



# OPTICAL GAS IMAGING

**Infrared Cameras for  
Gas Leak Detection**





# MAKE INVISIBLE GASES VISIBLE

## SAVE LIVES, REVENUE, AND THE DAY

A facility can have thousands of connections and fittings that require regular inspection, but the reality is only a small percentage of these components will ever leak. Testing them all with a traditional “sniffer” takes a great deal of time, effort and may put the inspector in an unsafe environment.



Optical gas imaging cameras give you the power to spot invisible gases as they escape, so you can find fugitive emissions faster and more reliably than with sniffer detectors. With a FLIR GF-Series camera, you can document gas leaks that lead to lost product, lost revenue, fines, and safety hazards.

From natural gas extraction to petrochemical operations and power generation, companies have saved more than \$10 million annually in lost product by including FLIR optical gas imaging in their leak detection and repair (LDAR) programs.



SEE HYDROCARBON LEAKS CLEARLY

### METHANE AND HYDROCARBONS

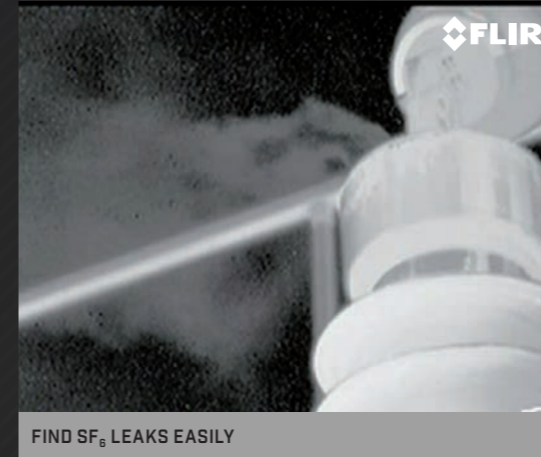
Scan thousands of connections for natural gas (methane) and other hydrocarbon leaks quickly and from a safe distance to avoid regulatory violations, fines, and lost revenue.



DETECT LEAKS FROM HYDROGEN-COOLED GENERATORS

### HYDROGEN [CO<sub>2</sub> TRACER GAS]

Imaging the tracer gas, CO<sub>2</sub>, with an optical gas camera allows operators of hydrogen-cooled generators to efficiently find hydrogen leaks.



FIND SF<sub>6</sub> LEAKS EASILY

### SULFUR HEXAFLUORIDE (SF<sub>6</sub>)

Scan substation circuit breakers for sulfur hexafluoride (SF<sub>6</sub>) leaks at a safe distance from high-voltage areas, without the need to shut down operations.



SPOT HARD-TO-FIND CO<sub>2</sub> LEAKS

### CARBON DIOXIDE (CO<sub>2</sub>)

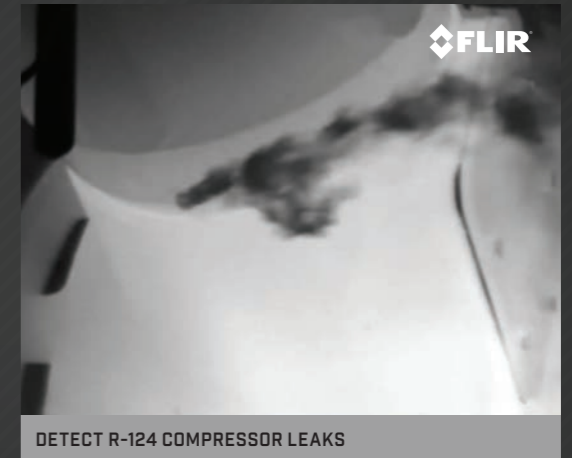
Prevent shut-downs by detecting carbon dioxide (CO<sub>2</sub>) leaks early in chemical production, manufacturing, and Enhanced Oil Recovery programs.



FIND LEAKS AT STEEL PLANTS

### CARBON MONOXIDE (CO)

Protect workers and the environment from toxic levels of carbon monoxide (CO) by pinpointing leaks quickly and efficiently.



DETECT R-124 COMPRESSOR LEAKS

### REFRIGERANTS

Find leaks early to avoid interruptions in operations, prevent the loss of perishable products, and limit the environmental impact of toxic refrigerants.





## TRACK LEAKS TO THEIR SOURCE

GF-Series optical gas imaging cameras can detect natural gas, SF<sub>6</sub>, and CO<sub>2</sub> leaks quickly, accurately, and safely without the need to shut down systems, or the need for contact with the components. Gas leaks that are invisible to the naked eye look like smoke on infrared optical gas imaging cameras, making them easy to see – even from a distance.

