

FLIR A65 / A35 / A15 / A5

Compact Thermal Imaging Cameras For Machine Vision

The FLIR Ax5-Series is the perfect solution for those applications that require the benefits of a thermal image. The FLIR Ax5-Series camera has features and functions that make it the natural choice for anyone who uses PC software to solve problems.

EXTREMELY AFFORDABLE AND COMPACT

The Ax5-Series are low-cost infrared cameras, with the FLIR A5 being the most affordable. They are ideal tools for putting thermal imaging at work in an automation or machine vision environment. All models are extremely compact. They can easily be integrated in a machine vision environment.

CHOICE OF IMAGE QUALITY

The FLIR A65 produces crisp thermal images with 640 x 512 pixels. Users that do not need this high image quality for their application can choose for the FLIR A35, which produces thermal images of 320 x 256 pixels; from the FLIR A15, which produces thermal images with 160 x 128 pixels or the FLIR A5, which produces thermal images with 80 x 64 pixels. The FLIR Ax5-Series makes temperature differences as small as 50 mk clearly visible.

GigE VISION™ STANDARD COMPATIBILITY

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

GenICam™ PROTOCOL SUPPORT

The goal of GenICam is to provide a generic programming interface for all types of cameras. Regardless of interface technology (Gigabit Ethernet, Camera Link, IEEE-1394 etc) or features implemented, the Application Programming Interface (API) will always be the same. The GenICam protocol also makes it possible to use third party software with the camera.

14-BIT TEMPERATURE LINEAR OUTPUT

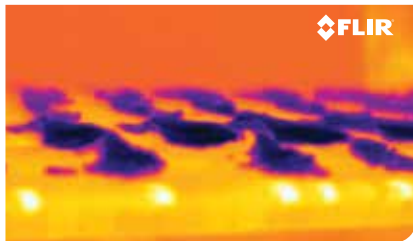
Allows you to do temperature measurements, in a non-contact mode, within any 3rd party software. A built-in Gigabit Ethernet connection allows real time 14-bit image streaming to computer.

SYNCHRONIZATION

Possible to configure one camera to be master and others to be slave(s) for applications that call for more than one camera to cover the object or for stereoscopic applications.



Detecting liquid level in visually opaque bottles.



Quality control of food production line

Technical specifications

Imaging & Optical Data	FLIR A65	FLIR A35	FLIR A15	FLIR A5
IR resolution	640 x 512 pixels	320 x 256 pixels	160 x 128 pixels	80 x 64 pixels
Spatial resolution (IFOV)	45° (H) x 37° (V) with 13 mm lens 25° (H) x 20° (V) with 25 mm lens lenses are not interchangeable and need to be specified at time of order	48° (H) x 39° (V) with 9 mm lens 25° (H) x 19° (V) with 19 mm lens lenses are not interchangeable and need to be specified at time of order	48° (H) x 39° (V) with 9 mm lens 25° (H) x 19° (V) with 19 mm lens lenses are not interchangeable and need to be specified at time of order	44° (H) x 36° (V) with 5 mm lens 25° (H) x 20° (V) with 9 mm lens lenses are not interchangeable and need to be specified at time of order
Image frequency	7.5 Hz / 30Hz	60 Hz	60 Hz	60 Hz
Detector data				
Detector pitch	17 µm	25 µm	50 µm	50 µm
Measurement				
Object temperature range	-25°C to +135°C (-13 to 275°F)	-25°C to +135°C (-13 to 275°F) / -40°C to +550°C (-40 to 1022°F)	-25°C to +135°C (-13 to 275°F) / -40°C to +550°C (-40 to 1022°F)	-25°C to +135°C (-13 to 275°F) / -40°C to +550°C (-40 to 1022°F)

Imaging & Optical Data	
Thermal sensitivity/NETD	< 0.05°C @ +30°C (+86°F) / 50 mK
Accuracy	Accuracy ±5°C (±9°F) or ±5% of reading
F-number	1.25
Focus	Fixed
Detector data	
Focal Plane Array (FPA) / Spectral range	Uncooled VOX microbolometer / 7.5–13 µm
Detector time constant	Typical 12 ms
Ethernet	
Ethernet	Control and image
Ethernet, type	Gigabit Ethernet
Ethernet, standard	IEEE 802.3 / RJ-45
Ethernet, communication	GigE Vision ver. 1.2 Client API GenICam compliant
Ethernet, image streaming	8-bit monochrome @ 7.5 / 30 / 60 Hz (variant dependant) Signal linear/ DDE, Automatic/ Manual, Flip H&V 14-bit @ 7.5 / 30 / 60 Hz (variant dependent) according to IR camera resolution Signal linear/ DDE, GigE Vision and GenICam compatible
Ethernet, power	Power over Ethernet, PoE IEEE 802.3af class 0 Power
Ethernet, protocols	TCP, UDP, ICMP, IGMP, DHCP, GigE Vision
Digital input/output	
Digital input	General purpose, 1x opto-isolated, "0" < 2, "1" = 2–12 VDC
Digital output, purpose	General purpose output to ext. device (programmatically set)
Digital output	1x opto-isolated, 2–40 VDC, max 185 mA
Digital I/O, isolation voltage	500 VRMS
Digital I/O, supply voltage	2–40 VDC, max 200 mA
Digital I/O, connector type	12-pole M12 connector (shared with Digital Synchronization and External power)
Synchronization In, purpose	Frame sync In to control camera
Synchronization In	1x, non-isolated
Synchronization In, type	LVC Buffer @ 3.3V, "0" < 0.8 V, "1" > 2.0 V.
Synchronization Out, purpose	Frame sync Out to control another Ax5 camera
Synchronization Out	1x, non-isolated
Synchronization Out, type	LVC Buffer @ 3.3V, "0" = 24 MA max, "1" = -24 mA max.
Digital Synchronization, connector type	12-pole M12 connector (shared with Digital I/O and External power)

Power system	
External power operation	12/24 VDC, < 3.5 W nominal < 6.0 W absolute max
External power, connector type	12-pole M12 connector (shared with Digital I/O and Digital Synchronization)
Voltage	Allowed range 10–30 VDC
Environmental data	
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)
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 40 (IEC 60529)
Bump	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Physical data	
Weight	0.200 kg (0.44 lb.)
Camera size (L x W x H)	106 x 40 x 43 mm (4.2 x 1.6 x 1.7 in.)
Tripod mounting	UNC ¼"-20 (on three sides)
Base mounting	4 x M3 thread mounting holes (bottom)
Housing material	Magnesium and aluminum
Scope of delivery	
Packaging, contents	Cardboard box, thermal imaging camera with lens, focus adjustment tool, printed documentation, user documentation CD-ROM, FLIR Tools download card

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