



Introduction



Dial Thermometers



Digital Thermometers



Miscellaneous Thermometers



INTRODUCTION

Temperature and temperature changes can be measured using a diverse range of sensors, all of which infer temperature by sensing a change in a physical characteristic.

The most common types are:



THERMOCOUPLES

thermocouples consist essentially of two wires of differing metals joined at one end. Changes in temperature at this join induce a change in electromotive force between the other ends which can be calibrated.

RESISTANCE TEMPERATURE DEVICES (RTDS OR THERMISTORS)

These devices take advantage of the fact that the electrical resistance of a material changes with temperature. RTDs rely on changes in a metal whilst thermistors are based on the resistance changes within a ceramic semi-conductor.

INFRA-RED RADIATORS

Infra-red sensors infer temperature by measuring the thermal radiation emitted by a material.

BIMETALLIC DEVICES

These instruments are based on the differing rates of expansion between two metal strips bonded together. When heated, one side expands more than the other and the resulting contortion is translated into a temperature reading by mechanical linkage to a pointer.

GAS OR LIQUID EXPANSION DEVICES

These devices rely on the expansion of a gas or liquid as temperature changes which create a change of pressure in the measuring system. A spiral capillary connected to a movement reacts to any change in pressure and its displacement is transmitted to the pointer via the movement.