### WITH FLIR OPTICAL GAS IMAGERS, YOU CAN:

- Scan broad areas quickly, from a safe distance
- Survey hard-to-reach connections and fittings
- Improve compliance with environmental regulations
- Check electro-mechanical systems for signs of failure, using temperature measurement capability
- Check tanks for leaks, level and efficiency



A LEAKING PRESSURE GAUGE



CAPTURED GAS LEAK



LEAK IS CLEARLY VISIBLE ON THE THERMAL IMAGE

## HANDHELD CAMERAS

When you need to survey large work areas for industrial gas or chemical leaks, a handheld optical gas imaging camera can help you get the job done quickly and efficiently. Cameras such as the GFx320, GF306, and GF346 allow you to check every component throughout multiple sites, and are ergonomically designed for comfortable, all-day use. These cameras also offer features such as temperature calibration for improved contrast between the gas compound and the background scene.

### GF-SERIES HANDHELD CAMERAS ARE IDEAL FOR:

- Natural gas wellsites
- Chemical processing plants
- Electrical substations
- Manufacturing plants
- Power generators
- Refineries



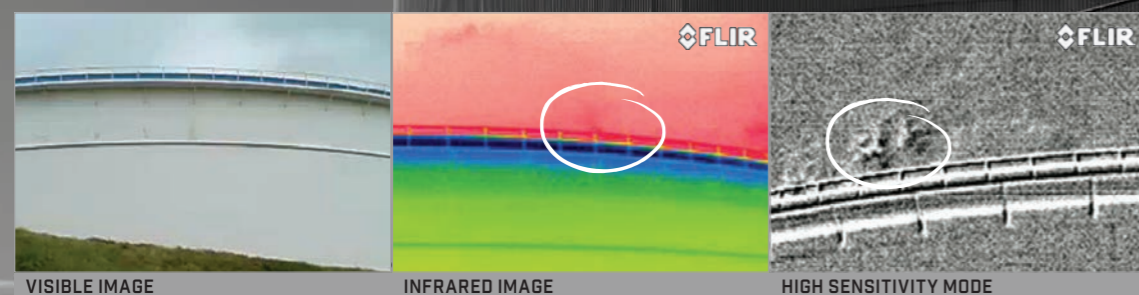
## FIXED CAMERAS

Have a need for continuous monitoring or automated leak detection in critical areas? With thermal imaging cameras such as the G300a and GF77a, you can constantly monitor vital gas pipelines, installations and critical components in remote or difficult to access zones. You will immediately see if a dangerous and costly gas leak appears. Monitoring is performed from a safe distance without the need to send technicians into potentially dangerous areas.

### G300A AND GF77A CAMERAS ARE IDEAL FOR:

- Offshore oil platforms
- High value well sites
- Natural gas processing plants
- Underground storage facilities
- Biogas generation plants
- Critical pipeline crossings
- Petrochemical facilities
- Compression stations

## SCAN BROAD AREAS QUICKLY, FROM A SAFE DISTANCE



VISIBLE IMAGE

INFRARED IMAGE

HIGH SENSITIVITY MODE

## HELPFUL ACCESSORIES

### FLEXIBLE SYSTEMS THAT MEET YOUR CHANGING NEEDS

No other thermal imaging camera manufacturer offers a wider range of accessories than FLIR Systems. Hundreds of accessories are available to customize our cameras for a wide variety of imaging and measurement applications. From a comprehensive range of lenses, through LCD screens, to remote control devices, everything is available to tailor your camera to your specific application.





## METHANE & HYDROCARBONS

### FLIR **GF77**<sup>™</sup>

#### Gas Find IR with LR lens

The FLIR GF77 with the LR (7-8.5 μm) lens—designed exclusively for the GF77 uncooled optical gas imaging camera—visualizes methane in real time for faster, more efficient gas leak surveys. This affordable solution is useful for both gas detection and radiometric temperature measurement, so you can safely locate leaks and perform accurate thermal inspections using one camera.



#### GF77 CAMERAS WITH LR LENSES ARE IDEAL FOR:

- Electric power utilities
- Oil and natural gas operations
- Chemical/manufacturing facilities
- First responders

### FLIR **GF77a**<sup>™</sup>

#### Fixed Gas Find IR

The FLIR GF77a provides continuous, autonomous leak detection for methane. This uncooled, fixed OGI camera can help you better maintain valuable capital equipment, avoid product loss, meet emissions reduction metrics, and ensure safer work practices. With advanced connectivity features that meet current industry protocols, this camera will integrate seamlessly into your current ecosystem.



