



# FLIR GF304 24°

**P/N: 59601-0102**

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**Website**

<http://www.flir.com>

**Customer support**

<http://support.flir.com>

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<b>General description</b>	
<p>The FLIR GF304 is an infrared camera for optical gas imaging (OGI) that visualizes and pinpoints leaks of refrigerant gases, without the need to shut down the operation. This portable camera also greatly improves operator safety, by detecting gases at a safe distance, and helps to protect the environment by tracing leaks of environmentally harmful gases.</p> <p>Refrigerant gases are found in, for example, the food, chemical/petrochemical, and automotive industries, as well as in air-conditioning systems.</p>	
<b>Benefits:</b>	
<ul style="list-style-type: none"> <li>• <b>Improved efficiency:</b> The FLIR GF304 reduces revenue loss by pinpointing even small gas leaks quickly and efficiently, and from a distance. It also reduces the inspection time by being able to scan a broad area rapidly without the need to interrupt the industrial process. 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 GF304 can also be used for temperature measurement, which makes it even more useful for predictive maintenance.</li> <li>• <b>Increased worker safety:</b> The leak detection of gases can be performed in non-contact mode, and from a safe distance. This reduces the risk of the user being exposed to invisible and potentially harmful or explosive chemicals. With a FLIR GF304 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 a tiltable viewfinder, which facilitates its use over a full working day.</li> <li>• <b>Protecting the environment:</b> Several refrigerant gases have a high global warming potential and are usually governed by regulations. Even small leaks can be detected and documented using the FLIR GF304 camera.</li> </ul>	
<p>Detects the following refrigerant gases: R404A, R407C, R410A, R134A, R417A, R422A, R507A, R143A, R125, R245fa.</p>	
<b>Licensing and classification</b>	
License information	Interchangeable lens version of the FLIR GF3XX series requires US Department of State License and will be subject to limitations on resale, except inside US. Allow a minimum of 90 days after application submittal for approval.
<b>Imaging and optical data</b>	
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

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<b>Imaging and optical data</b>	
Focus	Automatic (one touch) or manual (electric or on the lens)
Zoom	1–8× continuous, digital zoom
Digital image enhancement	Noise reduction filter, high sensitivity mode (HSM)
<b>Detector data</b>	
Detector type	Focal plane array (FPA), cooled QWIP
Spectral range	8.0–8.6 μm
Detector pitch	30 μm
Sensor cooling	Stirling Microcooler (FLIR MC-3)
Detects following gases	R404A, R407C, R410A, R417A, R422A, R507A, R143A, R125, R134A, R245fa
<b>Electronics and data rate</b>	
Full frame rate	60 Hz
<b>Image presentation</b>	
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
<b>Image presentation modes</b>	
Image modes	IR image, visual image, high sensitivity mode (HSM)
<b>Measurement</b>	
Temperature range	–20°C to +250°C (–4°F to +482°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)
<b>Measurement analysis</b>	
Spotmeter	10
Area	5 boxes with max./min./average
Profile	1 live line (horizontal or vertical)
Isotherm	Above/below/interval
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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<b>Set-up</b>	
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
<b>Storage of images</b>	
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
<b>Geographic Information System</b>	
GPS	Location data automatically added to every image from built-in GPS
<b>Video recording in camera</b>	
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
<b>Video streaming</b>	
Non-radiometric IR video streaming	RTP/MPEG4
<b>Digital camera</b>	
Built-in digital camera	3.2 Mpixels, auto focus, and two video lamps
<b>Laser pointer</b>	
Laser	Activated by dedicated button
Laser classification	Class 2
Laser type	Semiconductor AlGaInP diode laser, 1 mW, 635 nm (red)
<b>USB</b>	
USB	<ul style="list-style-type: none"> <li>• USB-A: Connect external USB device</li> <li>• USB Mini-B: Data transfer to and from PC</li> </ul>
USB, standard	USB Mini-B: 2.0 high speed

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<b>Composite video</b>	
Video out	Digital video output (image)
<b>Power system</b>	
Battery type	Rechargeable Li ion battery
Battery voltage	7.2 V
Battery capacity	4.4 Ah
Battery operating time	> 3 hours at 25°C (+68°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	8.5 W typically
Start-up time	Typically 8 min. @ 25°C (+77°F)
<b>Environmental data</b>	
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	<ul style="list-style-type: none"> <li>• 73/23EEC</li> <li>• 2004/108/EC</li> <li>• 2002/95/EC</li> <li>• 2002/96/EC</li> </ul>
EMC	<ul style="list-style-type: none"> <li>• EN61000-6-4 (Emission)</li> <li>• EN61000-6-2 (Immunity)</li> <li>• FCC 47 CFR Part 15 class A (Emission)</li> <li>• EN 61 000-4-8, L5</li> </ul>
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
<b>Physical data</b>	
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.)
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

