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FLIR A500 24° Professional Science Kit

P/N: 90611-0102

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Website

<http://www.flir.com>

Customer support

<http://support.flir.com>

Disclaimer

Specifications subject to change without further notice. Camera models and accessories subject to regional market considerations. License procedures may apply. Products described herein may be subject to US Export Regulations. Please refer to exportquestions@flir.com with any questions.



Imaging and optical data	
Infrared resolution	464 × 348 pixels
Thermal sensitivity (NETD)	<40 mK, 24° @ +30°C (+86°F)
Field of view (FOV)	24° × 18°
Minimum focus distance	0.15 m (0.49 ft)
Focal length	17 mm (0.67 in)
Spatial resolution (IFOV)	0.90 mrad/pixel
Lens identification	Automatic
f-number	1.3
Image frequency	30 Hz
Focus	<ul style="list-style-type: none"> • One-shot contrast • Motorized • Manual
Detector data	
Focal plane array/spectral range	Uncooled microbolometer/7.5–14 μm

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Measurement	
Camera temperature range	<ul style="list-style-type: none"> -20 to 120°C (-4 to 248°F) 0 to 650°C (32 to 1202°F) 300 to 1500°C (572 to 2732°F)
Object temperature range and accuracy (for ambient temperature 15–35°C (59–95°F))	<ul style="list-style-type: none"> Range -20 to 120°C (-4 to 248°F): <ul style="list-style-type: none"> -20 to 100°C (-4 to 212°F), accuracy ±2°C (±3.6°F) 100 to 120°C (212 to 248°F), accuracy ±2% Range 0 to 650°C (32 to 1202°F): <ul style="list-style-type: none"> 0 to 100°C (32 to 212°F), accuracy ±2°C (±3.6°F) 100 to 650°C (212 to 1202°F), accuracy ±2% Range 300 to 1500°C (572 to 2732°F): <ul style="list-style-type: none"> accuracy ±2%
Video/Radiometric streaming RTSP	
Protocol	RTSP
Unicast	Yes
Multicast	Yes
Multiple image streams	Yes
Video streaming	
Image quality	Bit rate set through Camera web
Video streaming, Image source 0:	
Resolution (source 0)	640 × 480 pixels
Contrast enhancement	FSX / Histogram equalization (IR only)
Overlay (source 0)	With / Without
Image source (source 0)	Visual / IR / MSX
Pixel format (source 0)	YUV411
Encoding (source 0)	H.264 / MPEG4 / MJPEG
Video streaming, Image source 1:	
Resolution (source 1)	1280 × 960 pixels
Overlay (source 1)	No
Image source (source 1)	Visual
Pixel format (source 1)	YUV411
Encoding (source 1)	H.264 / MPEG4 / MJPEG
Radiometric streaming	
Resolution (radiometric)	320 × 240 pixels
Source	IR
Pixel format (radiometric)	MONO 16
Encoding (radiometric)	<ul style="list-style-type: none"> Compressed JPEG-LS FLIR Radiometric
Video/Radiometric streaming GVSP (GigE Vision)	
Protocol	GVSP
Unicast	Yes
Multicast	Yes

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Video/Radiometric streaming GVSP (GigE Vision)	
Multiple image streams	No, 1 stream only
Video streaming	
Video streaming, Image source 0:	
Resolution (source 0)	640 × 480 pixels
Contrast enhancement	FSX / Histogram equalization (IR only)
Overlay (source 0)	With / Without
Image source (source 0)	Visual / IR / MSX
Pixel format (source 0)	YUV422 or MONO 8
Encoding (source 0)	Un-compressed
Radiometric streaming	
Resolution (radiometric)	464 × 348 pixels
Source	IR
Pixel format (radiometric)	MONO 16
Encoding (radiometric)	<ul style="list-style-type: none"> Temperature linear FLIR Radiometric Compressed JPEG-LS
Ethernet	
Interface	<ul style="list-style-type: none"> Wired Wi-Fi
Connector type	<ul style="list-style-type: none"> M12 8-pin X-coded, Female RP-SMA, Female
Ethernet, purpose	Control, result, image, and power
Ethernet, type	1000 Mbps
Ethernet, standard	IEEE 802.3
Ethernet, communication	<ul style="list-style-type: none"> GigE Vision ver. 1.2 Client API GenICam compliant TCP/IP socket-based FLIR proprietary
Ethernet, power	Power over Ethernet, PoE IEEE 802.3af class 3
Ethernet, protocols	<ul style="list-style-type: none"> IEEE 1588 ONVIF-S SNMP TCP, UDP, SNTP, RTSP, RTP, HTTP, ICMP, IGMP, sftp (server), FTP (client), SMTP, DHCP, MDNS (Bonjour), uPnP
Digital Input/output	
Connector type	M12 12-pin A-coded, Male (shared with external power)
Digital input	2x opto-isolated Vin(low)= 0–1.5 V, Vin(high)= 3–25 V
Digital input, purpose	<ul style="list-style-type: none"> NUC NUC disable Image TAG (Start, Stop, General) Image flow control (acc. SFNC 2.3) <ul style="list-style-type: none"> Single frame (on trigg) Multiframe (on trigg) Continuous Frame rate ROI

