FLIR GF-Series

Ergonomically designed and full featured

All FLIR GF-Series thermal imaging cameras are designed to be used several hours per day. They all contain a number of useful features that will help you to do your inspections more efficiently and to detect the smallest of gas leaks or thermal anomaly.

High sensitivity
The GF-Series allow you to see temperature differences as small as 0.015°C. Ideal for detecting the smallest anomalies in electrical or other industrial installations.

Tiltable viewfinder
The high-resolution viewfinder is tiltable and can be adapted to the individual user. It is ideal for outdoor use or when the LCD screen is not used.

Large LCD screen
Super size 4.3" foldable high-quality LCD screen allows you to see the smallest details and temperature differences.

Multi-angle handle with integrated direct access buttons
A turnable control grip allows you to use the camera in the most comfortable position. The buttons and joystick to control the camera are integrated in this handle and always stay right underneath your fingertips.

Programmable direct access button
For increased flexibility the operator can program a button located on the top of the camera for direct access to favorite functions.

Large number of analysis tools
Movable spotmeters, line profiles, areas and many more allow for detailed thermal analysis.

MPEG-4 video
Create visual and infrared non radiometric MPEG-4 video files.

High quality visual camera
An integrated 3.2 megapixel visual camera for generating crisp visual images in all conditions.

Laser Pointer
Helps you associate the hot or cold spot in the IR image with the real physical target in the field.

Flexible interfaces
Easy access to digital video connection, USB, and a direct connection to charge the battery inside the camera.

Built-in GPS
GPS allows to georeference infrared images to determine their geographic location.

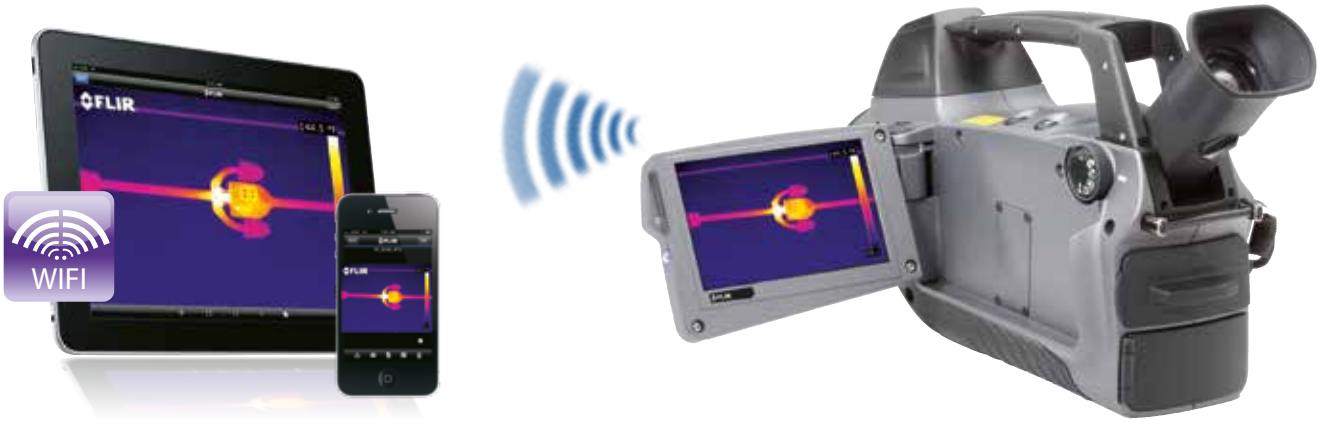
Wireless connectivity
Connect to smartphone or tablet via a Wi-Fi USB adapter, use the FLIR Tools mobile app (Apple iOS and Android) for processing and sharing results as well as for remote control.

Radiometric IR video streaming
16 bit radiometric IR video can be streamed to a PC (via USB) running the FLIR software.

High Sensitivity Mode (HSM)
Further enhances the sensitivity of the camera so that the smallest gas leaks can be detected (FLIR GF304, GF306, FLIR GF320 and FLIR GF346).

Gas leak in a petrochemical plant

High Sensitivity Mode On



Connect to smartphone or tablet via a Wi-Fi USB adapter and use the FLIR Tools mobile app (Apple iOS and Android) for processing and sharing results as well as for remote control.

FLIR GF309

Seeing through flames

The FLIR GF309 is an IR camera for the high-temperature measurement of industrial furnaces, chemical heaters, and coal-fired boilers, without the need to shut down the operation. The portable camera also greatly improves operator safety, by measuring through flames at a safe distance, for all types of furnaces. A good knowledge of the furnace condition can avert failures and unscheduled shutdowns.

