



What makes thermography so useful?

It is non-contact by using remote sensing

Being non-contact means it keeps the camera operator out of immediate danger. One example where this is important is in electrical maintenance applications – live components simply cannot be touched. Of course if they are not carrying live current, there will be no temperature rise to measure. Distance and accessibility is another problem easily overcome, as well as measuring moving or rotating targets. Thermography does not intrude upon, or affect the target in any way thus ensuring a truer reading.

It is two-dimensional

Comparison between areas of the target is possible. Infrared can measure temperatures in two points or a hundred points in the same image, and compare all of them. The image allows for excellent overview of the target. It's not necessary to know beforehand exactly where the measurement should be focussed on, as quick and immediate assessment of the image will pinpoint it.

It is real time

Real-time imaging allows very fast scanning of stationary or mobile targets. Imagine if photographic film was used in thermography, and we had to wait for days for the result. Many dangerous situations would have been discovered too late! Though working with the speed of light, no target can escape its own radiation, and with today's most sophisticated instruments, very fast moving targets can be captured with relative ease. Contact type temperature measurement will always have a built-in time constant that makes them react with a certain amount of delay. The real-time character of infrared thermography lets us capture fast changing thermal patterns, without changing the way those patterns change.

An infrared image

For those who may never have seen an infrared image before a brief overview follows:

In the image opposite, the darker areas are those that radiate less thermal radiation, and that generally means that those areas of the target are cooler. Brighter means the opposite – more radiation, and a warmer target.

What does this image tell us? Well, we can actually find out a lot about the target that a visual image could not tell us. It looks like the headlights are on, or recently switched off. The car has probably been driven lately, because the wheels are warmer than the rest of the car. The pattern on the windshield tells us that the defroster is on, and also how even the heating is. The motor is running or has very recently been turned off, because the radiator is warm behind the grille. Note one of the more ordinary aspects are not visible i.e. we are unable to tell from this image what the colour of the car is.

For more detailed information along with up to date course schedule visit www.chevrontraining.ie/thermal



Thermal image of a car