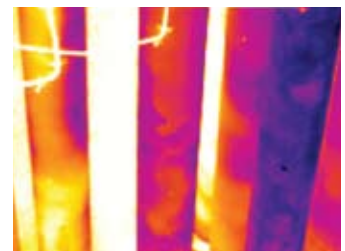


# FLIR GF309

Infrared camera for furnace and electrical inspections

*FLIR GF309 is used for high temperature industrial furnace applications. FLIR GF309 is designed to "see through flames" in all types of gas-fired furnaces, chemical heaters, coal-fired boilers. As the camera has an exceptionally wide span of temperature range it will also perform high accuracy electrical and mechanical inspections, making it a very useful instrument for its owner.*

- Measures temperatures from -40 °C to +1500 °C with high accuracy
- Dual-use camera: Furnace and ambient temperatures
- Excellent Thermal Sensitivity (<25 mK)
- High performance LCD & Tiltable high resolution viewfinder delivers a bright and vivid image in poor lighting environment or under sunlight
- User-inspired Ergonomics: Rotating Handle, Direct Access Buttons
- Embedded GPS Data and Digital images allow you to identify precise locations of inspected area.
- Compatible with FLIR QuickReport and FLIR Reporter software for professional inspection report



The infrared image shows isolated areas of tube overheating which are not being detected by the temperature thermocouples. This situation typically results in a localized tube failure. Coking and patchy scale are present.

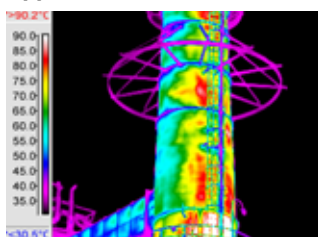
### Visualized gas leak in real-time

The FLIR GF309 is designed for high temperature industrial furnace applications. These cameras are ideal for monitoring all types of furnaces, heaters and boilers, particularly in the chemical, petrochemical and utility industries. Custom-built to see through flames, the GF309 also features a detachable heat-shield designed to reflect heat away from the camera and camera operator, providing increased protection.

### Multi-purposes in gas leak detection

The FLIR GF309 infrared camera provides temperature readings across the entire surface of your heater/boiler/furnace and will help you to inspect faster, work safer and avert unscheduled shutdowns and, worse, catastrophic failures.

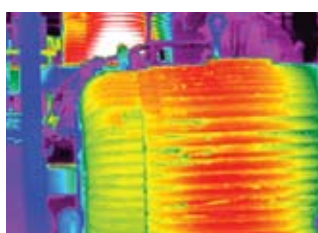
### Applications:



Oil refineries



Petrochemical & chemical industries



Power generation



Tiltable, Flip-out 4.3" High Contrast Color LCD helps you view targets more safely from many angles, and avoid eye strain after long time.



The new GF309 is equipped with a special midwave "flame filter" for high temperature (up to 1500°C) furnace inspections and boiler inspections. Additionally, the nickel coated heat shield contoured to improve worker safety and comfort during inspection.

