



## Instruments to Industry Ltd

Euro Works - Hawksley Industrial Estate - Hawksley Street

Oldham - OL8 4PQ - United Kingdom

**D I R E C T**

T: +44 (0) 161 652 7741 E: [sales@itidirect.co.uk](mailto:sales@itidirect.co.uk) W: [www.itidirect.co.uk](http://www.itidirect.co.uk)

### **Type K - Nickel-Chromium / Nickel-Aluminium**

The type K thermocouple is often referred to as a Chromel-Alumel sensor, and it is still the most common of the thermocouple types that is used in industry today. Maximum continuous temperature is quoted about 1100°C depending on the sheath material and construction. When a type K is subject to temperatures above 800°C oxidation can cause drift. Temperature's as high as 1,200°C can be achieved for short term trials. The device is also suitable for cryogenic temperature measurement down to -200°C. The lead wire has a negative white wire and a positive green wire.

The accuracy of a class 1 type K thermocouple is 1.5 degrees C or 0.4% of the measured reading, whichever is the greater figure.

### **Type J - Iron / Copper-Nickel**

The type J thermocouple is often referred to as an Iron/Constantan sensor. Type J material is often used in reducing atmospheres, but care should be taken in oxidising atmospheres, as with temperature above 550°C the degradation is rapid. Maximum continuous temperature is around 800°C (usually used below 500°C) and temperatures up to 1000°C could be handled short term. Minimum temperature is -200°C, but condensation at temperatures below ambient could cause rusting of the iron leg. The lead wire has a negative white wire and a positive black wire.

The accuracy of a class 1 type J thermocouple is 1.5 degrees C or 0.4% of the measured reading, whichever is the greater figure.

### **Type T - Copper / Copper-Nickel**

The original name for a type T thermocouple was Copper-Constantan, it is widely used in applications such as catering, refrigeration, laboratory and pharmaceutical due to increased accuracy on low temperature readings. The typical range of the type T thermocouple sensor is between -250°C to 400°C. The sensor is recognised to have excellent repeatability in the temperature range of -200°C to 200°C ( $\pm 0.1^\circ\text{C}$ ). Both conductors are non magnetic. The lead wire has a negative white wire and a positive brown wire.

The accuracy of a class 1 type T thermocouple is 0.5 degrees C or 0.4% of the measured reading, whichever is the greater figure.