



# Thermal Imaging Selection Guide

Helping you to select from over 50  
major brand devices



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## Introduction to Thermal Imaging

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.

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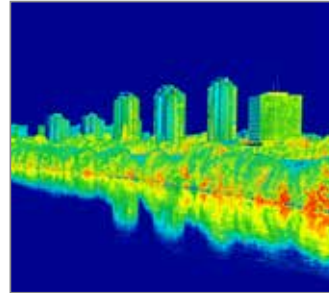
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### Brands



### THE ADVANTAGES

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.

### KEY CONSIDERATIONS

#### Three key factors impact your choice of thermal imaging camera...

##### 1. 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. 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.**



##### 2. 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.



##### 3. 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 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

	 KEYSIGHT TECHNOLOGIES	 KEYSIGHT TECHNOLOGIES	 CHAUVIN ARNOUX	 testo	 testo
	U5857A	U5856A	CA 1886	875-2i	875-1i
	Quick access operating buttons and IP54 rated	Includes imager, battery charger and spare battery	Multidirectional screen makes viewing easy	Saves voice annotations made using a headset	Ideal diagnostic tool for the HVAC industry
RS STOCK NO	885-5091	885-5097	740-6470	777-6707	777-6704
DETECTOR RESOLUTION	160 × 120 pixels	160 × 120 pixels	160 × 120 pixels	160 × 120 pixels	160 × 120 pixels
THERMAL RANGE	-20°C → +1200°C	-20°C → +650°C	-20°C → +600°C	-20°C → +350°C	-20°C → +350°C
SENSITIVITY	0.07°C / 0.5°C	0.07°C / 0.5°C	±0.1°C	<50mK (0.05°C)	<50mK (0.05°C)
SCREEN SIZE	3.5in	3.5in	3.5in	3.5in	3.5in
FOCUS TYPE	Manual	Manual	Manual	Manual	Manual
ACCEPTS OTHER LENSES	✗	✗	✓	✓	✗

	 KEYSIGHT TECHNOLOGIES	 FLUKE	 FLUKE	 testo	 testo	 FLIR
	U5855A	TiS45	TiS40	865	868	FLIR E6
	With quick access buttons and torch light	Includes high 5 megapixel digital camera	Includes smart lithium battery with charge level display	Excellent value tool for building and electrical maintenance	Wirelessly integrates with smartphone app for remote operation	Wide field of view, perfect for building applications
RS STOCK NO	877-3141	888-2493	888-2487	125-2265	125-2266	848-1378
DETECTOR RESOLUTION	160 × 120 pixels	160 × 120 pixels	160 × 120 pixels	160 × 120 pixels	160 × 120 pixels	160 × 120 pixels
THERMAL RANGE	-20°C → +350°C	-20°C → +350°C	-20°C → +350°C	-20°C → +280°C	-30°C → +650°C	-20°C → +250°C
SENSITIVITY	0.07°C / 0.1°C	±0.09°C	±0.09°C	120mK	100mK	<0.06°C
SCREEN SIZE	3.5in	3.5in	3.5in	3.5in	3.5in	3in
FOCUS TYPE	Manual	Manual	Fixed	Fixed	Fixed	Fixed
ACCEPTS OTHER LENSES	✗	✗	✗	✗	✗	✗

