How to Select an Infrared Camera

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Choosing the correct infrared camera can offer a 10X return on your investment, often in the first year of use. On the other hand, selecting the wrong infrared camera can mean the unit is likely to become a very costly door stop. Purchasing an infrared camera is a significant investment for any buyer. Add to this the fact that most buyers use their camera for five to seven years means the equipment selected represents an important long-term decision. The following guidelines can help ensure a successful, cost-effective purchase.

"Caveat emptor" or "buyer beware" is particularly true with infrared cameras. Make sure any manufacturer you are considering is a reputable one. You want to "buy" the company, not just the camera. Look at what the manufacturer provides for customer service, infrared certification/training and applications support. Also, consider what lenses, accessories and software options are available, as these are crucial to the efficient use of your IR camera.

It is relatively easy to purchase an infrared core (IR detector assembly) and manufacture an inexpensive infrared imager. The system may not, however, be reliable, easy-to-use or perform as advertised. In addition, dealing with companies that make IR cameras on a small scale can have its own challenges. A thorough customer-reference check can help weed out those companies that have not demonstrated the ability to meet their commitments or support their customers' needs. Ask for a list of customers currently using the camera you are considering, then contact at least three at random.

In addition, obtain important commitments in writing from the manufacturer (preferably on company letterhead), not just from the representative or distributor. If you are not comfortable that your sales representative is knowledgeable and can offer credible consultation, deal with the factory. Beware of used cameras, which are plentiful on the open market. Used models often lack key components or software. Buyers have also purchased cameras only to discover that the unit is out of production and can no longer be serviced by the manufacturer. Make sure you understand where in its life cycle the system is that you are considering is, and if it has a warranty.

There is a tremendous amount of technical data available on the Web about infrared cameras, but much of it can be misleading. For example, two different cameras may be specified at the same sensitivity of 0.1 degrees C, yet when you evaluate them at your facility, one is substantially more sensitive. Some cameras specify accuracy of 2%, but when tested can be off by as much as 20%. Not only is this troublesome because you pay a premium for a camera that measures temperature but in predictive-maintenance applications, inaccurate temperature data is more dangerous than no temperature data.

A field demonstration is the most effective way to evaluate an infrared camera. Many IR cameras that perform well in an air-conditioned room don't do as well in higher- or lower-temperature environments. Get the camera demonstrated under the actual conditions and environment the camera will be used in. You can tell first-hand if it will be rugged enough, easy enough to use and perform your applications sufficiently. Prepare a list of questions and a sampling of different targets for vendors to perform. This will allow you to compare models and vendors in an identical setting. This will take time, but is the most important thing to ensure a successful purchase.

When testing, check for the following factors:

Ease of use. Often overlooked, ease-of-use is critical to a successful IR inspection program. Multiple users with varying levels of experience frequently operate infrared cameras. If an infrared camera is too difficult to use, it's more likely to be found in a closet than out finding thermal anomalies. During a product demonstration, operate the camera and evaluate ease-of-use first hand.

* * * *Ruggedness.* Industrial environments can be harsh. If the camera is not rugged enough, it will spend more time back in service than out finding thermal problems.

* *Future applications.* Once you find reputable companies to do business with, write down all applications you intend to use the equipment for: electrical, mechanical, steam, roofs, boilers, etc. Also consider applications you plan to add in the future, then purchase the accessory equipment they would need: lenses, software, high-temperature flame filters, etc.

* *Software.* Not all IR software programs are created equal. Some amount to nothing more than shareware to paste a thermal image in a report. Some programs provide fully integrated reporting and data basing programs that permit image-archiving and thermal trending. Other programs are in-depth real-time thermal analysis. Understanding your software needs in advance can help ensure the most complimentary software purchase. Make sure you see the software and exactly what it will do when you have your field demonstration.

* *Training.* * The most powerful infrared camera in the world is useless without proper training. Only a few minutes are required to learn how to operate a camera, but understanding the meaning of images and temperatures takes training and experience. It is important to include training cost when budgeting for equipment. Before attempting to gather meaningful data, attend a Level I infrared training class.

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