

ICI | BUYER'S GUIDE



INFRARED CAMERAS INC.

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We Are IR™

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ABOUT ICI

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Website:

www.infraredcameras.com

ICI manufactures complete systems and software. We can provide complete engineering, software, and OEM solutions. Our customers are some of the largest of the Fortune 500 and they rely on us for infrared equipment and thermography training, which we offer through the Infrared Training Institute.

In addition to providing custom germanium, silica, and sapphire optics, we also build windows for enclosures as well as custom pan and tilt units. We can even provide customizable explosion proof systems.

Our knowledge and experience stems from years of using infrared imaging and temperature measurement instruments to provide solutions to managers,

engineers, scientists, inspectors and operators in space, power companies, medical, pulp and paper, food industry, research and development, and various process industries. You can see our products and services used in industrial, commercial, and government applications worldwide. Additionally, our ICI 7320 was awarded "Product of the Month" by NASA*.

Originally named Texas Infrared (still DBA), Infrared Cameras Inc. has been in business since March, 1995.

Thank you for your dedicated and continued support.

The following is a partial list of our customers:

Air Liquide
American Aerospace
Arizona State University
Baker Instruments
BASF
Bergquist
Boeing
BP Solar
Chevron Pipe Line
Columbia University
Dane Electric
Dartmouth College
Dell
Dow Chemical
Exxon/Mobil
Entergy
Foxconn
Firestone Polymers
General Electric

Georgia Pacific
Goodyear
Google
Harvard Medical School
Honeywell
Indiana University
Keystone Scientific
Kinder Morgan
Lockheed Martin
Los Alamos National Labs
Johns Hopkins
Louisiana Pacific
Mabry Foundry
Marathon Oil
Max Planck Institute
MD Anderson
Motiva
NASA
Nissan

Nokia
Novatech Engineering
Orbital Sciences
Panasonic
Paragon Films
Purdue University
Raytheon
Reliant NDT
Rosewell Park Cancer Institute
SA Robotics
Sea Drill
Space-X
Stanford University
Tesla Power
Texas A&M University
Texas Instruments
Thermocon Inc.
University of Texas
3M

*Volume 33 No. 2, February 2009 edition of NASA Tech Briefs

GENERAL INFORMATION

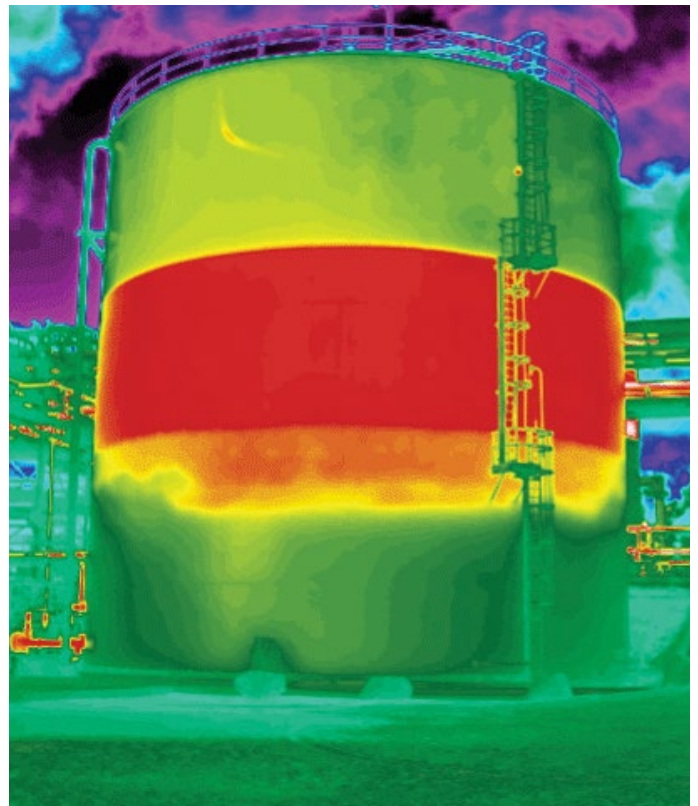
Want to buy an infrared camera but not sure what to look for or where to start? Many factors should be weighed when you buy a thermal imaging camera. This guide goes over some of the basic factors to consider as well as tips to buy the correct camera or system for your application.

