Infrared Temperature Sensor for Food Applications
with Right Angled Sensing Head and Protective Plastic Window

Calex has been approached by a leading manufacturer of food processing equipment with a specific requirement for non-contact infrared temperature measurement.

The CI5234, a special sensor based on the existing two-piece PyroCouple M, is designed specifically for this customer's requirements. This sensor has features that also make it ideal for many other applications.

The standard PyroCouple M sensing head is replaced by a right-angled head as shown in the photograph. The long, cylindrical stainless steel section is designed to be mounted in a gland or seal in the wall of a vessel, eliminating the requirement for an additional flange or window. The right angle allows the surface of the material in the vessel to be monitored from above.

A protective plastic window is fitted to the nose of the sensor inside a stainless steel holder. This protects the sensor's lens from damage and helps contain lens fragments in case damage occurs.

CI5234 infrared temperature sensor with right-angled head
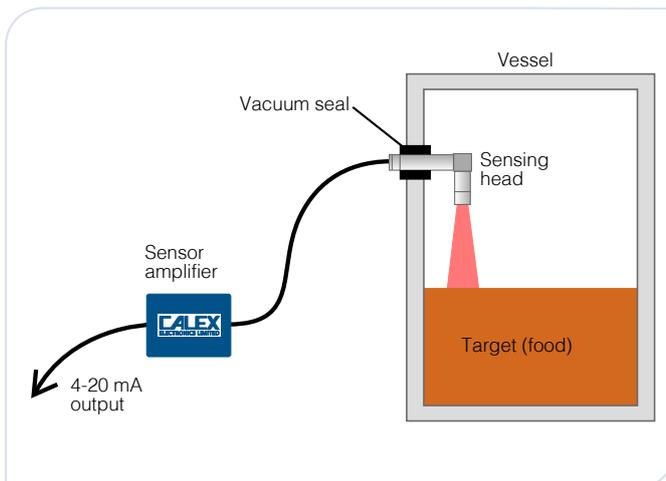
INSTALLATION

The CI5234 sensing head is installed in the wall of a vessel and aimed at the surface of the food. Its narrow 15:1 field of view helps ensure that it cannot "see" the vessel walls.

The separate electronics box amplifies the signal from the sensing head and converts it to a linear 4-20 mA output. The CI5234 may be supplied with a cable of up to 3 m between the sensing head and the electronics box. Screw terminals in the electronics box allow easy connection to a four-core shielded copper cable.

If mixing paddles or blades are present in the vessel, then output processing should be applied to the 4-20 mA signal to ignore fluctuations in measured temperature when the paddle or blade is visible to the sensor.

APPLICATION TIPS

The fixed emissivity setting of the CI5234 gives good results on almost all foods, and is also ideal for measuring other high-emissivity surfaces, such as wood, paper, fabric, thick plastics, asphalt and painted surfaces.

Like all infrared temperature sensors, readings can be affected by steam or contamination on the lens, so both of these should be minimised for maximum accuracy.

The sensor can withstand temperatures of up to 70°C in the vessel.

If the protective plastic window is not required, this sensor can be supplied without it.

The protective plastic window in stainless steel holder can be supplied separately for use with adjustable-emissivity sensors, such as the PyroEpsilon, which has emissivity adjustment via 4-20 mA input, the PyroBus, which is equipped with an RS485 Modbus RTU interface, or the PyroUSB, which has USB communications as well as a 4-20 mA output.

For more information or assistance, please contact Calex.

Protective window in stainless steel holder

CALEX ELECTRONICS LIMITED