

## FLIR A310 f

### Fix-Mounted Thermal Monitoring for Improved Substation Safety

The FLIR A310 f is specifically designed to withstand the elements and monitor power substations 24/7/365. FLIR A310 f enables utilities to improve facility safety and reliability of power delivery while reducing costs. An IP-based network camera designed for remote PdM monitoring of remote indoor and outdoor facilities, A310 f features include:

**Uncooled Microbolometer Detector –**

*Maintenance-free and provides excellent longwave imaging performance.*

**Fast Data Transfer –** *100MB Ethernet connection supplies simultaneous analog and MPEG-4 video at 30 Hz.*

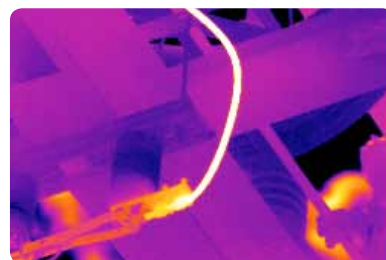
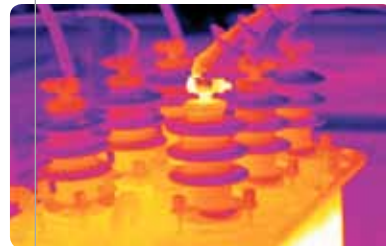
**Built-in Warning System –** *Six automatic alarms on any measurement function you choose + digital in + camera temperature + timer.*

**Tailored to Your Command Center –** *Choose the data systems, software tools, and color palettes (BW, BW inv, Iron, or Rain) that suit how you want to remotely monitor your substation.*

**Extensive Analysis Functions:** *Spot and area measurement and difference temperature are built-in.*

**Easy Sharing:** *Ethernet/IP and Modbus TCP compliance simplify the distribution of analysis and alarms results to PLCs.*

**Automated Messaging:** *Receive analysis results, IR images and more as a scheduled or alarm-triggered email.*



# Imaging Specifications



Detector	A310 f
Detector Type	Uncooled Microbolometer
Spectral Range	7.5 – 13.0 $\mu\text{m}$
Resolution	320 x 240
Detector Pitch	25 $\mu\text{m}$
NETD	<50 mK
Electronics / Imaging	
Time Constant	<12 ms
Frame Rate	30 Hz
Command & Control	Ethernet/IP, Modbus TCP, TCP, UDP, SNMP, RTSP, RTP, HTTP, ICMP, IGMP, ftp, SMTP, SMB (CIFS), DHCP, MDNS (Bonjour), uPnP
Measurement	
Standard Temperature Range	-20°C to 120°C (-4°F to 248°F) 0°C to 350°C (32°F to 662°F)
Accuracy	$\pm 2^\circ\text{C}$ or $\pm 2\%$ of Reading
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
Optics	
Camera f/#	f/1.3
Integrated Lens	18 mm (25°)
Focus	Automatic or Manual (Motorized)
Field of view (FOV) / Minimum focus distance	25° x 18.8° / 0.4 m (1.31 ft.) Available as options: 7°/15°/45°/90°
Zoom	1–8x continuous, digital, interpolating zooming on images
Image Presentation	
Ethernet Video	MPEG-4
Analog Video	NTSC/PAL
General	
Operating Temperature Range	-15°C to 50°C (5°F to 122°F)
Storage Temperature Range	-40°C to 70°C (-40°F to 158°F)
Encapsulation	IP 66 (IEC 60529)
Bump / Vibration	25 g (IEC 60068-2-29) / 2 g (IEC 60068-2-6)

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