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Digital Input/output	
Digital output	<ul style="list-style-type: none"> • 3x opto-isolated, 0–30 V DC, max. 300 mA (derated to 200 mA at 60C) • Solid state opto relay • 1x dedicated as Fault output (NC)
Digital output, purpose	<ul style="list-style-type: none"> • Programmatically set • Fault (NC)
Digital I/O, isolation voltage	500 VRMS
Power system	
Connector type	M12 12-pin A-coded, Male (shared with Digital I/O)
Power consumption	<ul style="list-style-type: none"> • 7.5 W at 24 V DC typical • 7.8 W at 48 V DC typical • 8.1 W at 48 V PoE typical
External power operation	24/48 V DC 8 W max
External voltage	Allowed range 18–56 V DC
RS-232/485 serial interface	
Connector type	M8 A-coded, Male
Prerequisite for use	ONVIF must be initiated.
Serial communication, purpose	Pan & Tilt control
Serial communication, standard	Pelco D
Serial communication, HW interface	RS232 and RS485 exclusively
Scanlist support	Yes
Wi-Fi	
Connector type	RP-SMA, Female
Standard	IEEE802.11a/b/g/n
Antenna	Dipole antenna 2.4/5 GHz (gain: maximum 2 dBi)
Connection type	Peer to peer (ad hoc) or infrastructure (network)
Environmental data	
Operating temperature range	–20 to 50°C (–4 to 122°F) Cooling plate is needed in temperatures above 40°C (104°F). Maximum camera case temperature: 65°C (149°F)
Storage temperature range	IEC 68-2-1 and IEC 68-2-2, –40 to 70°C (–40 to 158°F) for 16 hours
Humidity (operating and storage)	IEC 60068-2-30/24 hours, 95% relative humidity, 25–40°C (77–104°F)/2 cycles
EMC	<ul style="list-style-type: none"> • ETSI EN 301 489-1 (radio) • ETSI EN 301 489-17 (radio) • EN 61000-4-8 (magnetic field) • FCC 47 CFR Part 15 Class B (emission US) • ISO 13766-1 (EMC - Earth-moving and building construction machinery) • EN ISO 14982 (EMC - Agricultural and forestry machinery)

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Environmental data	
Radio spectrum	<ul style="list-style-type: none"> FCC 47 CFR Part 15 Class C (2.4 GHz band US) FCC 47 CFR Part 15 Class E (5 GHz band US) RSS-247 (2.4 GHz and 5 GHz band Canada) ETSI EN 300 328 V2.1.1 (2.4 GHz band EU) ETSI EN 301 893 V2.1.1 (5 GHz band EU) GlTEKI certification number: R201-140447
Encapsulation	IEC 60529, IP 54, IP66 with accessory
Shock	IEC 60068-2-27, 25 g
Vibration	<ul style="list-style-type: none"> IEC 60068-2-6, 0.15 mm at 10–58 Hz and 2 g at 58–500 Hz, sinusoidal IEC 61373 Cat 1 (Railway)
Safety	IEC 62368-1 (IT equipment audio-visual products)
Corrosion	<ul style="list-style-type: none"> ISO 12944 C4 G or H EN60068-2-11
Shipping information	
Packaging, type	Cardboard box
Packaging, contents	<ul style="list-style-type: none"> Camera with Advanced Image Streaming configuration and 24° lens Hard case for FLIR A400/A500/A700 series Ethernet cable M12 to RJ45, 2 m Ethernet cable M12 to RJ45F, 0.3 m Ethernet cable CAT6, 2 m/6.6 ft Cable M12 to pigtail, 2 m Gigabit PoE injector 16 W, with multi-plugs Option, Macro mode 50/71/101 µm for 24° Research Studio, Professional Edition - 1 Year Subscription (Online Activation) Antenna WLAN 2.4/5 GHz + Wi-Fi Option, Visual camera including MSX Macro lens 2.0x Printed documentation including the username and password for log in to the web interface of the camera
Packaging, weight	4.64 kg (10.2 lb)
Packaging, size	500 × 190 × 370 mm (19.7 × 7.5 × 14.6 in)
EAN-13	7332558029251
UPC-12	845188026325

Supplies & accessories:

- T300239; IR lens, f=10 mm (42°)
- T300240; IR lens, f=17 mm (24°)
- T300241; IR lens, f=29 mm (14°)
- T300586; IR lens Dual FOV, f=17/29 mm (24°/14°)
- T300095; IR lens, f=70 mm (6°) with case
- T951004ACC; Ethernet cable CAT6, 2 m/6.6 ft.
- T130665ACC; Cooling plate
- T300075ACC; IP hood for lens
- T300163; Hard case for FLIR A400/A500/A700 series
- T300202; Connector cap kit
- T300216; Axxx Accessory kit
- T300218; Two-ball mounting bracket kit
- T300268ACC; A-series connection board
- T911850; Antenna WLAN 2.4/5 GHz + Wi-Fi
- T911850ACC; Antenna for WLAN 2.4/5 GHz



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- T911852ACC; Cable M12 to pigtail, 2 m
- T911853ACC; Cable M12 to pigtail, 10 m
- T911854ACC; Ethernet cable M12 to RJ45, 2 m
- T911855ACC; Ethernet cable M12 to RJ45, 10 m
- T911869ACC; Ethernet cable M12 to RJ45F, 0.3 m
- T911183; Gigabit PoE injector 16 W, with multi-plugs
- T300572; Option, Force password change at first-time use
- T199507; Gigabit PoE injector 15 W
- T199869; Extended Calibration Certificate for A4xx
- 4232535; FLIR Research Studio, Professional Edition - 1 Year Subscription (online activation)
- 4232556; FLIR Research Studio, Professional Edition - Perpetual License (online activation)
- 4232590; FLIR Research Studio, Professional Edition - Perpetual License (USB dongle)
- 4220499; FLIR Research Studio, Standard Edition - 1 Year Subscription (online activation)
- 4220500; FLIR Research Studio, Standard Edition - Perpetual License (online activation)
- 4220646; FLIR Research Studio, Standard Edition - Perpetual License (USB dongle)
- 4232591; FLIR ResearchIR to Research Studio, Professional Edition - 1 Year License Upgrade