FLIR GF306 24°

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Website

http://www.flir.com

Customer support

http://support.flir.com

Disclaimer

Specifications subject to change without further notice. Camera models and accessories subject to regional market considerations. License procedures may apply. Products described herein may be subject to US Export Regulations. Please refer to exportquestions@flir.com with any questions.

General description
The FLIR GF306 is an infrared camera for optical gas imaging (OGI) that visualizes and pinpoints gas leaks—especially of sulfur hexafluoride (SF_6) and ammonia—without the need to de-energize high-voltage equipment or shut down the operation. The portable camera also greatly improves operator safety by detecting emissions at a safe distance, and helps to protect the environment by tracing leaks of environmentally harmful gases. SF_6 is used in the electric power industry as an insulator and quenching medium for gas-insulated substations and circuit breakers. The gas is also used in magnesium production and semiconductor manufacture. Ammonia is produced in ammonia plants, and is used mainly for the production of fertilizers.
Benefits:
• Improved efficiency: The FLIR GF306 reduces revenue loss by pinpointing even small gas leaks quickly and efficiently, and from a distance. It also reduces inspection time by allowing a broad area to be scanned rapidly and without the need to de-energize components in the high-voltage area. The wireless connectivity of the camera allows you to connect to smart phones or tablets for the wireless transfer of images or the remote control of the camera. The FLIR GF306 can also be used for temperature measurement, which makes it even more useful for the predictive maintenance of high-voltage equipment. • Increased worker safety: OGI allows gas leaks to be detected in a non-contact mode and from a safe distance. This prevents electrical exposure to personnel working in a high-voltage area. With a GF306 gas imaging camera, it is easy to scan areas of interest that are difficult to reach with conventional methods. The camera is ergonomically designed, with a bright LCD and tiltable viewfinder, which facilitates its use over a full working day. • Protecting the environment: SF_6 is a well-known greenhouse gas that causes harm to the environment, and is usually governed by regulations. SF_6 has a global warming potential 24 000 times higher than carbon dioxide. Even small leaks can be detected and documented using the FLIR GF306 camera.
Detects the following gases: sulfur hexafluoride, acetyl chloride, acetic acid, allyl bromide, allyl chloride, allyl fluoride, ammonia, bromomethane, chlorine dioxide, ethyl cyanoacrylate, ethylene, furan, hydrazine, methylsilane, methyl ethyl ketone, methyl vinyl ketone, propenal, propene, R-134a, tetrahydrofuran, trichloroethylene, uranyl fluoride, vinyl chloride, vinyl cyanide, vinyl ether.

Imaging and optical data	
IR resolution	320 × 240 pixels
Thermal sensitivity/NETD	<15 mK @ +30°C (+86°F)
Field of view (FOV)	24° × 18°
Minimum focus distance	0.3 m (1.0 ft.)
Focal length	23 mm (0.89 in.)
Lens identification	Automatic
F-number	1.5
Focus	Automatic (one touch) or manual (electric or on the lens)

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Imaging and optical data	
Zoom	1–8× continuous, digital zoom
Digital image enhancement	Noise reduction filter, high sensitivity mode (HSM)

Detector data	
Detector type	Focal plane array (FPA), cooled QWIP
Spectral range	10.3–10.7 µm
Detector pitch	30 µm
Sensor cooling	Stirling Microcooler (FLIR MC-3)
Detects following gases	Sulfur Hexafluoride (SF6), Acetyl Chloride, Acetic Acid, Allyl Bromide, Allyl Chloride, Allyl Fluoride, Ammonia (NH3), Bromomethane, Chlorine Dioxide, Ethyl Cyanoacrylate, Ethylene, Furan, Hydrazine, Methylsilane, Methyl Ethyl Ketone, Methyl Vinyl Ketone, Propenal, Propene, R 134a, Tetrahydrofuran, Trichloroethylene, Uranyl Fluoride, Vinyl Chloride, Vinyl Cyanide, Vinyl Ether

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 presentation modes	
Image modes	IR image, visual image, high sensitivity mode (HSM)

Measurement	
Temperature range	–40°C to +500°C (–40°F to +932°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)

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

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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, overlay recording mode, local adaptation of units, language, date and time formats

