



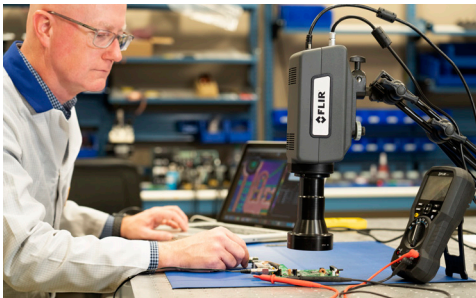
## MWIR THERMAL IMAGING CAMERA

# FLIR A6780



The FLIR A6780 midwave camera system makes it easy to measure the temperatures of rapid thermal events and fast-moving targets across a wide temperature range. This cooled indium antimonide (InSb) camera offers a built-in, 3-position warm filter wheel for simple, remote switching between standard and high-temperature ranges. The A6780 also offers short exposure times, advanced synchronization options, and high-speed windowed frame rates, ensuring you will always capture meaningful thermal data. A full suite of lens options, including both manual and motor-focus lenses, provide the flexibility to maximize the number of measurement pixels on the object of interest regardless of size and distance. And with the ability of this 327,680 (640 × 512) pixel resolution camera to achieve spatial resolutions down to 5  $\mu\text{m}$  per pixel, the A6780 is an ideal choice for industrial, military, and manufacturing R&D applications.

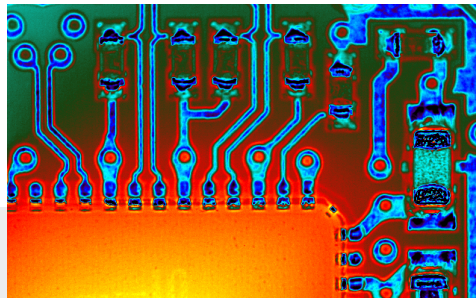
[www.flir.com/A6780-MWIR](http://www.flir.com/A6780-MWIR)



### GET UP AND RUNNING QUICKLY

Start testing quickly with limited ramp-up time and simple connections

- Control all aspects of the A6780 camera and stream data using a single Gigabit Ethernet cable
- Effortlessly achieve crisp, sharp thermal images using automatic, remote, or manual focusing
- Easily measure high-temperature targets with the software controlled built-in 3-position warm filter wheel
- Capture the data you want when you want it thanks to advanced triggering and synchronization capabilities



### MEASURE TEMPERATURE ACCURATELY

Precisely measure temperatures on nearly any target

- Measure accurate temperatures on small objects with spatial resolution down to 5  $\mu\text{m}$  per pixel
- Capture fast-moving thermal events or targets with sub-windowed frame rates up to 4,130 Hz and fast integration times
- Maximize the number of measurement pixels on the object under test regardless of size or distance with multiple lens options



### SIMPLIFY DATA ANALYSIS, SHARING, & COLLABORATION

Collect and share meaningful data easily

- Employ FLIR Research Studio's simple Connect  $\rightarrow$  View  $\rightarrow$  Record  $\rightarrow$  Analyze workflow to record and analyze thermal data without the need for extensive training
- Compare multiple live data streams or recorded files to quickly determine results and make decisions
- Work in the operating system you prefer and share data globally with colleagues in their preferred language

## SPECIFICATIONS

|   |   |   |                                |   |
|---|---|---|--------------------------------|---|
| Model Number  | A6780   | A6781   | A6782                          | A6783   |
| Detector Type   | FLIR indium antimonide (InSb)                                       |   |                                |   |
| Spectral Range  | 1.0 – 5.0 $\mu\text{m}$   | 3.0 – 5.0 $\mu\text{m}$   | 1.0 – 5.0 $\mu\text{m}$        | 3.0 – 5.0 $\mu\text{m}$   |
| Resolution  | 640 x 512   |   |                                |   |
| Pixel Size  | 15 $\mu\text{m}$  |   |                                |   |
| Thermal Sensitivity / NETD                            | $\leq 25$ mK typical  | $\leq 20$ mK typical  | $\leq 25$ mK typical           | $\leq 20$ mK typical  |
| Operability   | $\geq 99.8\%$ ( $\geq 99.95\%$ typical)                             |   |                                |   |
| Sensor Cooling  | Closed-cycle rotary   |   |                                |   |
| Readout Electronics                                   |   |   |                                |   |
| Readout   | Snapshot  |   |                                |   |
| Readout Modes   | Asynchronous integrate while read, asynchronous integrate then read |   |                                |   |
| Image Time Stamp                                      | Yes   |   |                                |   |
| Integration Time                                      | 480 ns to ~full frame   |   |                                |   |
| Pixel Clock   | 50 MHz  |   |                                |   |
| Frame Rate (Full Window)                              | Programmable; 0.0015 Hz to 125 Hz                                   |   |                                |   |
| Subwindow Mode  | Flexible windowing down to 16 x 4 (steps of 16 columns, 4 rows)     |   |                                |   |
| Camera Electronics                                    |   |   |                                |   |
| Synchronization Modes                                 | Internal, external, video   |   |                                |   |
| Sync In/Sync Out Connection                           | Sync In (via Rear Panel), Sync Out (via Aux Cable)                  |   |                                |   |
| Trigger Input   | Yes (via AUX breakout cable)  |   |                                |   |
| Superframing/DRX                                      | Yes   |   |                                |   |
| Max Frame Rate (Min Window)                           | 4,130 Hz (16 x 4 sub-window)  |   |                                |   |
| Dynamic Range   | 14-bit  |   |                                |   |
| On-Camera Image Storage                               | None  |   |                                |   |
| Radiometric Data Streaming                            | Gigabit Ethernet (GigE Vision)                                      |   |                                |   |
| Standard Video  | SDI   |   |                                |   |
| Command and Control                                   | GenICam (GigE), RS-232  |   |                                |   |
| Integration Active Output                             | Yes (via AUX breakout cable)  |   |                                |   |
| Lock-in Signals Input                                 | Optional (via AUX breakout cable)                                   |   |                                |   |
| Record Start Input                                    | Yes (via AUX breakout cable)  |   |                                |   |
| Measurement   |   |   |                                |   |
| Standard Temperature Range [with band-matched optics] | -20°C to 300°C (-4°F to 572°F)                                      | -20°C to 350°C (-4°F to 662°F),<br>Microscope Lenses:<br>-10°C to 350°C (14°F to 662°F) | -20°C to 350°C (-4°F to 662°F) | -20°C to 350°C (-4°F to 662°F),<br>Microscope Lenses:<br>-10°C to 350°C (14°F to 662°F) |

