# FLIR A6600/A6650

## High Speed Thermal Imaging Camera with FLIR Cooled InSb Detector

Manufacturing and process engineering specialists use thermal imaging cameras with great success for a full range of automation applications. Practical uses include: automated inspections, process control, condition monitoring, fire prevention & detection, and continuous optical gas imaging.

Powerful cooled FLIR A66xx-Series thermal cameras can help you see minute temperature differences, capture high speed processes and thermal events, measure temperatures of very small targets, and synchronize with other measuring devices.

### HIGH SENSITIVITY, CRISP THERMAL IMAGES

FLIR A66xx-Series incorporates a cooled FLIR Indium Antimonide (InSb) detector that operates in the 3- to 5-micron waveband. The camera produces crisp thermal images of 640 x 512 pixels. Achieving a high thermal sensitivity of <20 mK, FLIR A66xx-Series is able to capture the finest image details.

### FAST INTEGRATION TIMES

Working in snapshot mode, FLIR A66xx-Series cameras are able to capture all pixels from a scene simultaneously. This is particularly important when monitoring fast-moving objects where an uncooled thermal imaging camera would suffer from image blur. The A6600 supports image frame rates up to 480 frames per second when operating in windowing mode. The A6650 supports frame rates up to 4,175 frames per second when operating in a 16 x 4 pixel window.

### STANDARD VIDEO INTERFACES

FLIR A66xx-Series uses a standard GigE Vision™ / GenICam interface to transmit both commands and full dynamic range digital video. Additional interfaces include a BNC analog video output. The Gigabit Ethernet and analog video are simultaneously active yet independently controlled allowing greater flexibility for recording and display purposes.

### CUSTOM COLD FILTERS AVAILABLE

Custom cold filtering options for specific spectral detection and measurement are available. Perfect for imaging through glass, measuring temperature of thin film plastics, filtering different wavebands for laser profiling and detection, or optical gas imaging.

### SOFTWARE
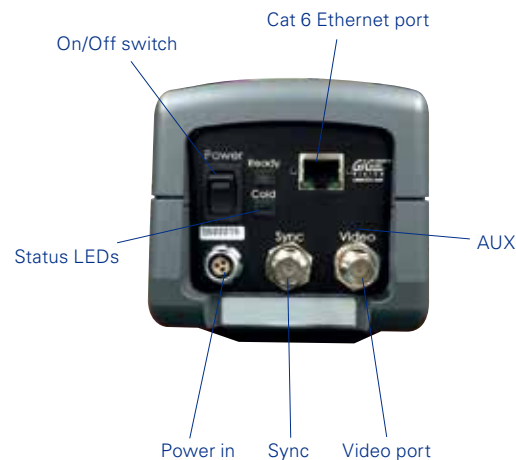
A Software Developer's Kit (SDK) is optionally available.
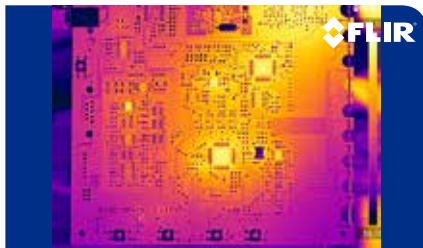
High resolution inspection of PCB board

Through glass inspection of light bulb filament

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## Imaging Specifications

| System Overview | FLIR A6600 | FLIR A6650 |
|---|---|---|
| Detector Type | FLIR Indium Antimonide (InSb) | |
| Spectral Range | 3 – 5 μm or 1 - 5 μm | |
| Resolution | 640 × 512 | |
| Detector Pitch | 15 μm | |
| NETD | <20 mK (18 mk typical) | |
| Well Capacity | 7.2 M electrons | |
| Operability | >99.8% ( >99.95% typical) | |
| Sensor Cooling | FLIR Closed Cycle Rotary | |
| **Electronics / Imaging** | | |
| Readout | Snapshot | |
| Readout Modes | Asynchronous Integrate While Read;<br>Asynchronous Integrate Then Read | |
| Synchronization Modes | Frame Sync | |
| Integration Time | 500 ns to full frame | |
| Subwindow Modes | Full, 1/2 or 1/4 Window | Flexible (16x4 incr.) |
| Max Frame Rate | 60Hz @ Full Window<br>240Hz @ 1/2 Window<br>480 Hz@ 1/4 Window | 125Hz @ Full Window<br>409Hz @ 1/2 Window<br>1077Hz @ 1/4 Window<br>4175Hz @ 16x4 pixels Window |
| DRX | No | Yes |
| Dynamic Range | 14-bit | |
| Digital Data Prototcol | Gigabit Ethernet (GigE Vision 2.0) | |
| Analog Video | NTSC, PAL | |
| Camera Control | GenICam | |
| Trigger In (Record Start) | No | Yes |
| Sync OUT | No | Yes |
| AUX Connector (RS-232, GPIO) | No | Yes |
| **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 | ± 2°C or ±2% of reading | |
| **Optics** | | |
| f/# | f/4.0 or f/2.5 | |
| Available Lenses | 3-5μm: 13mm, 13mm (low distortion), 25mm,<br>50mm, 100mm (all lenses are f/2.5)<br>1-5μm: 25mm, 50mm, 100mm (lenses are f/2.5) | |
| Microscopes | 1x (this lens is f/4 and requires an f/4 camera) | |
| Focus | Manual | |
| Filtering | Removable Behind the Lens or Permanent "cold" Filter Available | |
| **Analog Video** | | |
| Analog Palettes | Selectable 8-bit | |
| AGC | Manual, Linear, Plateau Equalization, DDE | |
| Digital Zoom | Video Zoom is Auto Selected:<br>1x for Full and 1/2 window, 2x for 1/4 window | |
| **General** | | |
| Operating Temperature Range | -40°C to 50°C (-40°F to 122°F) | |
| Storage Temperature Range | -55°C to 80°C (-67°F to 176°F) | |
| Shock / Vibration | 40 g , 11 msec ½ sine pulse / 4.3 g RMS Random Vibration, All 3 Axis | |
| Power | 24 VDC ( < 50 W steady state) | |
| Weight w/o Lens | 5 lbs / 2,3 kg | |
| Size (L × W × H ) w/o Lens | 8.5 x 4.0 x 4.3" / 21.6 x 10.2 x 10.9cm | |
| Mounting | 2 × ¼"-20, 1 × 3/8"– 16, 4 × 10/24 | |

On/Off switch

Cat 6 Ethernet port

Status LEDs

Power in

Sync

Video port

AUX

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