

THERMAL IMAGING SELECTION GUIDE

Helping you to select from over 60 major brand devices



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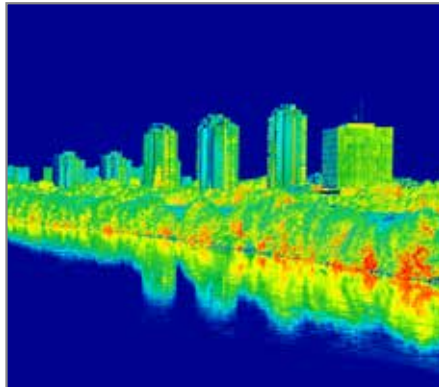
THERMAL IMAGING INTRODUCTION

Thermal Imaging is a method of measuring the temperatures of objects using wavelengths of light emitted in the infrared spectrum. We perceive this as heat and, for that reason, it is also known as Infrared Thermography.

THE MANY ADVANTAGES OF THERMAL IMAGING

Thermal imaging is a **non-contact technology** that converts the infrared waves into an image that portrays temperature. The temperature range of objects in the image is differentiated using a spectrum of colours.

As a non-contact technology, thermal imaging is efficient, safe and easy. Detecting temperature rises, instabilities or hot spots in just a few seconds can identify and pinpoint potential failures in equipment or systems before they cause expensive downtime, power loss or damage. It is invaluable in areas where equipment cannot be shut down, cannot be easily accessed, or where physical contact with the object would alter its temperature and skew the results. In addition, enhanced safety comes from being able to measure temperature from a distance – ideal for eliminating risk from applications that involve moving parts, high levels of heat or are in dangerous environments.



Locating hot spots or cold spots is fast with thermal imaging. The technology helps to maintain productivity through rapid diagnosis and by its ability to measure without shutting down production equipment or processes.

Training requirements on the latest generation of thermal imaging camera technologies are minimal. Use it as part of a scheduled maintenance regime to reduce downtime as well as a fast, safe and effective troubleshooting tool when problems arise.

THREE THINGS TO KNOW ABOUT THERMAL IMAGING SYSTEMS

Three key factors impact your choice of the camera technology for any given thermal measurement application.

RESOLUTION



The **resolution of the thermal imaging sensor** determines the quality of the image that will be portrayed. The higher the sensor resolution, the sharper and more accurate a single point will be on the image, allowing an operator to take more precise measurements and make better decisions. Higher resolutions permit smaller objects to be measured from a greater distance, and this fact alone can influence the purchasing decision based on the user's expected operational environment. Detector resolution should not be confused with screen resolution. A high resolution screen can only be as good as the resolution of the detector.

TEMPERATURE RANGE



Also to consider is the available **temperature range** of an instrument. Not all applications will require a measurement range that extends to cover very high heat levels. Imaging devices offering a wider temperature range will use sensors that are more expensive, and this will reflect in the price of the instrument.

SENSITIVITY



Sensitivity is the third attribute to consider. It represents the smallest difference in temperature that the infrared sensor can distinguish. Devices with higher thermal sensitivities can detect smaller temperature differences to deliver an image with greater accuracy. Measured in milliKelvins (mK), the lower the mK number of a camera, the more sensitive it will be. This lower mK number means that the camera will detect a broader range of temperature differences and display more colours on its screen.

WHERE WILL THERMAL IMAGING BE USED?

Every thermal imaging requirement is likely to be different. This will determine the characteristics of the instrument needed. But there is a broader initial split in thermal imaging applications adopted by many camera manufacturers: **buildings** or **industrial**.



Instruments designed for use in **buildings** are typically used to detect issues within the fabric of construction, and for problems that may be obscured from view or behind walls. Applications include checking the effectiveness of insulation, detecting moisture and leaks, testing underfloor heating systems and central heating

appliances, and tracking down leaks from ventilation channels. Thermal imaging detector resolution and thermal sensitivity are key factors that will influence a purchasing decision. High sensitivities will detect small temperature deviations with the building fabric, while a greater resolution will deliver more accuracy through better imaging detail.



