FLIR A315 / A615

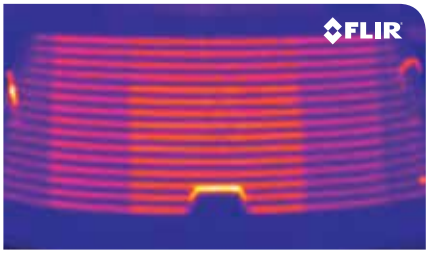
Thermal Imaging Cameras for Machine Vision

The FLIR A315 / A615 is a series of compact and affordable thermal imaging cameras, fully controlled by a PC. Due to their compliance to standards, FLIR A315 / A615 are Plug&Play with third-party Machine Vision software like National instruments, Cognex, Matrox, MVtec and Stemmer Imaging.

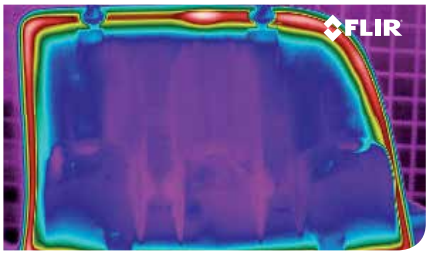
EXCELLENT IMAGE QUALITY

The FLIR A615 is equipped with an uncooled Vanadium Oxide (VoX) detector that produces crisp thermal images of 640 x 480 pixels. This allows more accuracy and shows more details at a longer distance. The FLIR A615 also has a high-speed infrared windowing option.

Users that do not need the high image quality of the FLIR A615 can choose the A315 that produces thermal images of 320 x 240 pixels. Both cameras make temperature differences as small as 50 mk clearly visible. They come with a built-in 25° lens with motorized focus and autofocus. Optional lenses are available.



Inspection of a windshield defroster for damaged electrical elements.



Black glue on black plastic.

GigE VISION™ STANDARD COMPATIBILITY

An industry first, GigE Vision is a camera interface standard developed using the Gigabit Ethernet communication interface. GigE Vision is the first standard to enable fast image transfer using low-cost standard cables even over long distances. With GigE Vision, hardware and software from different vendors can interoperate seamlessly over GigE connections.

GenICam™ PROTOCOL SUPPORT

Another industry first. The goal of GenICam is to provide a generic programming interface for all kinds of cameras. The GenICam protocol also makes third-party software compatible with the camera.

16-BIT TEMPERATURE LINEAR OUTPUT

Allows you to do temperature measurements in a non-contact mode with any third-party software. A built-in Gigabit Ethernet connection allows real-time 16-bit image streaming to a computer.

ENVIRONMENTAL HOUSING (FLIR A315)

The FLIR A315 can be ordered with an environmental housing. The housing increases the environmental specifications of the FLIR A315 to IP66, protecting the camera's from dust and water without affecting any of the camera features. The housing is available for cameras that are equipped with a 25°, 45° or 90° lens, and can be ordered separately as an accessory.

Technical specifications FLIR A315/ A615

Imaging & Optical Data	FLIR A315	FLIR A615
Field of view (FOV) / Minimum focus distance	25° × 18.8° / 0.4 m (1.31 ft.)	15°: 15° × 11° (19° diagonal) / 0.50 m (1.64 ft.) 25°: 25° × 19° (31° diagonal) / 0.25 m (0.82 ft.) 45°: 45° × 34° (55° diagonal) / 0.15 m (0.49 ft.) 7°: 7° × 5.3° (8.7° diagonally) / 2.0 m (6.6 ft.) 80°: 80° × 64.4° (92.8° diagonal) / 65 mm (2.6 in.)
Spatial resolution (IFOV)	1.36 mrad	15°: 0.41 mrad 25°: 0.68 mrad 45°: 1.23 mrad 7°: 0.19 mrad 80°: 2.62 mrad
Focal length	18 mm (0.7 in.)	15°: 41.3 mm (1.63 in.) 25°: 24.6 mm (0.97 in.) 45°: 13.1 mm (0.52 in.) 7°: 88.9 mm (3.5 in.) 80°: 6.5 mm (0.26 in.)
F-number	1.3	1.0
Image frequency	60 Hz	50 Hz (100/200 Hz with windowing)
Detector data		
Focal Plane Array (FPA) / Spectral range	Uncooled microbolometer / 7.5–13 µm	Uncooled microbolometer / 7.5–14 µm
IR resolution	320 × 240 pixels	640 × 480 pixels
Detector pitch	25 µm	17 µm
Detector time constant	Typical 12 ms	Typical 8 ms
Measurement		
Object temperature range	–20 to +120°C (-4 to 248°F) 0 to +350°C (32 to 662°F)	-20 to +150°C +100 to +650°C +300 to +2000°C
USB		
USB	N/A	Control and image
USB, standard	N/A	USB 2 HS
USB, connector type	N/A	USB Mini-B
USB, communication	N/A	TCP/IP socket-based FLIR proprietary
USB, image streaming	N/A	16-bit 640 × 480 pixels at 25 Hz - Signal linear - Temperature linear - Radiometric
USB, protocols	N/A	TCP, UDP, SNTP, RTSP, RTP, HTTP, ICMP, IGMP, ftp, SMTP, SMB (CIFS), DHCP, MDNS (Bonjour), uPnP
Ethernet		
Ethernet, image streaming	16-bit 320 × 240 pixels at 60 Hz - Signal linear - Temperature linear - Radiometric GigE Vision and GenICam compatible	16-bit 640 × 480 pixels at 50 Hz 16-bit 640 × 240 pixels at 100 Hz 16-bit 640 × 120 pixels at 200 Hz - Signal linear - Temperature linear - Radiometric GigE Vision and GenICam compatible

Imaging & Optical Data	
Lens identification	Automatic
Thermal sensitivity/NETD	< 0.05°C @ +30°C (86°F) / 50 mK
Focus	Automatic or manual (built in motor)

Measurement	
Accuracy	±2°C or ±2% of reading
Measurement analysis	
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 object parameters
Ethernet	
Ethernet	Control and image
Ethernet, standard	IEEE 802.3
Ethernet, connector type	RJ-45
Ethernet, type	Gigabit Ethernet
Ethernet, communication	TCP/IP socket-based FLIR proprietary and GenICam protocol
Ethernet, protocols	TCP, UDP, SNTP, RTSP, RTP, HTTP, ICMP, IGMP, ftp, SMTP, SMB (CIFS), DHCP, MDNS (Bonjour), uPnP
Digital input/output	
Digital input	2 opto-isolated, 10–30 VDC
Digital output, purpose	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), Image flow ctrl. (Stream on/off), Input ext. device (programmatically read)
Power system	
External power operation	12/24 VDC, 24 W absolute max
External power, connector type	2-pole jackable screw terminal
Voltage	Allowed range 10–30 VDC
Environmental data	
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	• EN 61000-6-2:2001 (Immunity) • EN 61000-6-3:2001 (Emission) • FCC 47 CFR Part 15 Class B (Emission)
Vibration	2 g (IEC 60068-2-6)
Physical data	
Housing material	Aluminium
Scope of delivery	
Hard transport case or cardboard box, Thermal imaging camera with lens, Utility CD-ROM, Calibration certificate, Ethernet™ cable, USB cable (FLIR A615), Mains cable, Power cable (pig-tailed), Power supply, Printed Getting Started Guide, Printed Important Information Guide, User documentation CD-ROM, Warranty extension card or Registration card, 6-pole screw terminal (mounted on camera)	

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