#### GF77a CAMERAS ARE IDEAL FOR:

- Upstream oil and gas facilities
- Transportation terminals
- Power generation plants
- Midstream gas processing facilities

### FLIR **G300a**<sup>™</sup>

The FLIR G300a is a cooled, fixed camera that detects hydrocarbons and volatile organic compound (VOC) leaks that are harmful to the environment. It allows users to continuously monitor installations in remote areas or hazardous zones that are difficult to access, so inspectors can take immediate action to repair dangerous or costly leaks. The G300a is easily controlled over Ethernet from a safe distance and can be integrated in a TCP/IP network. With a robust but small frame, the G300a also integrates to an aerial platform for OGI inspections from the sky.



#### G300a CAMERAS ARE IDEAL FOR:

- Oil refineries
- Natural gas processing plants
- Offshore platforms
- Chemical/petrochemical complexes
- Biogas and power generation plants
- Regulatory compliance



VENTING STORAGE TANK PRESSURE RELIEF VALVE



NATURAL GAS LEAK ON COMPRESSOR VALVE



METHANE LEAK AT NATURAL GAS FACILITY SITE





## METHANE & HYDROCARBONS

FLIR **GFx320™**

FLIR **GF620™**

FLIR **GF320™**

The FLIR GFx320, GF620, and GF320 are cooled OGI cameras that are filtered to detect methane and hydrocarbon emissions from the production, transportation, and processing facilities in the oil and gas industry. Survey large areas up to nine times faster than with traditional gas sniffer methods to catch leaks early and reduce emissions.

Providing up to 640 × 480 IR resolution (GF620) and highly accurate temperature measurements, inspectors can assess and improve thermal contrast between the gas cloud and the background.

The GFx320, GF620 and GF320 are verified to meet sensitivity standards defined in the US EPA's 0000a methane rule and meets reporting requirements by tagging each recording with GPS data. By finding leaks and fixing them quickly, companies can protect the environment while avoiding product losses and regulatory fines.

Safely scan for gases at great distances on difficult to monitor components, check thousands of connections quickly, and pinpoint the smallest leaks.

### HAZARDOUS LOCATIONS

The FLIR GFx320 allows you to quickly detect and visualize fugitive natural gas emissions while maintaining safety inside hazardous locations. This OGI camera is certified for use in Class 1; Division 2 or Zone 2 **hazardous locations**, improving worker safety and potentially reducing pre-survey paperwork (depending on company protocols).

### THE GFx320/GF320 DETECT NEARLY 400 GASES, INCLUDING:

- Methane
- Methanol
- Propane
- Benzene
- Ethane
- Propylene
- Ethanol
- Pentane
- 1-Pentene
- Isoprene
- Butane
- Ethylbenzene
- MEK
- MIBK
- Toluene
- Octane
- Heptane
- Xylene
- Ethylene
- Hexane



### THE GFx320 AND GF620 ARE IDEAL FOR:

- Offshore platforms
- Liquid natural gas shipping terminals
- Oil refineries
- Natural gas wellheads and processing plants
- Compressor stations
- Bio-gas and power generation plants

### GFx320: SAFETY ZONE COMPLIANT

At offshore rigs, well sites, and production plants, there's often a risk of gas collecting and igniting with a stray spark or hot surface. Working in these areas requires special clothing and equipment – if it's possible at all.

The oil and gas industry has long awaited a gas detection solution such as the GFx320, because its hazardous location designation allows the user to work confidently and focus on the job at hand.

### THE GFx320 HAS THE FOLLOWING CERTIFICATIONS:

ATEX/IECEX, Ex ic nC op is IIC T4 Gc II 3 G  
ANSI/ISA-12.12.01-2013, Class I Division 2  
CSA 22.2 No. 213, Class 1 Division 2



### Q-MODE

Save time post-processing data with Q-Mode (Quantification Mode). This setting automatically prepares the camera for gas quantification with QL320 software (sold separately), allowing you to measure and confirm the size of leaks when surveying components that are difficult to measure or hard to access. All new FLIR cooled OGI cameras offer this feature; just turn the dial to "Q-Mode" on the camera's mode wheel, and it will automatically record files in a format that will seamlessly integrate into the QL320 system to quantify gas leaks without wires. If you own an older FLIR cooled OGI camera model without Q-Mode, you may send it to our service center to install it on your existing camera.