Industrial thermal imaging instruments are used as process validation tools in electric, electronic, electro-mechanical and mechanical engineering applications. These include machine tools, production line components, manufacturing systems, and so on. As well as preventative maintenance applications and

scheduled service programmes, these cameras are great troubleshooting instruments. They are also valued for keeping operators at a distance from machinery. A wider temperature range is a typical attribute of industrial thermal imaging cameras. Many are used for high temperature applications. As always, the detector resolution then determines the level of accuracy and imaging detail required for the application.

WHAT TO DO WITH THE IMAGING DATA

Users can make instant decisions based on the image shown on the screen. This may be to shut the machine down, schedule preventative maintenance, or even do nothing as all appears fine. Many instruments store the measured data in memory and on removable cards to permit offline storage, analysis and reporting. Some also add extra functionality like Wi-Fi connectivity to allow direct connections to other devices. Here, measurement data and visual images can be exported directly to smartphones, tablets or laptops to give timely mobile analysis and reporting, plus easy access to information sharing by email and other channels.

Software suites assist in analysing stored data and enrich the imaging experience. Typical additions include annotations, selective temperature thresholds and merging visible and infrared wavelength images to display a composite picture. Such data enhancements are useful for unambiguous reporting, evidence clarification and effective communications.



Go online for full specifications on our complete thermal imaging range



	U5857A	U5856A	FLIR E40	CA 1886	875-2i	875-1i	U5855A	TiS45	Ti125	TiS40
	Quick access operating buttons and IP54 rated	Includes imager, battery charger and spare battery	Contains bright LED lamp for viewing in dark corners	Multidirectional screen makes viewing easy	Saves voice annotations made using a headset	Ideal diagnostic tool for the HVAC industry	With quick access buttons and torch light	Includes high 5 megapixel digital camera	Six new innovative features with focus-free video recording	Includes smart lithium battery with charge level display
RS STOCK NO	885-5091	885-5097	848-1407	740-6470	777-6707	777-6704	877-3141	888-2493	752-8934	888-2487
DETECTOR RESOLUTION	160 x 120 pixels	160 x 120 pixels	160 x 120 pixels	160 x 120 pixels	160 x 120 pixels	160 x 120 pixels	160 x 120 pixels	160 x 120 pixels	160 x 120 pixels	160 x 120 pixels
THERMAL RANGE	-20°C → 1200°C	-20°C → +650°C	-20°C → +650°C	-20°C → +600°C	-20°C → +350°C	-20°C → +350°C	-20°C → +350°C	-20°C → +350°C	-20°C → +350°C	-20°C → +350°C
SENSITIVITY	0.07 °C or 0.5 °C	0.07 °C or 0.5 °C	<0.07°C	≤0.1°C	<50mK (0.05°C)	<50mK (0.05°C)	0.07°C or 0.1°C	≤0.09 °C	≤100mK (0.10°C)	≤0.09 °C
SCREEN SIZE	3.5in	3.5in	3.5in	3.5in	3.5in	3.5in	3.5in	3.5in	3.5in	3.5in
FOCUS TYPE	Manual	Manual	Manual	Manual	Manual	Manual	Manual	Manual	Manual	Fixed
ACCEPTS OTHER LENSES	N	N	N	Y	Y	N	N	N	N	N



