FLIR A310 pt

Multi-Sensor Thermal Imaging Camera for Condition Monitoring

FLIR A310 pt 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.

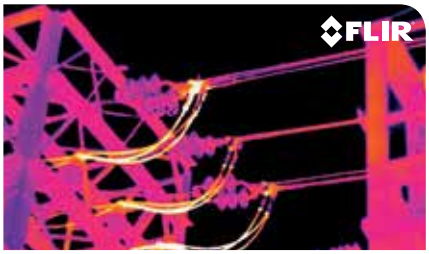
FLIR A310 pt is ideal for various applications that require temperature measurement capabilities including: substation, transformer, waste bunker, and coal pile monitoring.

MULTI-SENSOR

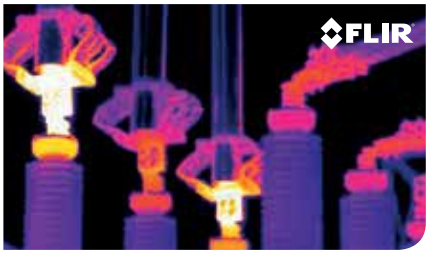
The FLIR A310 pt pan/tilt has all the necessary features and functions to build single- or multi-camera solutions. The FLIR A310 pt can pan +/- 360° continuous and tilt +/- 45°. It is ideal to cover large areas. Typical application examples are coal pile, waste bunker and substation monitoring, utilizing standard Ethernet hardware and software protocols. The FLIR A310 pt is a multi-sensor and includes a lowlight 36x zoom color CCD camera.

EXCELLENT IMAGE QUALITY

FLIR A310 pt contains an uncooled Vanadium Oxide (VOx) microbolometer detector. It produces crisp thermal images of 320 x 240 pixels and makes temperature differences as small as 50 mK clearly visible. It comes with a built-in 25 degree lens with motorized focus. MPEG-4 streamed video output over Ethernet to show live images on a PC, and 640 x 480 with overlay up to 30 Hz. Composite video outputs, PAL and NTSC compatible are available. Both cameras can be controlled remotely over the Web and TCP/IP protocol.



Continuous monitoring of a high-voltage installation.



Thermal image of a substation showing a transformer with excessive temperature.

BUILT-IN ANALYSIS AND ALARM FUNCTIONS

FLIR A310 pt 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.

DESIGNED FOR USE IN HARSH ENVIRONMENTS

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

FLIR SENSORS MANAGER

Each FLIR A310 pt comes with a single sensor copy of FLIR Sensors Manager. This intuitive software allows users to manage and control the cameras in a TCP/IP network.

Your authorized FLIR distributor:

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Imaging Specifications

Imaging and optical data	
IR resolution	320 × 240 pixels
Thermal sensitivity/NETD	< 0.05°C @ +30°C (+86°F) / 50 mK
Field of view (FOV)	FLIR A310pt 15°: 15° × 11.25° FLIR A310pt 25°: 25° × 18.8° FLIR A310pt 45°: 45° × 33.8° FLIR A310pt 6°: 6° × 4.5° FLIR A310pt 90°: 90° × 73°
Minimum focus distance	FLIR A310pt 15°: 1.2 m (3.93 ft.) FLIR A310pt 25°: 0.4 m (1.31 ft.) FLIR A310pt 45°: 0.20 m (0.66 ft.) FLIR A310pt 6°: 4 m (13.11 ft.) FLIR A310pt 90°: 20 mm (0.79 in.)
Focal length	FLIR A310pt 15°: 30.38 mm (1.2 in.) FLIR A310pt 25°: 18 mm (0.7 in.) FLIR A310pt 45°: 9.66 mm (0.38 in.) FLIR A310pt 6°: 76 mm (3.0 in.) FLIR A310pt 90°: 4 mm (0.157 in.)
Spatial resolution (IFOV)	FLIR A310pt 15°: 0.82 mrad FLIR A310pt 25°: 1.36 mrad FLIR A310pt 45°: 2.59 mrad FLIR A310pt 6°: 0.33 mrad FLIR A310pt 90°: 6.3 mrad
Lens identification	Automatic
F-number	1.3
Image frequency	9 Hz / 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
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, camera temperature
Set-up	
Color palettes	Color palettes (BW, BW inv, Iron, Rain)
Set-up commands	Date/time, Temperature°C/°F
Imaging and optical data (visual camera)	
Field of view (FOV)	57.8° (H) to 1.7° (H)
Focal length	3.4 mm (wide) to 122.4 mm (tele)
F-number	1.6 to 4.5
Focus	Automatic or manual (built in motor)
Optical Zoom	36× continuous
Electronic Zoom	12× continuous, digital, interpolating
Detector data (visual camera)	
Focal Plane Array (FPA)	1/4" Exview HAD CCD
Effective pixels	380.000

Technical specification (pan & tilt)	
Azimuth Range	Az velocity 360° continuous, 0.1 to 60°/sec max
Elevation Range	El velocity ± 45°, 0.1 to 30°/sec. max
Programmable presets	128
Automatic heaters	Clears window from ice. Switched on at +4°C (39°F). Switched off at +15°C (59°F).
Ethernet	
Ethernet	Control, result and image
Ethernet, type	100 Mbps
Ethernet, standard	IEEE 802.3
Ethernet, connector type	RJ-45
Ethernet, communication	TBA
Ethernet, video streaming	Two independent channels for each camera - MPEG-4, H.264, or M-JPEG
Ethernet, protocols	Ethernet/IP, Modbus TCP, TCP, UDP, SNTP, RTSP, RTP, HTTP, ICMP, IGMP, ftp, SMTP, SMB (CIFS), DHCP, MDNS (Bonjour), uPnP
Composite video	
Video out	Composite video output, PAL /NTSC compatible
Video, standard	CVBS (ITU-R-BT.470 PAL), CVBS (SMPTE 170M NTSC)
Power system	
Power	24 VAC (21-30 VAC; 24 VAC: 215 VA max. with heater) or 24 VDC (21-30 VDC; 24 VDC: 195 W max. with heater).
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	• 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	17.8 kg (39.3 lb.)
Size (L × W × H)	460 × 467 × 326 mm (18.1 × 18.4 × 12.8 in.)
Housing material	Aluminum
Shipping information	
List of contents	Cardboard box, Pan & tilt with infrared camera including lens, and visual camera, FLIR Sensors Manager download card, Lens cap, Printed documentation, Small accessories kit, User documentation CD-ROM

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