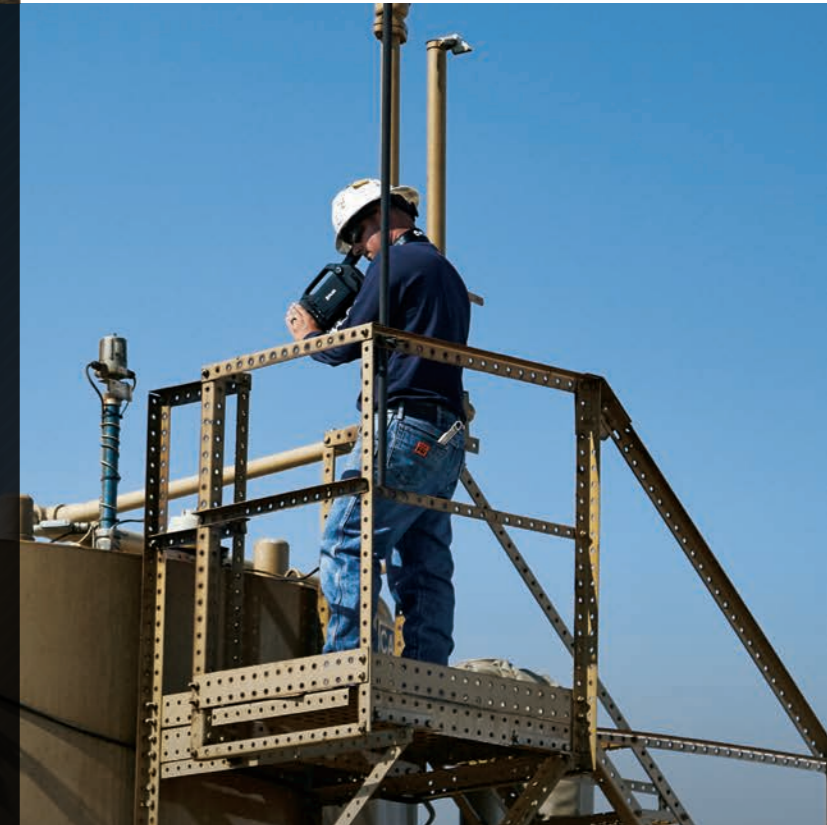
## FLIR **QL320™**

The QL320 is a quantitative optical gas imaging (qOGI) system that allows you to measure leak rates for methane and other hydrocarbons, eliminating the need for secondary sampling with a toxic vapor analyzer or similar tool. The QL320 does not require close contact with the gas in order to measure emission rates, making it a safer solution for quantifying gas leaks in difficult to monitor (DTM) areas with immediate results.



### THE QL320 IS IDEAL FOR:

- Upstream oil and gas operations
- Refineries
- Method 21 AWP inspections





## SULFUR HEXAFLUORIDE AND AMMONIA

### FLIR GF77™

#### Gas Find IR with HR lens

The FLIR GF77 with the HR (9.5-12 μm) lens—designed exclusively for use with this uncooled OGI camera—detects and visualizes sulfur hexafluoride (SF<sub>6</sub>), ethylene, and ammonia. This affordable solution is useful for both gas detection and radiometric temperature measurement, so you can safely locate leaks and perform accurate thermal inspections using one camera.

### FLIR GF306™

The FLIR GF306 detects SF<sub>6</sub> – used to insulate high voltage circuit breakers – as well as the industrial refrigerant and fertilizer anhydrous ammonia (NH<sub>3</sub>). SF<sub>6</sub> is a potent greenhouse gas, with a global warming potential that's 22,000 times greater than CO<sub>2</sub> over a 100-year period. By detecting and repairing SF<sub>6</sub> leaks, energy producers can avoid costly damage to circuit breakers while protecting the environment.

#### GF306 DETECTS THE FOLLOWING GASES:

- Acetic acid
- Acetyl chloride
- Allyl bromide
- Allyl chloride
- Allyl fluoride
- **Anhydrous ammonia**
- Bromomethane
- Chlorine dioxide
- Ethyl cyanoacrylate (superglue)
- **Ethylene**
- Freon-12
- Furan
- Hydrazine
- Methylsilane
- Methyl ethyl ketone (MEK)
- Methyl vinyl ketone
- Propenal
- Propene
- Sulfur hexafluoride
- Tetrahydrofuran
- Trichloroethylene
- Uranyl fluoride
- Vinyl chloride
- Vinyl cyanide
- Vinyl ether



#### GF77 CAMERAS WITH HR LENSES ARE IDEAL FOR:

- Electric power utilities
- Oil and natural gas operations
- Chemical/manufacturing facilities
- Food and agriculture
- First responders



#### GF306 CAMERAS ARE IDEAL FOR:

- Utilities
- Ammonia plants
- Industrial refrigeration systems
- Chemical plants



## REFRIGERANTS

### FLIR GF304™

The FLIR GF304 detects refrigerant gas leaks without interrupting or shutting down operations. Most modern refrigerants are organofluorine compounds, and while they are not ozone-depleting, some blends contain Volatile Organic Compounds (VOCs). Refrigerants are used in a variety of systems, including food production, pharmaceutical storage, and air conditioning.