Storage of images	
Storage media	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
Periodic image storage	Every 10 seconds up to 24 hours
File formats	Standard JPEG, 14 bit measurement data included

Geographic Information System	
GPS	Location data automatically added to every image from built-in GPS

Video recording in camera	
Radiometric IR video recording	*.seq video clips to memory card (7.5 and 15 Hz).
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.
Visual video recording	MPEG4 (25 minutes/clip) to memory card

Video streaming	
Radiometric IR video streaming	Full dynamic to PC using USB cable or to mobile devices using Wi-Fi. PC software capable of displaying the video stream include the following: • FLIR IR Camera Player • FLIR ResearchIR • FLIR Tools
Non-radiometric IR video streaming	RTP/MPEG4

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

Laser pointer	
Laser	Activated by dedicated button
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)

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USB	
USB	• USB-A: Connect external USB device • USB Mini-B: Data transfer to and from PC
USB, standard	USB Mini-B: 2.0 high speed

Composite video	
Video out	Digital video output (image)

Power system	
Battery type	Rechargeable Li ion battery
Battery voltage	7.2 V
Battery capacity	4.4 Ah
Battery operating time	> 2 hours at 25°C (+77°F) and typical use
Charging system	In camera (AC adapter or 12 V from a vehicle) or 2-bay charger
Charging time	2.5 h to 95% capacity, charging status indicated by LED's
External power operation	AC adapter 90–260 VAC, 50/60 Hz or 12 V from a vehicle (cable with standard plug, optional)
DC operation	10.8 to 16 V DC, polarity protected (proprietary protected)
Power	12.5 W typically
Start-up time	Typically 10 min. @ 25°C (+77°F)

Environmental data	
Operating temperature range	–20°C to +40°C (–4°F to +104°F)
Storage temperature range	–30°C to +60°C (–22°F to +140°F)
Humidity (operating and storage)	IEC 68-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) (2 cycles)
Directives	• 73/23EEC • 2004/108/EC • 2002/95/EC • 2002/96/EC
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)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Safety	Power supply: EN/UL/IEC 60950-1

Physical data	
Camera weight, excl. lens and battery	1.94 kg (4.27 lb.)
Camera weight, incl. lens and excl. battery	2.24 kg (4.94 lb.)
Camera weight, incl. lens and battery	2.48 kg (5.47 lb.)
Battery weight	0.24 kg (0.52 lb.)
Camera size, excl. lens (L × W × H)	284 × 169 × 161 mm (11.2 × 6.7 × 6.3 in.)
Cameras size, incl. lens (L × W × H)	306 × 169 × 161 mm (12.0 × 6.7 × 6.3 in.)
Battery size (L × W × H)	141 × 47 × 28 mm (5.5 × 1.8 × 1.1 in.)

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Physical data	
Battery charger size (L × W × H)	158 × 122 × 25 mm (6.2 × 4.8 × 1.0 in.)
Tripod mounting	UNC ¼"-20
Housing material	Aluminum, magnesium
Grip material	TPE thermoplastic elastomers

Shipping information	
Packaging, type	Cardboard box
List of contents	• Infrared camera with lens • Battery charger • Battery, 2 ea. • Hard transport case • HDMI-DVI cable • HDMI-HDMI cable • Lens cap (2 ea.) • Lens cap (mounted on lens) • Memory card • Power supply, incl. multi-plugs • Printed documentation • Shoulder strap • USB cable • Wi-Fi USB micro adapter (depending on CE and FCC regulations regarding wireless equipment for your country)
Packaging, weight	
Packaging, size	400 × 190 × 510 mm (15.7 × 7.5 × 20.1 in.)

