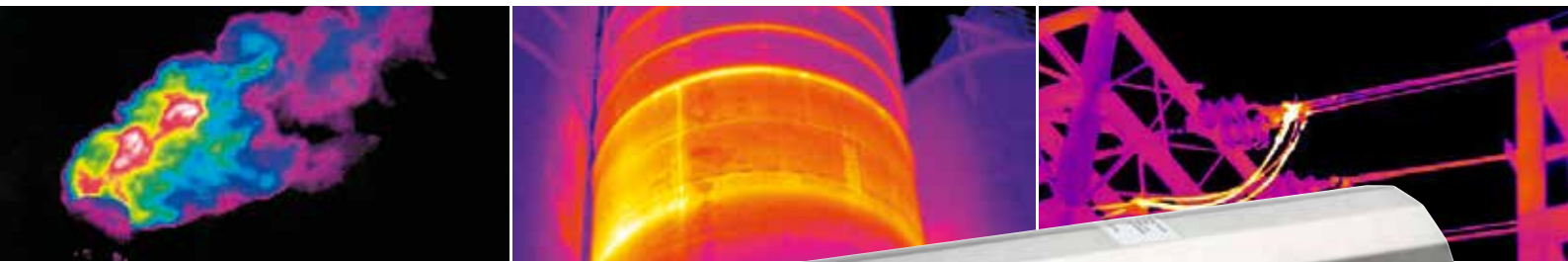




FLIR A310 ex

Thermal condition monitoring and early fire detection in potentially explosive atmospheres.



Condition monitoring
Flare detection
Early fire detection



FLIR A310 ex

Fully compliant with ATEX regulations

Use the power of thermal imaging in hazardous locations.

FLIR A310 ex without sunshield



Explosive atmospheres need to be protected from ignition sources by selecting equipment and protective systems which meet the requirements of the ATEX Product Regulations or similar regulations.

FLIR A310 ex is an ATEX compliant solution, with a thermal imaging camera mounted in an enclosure, making it possible to monitor critical and other valuable assets also in explosive atmospheres. Process monitoring, quality control and fire detection in potentially explosive locations are typical applications for the A310 ex.

Flame-Proof Enclosure “d”

Prevents any explosion transmission from the inside of the enclosure to the outside.

For use in harsh environments: IP67

The FLIR A310 ex is IP67 rated. Ideal to install in dusty environments.

Integrated controller

The integrated controller features several digital I/O channels and sensors for temperature, humidity and pressure. Among other functions, the I/O channels enable the user to switch on/off the camera and the heater via remote control. The access is accomplished through an integrated web interface or Modbus TCP/IP.

Flexible integration

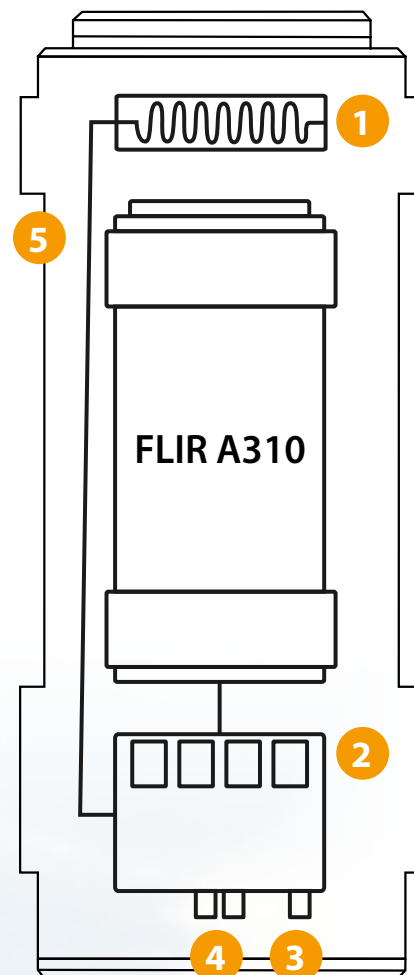
The integrated controller is equipped with 2 fiber optic and 2 Ethernet parts. This enables a flexible network integration in star or ring topologies.

Heater

FLIR A310 ex comes with a heater which effectively prevents fogging and freezing of the protection window.

Plug and play installation

FLIR A310 ex is lightweight and the entire system is delivered ready for use.



1. Heater
2. Sensors for temperature, air humidity, voltage & pressure
3. Power supply: 24V DC
4. 2 SFP ports for fiber optic, 100 Base-FX or copper ethernet
5. ATEX compliant housing

Verification Certificate ZELM 12 ATEX 0485 X

The FLIR A310 ex is ATEX certified. It can be installed in classification zones 1, 2, 21, 22.

The certification comprises the whole system which includes the enclosure as well as all components inside, such as the thermal imaging camera, heater and integrated controller.

FLIR A310 - the camera inside the system

Hotspot detection: the thermal eye that never sleeps

Fixed mounted thermal imaging cameras like FLIR A310 ex can be installed almost anywhere to monitor your critical equipment and other valuable assets. It will safeguard your plant and measure temperature differences to assess the criticality of the situation. This allows you to see problems before they become costly failures, preventing downtime and enhancing worker safety.

FLIR A310, the thermal imaging camera inside the FLIR A310 ex

Built-in extensive analysis functions and alarms

The FLIR A310 comes with measurement functions like spot, area and difference temperature. It also has built-in alarm functions.

The camera automatically sends analysis results, IR images and more as an e-mail on schedule or at alarm. Autonomous dispatch of files or e-mails, acting as an FTP- or SMTP-client.

