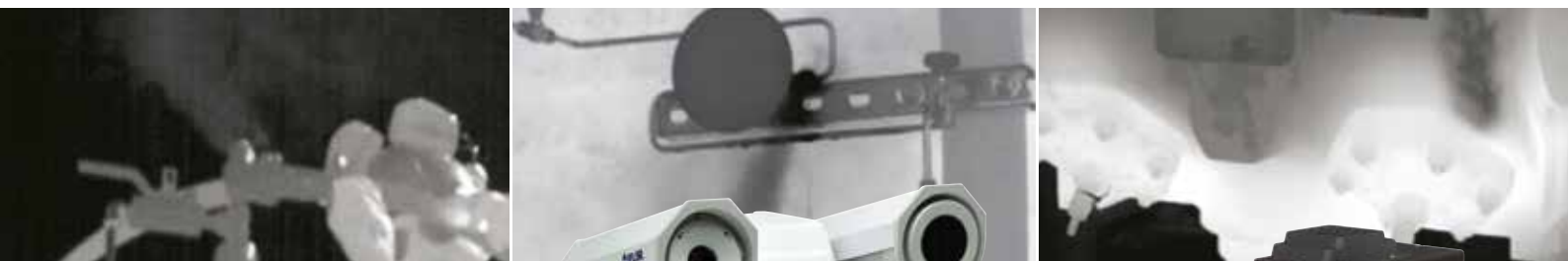# FLIR G300 a, G300 pt and FLIR A6604

Optical gas imaging cameras for continuous gas monitoring

FLIR G300 pt

FLIR G300 a

Pipeline monitoring

Gas detection

Condition monitoring

Flare stack monitoring

FLIR A6604

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FLIR

The World's Sixth Sense™

Optical gas imaging camera

Pan/Tilt mechanism with TCP/IP
compatible electronics

Daylight/low light camera

Optical gas imaging cameras from FLIR can visualize and pinpoint gas leaks without the need to shut down the operation. With an optical gas imaging camera it is easy to continuously scan installations that are in remote areas or in zones that are difficult to access.

Continuous monitoring means that you will immediately see when a dangerous or costly gas leak appears so that immediate action can be taken.

Optical gas imaging (OGI) cameras are widely used in industrial settings such as oil refineries, natural gas processing plants, offshore platforms, chemical/ petrochemical industries, and biogas and power generation plants.

Efficient and cost effective
They improve efficiency by locating costly gas leaks quickly and efficiently, and from a distance. They also reduce the inspection time by allowing a broad area to be scanned rapidly and without the need to interrupt the industrial process.

OGI cameras allows gas leaks to be detected in a non-contact mode and from a safe distance. This reduces the risk of the inspector being exposed to invisible and potentially harmful or explosive chemicals. It is also easy to scan areas of interest that are difficult to reach with conventional methods.

You get a complete picture and can immediately exclude areas that do not need any action. This means you can achieve enormous savings in terms of time and personnel.

Many Volatile Organic Compounds (VOCs) are dangerous to human health or cause harm to the environment, and are usually governed by regulations. Even small leaks can be detected and documented using Optical gas imaging cameras.

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Continuous optical gas imaging

With thermal imaging cameras like the G300 a, G300 pt and A6604, you can monitor your vital gas pipelines or installations 24/7. You will immediately see if a dangerous and costly gas leak appears. You do not have to rely anymore on periodic inspections. Monitoring is done from a safe distance without the need to send technicians into potentially dangerous areas.

FLIR G300 a

FLIR A6604

FLIR G300 a and FLIR A6604

The FLIR G300 a and FLIR A6604 are thermal imaging cameras that need to be integrated in a housing. Once installed they will always look in the same direction. The FLIR G300 pt comes with a robust pan/tilt.

Easy integration

FLIR G300 a and FLIR A6604 imaging cameras can be easily integrated in housings with application specific requirements.

Cooled detector makes the smallest temperature differences visible

FLIR A6604 contains a cooled that produces clear thermal images of 640 x 512 pixels on which the smallest of details can be seen. More pixels give you a wider field of view so that you can monitor larger installations. It also offers an ultra-crisp image.

FLIR G300 a and FLIR G300 pt also contains a cooled Indium Antimonide (InSb) detector that produces thermal images of 320 x 240 pixels. Users that need a higher gas sensitivity can preferably choose the FLIR G300 a or FLIR G300 pt that with its combination of low F-number and low gas sensitivity detects small leaks.

High sensitivity mode

The high sensitivity mode further enhances the sensitivity of the cameras so that the smallest gas leaks can be detected.

Easy to control

All models are easy to control from a safe distance. They can be fully controlled over Ethernet. They can easily be integrated in a TCP/ IP network. The cameras are Vision/ Genicam™ compatible.

Available lenses

The FLIR G300 a and G300 pt are available with 23 mm or 38 mm lens. FLIR A6604 is available with 25 mm, 50 mm or 100 mm lens. Longer lenses give you a narrower field of view so that you can detect gas leaks from further away.