Supplies & accessories:

- T911881ACC; Camera bag and harness, GF series
- T197386; IR lens, f=23 mm (24°) with case (for GF304, GF306)
- T197384; IR lens, f=38 mm (14.5°) with case (for GF304, GF306)
- T197692; Battery charger, incl. power supply with multi plugs
- T910814; Power supply, incl. multi plugs
- T199367ACC; Battery Li-ion 7.2 V, 4.4 Ah, 32 Wh
- T199183ACC; Battery Li-ion 7.2 V, 4.4 Ah, 32 Wh
- T911650ACC; Memory card SD Card 8 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- 1910423ACC; USB cable Std A <-> Mini-B
- T910815ACC; HDMI to HDMI cable 1.5 m
- T910816ACC; HDMI to DVI cable 1.5 m
- T197555; Hard transport case for FLIR GF3xx-Series
- T951387; Wi-Fi USB micro adapter
- T130007; Extended Calibration Certificate
- T198567; ThermoVision™ System Developers Kit Ver. 2.6
- T198566; ThermoVision™ LabVIEW® Digital Toolkit Ver. 3.3
- APP-10002; FLIR Tools Mobile (Android Application)
- T198586; FLIR Reporter Professional (license only)
- T300243; FLIR Thermal Studio Pro, 1 Year Subscription
- T300083; FLIR Thermal Studio Pro, Perpetual license
- T300341; FLIR Thermal Studio Standard, 1 Year Subscription
- T300258; FLIR Thermal Studio Standard, Perpetual license