MPEG-4

MPEG-4 streamed video output over Ethernet shows live images on a PC, 640x480 with overlay up to 30 Hz, system dependent. With a thermal sensitivity of < 50 mK the FLIR A310 captures the finest image details and temperature difference information.

Lenses

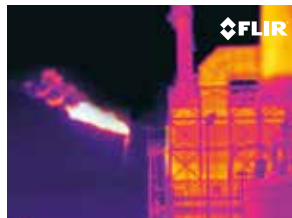
The FLIR A310, that is mounted in the A310 ex comes either with a 25° or 45° lens.



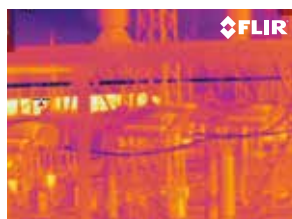
Early fire detection



Flare detection



Condition monitoring



Key benefits: FLIR A310 thermal imaging camera

- Ethernet/IP and Modbus TCP compliance
- Messaging functionality
- Image masking functionality
- Digital inputs/outputs for alarms and control of external equipment
- Composite video output: PAL and NTSC
- Remote control: over the web and TCP/IP protocol
- 16 bit image
- Built-in 100 Mb Ethernet connection



Technical specifications



General Data	
Ambient temperature range for operation	-20°C to +40°C (-4°F to 104°F)
Protection class	IP67
Weight	6.7 kg (without camera and lens)
Empty volume	5.06 l
External dimensions (without sun shield)	D = 170 mm, L = 408 mm
Housing material / Surface	Nickel-plated aluminium / Powder coated
Protection window	Germanium, double-sided AR Coated, externally with additional hard-carbon layer
Maximum power of the additional heater	16 W
Operating voltage	24 V DC
Maximum electric connection power	60 W
Power cable / Power cable configuration	Helukabel 37264 / Pigtail
Length of power cable	4 m (13 ft.)
Integrated controller	4-port switch with 2 × fiber-optic LC 100Base-FX or 2 × RJ45(10/100) up-links, ring-topology support for reduced cabling effort, 2 × internal temperature sensors, air humidity and pressure sensor, digital output module controllable via Modbus TCP/IP or web interface to enable turning the heater on/off
Ethernet medium	Multi-mode breakout fiber AT-V(ZN)Y(ZN)Y 4G50/125 OM2
Length of Ethernet cable	4 m (13 ft.)
Ethernet, configuration	Pigtail with FC-connector
Explosion protection-specific data	
For use in EX zone	1, 2, 21, and 22
Ignition protection category	Flame-proof enclosure "d"
Maximum surface temperature (according to temperature class T6)	Maximum 85°C
ATEX certification (version -AXC)	EX-Protection Gas: II 2G Ex d IIC T6 Gb, EX-Protection Dust: II 2D Ex tb IIC T85° Db
Verification certificate	ZELM 12 ATEX 0485 X
Imaging and optical data	
IR resolution	320 × 240 pixels
Thermal sensitivity/NETD	< 0.05°C @ +30°C (+86°F) / 50 mK
Field of view (FOV) / Focal length	25° × 18.8° with 18 mm (0.7 in.) lens or 45° × 33.8° with 9.66 mm (0.38 in.) lens
Minimum focus distance	0.4 m (1.31 ft.)
Spatial resolution (IFOV)	1.36 mrad with 25° lens or 2.59 mrad with 45° lens
Lens identification	Automatic
F-number	1.3
Image frequency	30 Hz
Focus	Automatic or manual (built in motor)
Zoom	1-8× continuous, digital, interpolating zooming on images
Detector data	
Detector type	Focal Plane Array (FPA), uncooled microbolometer
Spectral range	7.5-13 µm
Detector pitch	25 µm
Detector time constant	Typical 12 ms
Measurement	
Object temperature range	-20 to +120°C (-4 to +248°F) 0 to +350°C (+32 to +662°F)
Accuracy	±2°C (±3.6°F) or ±2% of reading
Measurement analysis	
Spotmeter	10
Area	10 boxes with max./min./average/position
Isotherm	1 with above/below/interval
Measurement option	Measurement Mask Filter Schedule response: File sending (ftp), email (SMTP)
Difference temperature	Delta temperature between measurement functions or reference temperature
Reference temperature	Manually set or captured from any measurement function
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on input of optics/window transmission and temperature
Measurement corrections	Global and individual object parameters
Alarm	
Alarm functions	6 automatic alarms on any selected measurement function, Digital In, Camera temperature, timer
Alarm output	Digital Out, log, store image, file sending (ftp), email (SMTP), notification
Set-up	
Color palettes	Color palettes (BW, BW inv, Iron, Rain)
Set-up commands	Date/time, Temperature°C/°F
Storage of images	
Storage media	Built-in memory for image storage
File formats	Standard JPEG, 16-bit measurement data included
Ethernet	
Ethernet	Control, result and image
Ethernet, type / standard	100 Mbps / IEEE 802.3
Ethernet, configuration	Pigtail with FC-connector (fiber)
Ethernet, communication	TCP/IP socket-based FLIR proprietary
Ethernet, video streaming	MPEG-4, ISO/IEC 14496-1 MPEG-4 ASP@L5
Ethernet, image streaming	16-bit 320 × 240 pixels @ 7-8 Hz - Radiometric
Ethernet, protocols	Ethernet/IP, Modbus TCP, TCP, UDP, SNTP, RTSP, RTP, HTTP, ICMP, IGMP, ftp, SMTP, SMB (CIFS), DHCP, MDNS (Bonjour), uPnP
Shipping information	
Infrared camera with lens, in explosion-proof housing, cardboard box, Printed documentation, User documentation CD-ROM, Utility CD-ROM	

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