

## P/N: 90610-0202

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### Website

<http://www.flir.com>

### Customer support

<http://support.flir.com>

### Disclaimer

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<b>Imaging and optical data</b>	
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"> <li>• One-shot contrast</li> <li>• Motorized</li> <li>• Manual</li> </ul>
<b>Detector data</b>	
Focal plane array/spectral range	Uncooled microbolometer/7.5–14 μm
<b>Measurement</b>	
Camera temperature range	<ul style="list-style-type: none"> <li>• -20 to 120°C (-4 to 248°F)</li> <li>• 0 to 650°C (32 to 1202°F)</li> <li>• 300 to 1500°C (572 to 2732°F)</li> </ul>
Object temperature range and accuracy (for ambient temperature 15–35°C (59–95°F))	<ul style="list-style-type: none"> <li>• Range -20 to 120°C (-4 to 248°F):               <ul style="list-style-type: none"> <li>◦ -20 to 100°C (-4 to 212°F), accuracy ±2°C (±3.6°F)</li> <li>◦ 100 to 120°C (212 to 248°F), accuracy ±2%</li> </ul> </li> <li>• Range 0 to 650°C (32 to 1202°F):               <ul style="list-style-type: none"> <li>◦ 0 to 100°C (32 to 212°F), accuracy ±2°C (±3.6°F)</li> <li>◦ 100 to 650°C (212 to 1202°F), accuracy ±2%</li> </ul> </li> <li>• Range 300 to 1500°C (572 to 2732°F):               <ul style="list-style-type: none"> <li>◦ accuracy ±2%</li> </ul> </li> </ul>



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<b>Video/Radiometric streaming RTSP</b>	
Protocol	RTSP
Unicast	Yes
Multicast	Yes
Multiple image streams	Yes
<b>Video streaming</b>	
Image quality	Bit rate set through Camera web
<b>Video streaming, Image source 0:</b>	
Resolution (source 0)	640 × 480 pixels
Contrast enhancement	FSX / Histogram equalization (IR only)
Overlay (source 0)	With / Without
Image source (source 0)	IR
Pixel format (source 0)	YUV411
Encoding (source 0)	H.264 / MPEG4 / MJPEG
<b>Radiometric streaming</b>	
Resolution (radiometric)	320 × 240 pixels
Source	IR
Pixel format (radiometric)	MONO 16
Encoding (radiometric)	<ul style="list-style-type: none"> <li>Compressed JPEG-LS</li> <li>FLIR Radiometric</li> </ul>
<b>Video/Radiometric streaming GVSP (GigE Vision)</b>	
Protocol	GVSP
Unicast	Yes
Multicast	Yes
Multiple image streams	No, 1 stream only
<b>Video streaming</b>	
<b>Video streaming, Image source 0:</b>	
Resolution (source 0)	640 × 480 pixels
Contrast enhancement	FSX / Histogram equalization (IR only)
Overlay (source 0)	With / Without
Image source (source 0)	IR
Pixel format (source 0)	YUV422 or MONO 8
Encoding (source 0)	Un-compressed
<b>Radiometric streaming</b>	
Resolution (radiometric)	464 × 348 pixels
Source	IR
Pixel format (radiometric)	MONO 16
Encoding (radiometric)	<ul style="list-style-type: none"> <li>Temperature linear</li> <li>FLIR Radiometric</li> <li>Compressed JPEG-LS</li> </ul>
<b>Ethernet</b>	
Interface	Wired
Connector type	<ul style="list-style-type: none"> <li>M12 8-pin X-coded, Female</li> <li>RP-SMA, Female</li> </ul>