## Go online for full specifications on our complete thermal imaging range



	FLIR E6 Wi-Fi	CA 1882	CA 1878	TIS20	FLIR E5	FLIR E5 Wi-Fi
	Focus-free imaging device with integrated wi-fi	MixVision function links a thermogram to a real image	Spécification haute avec Wi-Fi, idéal pour les applications dans le bâtiment	Fantastic Fluke performance from an entry level imager	Variable emissivity with simultaneous storage of IR/Visual/MSX	Focus-free version of E5 with integrated wi-fi
<b>RS STOCK NO</b>	135-3289	811-1224	785-0739	888-2484	848-1369	135-3290
<b>DETECTOR RESOLUTION</b>	160 × 120 pixels	160 × 120 pixels	120 × 80 pixels	120 × 90 pixels	120 × 90 pixels	120 × 90 pixels
<b>THERMAL RANGE</b>	-20°C → +250°C	-20°C → +250°C	-20°C → +250°C	-20°C → +350°C	-20°C → +250°C	-20°C → +250°C
<b>SENSITIVITY</b>	<0.06°C	0.08°C	0,08°C	≤0.1°C	<0.1°C	<0.1°C
<b>SCREEN SIZE</b>	3in	2.5in	2,5in	3.5in	3in	3in
<b>FOCUS TYPE</b>	Fixed	Manual	Manual	Fixed	Fixed	Fixed
<b>ACCEPTS OTHER LENSES</b>	X	X	X	X	X	X



	CA 1950	FLIR E4	TIS10	FLIR C2	FLIR C3
	Recovers measurements from current clamps and multimeters via Bluetooth	Tough enough to stow with the rest of your tools	Includes internal storage and micro SD card. wi-fi interface	Pocket-sized thermal camera designed for the building industry	Includes features of C2 but with additional wi-fi connectivity
<b>RS STOCK NO</b>	896-2173	848-1365	888-2475	866-8124	135-3287
<b>DETECTOR RESOLUTION</b>	80 × 80 pixels	80 × 60 pixels	80 × 60 pixels	80 × 60 pixels	80 × 60 pixels
<b>THERMAL RANGE</b>	-20°C → +250°C	-20°C → +250°C	-20°C → +250°C	-10°C → +150°C	-10°C → +150°C
<b>SENSITIVITY</b>	100mK (0.10°C)	<0.15°C	≤0.15°C	<0.10°C	<0.1°C
<b>SCREEN SIZE</b>	2.8in	3in	3.5in	3in	3in
<b>FOCUS TYPE</b>	Fixed	Fixed	Fixed	Fixed	Fixed
<b>ACCEPTS OTHER LENSES</b>	X	X	X	X	X

## Go online for full specifications on our complete thermal imaging range


**FLUKE**

**FLUKE**

**FLUKE**


	<b>TiS65</b>	<b>TiS60</b>	<b>Ti300</b>	<b>871</b>
	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	Great value imager with wide field of view and Bluetooth
<b>RS STOCK NO</b>	888-2507	888-2490	788-4666	125-2267
<b>DETECTOR RESOLUTION</b>	260 × 195 pixels	260 × 195 pixels	240 × 180 pixels	240 × 180 pixels
<b>THERMAL RANGE</b>	-20°C → +550°C	-20°C → +550°C	-20°C → +650°C	-30°C → +650°C
<b>SENSITIVITY</b>	≤0.08°C	≤0.08°C	50mK (0.05°C)	90mK
<b>SCREEN SIZE</b>	3.5in	3.5in	3.5in Touch Screen	3.5in
<b>FOCUS TYPE</b>	Manual	Fixed	Auto/Manual	Fixed
<b>ACCEPTS OTHER LENSES</b>	✗	✗	✓	✗


**FLIR**

**FLUKE**

**FLUKE**

	<b>FLIR E50</b>	<b>TiS55</b>	<b>TiS50</b>
	Ideal device for critical building assessment tasks	Manual focus device with wireless image transfer	Similar features to TiS55 but with fixed focus
<b>RS STOCK NO</b>	848-1400	888-2497	888-2481
<b>DETECTOR RESOLUTION</b>	240 × 180 pixels	220 × 165 pixels	220 × 165 pixels
<b>THERMAL RANGE</b>	-20°C → +650°C	-20°C → +450°C	-20°C → +450°C
<b>SENSITIVITY</b>	<0.05°C	≤0.08°C	≤0.08°C
<b>SCREEN SIZE</b>	3.5in Touch Screen	3.5in	3.5in
<b>FOCUS TYPE</b>	Fixed	Manual	Fixed
<b>ACCEPTS OTHER LENSES</b>	✗	✗	✗