This buyer's guide was written by Infrared Cameras Inc. for general informational purposes. Most manufacturers will meet or exceed these suggested buying requirements.

Feel free to contact us 409-861-0788 or Toll Free at 866-861-0788 for more information or questions regarding your purchase of a new thermal infrared imaging camera.

You may reach a representative by phone or email Monday – Friday 8:00AM - 5:00PM CST.

General Inquiry:
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Terminology

Typically you will hear both infrared and thermal imaging used interchangeably; they are the same thing.

Thermography

Thermography directly refers to the acquisition, storage and analysis of radiated energy using a infrared imaging system. Temperatures are measured remotely to indicate equipment health and colors are assigned based on proprietary algorithms.

QUALITATIVE OR QUANTITATIVE

Determine the type of Infrared Camera that best suits your application; qualitative or quantitative. Most thermal imaging cameras are quantitative, meaning that they have software built-in to produce an accurate temperature reading.

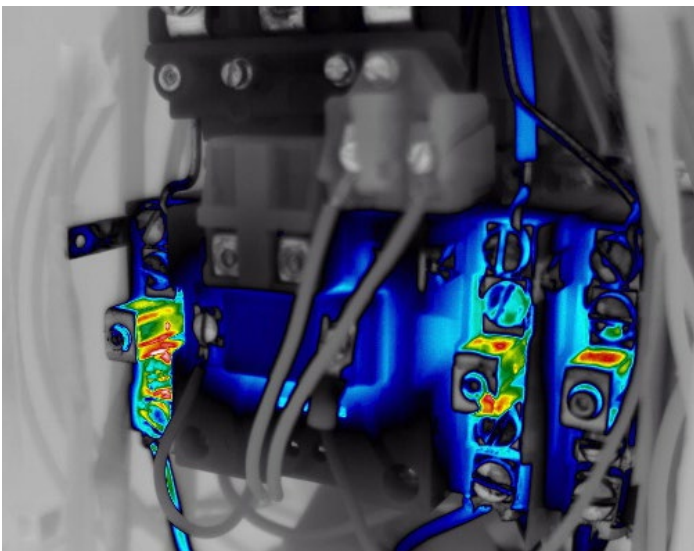
Qualitative Measurement

Qualitative cameras will NOT give a temperature reading but will be able to view thermal differences. These processes are used to identify anomalies where a temperature difference exists rather than determining what the actual temperature difference is between the target and its surroundings.

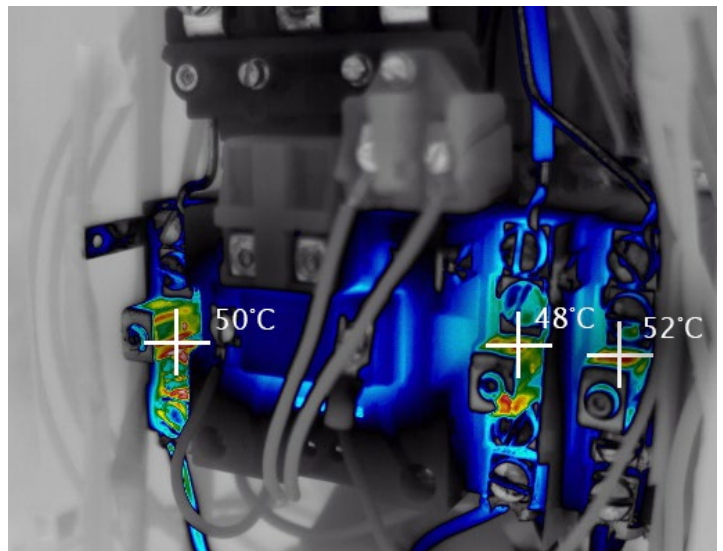
Infrared instruments DO NOT measure temperature; they measure radiated thermal energy from the first 1/1000th" of the surface of a person or object. Colors are assigned to "temperatures" based on algorithms.