Industrial furnaces, heaters, and boilers are found in the chemical, petrochemical, and utility industries.

See through flames
The GF309 is equipped with a special "flame filter" that allows you to see and measure high temperatures (up to +1500°C) through flames. Ideal for furnace and boiler inspections.

Wide temperature range
The FLIR GF309 visualizes temperatures from -40°C to +1,500°C. This makes the camera extremely suited for high temperature inspections.

Dual use
The FLIR GF309 can be used both for internal and external furnace and maintenance inspections and can make also the smallest of temperature differences clearly visible.

Heat shield
A nickel coated heat shield improves worker safety and comfort during inspection.

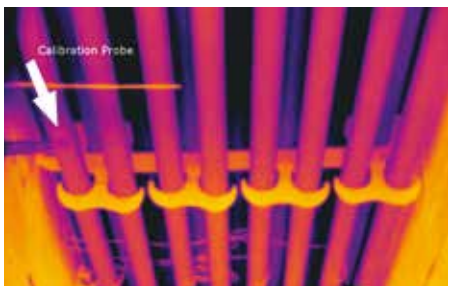
Available lenses
The FLIR GF309 comes either with a fixed 14.5° lens or with a fixed 24° lens. A version with interchangeable lenses is also available but requires a US Department of State license.

Cooled detector
The FLIR GF309 contains a cooled Indium Antimonide (InSb) detector. This highly sensitive detector is spectrally tuned to 3.8 - 4.05 micrometer waveband for seeing through flames.

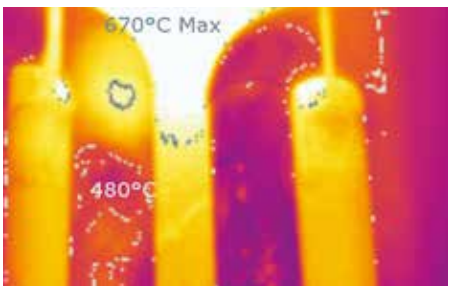
Industries:

Oil refineries, petrochemical & chemical industries

Electrical utilities



The FLIR GF309 is widely used for inspecting boilers and furnaces. It is equipped with a special flame filter for high temperatures (up to +1,500°C) and seamlessly sees through flames.



Coke formation on an Ultrafiner Reactor Charge Heater.

FLIR GF309

Technical specifications

Imaging and optical data	
Field of view (FOV) / Minimum focus distance	14.5° lens: 14.5° x 10.8° / 0.5 m 24° lens: 24° x 18° / 0.3 m
F-number	1.5
Thermal sensitivity/NETD	<15 mK @ +30°C
Focus	Automatic (one touch) or manual (electric or on the lens)
Zoom	1–8× continuous, digital zoom
Digital image enhancement	Noise reduction filter
Focal Plane Array (FPA) / Spectral range	Cooled InSb / 3.8–4.05 µm
IR resolution	320 × 240 pixels
Sensor cooling	Stirling Microcooler (FLIR MC-3)

Electronics and data rate	
Full frame rate	60 Hz

Image presentation	
Display	Built-in widescreen, 4.3 in. LCD, 800 × 480 pixels
Viewfinder	Built-in, tiltable OLED, 800 × 480 pixels
Automatic image adjustment	Continuous/manual; linear or histogram based
Manual image adjustment	Level/span
Image modes	IR-image, visual image

Measurement	
Temperature range	–40 to +1500°C
Accuracy	±1°C for temperature range (0-100 °C) or ±2% of reading for temperature range (> +100 °C)

Measurement analysis	
Spotmeter	10
Area	5 boxes with max/min/average
Profile	1 live line (horizontal or vertical)
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set or captured from any measurement function
Emissivity correction	Variable from 0.01 to 1.0 or selected from editable materials list
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
Measurement corrections	Reflected temperature, distance, atmospheric transmission, humidity, external optics

Set-up	
Menu commands	Level, span, Auto adjust continuous/manual/semi-automatic, Zoom, Palette, Start/stop recording, Store image, Playback/ recall image
Color palettes	Iron, Gray, Rainbow, Arctic, Lava, Rainbow HC
Set-up commands	1 programmable button, local adaptation of units, language, date and time formats