#### GF304 DETECTS THE FOLLOWING REFRIGERANT GASES:

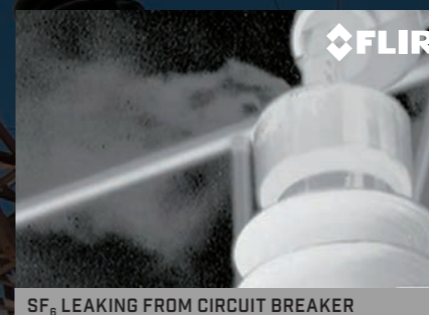
- R22
- R125
- R134A
- R143A
- R245fa
- R404A
- R407C
- R410A
- R417A
- R422A
- R507A

#### GF304 CAMERAS ARE IDEAL FOR:

- Food production, storage, and retail
- Automotive production and repair
- Air conditioning
- Pharmaceutical production, transport, and storage



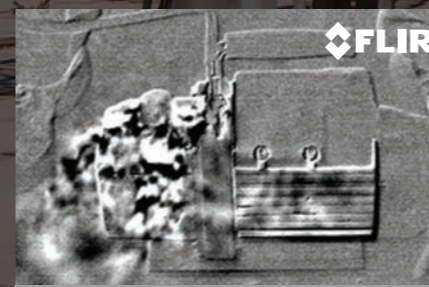
COMMON SF<sub>6</sub> PLUMBING LEAK



SF<sub>6</sub> LEAKING FROM CIRCUIT BREAKER



A/C COMPRESSOR - INFRARED IMAGE



A/C COMPRESSOR - HIGH SENSITIVITY MODE (HSM)



## CARBON DIOXIDE

### FLIR GF343™

The GF343 lets you see carbon dioxide (CO<sub>2</sub>) leaks quickly and accurately, whether the gas is the result of a production process, part of an Enhanced Oil Recovery program, or being used as a tracer gas for hydrogen. CO<sub>2</sub> is a primary greenhouse gas, with emissions resulting not only from the combustion of fossil fuels but also from industrial processes, oil production, and manufacturing. Reliable non-contact CO<sub>2</sub> detection allows plants to inspect equipment while it is still online in the course of normal operations, avoiding unplanned outages. It also helps keep operations safe while moving towards carbon-neutral capture and storage operations.



#### GF343 CAMERAS ARE IDEAL FOR:

- Enhanced Oil Recovery programs
- Hydrogen-cooled power generators
- Carbon capture systems
- Ethanol producers
- Industrial tightness testing



## CARBON MONOXIDE

### FLIR GF346™

The FLIR GF346 exposes invisible, odorless carbon monoxide (CO) emissions from a safe distance. CO leaking from vent stacks or pipes can be deadly, especially if the gas is allowed to collect in an enclosed area. The GF346 can quickly scan broad areas and pinpoint even small leaks from several meters away, increasing worker safety and protecting the environment.



#### GF346 CAMERAS ARE IDEAL FOR:

- Steel industry
- Bulk chemicals manufacturing
- Packaging systems
- Petrochemical industry

#### GF346 DETECTS CARBON MONOXIDE AND THE FOLLOWING GASES:

- Acetonitrile
- Acetyl cyanide
- Arsine
- Bromine isocyanate
- Butyl isocyanide
- Chlorine isocyanate
- Chlorodimethylsilane
- Cyanogen bromide
- Dichloromethylsilane
- Ethenone
- Ethyl thiocyanate
- Germane
- Hexyl isocyanide
- Ketene
- Methyl thiocyanate
- Nitrous oxide
- Silanev