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- T198697; FLIR ResearchIR Max + HSDR 4 (hardware sec. dev.)
- T199014; FLIR ResearchIR Max + HSDR 4 (printed license key)
- T199044; FLIR ResearchIR Max + HSDR 4 Upgrade (printed license key)
- T198696; FLIR ResearchIR Max 4 (hardware sec. dev.)

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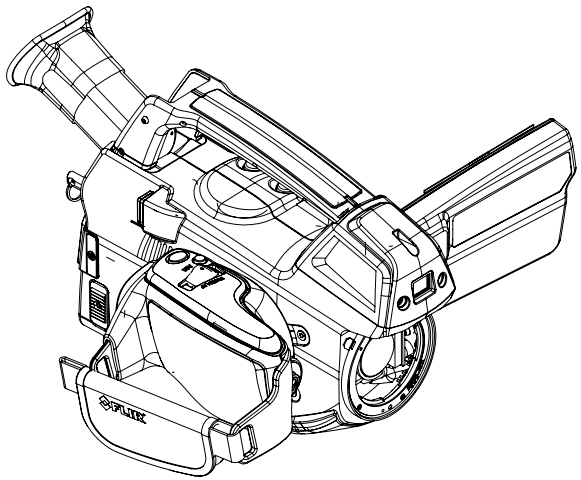
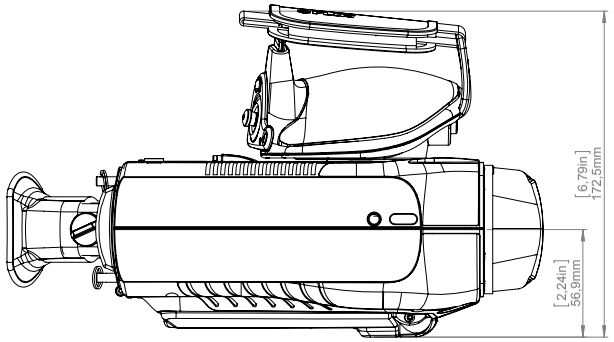
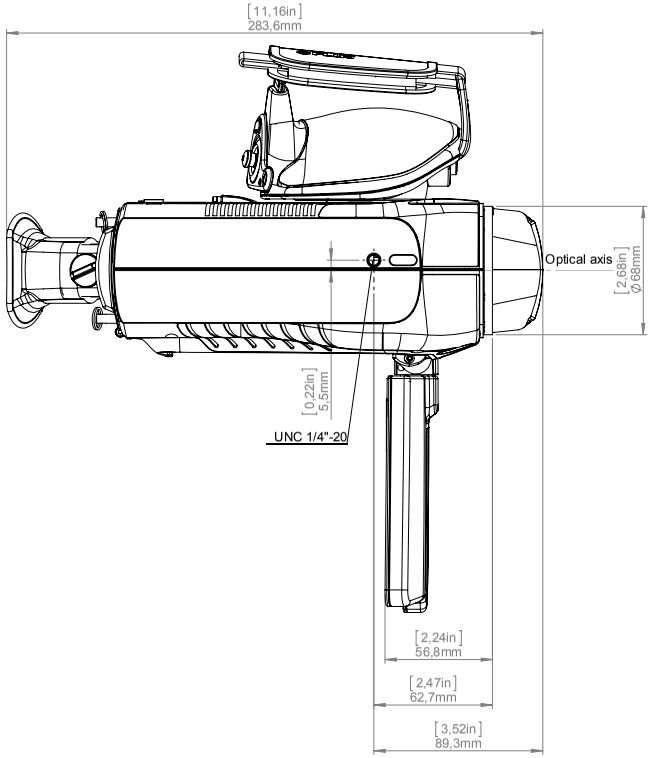
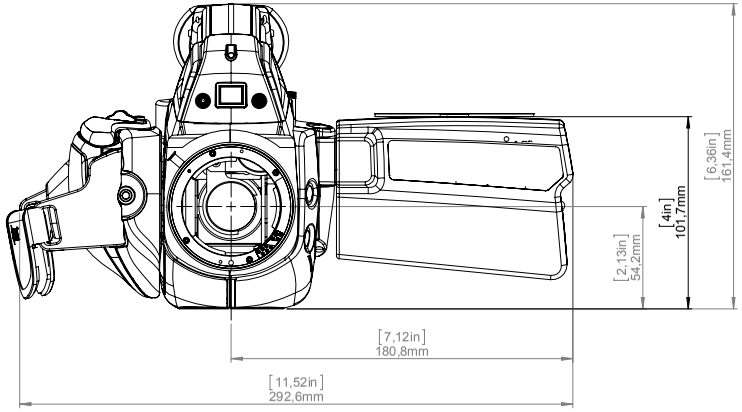
- T199013; FLIR ResearchIR Max 4 (printed license key)
- T199043; FLIR ResearchIR Max 4 Upgrade (printed license key)
- T198731; FLIR ResearchIR Standard 4 (hardware sec. dev.)
- T199012; FLIR ResearchIR Standard 4 (printed license key)
- T199042; FLIR ResearchIR Standard 4 Upgrade (printed license key)
- T199233; FLIR Atlas SDK for .NET
- T199234; FLIR Atlas SDK for MATLAB
- INST-EW-0230; Extended Warranty 1 Year for GF3xx, GFX320, G300pt, GF620, SC670X
- INST-EWGM-0210; Premium Service Package for A6604, GF3xx-series, GFX320, G300pt, GF620, GasFindIR HSX, GasFindIR LW, SC4000
- INST-GM-0175; General Maintenance Package for G300a, GF3xx