Quantitative Measurement

Quantitative thermal cameras will give you accurate temperature readings. These readings are especially useful in situations when the exact temperature or temperature difference of the target determines whether it falls in or out of a determined criteria or range of acceptability. It is also important to R & D and process control situations.



Qualitative



Quantitative

TYPES OF CAMERAS

At ICI we offer a variety of fixed mounted and handheld infrared cameras as well as enclosure systems. Ensure the infrared camera has built-in features necessary for your application.

Fix Mounted / Pan & Tilt

When buying a fix mounted or pan & tilt thermal imaging camera, many factors should be considered:

Does the camera need any special environmental protections, e.g. will it be exposed to extreme temperatures? For certain environmental conditions, heating and/or cooling for the camera may be required as well as humidity defense. All weather and environmental factors should be weighed into the purchase of a thermal imaging camera.

Does the camera need to be fix mounted or should it be able to pan & tilt?

Vehicle mounted thermal imaging cameras require special enclosures. Mounting to vehicles, aircraft, and boats will require stabilization as well as conversion to run off the vehicle's power. We can modify our cameras to run on alternative power sources, e.g. solar panels.

If your application requires a portable fix mounted unit, there are several fix mounted units that are small enough to be easily packed and moved from location to location.

Does the system need to be autonomous? Wifi can allow thermal cameras to be placed in remote locations.

Portable / Handheld

The most popular thermal imaging cameras are our handheld units, which are useful for a number of applications including research, electrical, mechanical, medical, veterinarian, fire fighting, process control, building inspections, and energy audits. Their ease of use, portability, and light weight make them ideal for many jobs and applications.

There are hundreds of different types of handheld cameras, each with a unique set of functions and features.



ICI FMX 640

ICI will custom design and manufacture cameras and enclosures to your specifications.

CAMERA SPECIFICATIONS

When purchasing a camera you should be familiar with the following specifications:

Weight/Dimensions

If your application requires your camera fit in a tight location you'll want to keep that in mind when shopping. ICI's 9320 handheld imager measures 34 mm x 30 mm x 34 mm without a lens, perfect for small spaces.

Weight is a factor if you will be carrying your camera into the field, but not so much if your camera will be fix mounted.

Temperature Range

When looking into purchasing an infrared camera, ensure your camera can measure temperature in the proper range for your application. High temperature cameras are needed to image extreme conditions.

Emissivity

Your camera should also allow you adjust the emissivity settings. If you cannot adjust emissivity you cannot get accurate readings.

Frame Rate/Resolution

Ensure the camera is 50/60Hz with a high resolution for the best possible viewing. Be aware of export restrictions.

Power/Batteries

Fix mounted systems can have wired connections or be powered using alternative energy sources, i.e. solar power.

Research device power consumption to maximize battery capacity minimize recharging in the field. On-the-go thermographers are encouraged to carry extra batteries.

Image Storage/Capacity

Know how your device will store images: on-board, SD/Micro-SD, external source, etc.

Image/Video Formats

Buy a thermal imaging camera that outputs to industry standard image formats, i.e. JPEG or Tiff. These formats can easily be e-mailed to clients.

The camera should have video outputs in the event that you need to view or record live video. NTSC and PAL are widely available.

Lens Options/Focal Ranges

Look into all lens options and focal ranges to find the one that best suits your application. See if there are optional lenses available for an upgrade.