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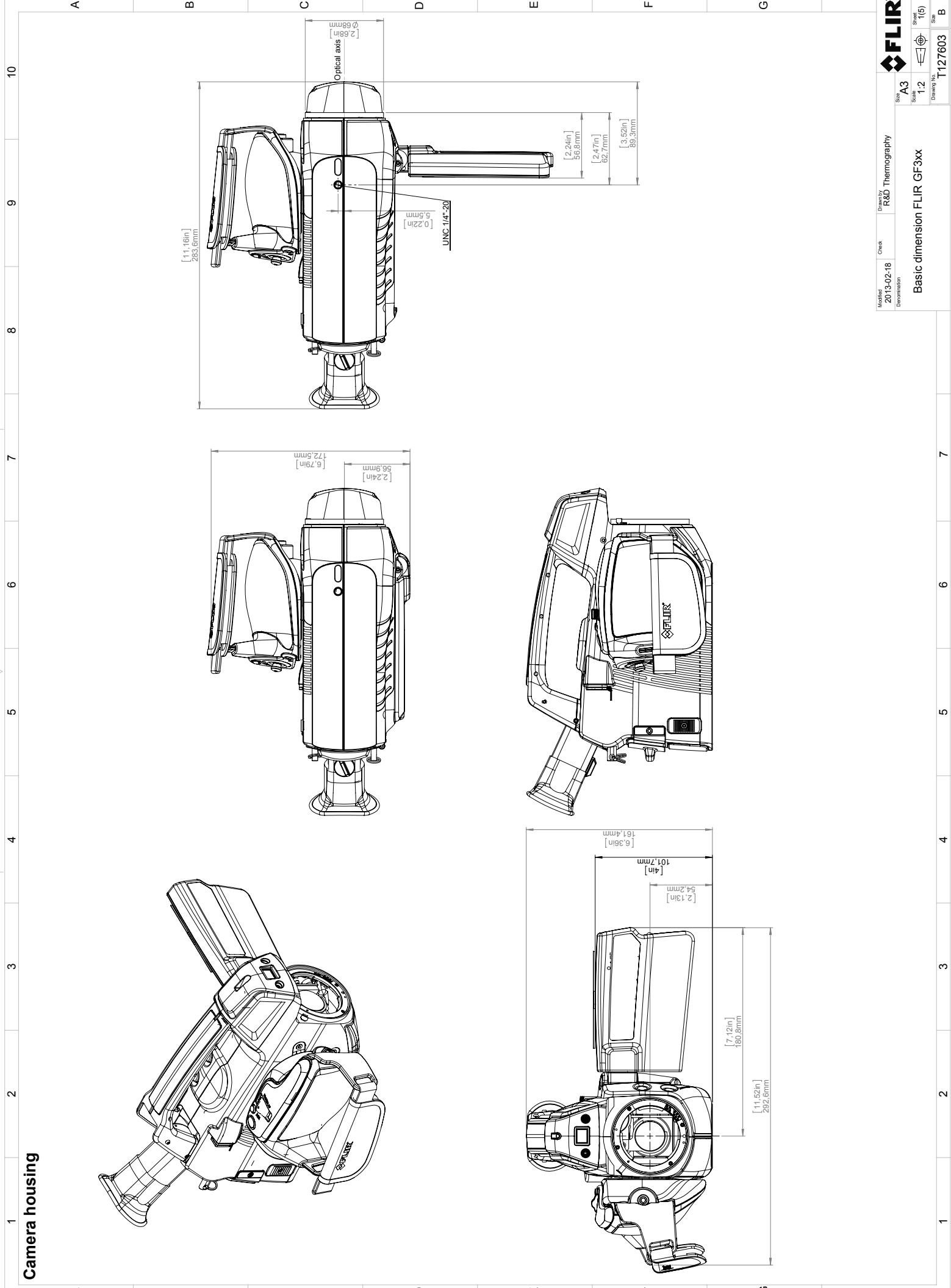
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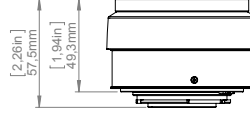
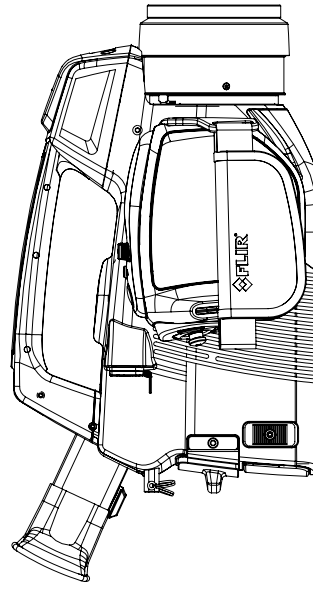
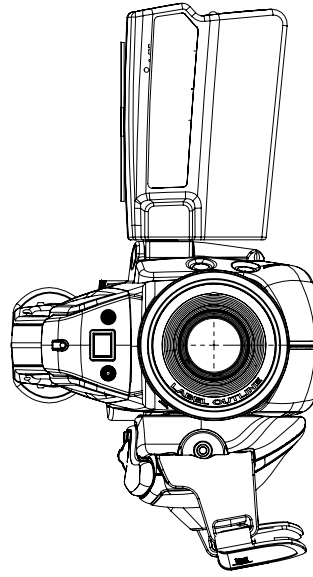
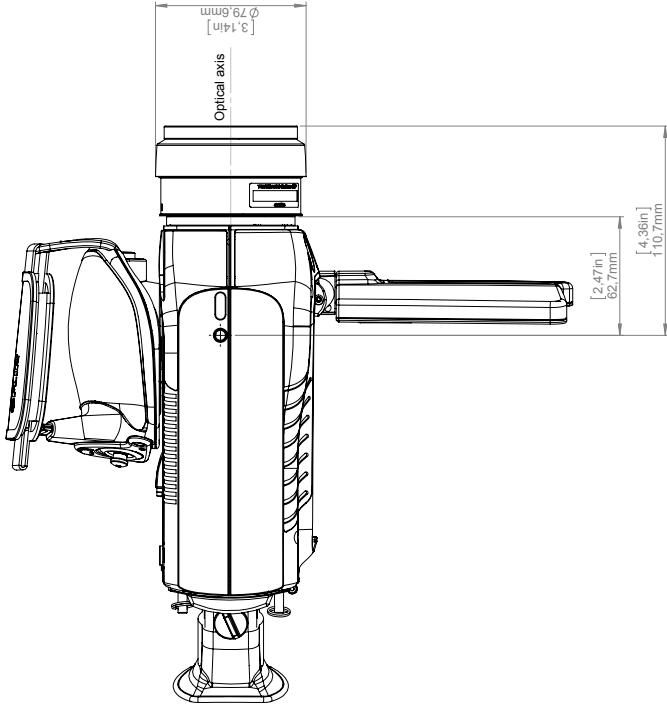
Shipping information	
Packaging, type	Cardboard box
List of contents	<ul style="list-style-type: none"> <li>• Infrared camera with lens</li> <li>• Battery charger</li> <li>• Battery, 2 ea.</li> <li>• FLIR VideoReport PC software CD-ROM</li> <li>• Hard transport case</li> <li>• HDMI-DVI cable</li> <li>• HDMI-HDMI cable</li> <li>• Lens cap (2 ea.)</li> <li>• Lens cap (mounted on lens)</li> <li>• Memory card</li> <li>• Power supply, incl. multi-plugs</li> <li>• Printed documentation</li> <li>• Shoulder strap</li> <li>• USB cable</li> <li>• Wi-Fi USB micro adapter (depending on CE and FCC regulations regarding wireless equipment for your country)</li> </ul>
Packaging, weight	
Packaging, size	400 × 190 × 510 mm (15.7 × 7.5 × 20.1 in.)