# SPECIFICATIONS



	GF620	GFx320	GF320	GF77	GF304	GF306	GF346	GF343	
Primary Gas Seen	Hydrocarbons (CxHx)	Hydrocarbons (CxHx)	Hydrocarbons (CxHx)	LR lens: methane, nitrous oxide, propane, sulfur dioxide, R-134a and R-152a HR lens: sulfur hexafluoride, ammonia, ethylene	Refrigerants	Sulfur hexafluoride (SF <sub>6</sub> ), ammonia (NH <sub>3</sub> )	Carbon monoxide (CO)	Carbon dioxide (CO <sub>2</sub> )	
Detector Type	Cooled InSb	Cooled InSb	Cooled InSb	Uncooled microbolometer		Cooled QWIP	Cooled QWIP	Cooled InSb	Cooled InSb
Spectral Range	3.2 – 3.4 μm	3.2 – 3.4 μm	3.2 – 3.4 μm	LR lens: 7 to 8.5 μm	HR lens: 9.5 to 12 μm	8.0 – 8.6 μm	10.3 – 10.7 μm	4.52 – 4.67 μm	4.2 – 4.4 μm
Resolution	640 × 480 (307,200 pixels)	320 × 240 (76,800 pixels)	320 × 240 (76,800 pixels)	320 × 240 (76,800 pixels)		320 × 240 (76,800 pixels)	320 × 240 (76,800 pixels)	320 × 240 (76,800 pixels)	320 × 240 (76,800 pixels)
Q-Mode (quantification with the FLIR QL320)	Yes	Yes	Yes	–		–	–	–	–
Thermal Sensitivity	<20 mK at 30°C (86°F)	<15 mK at 30°C (86°F)	<15 mK at 30°C (86°F)	25° lens: <25 mK at 30°C (86°F) 6° lens: <40 mK at 30°C (86°F)		<15 mK at 30°C (86°F)	<15 mK at 30°C (86°F)	<15 mK at 30°C (86°F)	<15 mK at 30°C (86°F)
Accuracy	±1°C (±1.8°F) for temperature range 0°C to 100°C (32°F to 212°F) or ±2% of reading for temperature range >100°C (>212°F)	±1°C (±1.8°F) for temperature range 0°C to 100°C (32°F to 212°F) or ±2% of reading for temperature range >100°C (>212°F)	±1°C (±1.8°F) for temperature range 0°C to 100°C (32°F to 212°F) or ±2% of reading for temperature range >100°C (>212°F)	±5°C (±9°F) for ambient temperatures 15°C to 35°C (59°F to 95°F)		±1°C (±1.8°F) for temperature range 0°C to 100°C (32°F to 212°F) or ±2% of reading for temperature range >100°C (>212°F)	±1°C (±1.8°F) for temperature range 0°C to 100°C (32°F to 212°F) or ±2% of reading for temperature range >100°C (>212°F)	±1°C (±1.8°F) for temperature range 0°C to 100°C (32°F to 212°F) or ±2% of reading for temperature range >100°C (>212°F)	N/A
Noise Equivalent Concentration Length (NECL) [ΔT = 10°C, distance = 1 m]	Methane - 13 ppm-m	Methane - 13 ppm-m	Methane - 13 ppm-m	LR lens: CH <sub>4</sub> : <100 ppm × m N <sub>2</sub> O: <75 ppm × m C <sub>3</sub> H <sub>8</sub> : <400 ppm × m SO <sub>2</sub> : <30 ppm × m R-134a: <20 ppm × m R-152a: <100 ppm × m	HR lens: SF <sub>6</sub> : <1 ppm × m C <sub>2</sub> H <sub>6</sub> : <20 ppm × m NH <sub>3</sub> : <20 ppm × m	–	–	–	CO <sub>2</sub> - 5.6 ppm-m
Minimum Laboratory Leak Rate (MLLR) [known gases]	Methane: 0.6 g/hr Propane: 0.6 g/hr	Methane: 0.6 g/hr Propane: 0.6 g/hr	Methane: 0.6 g/hr Propane: 0.6 g/hr	Methane: 2.7 g/hr	Sulfur hexafluoride (SF <sub>6</sub> ): 0.74 g/hr	–	Sulfur hexafluoride: 0.026 g/hr Ammonia: 0.127 g/hr	–	–
Temperature Range	-20°C to 350°C (-4°F to 662°F)	-20°C to 350°C (-4°F to 662°F)	-20°C to 350°C (-4°F to 662°F)	-20°C to 80°C (-4°F to 176°F) 0°C to 250°C (32°F to 482°F) 100°C to 500°C (212°F to 932°F)		-20°C to 250°C (-4°F to 482°F)	-40°C to 500°C (-40°F to 932°F)	-20°C to 300°C (-4°F to 572°F)	–
Lenses	14.5° (38 mm) or 24° (23 mm)	14.5° (38 mm) or 24° (23 mm)	Standard: 24° (23 mm); Optional: 14.5° (38 mm)	Standard: 25° (18 mm); Optional: 6° (74 mm)		Standard: 24° (23 mm); Optional: 14.5° (38 mm)	Standard: 24° (23 mm); Optional: 14.5° (38 mm)	Standard: 24° (23 mm); Optional: 14.5° (38 mm)	24° (23 mm)
Zoom	1-8× continuous digital zoom	1-8× continuous digital zoom	1-8× continuous digital zoom	1-6× continuous digital zoom		1-8× continuous digital zoom	1-8× continuous digital zoom	1-8× continuous digital zoom	1-8× continuous digital zoom