Continues

Accuracy/Sensitivity

Infrared cameras have varying degrees of accuracy and sensitivity. Our cameras have an accuracy at or better than the industry standard of $\pm 2^\circ\text{C}$ or $\pm 2\%$. Thermal sensitivity (NETD) is measured in terms of milliKelvins (mK) or in degrees Celsius ($^\circ\text{C}$).

Spectral Band

Know the infrared spectral band your camera can see. There are short wave, mid-wave, and long wave thermal cameras and each one is used for different applications.

Accessories

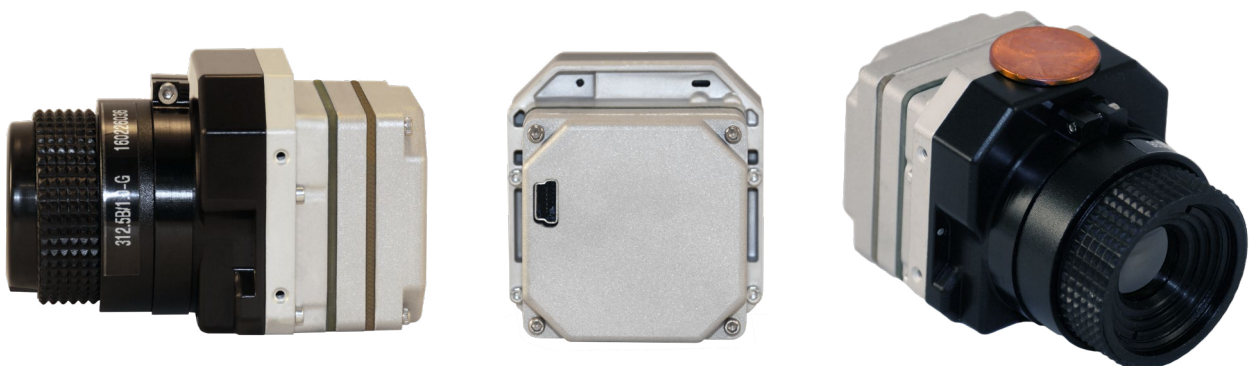
Determine if your application needs a visible camera, laser pointer, enclosure, etc.

Cameras with non-proprietary accessories and batteries are better investments. Having the option to buy a back-up battery at your local electronic store can save you a lot of time and money.

Software

Some software comes with alarming features as well as voice and text annotation.

ICI 8640



SOFTWARE & TRAINING

Thermal Imaging Software

Ensure your software has the functions necessary for your application.

ICI's IR Flash software comes with all functions enabled (full version). Additionally, there are no restrictions and no charge for multiple users across computers or offices.

Make sure your camera offers single and/or multiple temperature measurement points as well as an accuracy at or better than the industry standard of $\pm 2^\circ\text{C}$ or $\pm 2\%$. Medical cameras should have an accuracy better than $\pm 0.5^\circ\text{C}$ and be used in conjunction with other testing methods.

Cameras should come with available drivers installed; if not, the device may not function properly. ICI offers Drivers and Software Development Kits.



Thermography Training

To ensure accuracy, all personnel using your company's thermal camera should be properly trained in Level 1 Thermography. Instructors will review cameras as well as software for the benefits of their students. Training can also help better determine the type of camera needed for the desired application.

Consider renting a thermal camera or seeing a demo unit during your training class before making a final purchase.



INFRARED TRAINING INSTITUTE
INFRARED CAMERA AND THERMAL TRAINING SOLUTIONS

Telephone: 1-409-861-0788
E-mail: info@infraredtraininginstitute.com

Be wary, unscrupulous companies may try to sell you a "lite" version of their software to allow viewing only of the images or limited functionality.

