

# 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

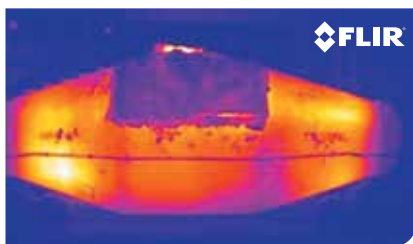
FLIR A310 comes standard with built-in analysis functions like spot, area measurement and difference temperature. Alarms can be set to go off as a function of analysis, internal temperature or digital input. The camera automatically sends analysis results, IR images and more as an e-mail on schedule 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
<b>Alarm</b>	
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
<b>Detector data</b>	
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
<b>Measurement</b>	
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
<b>Set-up</b>	
Color palettes	Color palettes (BW, BW inv, Iron, Rain)
Set-up commands	Date/time, Temperature °C /°F
<b>Storage media</b>	
Image storage type	Built-in memory for image storage
File formats	Standard JPEG, 16-bit measurement data included
<b>Composite video</b>	
Video out	Composite video output, PAL and NTSC compatible
Video, standard	CVBS (ITU-R-BT.470 PAL/SMPTE 170M NTSC)
<b>Digital input/output</b>	
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)

<b>Ethernet</b>	
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
<b>Environmental data</b>	
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"> <li>EN 61000-6-2:2001 (Immunity)</li> <li>EN 61000-6-3:2001 (Emission)</li> <li>FCC 47 CFR Part 15 Class B (Emission)</li> </ul>
Vibration	2 g (IEC 60068-2-6)
<b>Physical data</b>	
Housing material	Aluminium
<b>Scope of delivery</b>	
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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