Focus	Manual	Manual	Automatic (one-touch) or manual (electric or on the lens)	Continuous (laser), one-shot (laser), one-shot contrast, manual		Automatic (one touch) or manual (electric or on the lens)	Automatic (one touch) or manual (electric or on the lens)	Automatic (one touch) or manual (electric or on the lens)	Automatic (one touch) or manual (electric or on the lens)
Color LCD Monitor	Tiltable OLED, 800 × 480 pixels	Tiltable OLED, 800 × 480 pixels	Tiltable OLED, 800 × 480 pixels	Dragontrail® Touchscreen (QVGA), 640 × 480 pixels		Tiltable OLED, 800 × 480 pixels	Tiltable OLED, 800 × 480 pixels	Tiltable OLED, 800 × 480 pixels	Tiltable OLED, 800 × 480 pixels
Adjustable Viewfinder	Built-in, tiltable OLED, 800 × 480 pixels	Built-in, tiltable OLED, 800 × 480 pixels	Built-in, tiltable OLED, 800 × 480 pixels	Auto on/off viewfinder		Built-in, tiltable OLED, 800 × 480 pixels	Built-in, tiltable OLED, 800 × 480 pixels	Built-in, tiltable OLED, 800 × 480 pixels	Built-in, tiltable OLED, 800 × 480 pixels
Video Camera w/Lamp	3.2 MP	3.2 MP	3.2 MP	5 MP		3.2 MP	3.2 MP	3.2 MP	3.2 MP
Laser Spot	Class 2, Activated by dedicated button	Class 2, Activated by dedicated button	Class 2, Activated by dedicated button	Class 2, dedicated button, used in focus and distance measurement		Class 2, Activated by dedicated button	Class 2, Activated by dedicated button	Class 2, Activated by dedicated button	Class 2, Activated by dedicated button
Video Out	HDMI	HDMI	HDMI	DisplayPort over USB Type-C		HDMI	HDMI	HDMI	HDMI
<b>Certifications</b>									
Hazardous Locations	–	ANSI/ISA-12.12.01-2013 CSA 22.2 No. 213 ATEX directive 2014/34/EU	–	–		–	–	–	–
US EPA 0000a	Yes	Yes	Yes	No		–	–	–	–
<b>Analysis</b>									
Spotmeters	10	10	10	3 in live mode		10	10	10	–
Area Boxes	5 (min./max./avg.)	5 (min./max./avg.)	5 (min./max./avg.)	3 in live mode		5 (min./max./avg.)	5 (min./max./avg.)	5 (min./max./avg.)	–
Delta T	Delta temperature between measurement functions or reference temperature	Delta temperature between measurement functions or reference temperature	Delta temperature between measurement functions or reference temperature	Yes		Delta temperature between measurement functions or reference temperature	Delta temperature between measurement functions or reference temperature	Delta temperature between measurement functions or reference temperature	–
<b>File Storage</b>									
Radiometric JPEG	SD card, 14-bit measurement data included	SD card, 14-bit measurement data included	SD card, 14-bit measurement data included	SD card, 14-bit measurement data included		SD card, 14-bit measurement data included	SD card, 14-bit measurement data included	SD card, 14-bit measurement data included	SD card, 14-bit data included
Radiometric IR Video	7.5 and 15 Hz .seq video clips to memory card	7.5 and 15 Hz .seq video clips to memory card	7.5 and 15 Hz .seq video clips to memory card	RTRR (.csq)		7.5 and 15 Hz .seq video clips to memory card	7.5 and 15 Hz .seq video clips to memory card	7.5 and 15 Hz .seq video clips to memory card	7.5 and 15 Hz .seq video clips to memory card
MPEG Recording	RTP/MPEG4 (up to 60 minutes/clip) to memory card	RTP/MPEG4 (up to 60 minutes/clip) to memory card	RTP/MPEG4 (up to 60 minutes/clip) to memory card	H.264 to memory card (MP4) or MPEG4 over RTSP (Wi-Fi)		RTP/MPEG4 (up to 60 minutes/clip) to memory card	RTP/MPEG4 (up to 60 minutes/clip) to memory card	RTP/MPEG4 (up to 60 minutes/clip) to memory card	RTP/MPEG4 (up to 60 minutes/clip) to memory card





