



# FLIR A310 f

## Fixed Mount Thermal Imaging Camera for Condition Monitoring and Fire Prevention

FLIR A310 f thermal cameras can be installed almost anywhere to monitor the condition of your critical equipment and other valuable assets. Designed to help safeguard your plant and measure temperature differences, they allow you to see problems before they become costly failures -- preventing downtime and enhancing worker safety.

FLIR A310 f is ideal for various applications that require temperature measurement capabilities including: substation, transformer, waste bunker, and coal pile monitoring.

### EXCELLENT IMAGE QUALITY

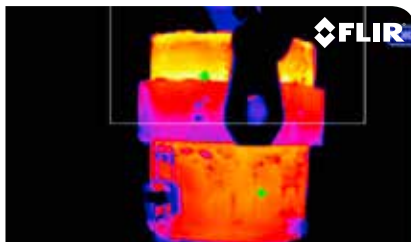
FLIR A310 f contains an uncooled Vanadium Oxide (VOx) microbolometer detector, producing crisp, 320 x 240 resolution thermal images and making small temperature differences clearly visible. The camera features a built-in lens with motorized focus, the ability to stream video over Ethernet to view live images on a PC, communication and power over Ethernet cable, and can be controlled remotely over the Web and TCP/IP protocol.

### BUILT-IN ANALYSIS AND ALARM FUNCTIONS

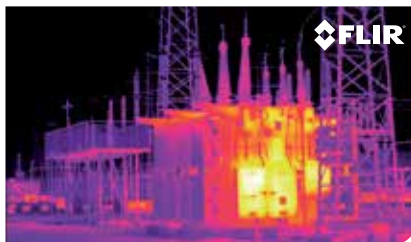
FLIR A310 f comes standard with built-in analysis functions like spot, area measurement, and temperature difference. Alarms can be set to go off as function of analysis, internal temperature or digital input. The camera automatically sends analysis results, IR images, and more as an e-mail on schedule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

### DESIGNED FOR USE IN HARSH ENVIRONMENTS

A310 f is an extremely rugged system that meets IP66 requirements, protecting the camera from dust and water.



Thermal imaging cameras can detect hot spots on the ladle.



A transformer showing an excessive temperature.

## Your authorized FLIR distributor:

**MOVITHERM**  
advanced thermography solutions

15540 Rockfield Blvd, Suite C-110  
Irvine, CA 92618

Phone: (949) 699-6600

Fax: (949) 699-6601

Email: [info@movitherm.com](mailto:info@movitherm.com)

<http://www.movitherm.com>

## Imaging Specifications

System Overview		FLIR A310 f	
IR resolution		320 × 240 pixels	
Thermal sensitivity/NETD		< 0.05°C @ +30°C (+86°F) / 50 mK	
Field of view (FOV)		FLIR A310f 15°: 15° × 11.25° FLIR A310f 25°: 25° × 18.8° FLIR A310f 45°: 45° × 33.8° FLIR A310f 6°: 6° × 4.5° FLIR A310f 90°: 90° × 73°	
Minimum focus distance		FLIR A310f 15°: 1.2 m (3.93 ft.) FLIR A310f 25°: 0.4 m (1.31 ft.) FLIR A310f 45°: 0.20 m (0.66 ft.) FLIR A310f 6°: 6° × 4.5° FLIR A310f 90°: 20 mm (0.79 in.)	
Focal length		FLIR A310f 15°: 30.38 mm (1.2 in.) FLIR A310f 25°: 18 mm (0.7 in.) FLIR A310f 45°: 9.66 mm (0.38 in.) FLIR A310f 6°: 76 mm (3.0 in.) FLIR A310f 90°: 4 mm (0.157 in.)	
Spatial resolution (IFOV)		FLIR A310f 15°: 0.82 mrad FLIR A310f 25°: 1.36 mrad FLIR A310f 45°: 2.45 mrad FLIR A310f 6°: 0.33 mrad FLIR A310f 90°: 6.3 mrad	
Lens identification		Automatic	
F-number		1.3	
Imaging and optical data			
Image frequency		30 Hz	
Focus		Automatic or manual (built in motor)	
Zoom		1–8x 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		±4°C (±7.2°F) or ±4% 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	
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		MPEG-4, ISO/IEC 14496-1 MPEG-4 ASP@L5	
Ethernet, image streaming		16-bit 320 × 240 pixels @ 7–8 Hz- Radiometric	
Ethernet, power		Power over Ethernet, PoE IEEE 802.3af class 0	
Ethernet, protocols		Ethernet/IP, Modbus TCP, TCP, UDP, SNMP, RTSP, RTP, HTTP, ICMP, IGMP, ftp, SMTP, SMB (CIFS), DHCP, MDNS (Bonjour), uPnP	

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
Digital input/output	
Digital input, purpose	Image tag (start/stop/general), Input ext. device (programmatically read)
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
Power system	
External power operation	The camera operates on 12/24 VDC, 9 W max. (allowed range: 10-30 VDC) and heaters on 24 VDC, 25 W max. In total: 34 W.
External power, connector type	2-pole jackable screw terminal
Voltage	Allowed range 10–30 VDC
Environmental data	
Operating temperature range	–25°C to +50°C (–13°F to +122°F)
Storage temperature range	–40°C to +70°C (–40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F)
EMC	<ul style="list-style-type: none"> <li>• EN 61000-6-2 (Immunity)</li> <li>• EN 61000-6-3 (Emission)</li> <li>• FCC 47 CFR Part 15 Class B (Emission)</li> </ul>
Encapsulation	IP 66 (IEC 60529)
Bump	5 g, 11 ms (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Physical data	
Weight	5 kg (11.0 lb.)
Size (L × W × H)	460 × 140 × 159 mm (18.1 × 5.5 × 6.3 in.)
Base mounting	TBA
Housing material	Aluminum
System features	
External power operation (heater)	24 VDC, 25 W max.
External power, connector type (heater)	2-pole jackable screw terminal
Voltage (heater)	Allowed range 21-30 VDC
Automatic heaters	Clears window from ice
Shipping information	
List of contents	Cardboard box, Infrared camera with lens and environmental, housing, FLIR Sensors Manager download card, FLIR Tools & Utilities CD-ROM, Lens cap, Printed documentation, Small accessories kit, User documentation CD-ROM

**FLIR Systems Trading  
Belgium BVBA**  
Luxemburgstraat 2  
B-2321 Meer  
Belgium  
PH: +32 (0) 3 665 51 00

**FLIR Systems, Inc.**  
9 Townsend West  
Nashua, NH 06063  
USA  
PH: +1 603.324.7611

**FLIR Systems AB**  
Antennvägen 6,  
PO Box 7376  
SE-187 66 Täby  
Sweden  
PH: +46 (0)8 753 25 00

**FLIR Systems Ltd.**  
920 Sheldon Ct  
Burlington, Ontario  
L7L 5K6 Canada  
PH: +1 800 613 0507

**FLIR Systems UK**  
2 Kings Hill Avenue -  
Kings Hill  
West Malling  
Kent  
ME19 4AQ  
United Kingdom  
PH: +44 (0)1732 220 011

www.flir.com  
flir@flir.com  
NASDAQ: FLIR

Equipment described herein may require US Government authorization for export purposes. Diversion contrary to US law is prohibited. Imagery for illustration purposes only. Specifications are subject to change without notice. ©2014 FLIR Systems, Inc. All rights reserved. (Created 09/14)