



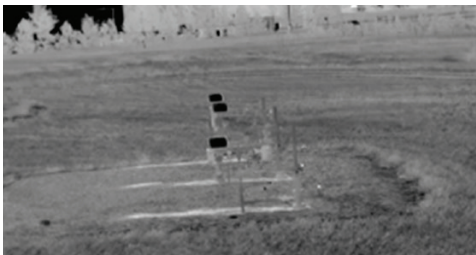
OPTICAL GAS IMAGING FOR CONTINUOUS LEAK MONITORING

FLIR GF77a



FLIR brings its low-cost optical gas imaging solution to the industrial automation market with the GF77a: an uncooled thermal camera that's spectrally filtered for methane and other industrial gases. This camera provides oil and gas facilities, gas transportation terminals, and power generation plants with continuous, autonomous leak detection. While it's small and lightweight, the FLIR GF77a is packed with FLIR-patented features such as High Sensitivity Mode (HSM), as well as open architecture allowing third-party analytic solution integration for visual confirmation of leak. The FLIR GF77a can help companies throughout the oil and gas industry better maintain valuable capital equipment, avoid product loss, meet emissions reduction metrics, and ensure safer work practices.

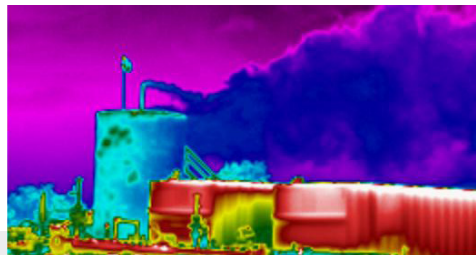
www.flir.com/gf77a



DEPENDABLE, AFFORDABLE FIXED OGI SOLUTION

Uncooled camera offers many FLIR industry-leading features for continuous monitoring applications

- Increase leak detectability by activating FLIR-patented High Sensitivity Mode (HSM)
- Remote motorized focus ensures a crisp image and measurement accuracy for objects at different distances
- See more with dual-streaming capabilities from thermal plus built-in digital cameras
- Simple third-party integration thanks to open architecture



DESIGNED TO VISUALIZE INDUSTRIAL GASES

Spectrally-filtered to detect gases, improving worker safety and leak location identification

- Continuously monitor for methane emissions so you can begin repairs immediately
- Visualize gases in specified spectrum while also reducing false negatives of gases that absorb in another wavelength
- Temperature-calibrated for added use in thermography, fire detection, and worker safety
- Install multiple units across a facility to maximize leak detection with fewer in-person inspections



ADVANCED FEATURES FOR UNMATCHED CONNECTIVITY

State-of-the-art technology allows simple integration to meet existing industrial needs

- Connects to a network for continuous, autonomous leak detection
- RTSP and GigE compliant for flexibility to meet many industrial communication needs
- ONVIF compliant to ease integration with standard security and NVR solutions
- Compressed radiometric image streaming saves network bandwidth and allow multiple outputs simultaneously