## FLIR THERMAL STUDIO PRO

Spend less time on analysis and reporting with FLIR Thermal Studio Pro. This subscription-based reporting software is designed to help you manage thousands of thermal images and videos in a simple, efficient way. Quickly import, edit, and analyze images before outputting them in professional inspection reports. It's an effective way to show clients or decision-makers any existing faults or potential problems discovered during a thermal inspection and get the "go-ahead" to begin on repairs.

FLIR Thermal Studio Pro provides automation and advanced processing capabilities that will significantly streamline workflow and increase productivity. This software makes thermal images as easy to edit as visual ones, enabling you to spend more time in the field and less time at your desk. With added features like video editing, GPS location links, and HSM editing of sequence files, Thermal Studio Pro is specifically designed with the optical gas imaging camera in mind.



## OPTICAL GAS IMAGING: THE PROFESSIONAL GUIDE

SEE OPTICAL GAS IMAGING IN ACTION,  
ACCESS CASE STUDIES, AND MUCH MORE

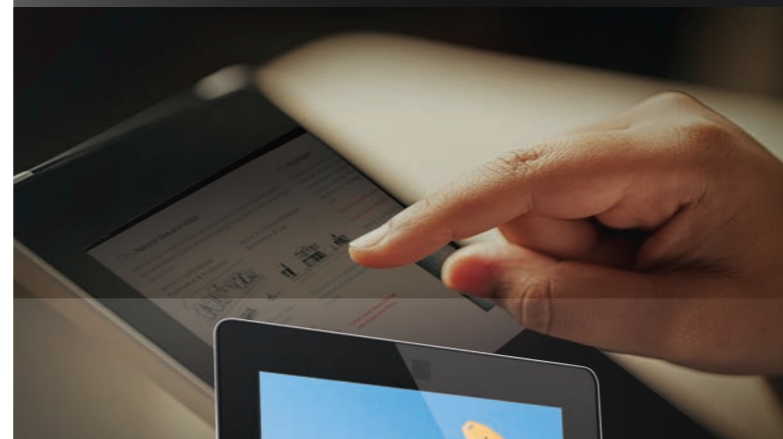
Gain a greater understanding of OGI technology and how it can help you find and repair gas leaks with FLIR's content-rich eBook, **Optical Gas Imaging: The Professional Guide**. This guide provides an in-depth look at OGI and infrared, through technical explanations, videos, and animations. You'll get expert tips for maximizing OGI surveys and see how different industries use OGI cameras to save time, money, and the environment.

Get the eBook for iOS and MacOS at [www.flir.com/OGI](http://www.flir.com/OGI)



### Key Features:

- Batch Processing of multiple videos
- Video Editing of mp4 and csq/seq files
- HSM addition to csq/seq files from a GF camera
- "Live" GPS tracking of .mp4 videos
- Single image extraction from mp4 or csq/seq files



## INFRARED TRAINING CENTER

### The Premier Infrared Camera User Educational & Training Resource

Your professionalism drives you to know everything you can about your business; that's why you'll want to get the most out of your GF-Series camera.

FLIR cameras are easy to use and intuitive, but only expert training will give you the knowledge and skills to wring every last bit of capability from your investment. An Infrared Training Center (ITC) certificate is proof of your expertise in operating your camera and interpreting the thermal information it provides.

During the three-day ITC Optical Gas Imaging certification course, you'll learn how to set up and operate FLIR GF-Series cameras, which gases these cameras can see, and how environmental conditions affect gas leak detection, all while earning 2.0 IACET CEUs. Training includes classroom instruction and lab time covering basic inspection procedures, permitting requirements, safety practices, and more.

For full course descriptions, updated schedules, and more information, visit the [itc website at: Infraredtraining.com](http://itc website at: Infraredtraining.com) or call 1.866.872.4647.



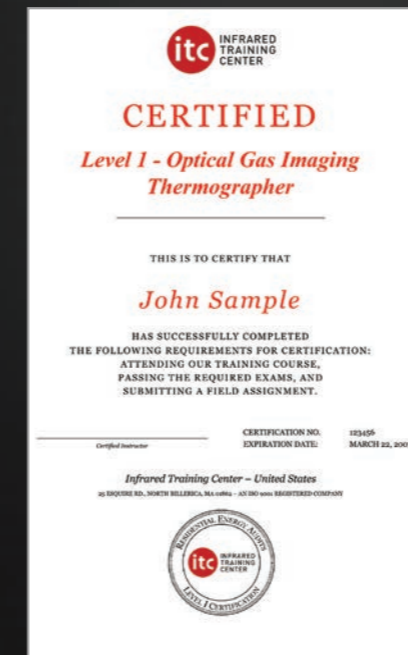
### ITC COURSES PROVIDE:

- Industry-leading, high-quality interactive instruction
- The most qualified international instructors
- The most extensive hands-on laboratories
- ISO 9001-registered
- Optional online training courses

### OTHER ITC COURSES INCLUDE:

- Optical Gas Imaging I and II
- O000a Fugitive Emissions Monitoring (U.S. Only)
- Thermography Fundamentals
- General Thermography Primer
- Level I, Level II, and Level III Thermography
- IR Electrical Inspection
- IR Mechanical Inspection

Attend classes at our training center, locally at one of our regional classes, or in your facility with our on-site service.





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