FLIR G300 a

1. Composit Video
2. HDMI
3. USB
4. Ethernet
5. RS-232
6. Power in

FLIR A6604

1. On/Off switch
2. Ethernet
3. Status LEDs
4. Power in
5. Sync
6. Composit Video

Captured gas leak from production site.

Gas leak is clearly visible on the thermal image.

FLIR G300 pt: complete solution mounted on a precise pan/tilt mechanism

Whereas the FLIR G300 a and FLIR A6604 need to be integrated in a housing, the G300 pt is already integrated in a robust housing that is mounted on a pan/tilt mechanism.

It allows the user to rotate the camera 360° continuously and to tilt it +45 or -45. It allows monitoring different areas with the same system. Ideal if you want to monitor both gas leaks and use the system for predictive maintenance applications at the same time.

The Pan/Tilt has 128 preset positions.

Perfect if you want to scan different areas continuously.

The G300 pt is also equipped with a long range daylight/low light camera. The video output of the thermal imaging and daylight/low light camera are simultaneously available. The daylight camera offers a 36x optical zoom.

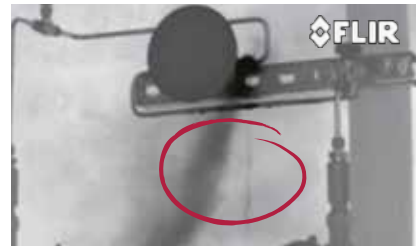## FLIR G300 a, G300 pt and FLIR A6604 detect the following gases:

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

A leaking pressure gauge.

Captured gas leak.

	FLIR G300 pt	**FLIR G300 a**	**FLIR A6604**
Integrated in housing	Yes	No	No
Visual camera	Yes	No	No
Pan/Tilt	+45 to -45; 0.1° to 30°/sec	No	No
Image quality	320 x 240 pixels	320 x 240 pixels	640 x 512 pixels
Thermal sensitivity	< 15 mK	< 15 mK	< 20 mK

FLIR G300 pt

Technical Specifications

FLIR G300 pt

Imaging and optical data	
IR resolution	320 × 240 pixels
Thermal sensitivity/NETD	<15 mK @ +30°C (+86°F)
Field of view (FOV) v	24° × 18° with 23 mm lens; 14.5° x10.8° with 38 mm lens
Minimum focus distance	0.3 m (1.0 ft.) for 23 mm lens; 0.5 m (1.64 ft) for 38 mm lens
F-number	1,5
Focus	Automatic using FLIR FSM or NEXUS SDK, manual
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 InSb
Spectral range	3.2–3.4 μm

Image presentation	
Automatic image adjustment	Continuous/manual; linear or histogram based
Manual image adjustment Level/span	Level/span

Image presentation modes	
Image modes	IR-image, High Sensitivity Mode (HSM)

Electronics and data rate	
Full frame rate	60 Hz

Temperature ranges	
Temperature range	−20°C to +350°C (−4°F to +662°F)

Video streaming	
Non-radiometric IR-video streaming	RTP/MPEG4

USB	
USB	NA
USB, standard	NA
USB, connector type	NA
USB, communication	NA
USB, video streaming	NA
USB, image streaming	NA
USB, protocols	NA

Ethernet	
Ethernet	Control, result and image
Ethernet, type	100 Mbps
Ethernet, standard	IEEE 802.3
Ethernet, connector type	RJ-45
Ethernet, communication	TCP/IP socket-based FLIR proprietary
Ethernet, video streaming	Two independent channels for each camera: MPEG-4, H.264 or M-JPEG
Ethernet, image streaming	NA
Ethernet, protocols	TCP, UDP, RTSP, RTP, HTTP, ICMP, IGMP, ftp,DHCP, MDNS (Bonjour), SMB/CIFS, SNTP,SMTP, DHCP, uPnP

Data communication interfaces	
Interfaces	Ethernet

Composite video	
Video out	Composite video out, PAL compatible

Imaging and optical data (visual camera)	
Field of view (FOV) / Focal lenghts	57.8° (H) to 1.7° (H) / 3.4 mm (wide) to 122.4 mm (tele)
F-number	1.6 to 4.5
Focus	Automatic or manual (built in motor)
Optical Zoom	36× continuous
Electronic Zoom	12× continuous, digital, interpolating

Detector data (visual camera)	
Focal Plane Array (FPA) / Effective pixels	1/4" Exview HAD CCD / 380

Technical specification (pan & tilt)	
Azimuth Range Az velocity	360° continuous, 0.1 to 60°/sec max
Elevation Range El velocity	+/- 45°, 0.1 to 30°/sec. max
Programmable presets	128
Automatic heaters	Prevent window to ice-up. Switched on at +4°C (39°F). Switched off at +15°C (59°F).