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<b>Ethernet</b>	
Ethernet, purpose	Control, result, image, and power
Ethernet, type	1000 Mbps
Ethernet, standard	IEEE 802.3
Ethernet, communication	<ul style="list-style-type: none"> <li>GigE Vision ver. 1.2</li> <li>Client API GenICam compliant</li> <li>TCP/IP socket-based FLIR proprietary</li> </ul>
Ethernet, power	Power over Ethernet, PoE IEEE 802.3af class 3
Ethernet, protocols	<ul style="list-style-type: none"> <li>IEEE 1588</li> <li>SNMP</li> <li>TCP, UDP, SNTP, RTSP, RTP, HTTP, ICMP, IGMP, sftp (server), FTP (client), SMTP, DHCP, MDNS (Bonjour), uPnP</li> </ul>
<b>Digital Input/output</b>	
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"> <li>NUC</li> <li>NUC disable</li> <li>Image TAG (Start, Stop, General)</li> <li>Image flow control (acc. SFNC 2.3)               <ul style="list-style-type: none"> <li>Single frame (on trigg)</li> <li>Multiframe (on trigg)</li> <li>Continuous</li> <li>Frame rate</li> <li>ROI</li> </ul> </li> </ul>
Digital output	<ul style="list-style-type: none"> <li>3x opto-isolated, 0–30 V DC, max. 300 mA (derated to 200 mA at 60C)</li> <li>Solid state opto relay</li> <li>1x dedicated as Fault output (NC)</li> </ul>
Digital output, purpose	<ul style="list-style-type: none"> <li>Programmatically set</li> <li>Fault (NC)</li> </ul>
Digital I/O, isolation voltage	500 VRMS
<b>Power system</b>	
Connector type	M12 12-pin A-coded, Male (shared with Digital I/O)
Power consumption	<ul style="list-style-type: none"> <li>7.5 W at 24 V DC typical</li> <li>7.8 W at 48 V DC typical</li> <li>8.1 W at 48 V PoE typical</li> </ul>
External power operation	24/48 V DC 8 W max
External voltage	Allowed range 18–56 V DC
<b>RS-232/485 serial interface</b>	
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



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<b>Environmental data</b>	
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"> <li>ETSI EN 301 489-1 (radio)</li> <li>ETSI EN 301 489-17 (radio)</li> <li>EN 61000-4-8 (magnetic field)</li> <li>FCC 47 CFR Part 15 Class B (emission US)</li> <li>ISO 13766-1 (EMC - Earth-moving and building construction machinery)</li> <li>EN ISO 14982 (EMC - Agricultural and forestry machinery)</li> </ul>
Radio spectrum	<ul style="list-style-type: none"> <li>FCC 47 CFR Part 15 Class C (2.4 GHz band US)</li> <li>FCC 47 CFR Part 15 Class E (5 GHz band US)</li> <li>RSS-247 (2.4 GHz and 5 GHz band Canada)</li> <li>ETSI EN 300 328 V2.1.1 (2.4 GHz band EU)</li> <li>ETSI EN 301 893 V2.1.1 (5 GHz band EU)</li> <li>GITEKI certification number: R201-140447</li> </ul>
Encapsulation	IEC 60529, IP 54, IP66 with accessory
Shock	IEC 60068-2-27, 25 g
Vibration	<ul style="list-style-type: none"> <li>IEC 60068-2-6, 0.15 mm at 10–58 Hz and 2 g at 58–500 Hz, sinusoidal</li> <li>IEC 61373 Cat 1 (Railway)</li> </ul>
Safety	IEC 62368-1 (IT equipment audio-visual products)
Corrosion	<ul style="list-style-type: none"> <li>ISO 12944 C4 G or H</li> <li>EN60068-2-11</li> </ul>
<b>Shipping information</b>	
Packaging, type	Cardboard box
Packaging, contents	<ul style="list-style-type: none"> <li>Camera with Advanced Image Streaming configuration and 24° lens</li> <li>Hard case for FLIR A400/A500/A700 series</li> <li>Ethernet cable M12 to RJ45, 2 m</li> <li>Ethernet cable M12 to RJ45F, 0.3 m</li> <li>Ethernet cable CAT6, 2 m/6.6 ft</li> <li>Cable M12 to pigtail, 2 m</li> <li>Gigabit PoE injector 16 W, with multi-plugs</li> <li>Option, Macro mode 50/71/101 μm for 24°</li> <li>Research Studio, Professional Edition - 1 Year Subscription (Online Activation)</li> <li>Printed documentation including the username and password for log in to the web interface of the camera</li> </ul>
Packaging, weight	4.44 kg (9.79 lb)
Packaging, size	500 × 190 × 370 mm (19.7 × 7.5 × 14.6 in)
EAN-13	7332558029244
UPC-12	845188026318



## FLIR A500 24° Standard Science Kit

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### 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°)
- T300238; Macro lens 2.0x with case
- 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
- 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
- T300295; Option, Visual camera including MSX
- 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)
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