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	TI450	Ti400	FLIR E60	872	TC7000	TIS75	882
	High resolution and temperature range from a quality instrument	High maximum temperature with manual focus	Higher 76,800 pixel resolution than E50 model with manual focus	Accurate, fast imaging tool, ideal for tough daily use	Designed for Zone 1 hazardous areas - see page 8 for more	Long travel focus wheel for absolute precise focusing	Manual focus model that can display surface moisture
RS STOCK NO	922-4826	788-4662	848-1404	125-2268	778-5124	910-8043	740-8701
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 → +1200°C	-20°C → +1200°C	-20°C → +650°C	-30°C → +650°C	-20°C → +600°C	-20°C → +550°C	-20°C → +350°C
SENSITIVITY	50mK (0.05°C)	50mK (0.05°C)	<0.05°C	60mK	50mK (0.05°C)	±0.08°C	≤60mK (0.06°C)
SCREEN SIZE	3.5in Touch Screen	3.5in Touch Screen	3.5in Touch Screen	3.5in	3.2in	3.5in	3.5in
FOCUS TYPE	Auto/Manual	Auto/Manual	Fixed	Fixed	Manual	Manual	Automatic
ACCEPTS OTHER LENSES	✓	✓	✗	✓	✗	✗	✗



	FLIR E8	FLIR E8 Wi-Fi	CA 1888	FLIR E75	FLIR E85	TI480	FLIR E95
	Rugged tool for harsh environments with text/voice record feature	Focus-free, wi-fi enabled version of the Flir E8	Multi-directional screen for difficult access areas	High spec imager with integrated wi-fi	High maximum temperature imager with integrated wi-fi	Fluke's LaserSharp™ Auto Focus displays distance from the target with pinpoint accuracy	High specification imaging tool with integrated wi-fi
RS STOCK NO	848-1371	135-3288	740-6474	135-3293	135-3295	136-5410	135-3294
DETECTOR RESOLUTION	320 x 240 pixels	320 x 240 pixels	384 x 288 pixels	320 x 240 pixels	384 x 288 pixels	640 x 480	640 x 480 pixels
THERMAL RANGE	-20°C → +250°C	-20°C → +250°C	-20°C → +600°C	-20°C → +650°C	-20°C → +1200°C	-20°C to +800°C	-20°C → +1500°C
SENSITIVITY	<0.06°C	<0.06°C	±0.08°C	<0.03°C @ 30°C	<0.03°C @ 30°C	<0.05°C	<0.03°C @ 30°C
SCREEN SIZE	3in	3in	3.5in	4in Touch Screen	4in Touch Screen	3.5in	4in Touch Screen
FOCUS TYPE	Fixed	Fixed	Manual	Fixed	Fixed	Auto/ Manual	Fixed
ACCEPTS OTHER LENSES	✗	✗	✓	✓	✓	✓	✓

## ATEX-APPROVED FOR HAZARDOUS ENVIRONMENTS

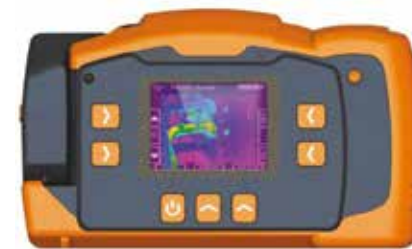


**Hazardous environments at risk from explosion need a thermal imaging camera which is ATEX/IECEx certified, for safe use within hazardous areas**

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 × 240 IR detector, clear backlit display (3.2 in)
- RFID Scanner
- Auto correction for IW Series IR Windows

**CorDEX**

778-5124

- Articulating lens
- Fully compatible with CorDEX IW Series Intelligent IR Windows
- Hotspot reporting and trending through CorDEX CONNECT
- USB communications

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INNOVATIONS IN  
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We are constantly adding the latest thermal imaging cameras to our product line, including new technological innovations from leading manufacturers such as Fluke, Flir, Keysight, Testo and Chauvin Arnoux to name a few.

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