

FLIR A310

Thermal Imaging Camera For Critical Equipment Monitoring



Fixed-mounted thermal imaging cameras like the FLIR A310 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 a given situation. This allows you to see problems before they become costly failures, preventing downtime and enhancing worker safety.

EXCELLENT IMAGE QUALITY

Both thermal imaging cameras contain an uncooled Vanadium Oxide (VOx) microbolometer detector. They produce crisp thermal images of 320 x 240 pixel and detects temperature differences as small as 50 mK. They come with a built-in 25° lens with motorized focus. Other fields of view are available.

Stream MPEG-4 video over Ethernet to show live images on a PC. 640x480 with overlay up to 30 Hz. Ethernet-enabled, communication and power can be supplied with only one cable. Composite video outputs, PAL and NTSC compatible are available. Both cameras can be controlled remotely over the Web using TCP/IP protocol.

INDUSTRIAL PROTOCOL

Since FLIR A310 is Ethernet/IP and Modbus TCP compliant analysis and alarm results can easily be shared to a PLC. Digital inputs/outputs are available for alarms and control of external equipment. An image masking function allows you to select only the relevant part of the image for your analysis.

BUILT-IN ANALYSIS AND ALARM FUNCTIONS

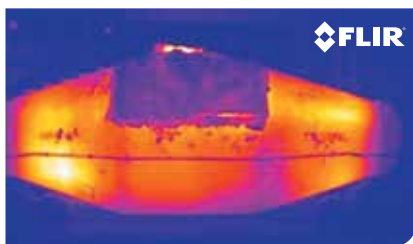
FLIR A310 comes standard with built-in analysis functions like spot, area measurement and difference temperature. Alarms can be set to go off as a function of analysis, internal temperature or digital input. The camera automatically sends analysis results, IR images and more as an e-mail on schedule or at alarm. Autonomous dispatch of files or e-mails, acting as an FTP- or SMTP-client is possible.

PROTECTIVE HOUSING

The FLIR A310 can be ordered already built into an environmental housing. The housing increases the environmental specifications of the FLIR A310 to IP66, without affecting any of the camera's features. It is ideal when the camera needs to be installed in dusty or wet environments. The housing is available for A300 cameras that are equipped with 7, 15, 25, 45 or 90° FOV lenses. Users that want to build the camera within the housing themselves or that already have a FLIR A310 that needs extra protection against dust and water can order the housing separately as an accessory.



Thermal image of a substation.



Thermal image of a ladder.

Imaging Specifications

| System Overview | FLIR A310 |
|--|--|
| 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 |
| Field of view (FOV) / Minimum focus distance | 25° × 18.8° / 0.4 m (1.31 ft.) |
| Lens identification | Automatic |
| Thermal sensitivity/NETD | < 0.05°C at +30°C (86°F) (86°F) / 50 mK |
| Focus | Automatic or manual (built in motor) |
| F-number | 1.3 |
| Image frequency | 30 Hz |
| Zoom | 1–8× continuous, digital, interpolating zooming on images |
| 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 |
| Detector data | |
| IR resolution | 320 × 240 pixels |
| Detector pitch | 25 µm |
| Detector time constant | Typical 12 ms |
| Focal Plane Array (FPA) / Spectral range | Uncooled microbolometer / 7.5–13 µm |
| 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 |
| Set-up | |
| Color palettes | Color palettes (BW, BW inv, Iron, Rain) |
| Set-up commands | Date/time, Temperature °C /°F |
| Storage media | |
| Image storage type | Built-in memory for image storage |
| File formats | Standard JPEG, 16-bit measurement data included |
| Composite video | |
| Video out | Composite video output, PAL and NTSC compatible |
| Video, standard | CVBS (ITU-R-BT.470 PAL/SMPTE 170M NTSC) |
| Digital input/output | |
| Digital input | 2 opto-isolated, 10–30 VDC |
| Digital output, purpose | As function of ALARM, Output to ext. device (programmatically set) |
| Digital output | 2 opto-isolated, 10–30 VDC, max 100 mA |
| Digital I/O, isolation voltage | 500 VRMS |
| Digital I/O, supply voltage | 12/24 VDC, max 200 mA |
| Digital I/O, connector type | 6-pole jackable screw terminal |
| Digital input, purpose | Image tag (start/stop/general), Input ext. device (programmatically read) |

| Ethernet | |
|---|---|
| Ethernet, standard | IEEE 802.3 |
| Ethernet, connector type | RJ-45 |
| Ethernet, type | 100 Mbps |
| Ethernet, communication | TCP/IP socket-based FLIR proprietary |
| Ethernet, power | Power over Ethernet, PoE IEEE 802.3af class 0 |
| Ethernet | Control, result and image |
| Ethernet, protocols | Ethernet/IP, Modbus TCP, TCP, UDP, SNMP, RTSP, RTP, HTTP, ICMP, IGMP, ftp, SMTP, SMB (CIFS), DHCP, MDNS (Bonjour), uPnP |
| Ethernet, image streaming | 16-bit 320 x 240 pixels at 7-8 Hz -Radiometric |
| Environmental data | |
| Storage temperature range | –40°C to +70°C (-40° to 158°F) |
| Humidity (operating and storage) | IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (77 to 104°F) |
| EMC | <ul style="list-style-type: none"> EN 61000-6-2:2001 (Immunity) EN 61000-6-3:2001 (Emission) FCC 47 CFR Part 15 Class B (Emission) |
| Vibration | 2 g (IEC 60068-2-6) |
| Physical data | |
| Housing material | Aluminium |
| Scope of delivery | |
| Cardboard box, Infrared camera with lens, Ethernet cable, FLIR Tools download card, Mains cable, Power cable - pig-tailed, Power supply, Printed documentation, User documentation CD-ROM, Utility CD-ROM | |

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