Storage of images	
Image storage type	Removable SD or SDHC Memory Card, two card slots
Image storage capacity	> 1200 images (JPEG) with post process capability per GB on memory card
Image storage mode	IR/visual images. Visual image can automatically be associated with corresponding IR image.
File formats	Standard JPEG, 14 bit measurement data included
GPS	Location data automatically added to every image from built-in GPS

Video recording and streaming	
Radiometric IR-video recording	15 Hz direct to memory card
Non radiometric IR-video recording	MPEG4 (up to 60 minutes/clip) to memory card. Visual image can automatically be associated with corresponding recording of non radiometric IR-video.
Digital camera video recording	MPEG4 (25 minutes/clip) to memory card
Non radiometric IR-video streaming	RTP/MPEG4

Digital camera	
Built-in digital camera	3.2 Mpixel, auto focus, and two video lamps

Laser pointer	
Laser	Activated by dedicated button

Data communication interfaces	
WLAN	Peer to peer (adhoc) for iOS or infrastructure (network) for Android
USB	USB-A: Connect external USB device (e.g. memory stick) USB Mini-B: Data transfer to and from PC
USB, standard	USB Mini-B: 2.0 High Speed
Video	Digital Video output (image)

Power system	
Battery type	Rechargeable Li Ion battery
Battery voltage	7.2 V
Battery operating time	> 3 hours at 25°C and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Start-up time	Typically 7 min. @ 25°C

Environmental data	
Operating temperature range	–20°C to +50°C
Storage temperature range	–30°C to +60°C
Humidity (operating and storage)	IEC 68-2-30/24 h 95% relative humidity +25°C to +40°C (2 cycl)
EMC	EN61000-6-4 (Emission)
	EN61000-6-2 (Immunity)
	FCC 47 CFR Part 15 class A (Emission)
	EN 61 000-4-8, L5
Encapsulation	IP 54 (IEC 60529)
Bump	25 g (IEC 60068-2-29)
Vibration	2 g (IEC 60068-2-6)

Physical data	
Camera weight, incl. lens and battery	2,48 kg
Battery weight	0,24 kg
Cameras size, incl. lens (L × W × H)	305 × 169 × 161 mm
Tripod mounting	Standard, 1/4"-20
Housing material	Aluminium, Magnesium
Grip material	TPE Thermoplastic Elastomers

Scope of delivery

Thermal imaging camera
Standard Lens, 14.5° or 24° (Si)
Hard transport case
Lens cap (mounted on lens)
Shoulder strap
Batteries 2 ea. (1 of the batteries inside camera)
Charger
Power supply incl. multi-plugs
HDMI-DVI + HDMI-HDMI cable
USB cable
SD card
SD card adapter (connects via USB to PC)
Getting Started Guide (printed)
Manual for GF-series on CD
FLIR Tools on CD
Heat shield
Wi-Fi USB micro-adapter (depending on CE and FCC regulations regarding wireless equipment for your country)

The following accessories are available for all GF-Series thermal imaging cameras

Power

Battery [1196209]
Extra high capacity battery for the thermal imaging camera.

Battery charger, incl. power supply with multi plugs [T197692]
Stand-alone 2-bay battery charger, including power supply with multi plugs.

Power supply, incl. multi plugs [T910814]
Power supply, including multiple plugs, to charge the battery when it is inside the camera or in the battery charger.

Cigarette lighter adapter kit, 12 VDC, 1.2 m. [1910490]
This cable is used to power the thermal imaging camera or to charge the battery from the cigarette lighter socket in a car.

Storage

Adapter, SD memory card to USB [1910475]
Easy to install and use; no additional driver installation required for Windows ME, 2000 and XP. Driver included for Windows 98SE.

Memory card micro-SD with adapters [T910737]
Micro-SD Card for data storage (e.g. images)

Cables

USB cable Std A <-> Mini-B [1910423]
This cable is used to connect the thermal imaging camera with a computer, using the USB protocol.

HDMI to DVI cable 1.5 m [T910816]
This cable is used to connect the thermal imaging camera with an external display.

HDMI to HDMI cable 1.5 m [T910815]
This cable is used to connect the thermal imaging camera with an external display.

Transport

Hard transport case for FLIR GF3xx-Series [T197555]
Hard transport case for FLIR GF3xx-Series

Miscellaneous

Heat Shield for FLIR GF309 only [T197482]
Heat shield for the FLIR GF309.

Wi-Fi USB adaptor [T951387]
Wi-Fi USB adaptor for wireless connection between the thermal imaging camera and external equipment.