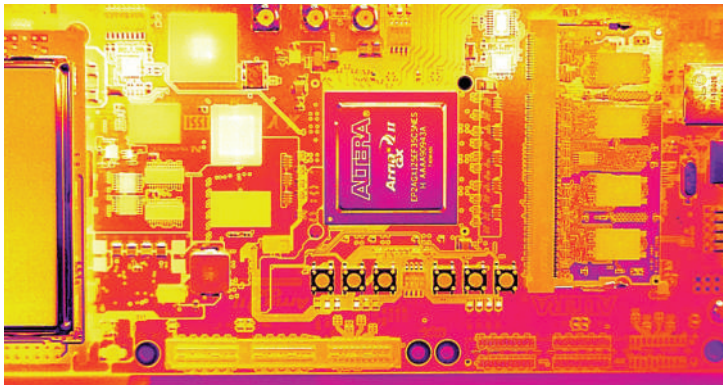
FLIR A-SERIES™

Science Kits



FLIR A-Series Science Kits simplify temperature measurement for researchers and engineers working in a variety of applications, from electronics and aerospace to the life sciences. With streamlined connections and multiple lens options, users can quickly view, acquire, and analyze thermal data within the FLIR Research Studio software. Based on FLIR A400, A500, and A700 Advanced Image Streaming cameras, the Standard Kit offers a 24° lens with automatic/remote and manual focusing as well as FLIR Macro Mode for superior system flexibility. The Professional Kit has the added benefits of MSX® image enhancement, to better distinguish between components on your test target; radiometric data transmission over Wi-Fi, so you can cut the cord between camera and workstation; and a close-up lens for accurate thermal measurements on small components.

UNPARALLELED THERMAL IMAGING & INNOVATIONS

Get accurate thermal data on your entire device and individual subcomponents

- Obtain correct thermal measurements with crisp remote, automatic, and manual focusing
- Multiple lens options ensure you get the maximum number of pixels on your test article
- Accurately measure temperatures on small objects without the need to switch lenses using the included one-touch enabled FLIR Macro Mode
- Better differentiate between features and components with the patented FLIR MSX® image enhancement*

SIMPLIFIED DATA ANALYSIS, SHARING, & COLLABORATION

Start collecting and sharing meaningful data with limited ramp-up time and simple connections

- Employ FLIR Research Studio's simple Connect→View→Record→Analyze workflow to obtain and analyze thermal results quickly
- Work in the operating system you prefer and share data globally with colleagues in their preferred language
- Stream fully radiometric compressed data over Wi-Fi to devices running FLIR Research Studio*

*Included in the Professional Science Kits ONLY

ADVANCED FEATURES FOR UNMATCHED CONNECTIVITY

Get up and running faster with simple yet robust connections

- Ensure camera connections are correct and secure with M-style, positive lock connectors
- Eliminate the need for additional cables using standard Power over Ethernet (PoE)
- Connect the camera to your workstation using Wi-Fi for camera control, data recording and image analysis*
- Control camera parameters and recording through digital I/O

SPECIFICATIONS

Detector Data	Standard Kit	Professional Kit
IR resolution	320 × 240 (A400), 464 × 348 (A500), or 640 × 480 (A700)	
Thermal resolution/NETD	<30 mK to <50 mK – Lens dependent	
Focal plane array/spectral range	Uncooled Microbolometer	
Detector pitch	24 µm, 17 µm, or 12 µm - camera dependent	
Spectral range	7.5–14.0 µm	
Frame Rate	30 Hz	
Image and Optical Data		
Camera f/#	Lens Dependent	
Included Lenses	24°	24°, 2.0X Macro
Optional Lenses	2.0X Macro, 6°, 14°, 42°	6°, 14°, 42°
Macro Mode	Included	
Lens identification	Automatic	
Focus	One-shot contrast, motorized, manual	
Minimum focus distance	2.0X Macro: 18 mm (0.71 in) 24°: 0.15 m (0.49 ft) 24° f/1.0: 0.3 m (0.98 ft) 24° with Macro Mode: 17 mm (0.67 in) 42°: 0.15 m (0.49 ft) 14°: 1.0 m (3.28 ft) 6°: 5.0 m (16.4 ft)	
Visual Camera	Optional	5 Megapixel
Measurement		
Standard Temperature Ranges	-20°C to 120°C (-4°F to 248°F) 0°C to 650°C (32°F to 1202°F) A400/A500: 300°C to 1500°C (572°F to 2732°F) A700: 300°C to 2000°C (572°F to 3632°F)	
Accuracy	±2°C (±3.6°F) or ±2% of reading for ambient temperature 15°C to 35°C (59°F to 95°F), object temperature above 0°C (32°F)	
Image Presentation		
Digital data	Via workstation running included Research Studio Software	
Data Streaming & Control	Gigabit Ethernet (RTSP, GigE Vision)	Gigabit Ethernet (RTSP, GigE Vision), Wi-Fi
Dynamic Range	16-bit	
Image Modes in Research Studio		
Infrared	Yes	
Visual	–	Yes
MSX®	–	Yes

Gigabit Ethernet	Standard Kit	Professional Kit
Ethernet Image Streaming	Yes	
Connector type	M12 8-pin X-coded, female	
Ethernet power	Power over Ethernet, PoE IEEE 802.3af class 3	
Ethernet communication	GigE Vision ver. 1.2, Client API GenICam compliant, TCP/IP socket-based (FLIR proprietary)	
Digital input/output		
Connector type	M12 Male 12-pin A-coded (shared with ext. power)	
Digital input	2× opto-isolated, Vin (low) = 0–1.5 V, Vin (high) = 3–25V	
Digital output	3× opto-isolated, 0–48 VDC, max. 350 mA (derated to 200 mA at 60°C). Solid-state opto relay, 1× dedicated as fault output (NC)	
Wi-Fi (optional)		
Connector type	Optional	Female RP-SMA
Standard	Optional	IEEE802.11a/b/g/n
Connections	Optional	Peer to peer (ad hoc) or infra-structure (network)
Power system		
Connector type	M12 Male 12-pin A-coded (shared with Digital I/O)	
General	Power over Ethernet or External	
External voltage	24/48 VDC, 8 W max	
General		
Operating Temperature Range	–20°C to 40°C (–4°F to 104°F) (in free air) 40°C to 50°C (104°F to 122°F) (mounted on cooling plate accessory) Maximum camera case temperature: 65°C (149°F)	
Storage Temperature Range	IEC 68-2-1 and IEC 68-2-2, –40°C to 70°C (–40°F to 158°F) for 16 hours	
Encapsulation	IEC 60529, IP 54, IP66 with accessory	
Shock	IEC 60068-2-27, 25 g	
Vibration	IEC 60068-2-6, 0.15 mm at 10–58 Hz and 2 g at 58–500 Hz, sinusoidal	
Power	24/48 V DC 8 W max	
Size	123 mm × 77 mm × 77 mm (4.84 in × 3.03 in × 3.03 in)	
Weight (including 24° lens)	0.82 kg (1.8 lb)	
Mounting	UNC ¼"-20 on 2 sides 4× M4 on 4 sides	