FLIR A310 ex
Fully Compliant With ATEX Regulations

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

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. Typical applications for the A310 ex include process monitoring, quality control, and fire detection in explosive locations. Because the FLIR A10 ex is rated IP 67, it can be installed in dusty environments.

The Flame-Proof Enclosure “d” prevents any explosion transmission from the inside of the enclosure to the outside.

**FLIR A310**
The thermal imaging camera inside the FLIR A310 ex is a FLIR A310. This camera is equipped with both measurement and alarm functionalities. For a more detailed description of the FLIR A310 thermal imaging camera, ask for FLIR A310 product leaflet or consult FLIR.com.

**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.

The integrated controller is equipped with two fiber optic and two 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.

**VERIFICATION CERTIFICATE**
ZELM 12 ATEX 0485 X
The FLIR A310 ex is ATEX-certified. It can be installed in classification zones 1, 2, 21 and 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.
## General Data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>FLIR A310 ex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient temperature range for operation</td>
<td>-20°C to +140°C (-4°F to 104°F)</td>
</tr>
<tr>
<td>Protection class</td>
<td>IP67</td>
</tr>
<tr>
<td>Weight</td>
<td>6.7 kg (without camera and lens)</td>
</tr>
<tr>
<td>Empty volume</td>
<td>5.06 l</td>
</tr>
<tr>
<td>External dimensions (without sun shield)</td>
<td>D = 170 mm, L = 408 mm</td>
</tr>
<tr>
<td>Housing material / Surface</td>
<td>Nickel-plated aluminium / Powder coated</td>
</tr>
<tr>
<td>Protection window</td>
<td>Germanium, double-sided AR Coated, externally with additional hard-carbon layer</td>
</tr>
<tr>
<td>Maximum power of the additional heater</td>
<td>16 W</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>24 V DC</td>
</tr>
<tr>
<td>Maximum electric connection power</td>
<td>60 W</td>
</tr>
<tr>
<td>Power cable / Power cable configuration</td>
<td>Helukabel 37264 / Pigtail</td>
</tr>
<tr>
<td>Length of power cable</td>
<td>4 m (13 ft.)</td>
</tr>
<tr>
<td>Integrated controller</td>
<td>4-port switch with 2 x fiber-optic LC 100Base-FX or 2 x Rj45/FX100 up-links, ring-topology support for reduced cabling effort, 2 x 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</td>
</tr>
<tr>
<td>Ethernet medium</td>
<td>Multi-mode break-out fiber AT-V(ZN)Y(ZN)Y 4G50/125 OM2</td>
</tr>
<tr>
<td>Length of Ethernet cable</td>
<td>4 m (13 ft.)</td>
</tr>
<tr>
<td>Ethernet, configuration</td>
<td>Pigtail with FC connector</td>
</tr>
</tbody>
</table>

## 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 AXO):
EX-Protection Gas: II 2G Ex d iIC T6 Db, EX-Protection Dust: II 2D Ex tb IIC T5b 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° x 18.8° with 18 mm (0.7 in.) lens or 45° x 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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spotmeter</td>
<td>10</td>
</tr>
<tr>
<td>Area</td>
<td>10 boxes with max/min/average/position</td>
</tr>
<tr>
<td>Isotherm</td>
<td>1 with above/below/interval</td>
</tr>
<tr>
<td>Measurement option</td>
<td>Measurement Mask, Filter Schedule response: File sending (ftp), email (SMTP)</td>
</tr>
<tr>
<td>Difference temperature</td>
<td>Delta temperature between measurement functions or reference temperature</td>
</tr>
<tr>
<td>Reference temperature</td>
<td>Manually set or captured from any measurement function</td>
</tr>
<tr>
<td>Atmospheric transmission correction</td>
<td>Automatic, based on inputs for distance, atmospheric temperature and relative humidity</td>
</tr>
<tr>
<td>Optics transmission correction</td>
<td>Automatic, based on signals from internal sensors</td>
</tr>
<tr>
<td>Emissivity correction</td>
<td>Variable from 0.01 to 1.0</td>
</tr>
<tr>
<td>Reflected apparent temperature correction</td>
<td>Automatic, based on input of reflected temperature</td>
</tr>
</tbody>
</table>

## 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: Ethernet, communication, result and image

Ethernet, protocols: Ethernet/IP, Modbus TCP, UDP, SMTP, RTSP, RTP, HTTP, ICMP, IGMP, ftp, SMTPT, SMB (CIFS), DHCP, MDNS (Bonjour), uPnP

File sending (ftp), email (SMTP), notification function, Digital In, Camera temperature, timer, 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

## 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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