SPECIFICATIONS

| Image and Optical Data | | |
|--|--|--------------------|
| IR resolution | 320 × 240 (76,800) pixels | |
| Thermal resolution/NETD | <25 mk at 30°C (86°F) | |
| Gas sensitivity/NECL | CH ₄ (<100 ppm × m), N ₂ O (<75 ppm × m), SO ₂ (<30 ppm × m), C ₃ H ₈ (<400 ppm × m); ΔT = 10°C, distance = 1 m | |
| Spatial resolution (IFOV) | 1.4 mrad/pixel | |
| Image frequency | 30 Hz | |
| Field of view (FOV) | 25° lens: 25° × 19°, 6° lens: 6.4° × 4.9° | |
| Focal length | 25° lens: 18 mm, 6° lens: 74 mm | |
| Minimum focus distance | 0.3 m (0.98 ft) for 25° lens; 5 m (16.4 ft) for 6° lens | |
| Focus | One-shot contrast, motorized, manual | |
| Detector data | | |
| Focal plane array/spectral range | Uncooled microbolometer / 7 - 8.5 μm | |
| Detector pitch | 25 μm | |
| Visual imaging and optical data (optional) | | |
| Visual resolution | 2592 × 1944 pixels | |
| Visual focus and FOV | Fixed, 67.2° diagonal | |
| Video lamp | Built-in LED light | |
| Measurement | | |
| Object temperature range | -20°C to 70°C (-4°F to 158°F) | |
| Accuracy | ±5°C (±9°F) for ambient temperature 15°C to 35°C (59°F to 95°F) and object temperature above 0°C (32°F) | |
| Measurement corrections | Global object parameters | |
| Correction options | Atmospheric, optics transmission, emissivity, reflected apparent temperature, external optics/window | |
| Ethernet | | |
| Web interface | Yes | |
| Ethernet connector type | M12 8-pin X-coded, female | |
| Ethernet communication | GigE Vision ver. 1.2, Client API GenICam compliant, TCP/IP socket-based FLIR proprietary | |
| Ethernet image streaming | Yes | |
| Ethernet power | Power over Ethernet, PoE IEEE 802.3af class 3 | |
| Ethernet protocols | IEEE 1588, ONVIF-S, SNMP, TCP, UDP, SNTP, RTSP, RTP, HTTP, ICMP, IGMP, sftp (server), FTP (client) SMTP, DHCP, MDNS (Bonjour), uPnP | |
| Image streaming | | |
| | RTSP Protocol | GVSP (GigE Vision) |
| Unicast | Yes | Yes |
| Multicast | Yes | Yes |
| Multiple image streams | Yes (for ONVIF, 1 stream only) | No |

| Video streaming | RTSP Protocol | GVSP (GigE Vision) |
|-----------------------|--|---|
| Image source 0 | Visual, IR, MSX®, 640 × 480 pixels | |
| Contrast enhancement | FSX®, histogram equalization (IR only) | |
| Overlay | With, without | |
| Encoding | H.264 / MPEG4 / MJPEG | Uncompressed |
| Image source 1 | Visual, 1280 × 960 pixels | |
| Overlay | No | |
| Encoding | H.264 / MPEG4 / MJPEG | |
| Radiometric streaming | RTSP Protocol | GVSP (GigE Vision) |
| Image source | IR, 320 × 240 pixels | |
| Pixel format | MONO 16 | |
| Encoding | Compressed JPEG-LS, FLIR radiometric | Uncompressed, signal linear, temperature linear, FLIR radiometric |
| Digital input/output | | |
| Connector type | M12 Male 12-pin A-coded (shared with ext. power) | |
| Digital input | 2× opto-isolated, Vin (low) = 0–1.5 V, Vin (high) = 3–25V | |
| Digital output | 3× opto-isolated, 0–48 VDC, max. 350 mA (derated to 200 mA at 60°C). Solid-state opto relay, 1× dedicated as fault output (NC) | |
| Power system | | |
| Connector type | M12 Male 12-pin A-coded (shared with Digital I/O) | |
| General | PoE or External | |
| Power consumption | 6.8 W at 24 V DC typical 7.0 W at 48 V DC typical 7.3 W at 48 V PoE typical | |
| External voltage | Allowed range = 18–56 VDC, 8 W max | |
| | Pan and Tilt (Optional) | Wi-Fi |
| Connector | M8 A-coded, male | Female RP-SMA |
| Serial communication | RS232 and RS485 exclusively | - |
| Standard | Pelco D | IEEE802.11a/b/g/n |
| Connection type | - | Peer to peer (ad hoc) or infrastructure (network) |
| Physical data | | |
| Encapsulation | IP 54 (IEC 60529) IP66 with accessory | |
| Weight | 0.82 kg (1.8 lbs) | |
| Size (L × W × H) | 123 × 77 × 77 mm (4.84 × 3.03 × 3.03 in) | |

For a complete list of specifications, go to www.flir.com/gf77a

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