|   |   |   |   |   |
|---|---|---|---|---|
| Optional Temperature Range [with band-matched optics] | 45°C to 600°C/113°F to 1112°F (ND1); 250°C to 2000°C/482°F to 3632°F (ND2); 500°C to 3000°C/932°F to 5432°F (ND3)   |   |   |   |
| Accuracy  | $\leq 100^\circ\text{C}$ ( $\leq 212^\circ\text{F}$ ), $\pm 2^\circ\text{C}$ ( $\pm 3.6^\circ\text{F}$ ) accuracy ( $\pm 1^\circ\text{C}/1.8^\circ\text{F}$ typical); $> 100^\circ\text{C}$ $\pm 2\%$ of reading ( $\pm 1\%$ typical) |   |   |   |
| Ambient Drift Compensation [with factory calibration] | Yes   |   |   |   |
| Optics  |   |   |   |   |
| Camera f/#  | f/2.5   |   | f/4.0                                       |   |
| Available Lenses                                      | Manual (broadband):<br>25 mm, 50 mm, 100 mm   | Manual (3-5 $\mu\text{m}$ ):<br>17 mm, 25 mm, 50 mm, 100 mm, 200 mm<br><br>Motorized (3-5 $\mu\text{m}$ ):<br>17 mm, 25 mm, 50 mm, 100 mm, 200 mm | Manual (broadband):<br>25 mm, 50 mm, 100 mm | Manual (3-5 $\mu\text{m}$ ):<br>17 mm, 25 mm, 50 mm, 100 mm, 200 mm<br><br>Motorized (3-5 $\mu\text{m}$ ):<br>17 mm, 25 mm, 50 mm, 100 mm, 200 mm |
| Close-up Lenses / Microscopes                         | No microscopes available  | 1X, 3X  | No microscopes available                    | 1X, 3X  |
| Lens Interface  | FLIR FPO-M (4-tab bayonet, motorized)   |   |   |   |
| Focus   | Motorized (compatible w/ manual)  |   |   |   |
| Filter Holder (Warm)                                  | 3-position motorized filter wheel (1-inch diameter filters), factory installed only   |   |   |   |
| Image / Video Presentation                            |   |   |   |   |
| Palettes  | Selectable 8-bit  |   |   |   |
| Automatic Gain Control                                | Manual, linear, plateau equalization, DDE   |   |   |   |
| Overlay   | Fixed configuration, can be turned off  |   |   |   |
| Video Modes   | SDI: 720p at 50/59.9 Hz, 1080p at 25/29.9 Hz  |   |   |   |
| Standard Video Zoom                                   | Automatic, best fit   |   |   |   |
| General   |   |   |   |   |
| Operating Temperature Range                           | -20°C to 50°C (-4°F to 122°F)   |   |   |   |
| Power   | 24 VDC (< 24 W steady state)  |   |   |   |
| Weight w/o Lens                                       | 2.3 kg (5 lbs)  |   |   |   |
| Size [L x W x H] w/o Lens                             | 226 x 102 x 109 mm (8.9 x 4.0 x 4.3 in)   |   |   |   |
| Mounting  | 2 x ¼"-20 tapped holes,<br>1 x 3/8"-16 tapped hole,<br>4 x 10-24 tapped holes   |   |   |   |

CORPORATE HEADQUARTERS  
FLIR Systems, Inc.  
27700 SW Parkway Ave.  
Wilsonville, OR 97070  
PH: +1 877.773.3547

NASHUA  
FLIR Systems, Inc.  
9 Townsend West  
Nashua, NH 06063  
USA  
PH: +1 603.324.7611

CANADA  
FLIR Systems Ltd.  
3430 South Service Rd, Ste 103  
Burlington, Ontario L7N 3T9  
Canada  
PH: +1 800 613 0507

LATIN AMERICA  
FLIR Systems Brasil  
Av. Antonio Bardella, 320  
Sorocaba, SP 18085-852  
Brasil  
PH: +55 15 3238 8070



The World's Sixth Sense®



Emitec Messtechnik AG  
Birkenstrasse 47  
6343 Rotkreuz

+41 41 748 60 10  
info@emitec.ch  
www.emitec-industrial.ch



Emitec Group  #1 in Test & Measurement, worldwide.