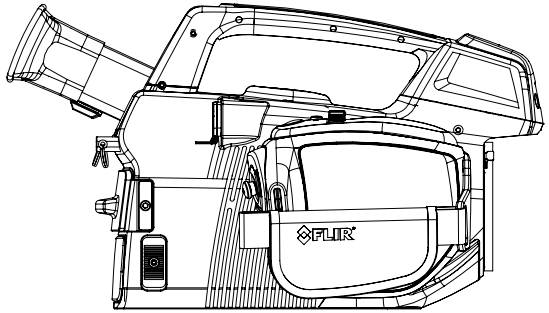
Camera housing





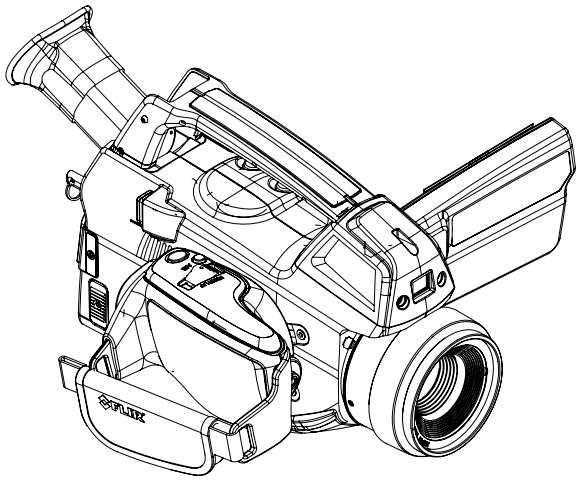


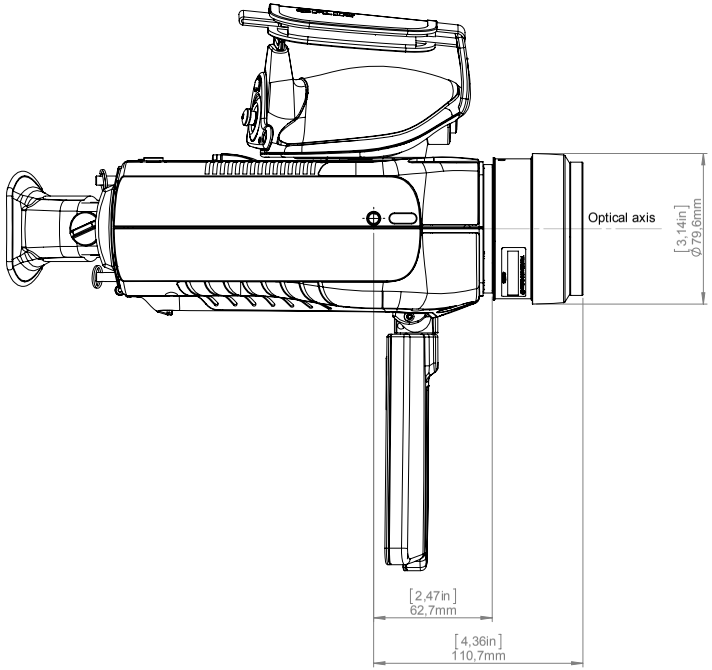


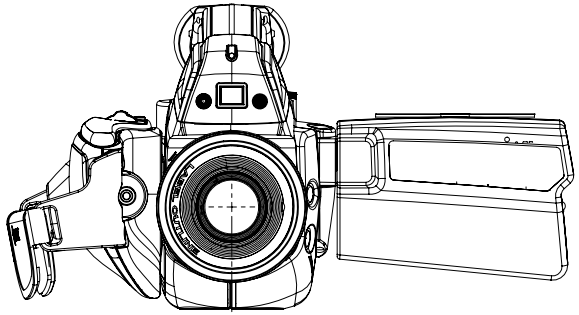


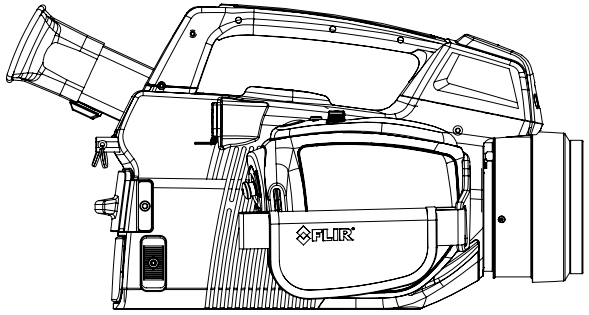
Modified: 2013-02-18	Check:	Drawn by: R&D Thermography	FLIR
Denomination: Basic dimension FLIR GF3xx		Size: A3	
		Scale: 1:2	Sheet: 1(5)
		Drawing No.: T127603	Size: B

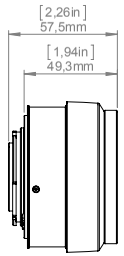
Camera with Lens IR f=23 mm (24°)
Camera with Lens IR f=38 mm (14,5°)











For additional dimensions see page 1

Modified	Check	Drawn by
2013-02-18		R&D Thermography

Denomination: Basic dimension FLIR GF3xx

Size: A3 | Scale: 1:2 | Sheet: 2(5) | Drawing No.: T127603 | Size: B

October 17, 2012 AQ125905

CE Declaration of Conformity

This is to certify that the System listed below has been designed and manufactured to meet the requirements, as applicable, of the following EU-Directives and corresponding harmonising standards. The systems consequently meet the requirements for the CE-mark.

Directives:

Directive 2004/108/EC;	**Electromagnetic Compatibility**
Directive 2006/95/EC;	**"Low voltage Directive"** (Power Supply)
Directive 2002/96/EC	**Waste electrical and electronic equipment; WEEE** (As applicable)

Standards:

Emission:	**EN 61000-6-3;**	**Electro magnetic Compatibility Generic standards - Emission**
Immunity:	**EN 61000-6-2;**	**Electro magnetic Compatibility; Generic standards - Immunity**
Safety (Power Supply):	**EN 60950**	(or other) **Safety of information technology equipment**

System(s): **FLIR GF3xx**

FLIR Systems AB
Quality Assurance

Olof Gawell
Director