PROTECTING YOUR INVESTMENT

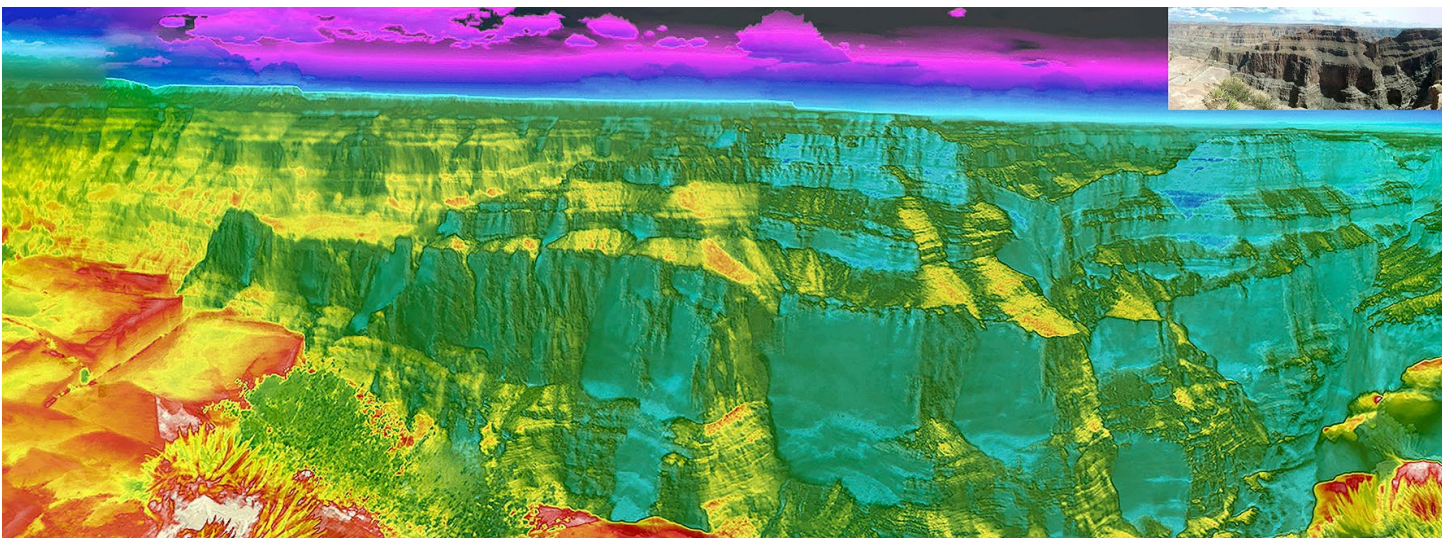
Warranty

Ensure that the camera comes with a standard 1-year warranty. Many manufacturers offer a 2-year warranty or the ability to purchase an extended warranty. If your thermal camera is critical to your business's success, make sure that you can be provided with a loaner camera in case your thermal camera needs repairs.

Calibration and Repair

Another consideration is whether the manufacturer you are purchasing from has their own Calibration and Repair center. The majority of thermal cameras require calibration every year or two depending on use.

If the camera has to be sent broad for repair or calibration you may be without a camera for several weeks or even months. Therefore, it is important to find out if a loaner camera will be supplied.



OTHER CONSIDERATIONS

Demos

At ICI we offer a “Try before you Buy” rental program. You rent the camera as usual; however, if you decide to purchase the unit, we will waive the rental fee up to one week.

Medical Applications

When purchasing a thermal imaging camera for medical purposes, ensure that the camera has been cleared by the FDA and has 510k Clearance for use as a medical device; this guarantees that the camera is of high quality and is calibrated for medical use.

ICI has received FDA 510k Clearance to market our S and P series thermal imaging cameras as medical devices.

Medical cameras should also have an accuracy better than ± 0.5 °C and be used in conjunction with other testing methods.

Financing

Some companies, like ICI, offer financing which can help make purchasing an infrared camera easier.



Fx 384 Firefighter

NOTE: Several times a week we get calls asking about infrared security cameras; these businesses and individuals are better off with night vision or infrared illuminator CCD Security Cameras as they do not need temperature measurement or radiometric data.

CONTACT

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