	870-1	875-1	869	870-2	Ti110	Ti105	FLIR E6	CA 1882	TiR125
	Specially designed for building services engineers	Wide-angle lens to display a large image area	Large display imager at a competitive price	Includes Integrated digital camera	Six new innovative features with focus-free video recording	Ultra-rugged focus system with IR fusion camera	Wide field of view, perfect for building applications	MixVision function links a thermogram to a real image	Supports IS3 radiometric video and USB video-out
RS STOCK NO	796-1804	688-9654	922-4823	796-1808	752-8930	768-5649	848-1378	811-1224	752-8946
DETECTOR RESOLUTION	160 x 120 pixels	160 x 120 pixels	160 x 120 pixels	160 x 120 pixels	160 x 120 pixels	160 x 120 pixels	160 x 120 pixels	160 x 120 pixels	160 x120pixels
THERMAL RANGE	-20°C → +280°C	-20°C → +280°C	-20°C → +280°C	-20°C → +280°C	-20°C → +250°C	-20°C → +250°C	-20°C → +250°C	-20°C → +250°C	-20°C → +150°C
SENSITIVITY	<100mK (0.10°C)	≤80mK (0.08°C)	<120 mK (0.12°C)	<100mK (0.10°C)	≤80mK (0.08°C)	100mK (0.10°C)	<0.06°C	0.08°C	≤80mK (0.08°C)
SCREEN SIZE	3.5in	3.5in	3.5in	3.5in	3.5in	3.5in	3in	2.5in	3.5in
FOCUS TYPE	Fixed	Manual	Manual	Fixed	Manual	Manual	Manual	Manual	Manual
ACCEPTS OTHER LENSES	N	N	N	N	N	N	N	N	N

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FLIR



FLIR



FLIR



FLUKE



FLIR



CHAUVIN ARNOUX



FLUKE

	FLIR E40BX	FLIR ONE (iOS)	FLIR ONE (Android)	TI S20	FLIR E5	CA 1878	TI 95
	High specification with WiFi, ideal for building applications	Loads images direct to mobile to forward or share. iOS compatible	Loads images direct to mobile to forward or share. Android compatible	Fantastic Fluke performance from an entry level imager	Variable emissivity with simultaneous storage of IR/ Visual/MSX	Flexible screen makes viewing easy in tight areas	Includes 2 megapixel built-in digital camera
RS STOCK NO	905-5939	883-7049	883-7043	888-2484	848-1369	785-0739	811-0887
DETECTOR RESOLUTION	160 x 120 pixels	160 x 120 pixels	160 x 120 pixels	120 x 90 pixels	120 x 90 pixels	100 x 80 pixels	80 x 80 pixels
THERMAL RANGE	-20°C → 120°C	-20°C → +120°C	-20°C → +120°C	-20°C → +350°C	-20°C → +250°C	-20°C → +250°C	-20°C → +250°C
SENSITIVITY	<0.045°C	0.1°C	0.1°C	≤0.1 °C	<0.1°C	0.08°C	100mK (0.10°C)
SCREEN SIZE	3.5in	As phone	As phone	3.5in	3in	2.5in	3.5in
FOCUS TYPE	Manual	Fixed	Fixed	Fixed	Manual	Manual	Fixed
ACCEPTS OTHER LENSES	Y	N	N	N	N	N	N



CHAUVIN ARNOUX



FLIR



CHAUVIN ARNOUX



FLUKE



FLUKE



FLIR

	CA 1950	FLIR E4	CA 1877	TI S10	TI 90	FLIR C2
	Recovers measurements from current clamps and multimeters via Bluetooth	Tough enough to stow with the rest of your tools	Easy to use design with storage of 1000 images	Includes internal storage and micro SD card. Wi-fi interface	Use with Fluke Connect for fast sharing of data - 8GB SD card included	Pocket-sized thermal camera designed for the building industry
RS STOCK NO	896-2173	848-1365	785-0720	888-2475	811-0883	866-8124
DETECTOR RESOLUTION	80 x 80 pixels	80 x 60 pixels	80 x 60 pixels	80 x 60 pixels	80 x 60 pixels	80 x 60 pixels
THERMAL RANGE	-20°C → +250°C	-20°C → +250°C	-20°C → +250°C	-20°C → +250°C	-20°C → +250°C	-20°C → +150°C
SENSITIVITY	80mK (0.08°C)	<0.15°C	0.08°C	≤0.15°C	150mK (0.15°C)	<0.1°C
SCREEN SIZE	2.8in	3in	2.5in	3.5in	3.5in	3in
FOCUS TYPE	Fixed	Manual	Manual	Fixed	Fixed	Fixed
ACCEPTS OTHER LENSES	N	N	N	N	N	N

