



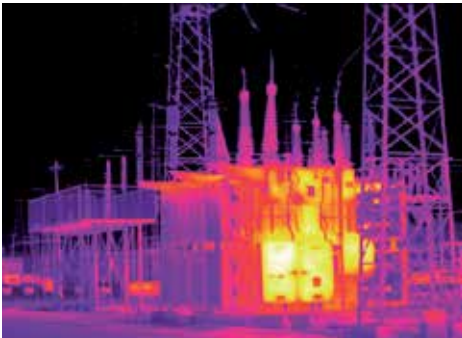
FIXED MOUNT THERMAL IMAGING CAMERA FOR CONDITION MONITORING AND FIRE PREVENTION

FLIR A310 f

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.

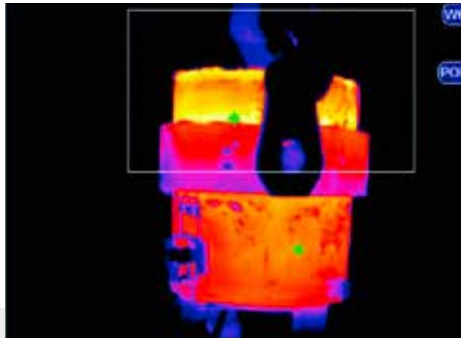
FLIR A310 f is ideal for various applications that require temperature measurement capabilities including: sub-station, transformer, waste bunker, and coal pile monitoring.

www.flir.com/automation



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. Automatic heaters keep the camera window clear from ice so the system can continue working in temperatures down to -25°C (-13°F).

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		1–8× 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		±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	
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"> • EN 61000-6-2 (Immunity) • EN 61000-6-3 (Emission) • FCC 47 CFR Part 15 Class B (Emission) 	
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.)	
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	

Specifications are subject to change without notice. For the most up-to-date specs, go to www.flir.com

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