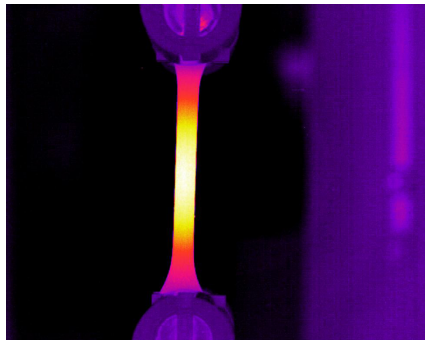
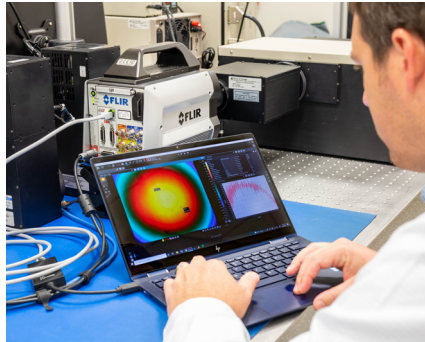
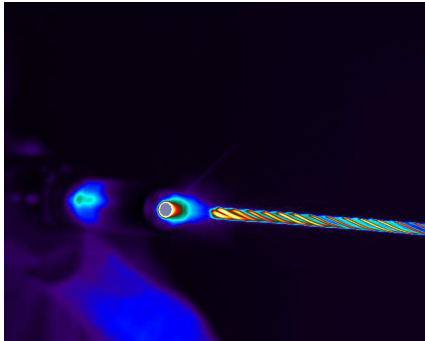


FLIR X6980™

High-Speed MWIR Science-Grade Camera

The FLIR X6980 is an extraordinarily fast, highly sensitive, 640 × 512 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-SPEED THERMAL IMAGING
MUNITIONS RANGE TESTING
TARGET SIGNATURE
RADIOMETRY
NON-DESTRUCTIVE TESTING
STRESS MAPPING

As with the entire line of FLIR X-Series cameras, the X6980 offers advanced recording, triggering, and synchronization capabilities, making it easy to configure and integrate for successful acquisitions in the most demanding applications. This camera features a four-position motorized filter wheel and support for FLIR motorized focus lenses, providing higher quality recordings while saving time and mitigating frustration in dynamic acquisition environments. Plus, by combining a highly sensitive detector with the fastest high-speed frame rates, the X6980 allows researchers to capture and stop motion on the entire high-speed event—whether in the lab or on the test range.

HIGH SPEED, HIGH SENSITIVITY

Acquire crisp thermal images, even at high speeds

- Capture full 640 × 512 pixel resolution data at up to 1004 Hz or up to 29,134 Hz in subwindow mode
- Detect minute temperature differences with very low noise
- 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 26,000 frames of full-resolution data at 1 kHz to on-camera RAM with zero dropped frames
- Record up to 15 minutes of 640 × 512 resolution data at 800 Hz directly 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/X6980

www.teledyneflir.com

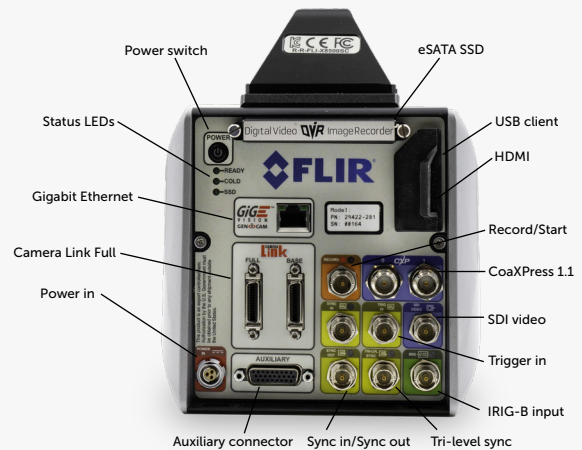
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SPECIFICATIONS

| | |
|--------------------------------|--|
| System overview | X6980 MWIR |
| Detector type | FLIR indium antimonide (InSb) |
| Spectral range | 3.0–5.0 μm or 1.5–5.0 μm |
| Resolution | 640 \times 512 |
| Detector pitch | 25 μm |
| Thermal sensitivity/NETD | 20 mK typical |
| Operability | >99.95% typical |
| Sensor cooling | Closed cycle rotary |
| Electronics | |
| 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; 0.0015 Hz to 1004 Hz |
| Subwindow mode | Flexible windowing down to 32 \times 4 (steps of 32 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 [®] 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) |
| Temperature measurement | |
| 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) |

Specifications are subject to change without notice. For the most up-to-date specifications, visit www.teledynelifir.com.

| | |
|---|---|
| Optics | |
| Camera f/Number | f/2.5 or f/4.1 |
| Motorized lenses | 3.0–5.0 μm : 17 mm, 25 mm, 50 mm, 100 mm, 200 mm |
| Manual lenses | 3.0–5.0 μm : 17 mm, 25 mm, 50 mm, 100 mm, 200 mm Broadband (1.0–5.0 μm): 25 mm, 50 mm, 100 mm |
| Micro/Macro lenses | 3.0–5.0 μm : 1x, 3x, 5x, 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 |
| Image/video presentation | |
| 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) |
| General | |
| 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: 3 x 1/4 in. -20 (each side) |



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For more information, visit: flir.com/X6980

www.teledynelifir.com

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