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	Ti29	TiS65	TiS60	Ti300	Ti300/W2	FLIR E50	Ti27
	High specification with automatic parallax correction	Higher resolution than TiS50 with manual focus and digital camera	Fixed focus model with 5 megapixel digital camera	LaserSharp™ AutoFocus gives users perfectly focused images	Ti300 supplied with wide angle lens	Specification as E50BX but with higher maximum temperature	Includes wi-fi enabled and text/voice record feature
RS STOCK NO	731-8991	888-2507	888-2490	788-4666	843-1550	848-1400	731-9008
DETECTOR RESOLUTION	280 x 210 pixels	260 x 195 pixels	260 x 195 pixels	240 x 180 pixels	240 x 180 pixels	240 x 180 pixels	240 x 180 pixels
THERMAL RANGE	-20°C → 600°C	-20°C → +550°C	-20°C → +550°C	-20°C → +650°C	-20°C → +650°C	-20°C → +650°C	-20°C → +600°C
SENSITIVITY	≤0.05 °C or ≤0.045 °C	≤0.08°C	≤0.08 °C	50mK (0.05°C)	50mK (0.05°C)	<0.05°C	≤0.05 °C or ≤0.045 °C
SCREEN SIZE	3.7in	3.5in	3.5in	3.5in	3.5in	3.5in	3.7in
FOCUS TYPE	Manual	Manual	Fixed	Manual	Automatic	Manual	Manual
ACCEPTS OTHER LENSES	Y	N	N	Y	Y	N	Y



	FLIR E50BX	TiS55	TiS50	Ti200	Ti200/T2	Ti200/W2
	Ideal device for critical building assessment tasks	Manual focus device with wireless image transfer	Similar features to TiS55 but with fixed focus	Laser focusing for pin-sharp distance measurement	Ti200 supplied with telephoto lens	Ti200 supplied with wide angle lens
RS STOCK NO	905-5933	888-2497	888-2481	788-4675	843-1553	843-1569
DETECTOR RESOLUTION	240 x 180 pixels	220 x 165 pixels	220 x 165 pixels	200 x 150 pixels	200 x 150 pixels	200 x 150 pixels
THERMAL RANGE	-20°C → 120°C	-20°C → +450°C	-20°C → +450°C	-20°C → +650°C	-20°C → +650°C	-20°C → +650°C
SENSITIVITY	< 0.045°C	≤0.08 °C	≤0.08 °C	50mK (0.05°C)	75mK (0.075°C)	75mK (0.075°C)
SCREEN SIZE	3.5in	3.5in	3.5in	3.5in	3.5in	3.5in
FOCUS TYPE	Manual	Manual	Fixed	Manual	Automatic	Automatic
ACCEPTS OTHER LENSES	Y	N	N	Y	Y	Y

