

## Infrared Temperature Measurement

After time, temperature is the second most measured physical unit. In production as well as in quality control and maintenance, temperature represents an important indicator of product quality or equipment conditions.

There are many advantages when using infrared thermometers

Fast response time (ms range), user gets more information per time period.

Measure objects that move, rotate or vibrate (e.g. web processes or any moving process).

Measure high temperatures up to 3000° C. Contact probes will not work or have a short lifetime.

No mechanical damage or contamination of the surface (painted surfaces, food, and soft plastic).

No influence of objects with high thermal-conductivity where object temperature would change if contacted (e.g. glass, wood, small or very thin objects).

Measure actual product temperature instead of an inferred measurement.

To ensure an accurate repeatable measurement you must consider certain conditions.

The ability to view the object by direct line-of-sight or in certain units through a window.

The optics of infrared thermometers need to be protected against dust or condensation

In general, IR thermometers measure only surface temperatures and the ability to emit thermal radiation depends on the kind of material and especially on the surface finish.

Recently the IR-Sensor market has seen two major trends.



First, IR-thermometers are significantly lower in cost. The most expensive parts of an infrared thermometer are the lenses and detectors. New lens materials, technologies and mass production of IR-detectors for consumer products have resulted in lower prices for these two important components. Together, with the increased demand for industrial IR-thermometers, high volume production of standard sensors has

resulted in greater manufacturing efficiency for the IR-thermometer manufacturers. Some types of IR sensors are up to 50% lower in cost than they were ten years ago.

Second, IR Sensors are becoming smaller in size. In the past, the measurement of low temperatures made it necessary to use fast lenses with relatively large diameters in order to capture enough emitted energy. Progress in detector technology and the use of better detector performance, together with improved low noise analogue preamplifier techniques have helped reduce the dimensions of the IR-sensing head dramatically. Because the newer sensors have greater response characteristics they require less energy to achieve a usable signal. As a result, lenses can have smaller diameters.

Due to the increasing expectations of the user and competition among manufacturers, infrared thermometers are continually being improved and electronic design is an area that has seen the most improvements recently.

At R&C Instrumentation we cover the full range of Infrared Temperature measuring devices.

Our Raytek Range of Portable units cover temperatures from -50 to 3000C with Raytek being one of the first to introduce this technology and now a recognised industry standard.

Our fixed units from Raytek and Ircon once again is are well known industry standards. The scanners from both companies can come as complete applications packages with tried and tested software to fit perfectly into many industrial applications.

Continual innovation and new products like our new MI3 series that allows multiple head technology and also the Fixed Thermal Camera with user configurable software packages, will ensure that whatever you need, we can find a solution.

There are many reasons why you should consider Infrared Temperature Measurement to maintain and control you process plant and to assist you we have applications engineers around the country that would be glad to help you.

For more information on any Infrared products or Applications please contact:



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