Power system	
DC operation	24 VAC (21-30 VAC; 24 VAC: 215 VA max with heather) or 24 VDC (21-30- VDC; 24 VDC:195 W max. with heather)
Start-up time	Typically 7 min. @ 25°C (+77°F)

Environmental data	
Operating temperature range	−25°C to +50°C (−13°F to +122°F)
Storage temperature range	−30°C to +60°C (−22°F to +140°F)
Humidity (operating and storage)	IEC60060-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) (2 cycl)
Directives	Low voltage directive:2006/95/EC, EMC:2004/108/EC, RoHS:2002/95/EC, WEEE:2002/96/EC
EMC	EN6100-6-2 (immunity) / EN6100-6-3 (emission) / FCC 47CFR Part 15 Class B (emission) / EN 61000-4-8, L5
Encapsulation	IP 66
Bump	5g, 11 ms (IEC 60068-2-27)
Vibration	2g (IEC 60068-2-6)

Physical data	
Weight	18.7 kg (41.2 lb)
Camera size, excl. lens (L × W × H)	460 x 467 x 326 mm (18.1 x18.4 x 12.8 in.)
Cameras size, incl. lens (L × W × H)	
Housing material	Aluminum

FLIR G300 a	FLIR A6604
320 × 240 pixels	640 x 512 pixels
<15 mK @ +30°C (+86°F)	<20 mK @ +30°C (+86°F)
24° × 18° with 23 mm lens; 14.5 x10.8 with 38 mm lens	21.4° x 17.5° with 25 mm lens, 11.0° x 8.9° with 50 mm lens, 5.5° x 4.4° with 100 mm lens
0.3 m (1.0 ft.) for 23 mm lens; 0.5 m (1.64 ft) for 38 mm lens	NA
1,5	NA
Automatic using FLIR SDK, or manual	Manual
1–8× continuous, digital zoom	1x or 2x digital
Noise reduction filter, High Sensitivity Mode (HSM)	High Sensitivity mode
Focal Plane Array (FPA), cooled InSb	Focal Plane Array (FPA), cooled InSb
3.2–3.4 µm	3.2–3.4 µm
Continuous/manual; linear or histogram based	Continuous/manual; linear or histogram based
Level/span	Level/span
IR-image, High Sensitivity Mode (HSM)	IR-image, High Sensitivity Mode (HSM)
60 Hz	Full window 60 Hz, 1/2 window 240 Hz, 1/4 window 480 Hz
−20°C to +350°C (−4°F to +662°F)	−20°C to +350°C (−4°F to +662°F) ; up to 1,500 C (2732 F) or up to 2,000 C (3,662 F) optional
RTP/MPEG4	NA
Control and image	NA
2.0 High Speed	NA
USB micro	NA
TCP/IP socket-based, Microsoft RNDIS and/or USB video class	NA
640 × 480 pixels at 30 Hz	NA
16-bit 320 × 240 at 30 Hz	NA
TCP, UDP, RTSP, RTP, HTTP, ICMP, IGMP, ftp,DHCP	NA
Control, result and image	Control, image
100 Mbps	1 Gbps
IEEE 802.3	IEEE 802.3
RJ-45	RJ-45
TCP/IP socket-based FLIR proprietary	Communication TCP/IP
640 × 480 pixels at up to 15 Hz, MPEG-4, ISO/IEC 14496-1 MPEG-4 ASP@L5	Video streaming, NTSC, PAL
16-bit 320 × 240 pixels at up to 10 Hz	Image streaming, GigE Vision
TCP, UDP, RTSP, RTP, HTTP, ICMP, IGMP, ftp,DHCP, MDNS (Bonjour), SMB/CIFS	Protocols, GigE Vision
Ethernet / HDMI	Gigabit Ethernet (GEV/Genicam compatible)
Digital Video Output (image)	NTSC / PAL
NA	NA
NA	NA
NA	NA
NA	NA
NA	NA
NA	NA
NA	NA
NA	NA
NA	NA
NA	NA
10–28 V DC, polarity protected	24 VDC, 24 W max.
Typically 7 min. @ 25°C (+77°F)	Typically 7 min. @ 25°C (+77°F)
−20°C to +50°C (−4°F to +122°F)	−40°C to +50°C
−30°C to +60°C (−22°F to +140°F)	−55°C to +68°C
IEC 68-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) (2 cycl)	IEC 68-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F) (2 cycl)
Low voltage directive: 2006/95/EC / EMC: 2004/108/EC / RoHS: 2002/95/EC / WEEE: 2002/96/EC	Low voltage directive: 2006/95/EC / EMC: 2004/108/EC / RoHS: 2002/95/EC / WEEE: 2002/96/EC
EN61000-6-4 (Emission) / EN61000-6-2 (Immunity) / FCC 47 CFR Part 15 class A (Emission) / EN 61 000-4-8, L5	EN61000-6-4 (Emission) / EN61000-6-2 (Immunity) / FCC 47 CFR Part 15 class A (Emission) / EN 61 000-4-8, L5
NA	IP 50
25 g (IEC 60068-2-29)	40g, 11msec half sine puls
2 g (IEC 60068-2-6)	4.3g RIMS random vobration 3-axes
1,4 kg (3,1 lb), incl. 14,5 lens	2.3 kg (5 lbs)
NA	196 x 102 x 102 mm (7.7" x 4.0" x 4.0")
242x80x105mm (9,5x3,1x4,1 in.) incl. 14,5 lens	NA
Aluminum	Aluminum

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