Go online for full specifications on our complete thermal imaging range



	CA 1888	FLIR T440	Ti450	Ti400	Ti400/T2	Ti400/W2	FLIR T440BX	FLIR E60	FLIR T420
	Multi-directional screen for difficult access areas	Rotating optical block gives superb images at the toughest angles	High resolution and temperature range from a quality instrument	High maximum temperature with manual focus	Ti400 supplied with telephoto lens	Ti400 supplied with wide-angle lens	Specification as T440 but for lower temperature applications	Higher 76,800 pixel resolution than E50 model with manual focus	Lower cost option than T440 for areas with lower maximum temperatures
RS STOCK NO	740-6474	905-5949	922-4826	788-4662	843-1540	843-1556	905-5951	848-1404	905-5945
DETECTOR RESOLUTION	384 x 288 pixels	320 x 240 pixels	320 x 240 pixels	320 x 240 pixels	320 x 240 pixels	320 x 240 pixels	320 x 240 pixels	320 x 240 pixels	320 x 240 pixels
THERMAL RANGE	-20°C → 600°C	-20°C → +1200°C	-20°C → +1200°C	-20°C → +1200°C	-20°C → +1200°C	-20°C → +1200°C	-20°C → +650°C	-20°C → +650°C	-20°C → +650°C
SENSITIVITY	≤0.08°C	<0.045°C	50mK (0.05°C)	50mK (0.05°C)	50mK (0.05°C)	50mK (0.05°C)	<0.045°C	<0.05°C	<0.045°C
SCREEN SIZE	3.5in	3.5in	3.5in	3.5in	3.5in	3.5in	3.5in	3.5in	3.5in
FOCUS TYPE	Manual	Manual	Manual	Manual	Automatic	Automatic	Manual	Manual	Manual
ACCEPTS OTHER LENSES	Y	Y	Y	Y	Y	Y	Y	N	Y



	TC7000	Ti32	TiS75	882	FLIR T420BX	FLIR E8	FLIR E60BX
	Designed for Zone 1 hazardous areas - see page 8 for more	Withstands a 2m drop, ideal for industrial applications	Long travel focus wheel for absolute precise focusing	Manual focus model that can display surface moisture	Lower cost option than T440 for areas with lower maximum temperatures	Wi-fi enabled and text/voice record feature	Similar features to E60 model for lower temperature requirements
RS STOCK NO	778-5124	682-7542	910-8043	740-8701	905-5958	848-1371	905-5942
DETECTOR RESOLUTION	320 x 240 pixels	320 x 240 pixels	320 x 240 pixels	320 x 240 pixels	320 x 240 pixels	320 x 240 pixels	320 x 240 pixels
THERMAL RANGE	-20°C → +600°C	-20°C → +600°C	-20°C → +550°C	-20°C → +350°C	-20°C → +350°C	-20°C → +250°C	-20°C → +120°C
SENSITIVITY	50mK (0.05°C)	50mK (0.05°C)	≤0.08°C	≤60mK (0.06°C)	<0.045°C	<0.06°C	<0.045°C
SCREEN SIZE	3.2in	3.7in	3.5in	3.5in	3.5in	3in	3.5in
FOCUS TYPE	Manual	Manual	Manual	Automatic	Manual	Manual	Manual
ACCEPTS OTHER LENSES	N	Y	N	N	Y	N	Y



ATEX-APPROVED FOR HAZARDOUS ENVIRONMENTS



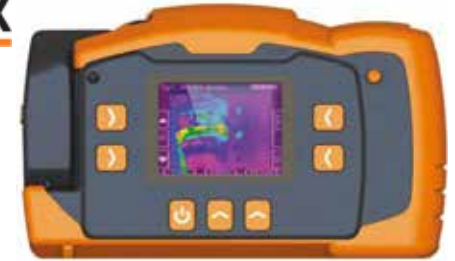
Hazardous environments at risk from explosion need a thermal imaging camera which is ATEX/IECEX certified, for safe use within hazardous areas

Designed for Zone 1 explosive atmospheres, the TC7000 thermal imaging camera is certified for use in areas found in the petrochemical, sugar production and grain storage/handling industries. Below ground, it is also ideal for hazardous areas found in mining industries.

KEY FEATURES:

- Data capture is accurate and simple with the RFID tag reader built into TC7000 that enables thermal images and voice comments to be linked to a location
- High resolution 320 x 240 IR detector, clear backlit display (3.2 in)
- RFID Scanner
- Auto correction for IW Series IR Windows
- Articulating lens
- Fully compatible with CorDEX IW Series Intelligent IR Windows
- Hotspot reporting and trending through CorDEX CONNECT
- USB communications

CorDEX



778-5124

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