mm (9.8 $\times$ 6.2 $\times$ 5.8 in)
Mounting	2 x 1/4 in. -20, 1 x 3/8 in. -16, 4 x #10 -24 Side: 3x 1/4 in. -20 (each side)

Specifications are subject to change without notice. For the most up-to-date specifications, visit [www.teledyneflir.com](http://www.teledyneflir.com).



## AMERICAS

**United States**  
27700 Southwest Parkway Ave.  
Wilsonville, OR 97070  
Office: +1 877.773.3547

**Canada**  
920 Sheldon Court  
Burlington, ON L7L 5K6  
PH: +1 800.613.0507

**Latin America**  
Av. Antonio Bardella,  
320 Sorocaba, SP 18085-852  
Brasil  
PH: +55 15 3238 7080

## EUROPE

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

## ASIA

**Hong Kong**  
Rm 1613-16, Tower II  
Grand Central Plaza  
138 Shatin Rural Committee Rd.  
Shatin, New Territories  
Hong Kong  
PH: +852 2792 8955

For more information, visit: [flir.com/X8580](http://flir.com/X8580)



Emitec Messtechnik AG  
Birkenstrasse 47  
6343 Rotkreuz

+41 41 748 60 10  
info@emitec.ch  
[www.emitec-industrial.ch](http://www.emitec-industrial.ch)



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