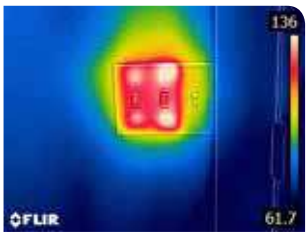
NDTKALA.co
Non-Destructive Test (NDT) Equipment
تامین تجهیزات و مواد مصرفی تست های غیر مخرب ایران
۰۹۱۲۰۲۴۶۲۷۰ | ۰۲۱-۷۱۰۵۳۸۸۸

FLIR C2

Powerful, compact thermal imaging system

The FLIR C2 is the world's first full-featured, pocket-sized thermal camera designed for building industry experts and contractors. Keep it on you so you're ready anytime to find hidden heat patterns that signal energy waste, structural defects, plumbing issues and more. The C2's must-have features include MSX® real time image enhancement, high sensitivity, a wide field of view, and fully radiometric imagery to clearly show where problems are and verify the completion of repairs.



Hot overloaded dimmer switch

Warm drain pipe in wall

Uninsulated outside wall

Pocket portable.

Keep it on you and at your side, ready for immediate use so you don't miss an opportunity

- Light, slim profile fits comfortably in any work pocket
- Brilliant 3" intuitive touch screen with auto orientation for easy viewing
- Built-in LED spotlight you can use as a flashlight and for photo illumination

Fully radiometric.

Save thermal image JPEGs instantly, then conveniently adjust and analyze them later with FLIR Tools to isolate temperature measurements on any pixel and create convincing reports

- MSX-enhanced thermal images provide stunning detail to help you identify problem areas easier
- Radiometric image stores 4800 pixels capable of capturing thermal measurements from -10°C to +150°C
- A wide FOV frames what pros need to see and high thermal sensitivity detects subtle temperature differences common in building applications

Easily affordable.

Affordable MSRP fits everyone's budget to help put this powerful tool into the hands of more people who can really use it

- FLIR Tools professional reporting software included – the industry standard in thermal image post analysis
- Streaming video via FLIR Tools, a feature not usually available on low-cost thermal camera systems
- FLIR's unique 2-10 warranty, covering parts and labor for two years and the detector for ten

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Imaging specifications

Imaging and optical data	
IR sensor	80 × 60 (4,800 measurement pixels)
Thermal sensitivity	<0.10°C
Field of view	41° × 31°
Minimum focus distance	Thermal: 0.15 m (0.49 ft.) MSX: 1 m (3.3 ft.)
Image frequency	9 Hz
Focus	Focus free
Spectral range	7.5–14 µm
3" Display (color)	320 × 240 pixels
Auto orientation	Yes
Touch screen	Yes, capacitive
Image presentation modes	
Thermal image	Yes
Visual image	Yes
MSX	Yes
Gallery	Yes
Measurement	
Object temperature range	–10°C to +150°C (14 to 302°F)
Accuracy	±2°C (±3.6°F) or 2%, whichever is greater, at 25°C (77°F) nominal
Measurement analysis	
Spotmeter	On/off
Emissivity correction	Yes; matte/semi/glossy + user set
Measurements correction	Reflected apparent temperature Emissivity
Set-up	
Color palettes	Gray, Iron, Rainbow, Rainbow HC
Storage media	Internal memory store at least 500 sets of images
Image file format	Standard JPEG, 14-bit measurement data included
Video streaming	
Non-radiometric IR-video streaming	Yes
Visual video streaming	Yes
Digital camera	
Digital camera	640 × 480 pixels
Digital camera, focus	Fixed focus
Additional information	
USB, connector type	USB Micro-B: Data transfer to and from PC, iOS and Android
Battery	3.7 V Rechargeable Li-ion polymer battery
Battery operating time	2 h
Charging system	Charged inside the camera
Charging time	1.5 h
External power operation	AC adapter, 90–260 VAC input 5 V output to camera
Power management	Automatic shut-down
Operating temperature range	–10°C to +50°C (14 to 122°F)
Storage temperature range	–40°C to +70°C (–40 to 158°F)
Weight (incl. battery)	0.13 kg (0.29 lb.)
Size (L × W × H)	125 × 80 × 24 mm (4.9 × 3.1 × 0.94 in.)
System includes	
Infrared camera Battery (inside camera) Lanyard Power supply/charger with EU, UK, US, CN and Australian plugs Printed Getting Started Guide USB memory stick with documentation USB cable	

2-10 Protection

Covers parts and labor for two years and the detector for ten.