## Supplies & accessories:

- T197386; IR lens, 24° with case for GF304, GF306
- T197384; IR lens, 14.5° with case for GF304, GF306
- T197692; Battery charger, incl. power supply with multi plugs
- T910814; Power supply, incl. multi plugs
- T198511; Li-Ion Battery pack 7.4V 33Wh
- T199367ACC; Battery Li-ion 7.2 V, 4.4 Ah, 32 Wh
- T911230ACC; Memory card SDHC 4 GB
- 1910423; USB cable Std A <-> Mini-B
- T198509; Cigarette lighter adapter kit, 12 VDC, 1.2 m/3.9 ft.
- 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
- T198586; FLIR Reporter Professional (license only)
- T198584; FLIR Tools
- T198583; FLIR Tools+ (download card incl. license key)
- T198585; FLIR VideoReport
- DSW-10000; FLIR IR Camera Player
- APP-10002; FLIR Tools Mobile (Android Application)
- 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.)
- 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
- T198567; ThermoVision™ System Developers Kit Ver. 2.6
- T198566; ThermoVision™ LabVIEW® Digital Toolkit Ver. 3.3



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



For additional dimensions see page 1

Modified	Drawn by	Size
2013-02-18	R&D Thermography	A3
Drawn by	Check	Scale
		1:2
Drawn No.	Drawn No.	Sheet
		2(5)
		1127603



**Basic dimension FLIR GF3xx**