# FLIR GF309 (Furnace) Technical Specifications

<b>Imaging and optical data</b>	
Field of view (FOV) / Minimum focus distance	24° x 18° / 0.3 m
Lens identification	Automatic
F-number	1.5
Thermal sensitivity/NETD	<25 mK @ +30°C
Focus	Automatic (one touch) or manual (electric or on the lens)
Zoom	1–8x continuous, digital zoom
Digital image enhancement	Noise reduction filter, scene based NUC
Focal Plane Array (FPA) / Spectral range	Cooled InSb / 3–5 µm
IR resolution	320 x 240 pixels
Detector pitch	30 µm
Sensor cooling	Stirling Microcooler (FLIR MC-3)
<b>Electronics and data rate</b>	
Full frame rate	60 Hz
<b>Image presentation</b>	
Display	Built-in widescreen, 4.3 in. LCD, 800 x 480 pixels
Viewfinder	Built-in, tiltable OLED, 800 x 480 pixels
Automatic image adjustment	Continuous/manual; linear or histogram based
Manual image adjustment	Level/span
Image modes	IR-image, visual image
<b>Measurement</b>	
Temperature range	–40 to +1500°C
Accuracy	±1°C for temperature range (0 °C to +100 °C) or ±2% of reading for temperature range (Above +100 °C)
<b>Measurement analysis</b>	
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
<b>Set-up</b>	
Menu commands	Level, span Auto adjust continuous/manual/semi-automatic Zoom Palette Start/stop recording Store image Playback/recall image
Set-up commands	Local adaptation of units, language, date and time formats
Web interface	Admin camera setup and viewing IR images
<b>Storage of images</b>	
Image storage type	Removable SD or SDHC Memory Card, two card slots
Image storage capacity	> 1200 images (JPEG) with post process capability (4 GB SDHC card)
Periodic image storage	Every 10 seconds up to 24 hours
File formats	Standard JPEG, 14 bit measurement data included
GPS	Location data automatically added to every image from built-in GPS
<b>Video recording and streaming</b>	
Radiometric IR-video recording	15 Hz direct to memory card
Non radiometric IR-video recording	MPEG4/H.264 (60 minutes/clip) to memory card. Visual image can automatically be associated with corresponding recording of non radiometric IR-video
Digital camera video recording	H.264 (25 minutes/clip) to memory card
Non radiometric IR-video streaming	RTP/ H.264 and MPEG-4
<b>Digital camera</b>	
Built-in digital camera	3.2 Mpixel, auto focus, and two video lamps
<b>Laser pointer</b>	
Laser	Activated by dedicated button
<b>Data communication interfaces</b>	
USB	USB-A: Connect external USB device (e.g. memory stick) USB Mini-B: Data transfer to and from PC
USB, standard	USB 2.0 High Speed HDMI (image)
<b>Power system</b>	
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	Stirling cool down: < 5 min. @ 25°C

<b>Environmental data</b>	
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)
Directives	73/23/EEC, 89/336/EEC, 2002/95/EC, 2002/96/EC
EMC	EN61000-6-3 (Emission) EN61000-6-2 (Immunity) FCC 47 CFR Part 15 class B (Emission) EN 61 000-4-8, L5 EN/UL/CSA 60950-1
Encapsulation	IP 54 (IEC 60529)
Bump	25 g (IEC 60068-2-29)
Vibration	2 g (IEC 60068-2-6)
<b>Physical data</b>	
Camera weight, incl. lens and battery	2.4 kg
Battery weight	0.24 kg
Cameras size, incl. lens (L x W x H)	305 x 169 x 161 mm
Tripod mounting	Standard, 1/4"-20
Housing material	Aluminium, Magnesium
Grip material	TPE Thermoplastic Elastomers

<b>Scope of delivery</b>	
Packaging, contents	
Infrared camera	
Standard Lens, 24° (Si)	
Hard transport case	
Lens cap (mounted on lens)	
Lens cap (2 ea., backside of lens and opening on camera body)	
Strap for lens cap, 2 ea.	
Shoulder strap	
Batteries 2 ea. (1 of the batteries inside camera)	
Charger	
Power supply	
Power supply cord	
HDMI - HDMI cable	
HDMI - DVI cable	
USB cable	
SD card	
SD card adapter (connects via USB to PC)	
Getting Started Guide (printed)	
Manual for GF-series on CD	
FLIR QuickReport™ PC software CD-ROM	
System Calibration Certificate	
Warranty extension card or Registration card	
Heat shield	



\*All FLIR GF300 Series (fixed lens) requires U.S. Department of Commerce license.  
\*All interchangeable lens versions of FLIR GF300 Series requires U.S. Department of State license.  
For more details and update information regarding above, please contact our FLIR office/ authorized distributors.

VÓRTEX Equipamentos ~ Fone (31) 3427-7700 ~ vortex@vortex.com.br

**FLIR Systems Australia Pty Ltd**  
10 Business Park Drive  
Notting Hill VIC 3168  
Australia  
Ph: (03) 9550 2800  
Fax: (03) 9558 9853  
Email: info@flir.com.au



www.flir.com/thg