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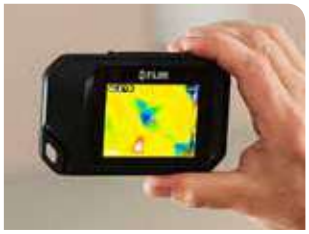

Frequently Asked Questions

What is the price of the FLIR C2 compact professional thermal camera?

The FLIR C2 thermal imaging camera MSRP is 699€ EUR / £559 GBP.

Where can I purchase a C2?

From one of our premier distribution partners.

Why launch the C2 for the professional and consumer market?

A variety of contractors in the building profession – energy efficiency specialists, construction experts, HVAC technicians, home inspectors, as well as DIY enthusiasts – have wanted an affordable, compact thermal imaging tool that's easy to use and easy to carry on them so they don't miss an opportunity to find hidden heat problems. As the world's first full-featured, pocket-portable thermal camera, the FLIR C2 fills that need perfectly.

What are its unique features?

- Slim, lightweight profile that fits comfortably in practically any pocket.
- MSX® – our patented multi-spectral enhancement that adds stunning, recognizable detail to thermal images so you know exactly what you're looking at.
- A bright 3" touchscreen to make it easy to access image modes, diagnostic tools, and settings.
- Auto orientation for comfortable viewing of onscreen temperature readings when framing images in portrait mode.
- Fully radiometric images that you can import, adjust and analyze with using FLIR Tools whenever you want, and also measure temperatures ranging from -10° to 150°C on any of the thousands and thousands of pixels captured in each image.
- FLIR Tools professional software for Mac or PC included – the industry standard on post analysis reporting that also allows streaming video to your computer.
- A bright LED spotlight for photo illumination and working in darker spaces.
- High thermal sensitivity – vital for seeing subtle heat patterns common in insulation and moisture applications.

How do thermal imagers work?

A thermal imaging camera captures invisible infrared "heat" radiation, which all objects emit, transmit, or reflect, and transforms what it detects into recognizable pictures and heat patterns. The C2 displays temperature differences as contrasting colors on its LCD screen, with hot areas appearing brighter and cooler areas darker. For more information please see "How it works".

How does the C2 compare to FLIR's E4?

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The C2 and E4 offer the same 80 x 60 pixel resolution infrared detector as well as MSX enhancement, but each has different strengths. The E4, higher priced and featuring large buttons for gloved operation, a button-based user interface, and a reliable grip for one-handed use, is well-suited for electrical/mechanical industrial applications.

C2, with a lower MSRP, is designed primarily for building applications with its compact pocket portability, a bright 3" LCD for easy touchscreen menu navigation, Auto Orientation for comfortable viewing of vertical scenes, an oversized snapshot button for saving fully radiometric JPEG images, and an LED spotlight for instant illumination.

How does the C2 compare to the FLIR ONE?

The C2 is a standalone, pocket portable, fully radiometric thermal imaging camera that is ready to use at any time. The FLIR ONE is not a standalone thermal camera. In order to operate, the product requires a separate iOS or Android device which is an additional expense; it is not point and shoot ready.

What type of warranty comes with the C2?

An automatic one-year warranty without registration. When registered online within 60 days of purchase, FLIR offers an extended warranty of two years on the C2 camera and battery, and ten years on the Lepton® sensor.

Where can I use the C2?

The C2 can be used for a variety of building-related applications:

- Building contractors can use it as a non-destructive tool for locating studs, pipes and ducts in walls, insulation voids, and signs of water damage.
- Roofing contractors can scan for heat retention in flat roof membranes and insulation that may indicate the location of leaks.
- Energy efficiency experts can scan for cold and warm air infiltration flowing around leaky doors and windows and through unsealed outlets and switches as well as find missing insulation in walls and ceilings.
- Home and building inspectors who need to check for energy waste, signs of water leaks that may lead to mold, electrical overheating, HVAC and plumbing issues, and more.
- HVAC technicians can look for duct leaks, check tubing in radiant floor heating systems, measure air temperatures, and check mechanical belts and motors as well as energy leaks
- Plumbers can look for clogged pipes, locate plumbing in walls, and more.
- Small electrical contractors can see hotter switches, connections, and breakers and measure hotspot temperatures.
- Design/build architects can inspect for framing integrity, insulation, air leaks, and other problems indicated by suspect heat signatures.

Are there any privacy issues with thermal imagers?

The C2 does not provide "x-ray" vision. It can't see through clothing, glass, or solid objects or structures. The C2 allows you to visualize and measure surface temperature, only. That said, in many cases, the surface temperature of an object can be affected by things behind or under it, such as wooden studs in a wall. You can easily see the location of the studs with thermal imaging due to their effect on the surface temperature of the wall, without actually seeing through the wall.

What is the resolution of the imager / display?

