



# Intech INSTRUMENTS LTD

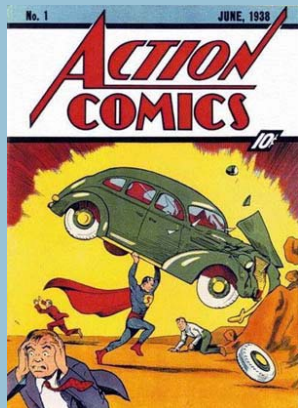
June 2008

## Historical June



11th June 1979

American Film Star John Wayne dies aged 72 in Los Angeles



14th June 1938

Action Comics #1 is released. Superman is introduced to the world for the first time.



14th June 1946

Tycoon Donald Trump is born in Queens, New York.

## Temperature Measurement

Intech are often asked to supply sensors and instrumentation to provide accurate temperature data. There are a variety of options out there on the market - so what are they? Which type should you choose and why?

### Thermocouples (T/C's)

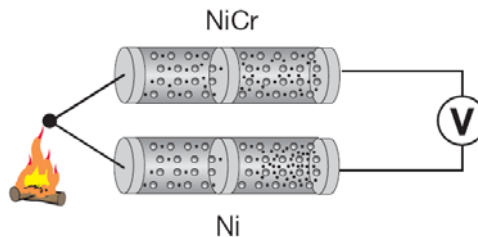
Without getting too technical thermocouples are very simple devices that operate via the principle discovered by the German, Thomas Johann Seebeck in 1821.

Seebeck realised that a circuit made from two dissimilar metals would produce an electrical current. It was also discovered that the voltage produced between the two junctions was proportional to the temperature.

Today this is known as the thermoelectric or Peltier-Seebeck effect.



T.J. Seebeck



Left: The International standard Type K T/C uses NiCr-Ni metals to provide approx 0.40mV per deg C.

[Click HERE for Thermocouple Tables](#)

### Resistance Temperature Detectors (RTD's)

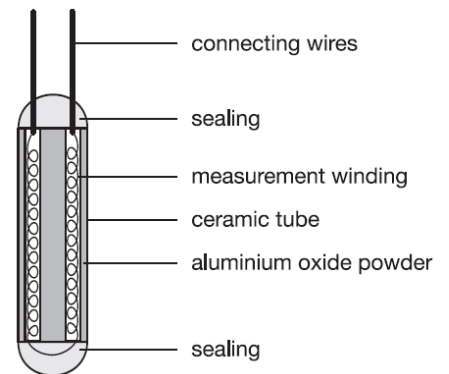


Sir Bill Siemens

Again a simple principle developed by Sir William Siemens (born Carl Wilhelm - brother of Werner, founder of Siemens AG) in 1886.

Realising that the electrical resistance of a metal increases with temperature, it was found that the Nobel metal Platinum provided an almost perfectly linear relationship between electrical resistance and temperature.

A Pt-100 RTD is so named since it produces a resistance of 100 Ohms at a temperature of Zero deg C (273.15Kelvin).



[Click HERE for Pt100 Tables](#)

## Which To Use

There are no hard and fast rules but the following pointers should direct you to the right device:-

### Temp Range vs Accuracy

RTD's win 'hands down' but if the temp is above 600 deg C then a thermocouple is the only option.

Typically:-

RTD's :  $\pm 0.15$  deg C (Class A)

T/C's :  $\pm 1.5$  deg C (Class 1)

### Electrical Noise vs Cost

Since T/C's operate via mV signals they are susceptible to noise. You must also consider that voltage signals suffer over long distances.

T/C's are less expensive than RTD's but the installation must be considered before choosing.

### Durability

RTD's can be made to provide highly accurate measurements but if the environment is harsh, a T/C is the better tool for the job.

Be aware that T/C's will degrade with time due to oxidation of the metals.

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- ◆ New Zealand owned & operated
- ◆ Service & sales facilities
- ◆ 25 years in the industry
- ◆ Experience you can rely on



**Jumo Products @ Ridiculous Prices!!!**

If you are in need of some exceptional gear at silly prices, this may be your chance.

Display options:

- pressure with choice of 13 different units, measurement in % or scaled with freely selectable dimensional unit, output current in mA
- sensor temperature in °C or °F
- measurement error, out-of-range measurement
- minimum and maximum pressures (peak-reading pointer)
- pressure and sensor temperature can be shown simultaneously (2 lines)

Setting options via keys:

- start and end of measurement with pressure input
- start and end of measurement without pressure input (blind setting)
- damping or time constant
- current generator function
- output signal on error
- reset min. and max. measured value (peak-reading pointer)
- square-root characteristic (adjustable starting point), or linear
- density correction for different measurement media
- display of temperature of medium in °C or °F



JUMO dTrans P02 Δ (above)

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Intech support NZ Industry

- DTrans P02 pressure transmitter @ \$890-00
- DTrans P02 differential pressure transmitter @ \$1180-00

JUMO Model 70.1130 (below)

Probably not the best looking Instrument JUMO have ever produced but it is the functionality of JUMO's Model 70.1130 Monitor / Limiter that must be highlighted. Used to protect critical processes where fault conditions are simply not an option.

Prices: Pt100 input @ \$450-00      Thermocouple Input @ \$670-00

Approved to the highest standards. Safety need not be compromised.



Pointing you the right way

