

RESEARCH & DEVELOPMENT KIT

FLIR A50/A70



FLIR A50/A70 Research & Development Kits are affordable, ready-to-use solutions for thermal imaging analysis in proof-of-concept, electronics testing, and R&D applications. Providing thousands of temperature measurement points, users can eliminate thermal guesswork, reduce product development time, and increase product efficiency and reliability. These kits are the right choice for engineers and technicians who need to fully understand the thermal profiles of their systems or require defensible thermal data to support critical decisions. Simple connections and standard manual focus lens options provide the ultimate flexibility to satisfy research and development needs. Users can quickly view, record, analyze and share thermal data with the included FLIR Research Studio software or take advantage of industry-standard connections to integrate into custom software applications when needed. When mobility is required, the compressed radiometric data transmitted over Wi-Fi eliminates the cord between the camera and workstation.

**IMPROVE EFFICIENCY**

Quickly reveal thermal characteristics to eliminate guesswork and reduce product development time

- Accurately measure temperatures with up to 307,200 thermal measurement pixels (640 x 480 resolution) and $\pm 2^\circ\text{C}$ accuracy
- Reveal unknown thermal anomalies faster with quality infrared imagery
- Easily differentiate between features and components with the built-in visible camera
- Enhance understanding of infrared image data using FLIR MSX®

CAPTURE MEANINGFUL DATA QUICKLY

Start testing sooner with limited ramp-up time and simple non-proprietary industry standard interfaces

- Stream full radiometric image data using standard Gigabit Ethernet or Wi-Fi connections
- Perform qualitative and quantitative thermal analysis with the included FLIR Research Studio software
- Quickly view, record, analyze and share important thermal data across multiple platforms and languages
- Compare and examine thermal data simultaneously from multiple connected cameras and recorded data files

RUGGED, COMPACT, AND FLEXIBLE

Meet the demands of multiple application environments and installations

- Ensure operation in tough environments thanks to rugged M-style connectors and standard IP66 protection
- Easily install this compact camera in any location, with multiple mounting options
- Eliminate the need for multiple cables using Power over Ethernet and included Wi-Fi connectivity
- Transition from design and testing in the lab to process control in production using non-proprietary GigE Vision and GenlCam protocols, as well as SDKs

SPECIFICATIONS

Detector Data	A50 R&D Kit	A70 R&D Kit	Gigabit Ethernet	A50 R&D Kit	A70 R&D Kit
IR resolution	464 x 348	640 x 480	Ethernet Image Streaming	Yes	
Thermal resolution/NETD	A50: 29°: <35 mK, 51°: <35 mK, 95°: <45 mK	A70: 29°: <45 mK, 51°: <45 mK, 95°: <60 mK	Ethernet Connector Type	M12 8-pin X-coded, female	
Focal Plane Array	Uncooled Microbolometer		Ethernet Interface	Wired, Wi-Fi	
Detector Pitch	17 µm	12 µm	Ethernet Power	Power over Ethernet, PoE IEEE 802.3af class 3.	
Spectral Range	7.5–14.0 µm		Ethernet Type	1000 Mbps	
Frame Rate	30 Hz		Digital Input/Output		
Image and Optical Data			Connector Type	M12 Male 12-pin A-coded (shared with external power)	
Camera f/#	1.4		Digital I/O Isolation Voltage	500 VRMS	
Lens Field of View Options	29°, 51°, 95°		Digital Input	2x opto-isolated, Vin (low) = 0 to 1.5 V, Vin (high) = 3 to 25 V	
Spatial Resolution (IFOV)	29°: 1.2 mrad/pixel 51°: 2.1 mrad/pixel 95°: 4.0 mrad/pixel	29°: 0.84 mrad/pixel 51°: 1.5 mrad/pixel 95°: 2.9 mrad/pixel	Digital Output	3x opto-isolated, 0 to 48 V DC, max. 350 mA (derated to 200 mA at 60°C). Solid-state opto relay, 1x dedicated as fault output (NC)	
Lens Type	Fixed, cannot be changed		Power		
Focus	Adjustable with included focus tool		Configuration	Power over Ethernet or External	
Minimum Focus Distance	29°: 0.25 m / 51°: 0.2 m / 95°: 0.1 m		Connector Type	M12 Male 12-pin A-coded (shared with Digital I/O)	
Visual Camera	Included		External Power Operation	24/48 V DC, 8 W max	
Visual Resolution	1280 x 960		Power Consumption	7.5 W at 24 V DC typical; 7.8 W at 48 V DC typical	
Measurement			Physical data		
Object temperature range	-20°C to 175°C (-4°F to 347°F) 175°C to 1000°C (347°F to 1832°F)	-20°C to 175°C (-4°F to 347°F) -20°C to 250°C (-4°F to 482°F) 175°C to 1000°C (347°F to 1832°F)	Size (L x W x H)	107 x 67 x 57 mm, without bottom cooling plate	
Accuracy	±2°C (±3.6°F) or ±2% of reading, for ambient temperature 15°C to 35°C (59°F to 95°F) and object temperature above 0°C (32°F)		Housing Material	Aluminum	
Image Presentation			Tripod Mounting	1/4-20 UNC depth 7 mm + Ø5 depth 2.7 mm	
Digital Data	Via workstation running included Research Studio Software		Atmospheric Transmission Correction	Based on inputs of distance, atmospheric temperature, and relative humidity	
Digital Data Streaming	Gigabit Ethernet (RTSP, GigE Vision), Wi-Fi		Corrosion	ISO 12944 C4 G or H; EN60068-2-11	
Command & Control	Gigabit Ethernet (RTSP, GigE Vision), Wi-Fi		Encapsulation	IEC 60529, IP66	
Dynamic Range	16-bit		Humidity (Operating and Storage)	IEC 60068-2-30/24 hours, 95% relative humidity, 25°C to 40°C (77°F to 104°F) / 2 cycles EN60068-2-38	
Image Modes in Research Studio			Operating Temperature Range	-20°C to 50°C (-4°F to 113°F), with included cooling plate. Maximum camera case temperature: 65°C (149°F)	
Infrared	Radiometric		Wi-Fi Radio Spectrum	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)	
Visual	Non-radiometric		Shock	IEC 60068-2-27, 25 g	
Screen	Non-radiometric, selected in software (Thermal, MSX®, Visual, FSX)		Vibration	IEC 60068-2-6, 0.15 mm at 10 Hz to 58 Hz and 2 g at 58 Hz to 500 Hz, Sinusoidal IEC 61373 Cat 1 (Railway)	
Wi-Fi					
Connector Type	Female RP-SMA				
Standard	IEEE802.11a/b/g/n				
Connections	Peer to peer (ad hoc) or Infrastructure (network)				

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