80 x 60 pixel thermal image resolution with a 3" LCD display. Accompanied by the 640x480 visible camera to produce Multi Spectral Imaging, MSX, the image in enhanced significantly to identify image details that normally aren't visible by infrared alone.

Can I adjust the level and span of the thermal image?

No. But the C2 does allow you to either image in automatic mode or, once you've established a contrast view you prefer, switch to "lock" mode to maintain the preferred view. Either way, the C2 provides you with a quick troubleshooting tool. And once you download saved images into your free FLIR Tools software, you can always adjust contrast and brightness levels, as well as color palettes, and add more measurement tools to the picture before creating your persuasive reports with the software.

What is the temperature range that the C2 can detect?

–10° to +150°C (14° to 302°F)

What are the emissivity presets?

They're simple settings that allow you to choose the surface type that you're targeting. Choices include: matte, semi-matte, semi-glossy plus a custom value.

Can the C2 store images and video?

The C2 can save hundreds of images to its internal memory that you can review in-camera from the onboard gallery or download later onto your computer. With FLIR Tools, you can stream live video via a USB cable to your computer.

How is the C2 charged?

The C2 has an internal battery that is charged using the mini USB port and cable. The battery operates for 2 hours continuous use.

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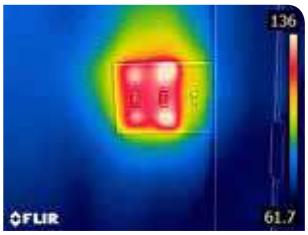

Hot overloaded dimmer switch

Warm drain pipe in wall

Uninsulated outside wall

How it works

Thermal imaging is one of the most powerful technologies ever developed to enhance visual perception. The unaided human eye can only see a very narrow band of visible light along the electromagnetic spectrum, which also includes radio and microwaves, infrared and ultraviolet light, X-Rays, and gamma rays. By detecting small temperature differences in the infrared world, thermal imaging makes otherwise invisible heat energy visible.

Everything around you either emits or reflects heat energy. So when you look around a home with the FLIR C2, its thermal images can show you where doors and windows may not be properly weatherized and are leaking cold or warm air (depending on the season). You may also see a section of an outside wall that appears considerably cooler during winter months, indicating voids where insulation is missing or improperly installed. You might see a dimmer switch or electrical breaker that's much warmer than it should safely be indicating a pending problem or overloaded circuit. Or you might want to look for the subtle temperature differences in images that reveal potential signs of hidden moisture in walls, floors and ceilings. The list of uses is long and will grow dramatically as customers discover this unseen portion of the electromagnetic spectrum.

The FLIR C2 includes FLIR's revolutionary Lepton® micro-thermal camera that can passively scan an area and display images of hot and cold patterns on its LCD screen. Along with the Lepton, C2 also includes a visible light camera for capturing photos of the scene. Using FLIR's exclusive MSX® technology, C2 embosses the thermal contrast details from the visual camera onto the thermal image without diluting it. The end result is a thermal image that shows identifiable features, numbers, letters and other texture so you know immediately what you're looking at in a scene.

The ability to "see" heat this way creates an entirely new level of awareness for both professionals and consumers, allowing them to find problems they may have missed before. The benefit is a non-destructive, more efficient, and reliable way to troubleshoot that provides persuasive thermal images to help make the case for repairs and verify that work has been done correctly. This adds high visual impact to a building professional's reports and marketing materials, and, of course, increases the contractor's diagnostic credibility, which always makes good business sense.

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Thermal imaging vs Night vision

Your Vision FLIR Vision

Thermal Imaging

- Makes pictures from heat energy, also called thermal energy, not visible light
- Detects subtle differences in heat – as little as 0.01°C – and converts them into images
- Works day and night because thermal energy is around us all the time
- Creates high-contrast images so it's easy to tell something from its surroundings as long as there's a temperature difference between them; can see people from hundreds of feet away, depending on the lens used

Night Vision FLIR Vision

Night Vision – Image Intensification

- Makes pictures from the same visible light our eyes see
- Takes small amounts of ambient visible light and magnifies it to create an image
- Only works when there's the right amount of visible light – too much and they get overloaded and bloom; too little and they don't show anything
- Creates low contrast images in which people can hide in shadows or use camouflage to conceal themselves

Night Vision FLIR Vision

Night Vision – Infrared Illumination

- Makes pictures from the same visible light our eyes see
- Uses an invisible near infrared flashlight to illuminate the scene and create an image
- Only sees what is in the narrow beam of the "illuminator" (the near infrared flashlight) – everything else is dark
- Creates low contrast images in which people can hide in shadows or use camouflage to conceal themselves; the infrared illuminator is very narrow and weak so it cannot help you see very far at night

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