

## TC-CO1-K Ultra-Fast Cement-On Foil Thermocouple

- 10-20 Millisecond Response Time
- Laser Butt Welded Junction Using Proprietary Process
- Made from 0.001" Thermocouple Foil Encapsulated in Kapton
- Very Low Thermal Mass
- K Type Calibration
- Made From High Accuracy Special Limits of Error Thermocouple Wire
- Temperature Range: -200°C to 250°C Continuous Use (Higher Rating for Single Use)

The TC-CO1-K is a precision-made thermocouple temperature sensor designed to measure the surface temperature of both flat and round surfaces. This sensor has an impressive ultra-fast response time of 20-30 milliseconds and yet is rugged enough to be used in harsh industrial environments. It is constructed from high grade thermocouple alloys which provide maximum accuracy and the polyimide encapsulation make it both flexible and durable.

### The Ultra-Thin Inverted "W" Shaped Junction Provides Ultra-Fast Response

The sensing portion of the TC-CO1-K is constructed from extremely thin flattened thermocouple foil. The welding process used to create the junction is proprietary process that assures that the junction is thinner than the thickest part of the foil. Since the foil junction is flat, it is ideal for surface measurement. The sensing part of the TC-CO1-K is artfully formed into an inverted "W" shape. This shape coupled with the thin foil creates a sensing element with very low thermal mass and extremely fast response time.

### Designed for Maximum Accuracy

Several design aspects of TC-CO1-K make it ideal for high accuracy surface temperature measurement applications. As already discussed, the flat shape of the junction is critical for an accurate surface temperature measurement. The ultra fast response is essential for dynamic processes where accurate time-temperature data is required. The sensor is also manufactured using premium grade special limits of error thermocouple alloys which produce a thermocouple with the maximum accuracy specification.

### Rugged and Durable in Polyimide Laminate

The ultra thin foil junction of the TC-CO1-K is encapsulated in a polyimide laminate (Kapton) which serves to protect the junction from mechanical stress as well as providing resistance to contaminants in the environment. The polyimide encapsulation has good dielectric strength and thermal conductivity thus isolating the sensor junction from the measurement surface without compromising on the response time.

Model No.	Description
TC-CO1-K	Ultra Fast Cement-On Thermocouple

### SPECIFICATIONS

**Thermocouple Calibration:** Type K

**Temperature Range:** -200 to 250°C  
 (single use temperature range can be increased to 600 to 800°C by using cement bonding technique)

**Accuracy:** Made from Special Limits of Error thermocouple alloy ( $\pm 1.1^\circ\text{C}$  or  $\pm 0.4\%$  of reading whichever is greater)

**Mounting Laminate Size:** 35mm x 13mm

**Laminate Material:** Kapton

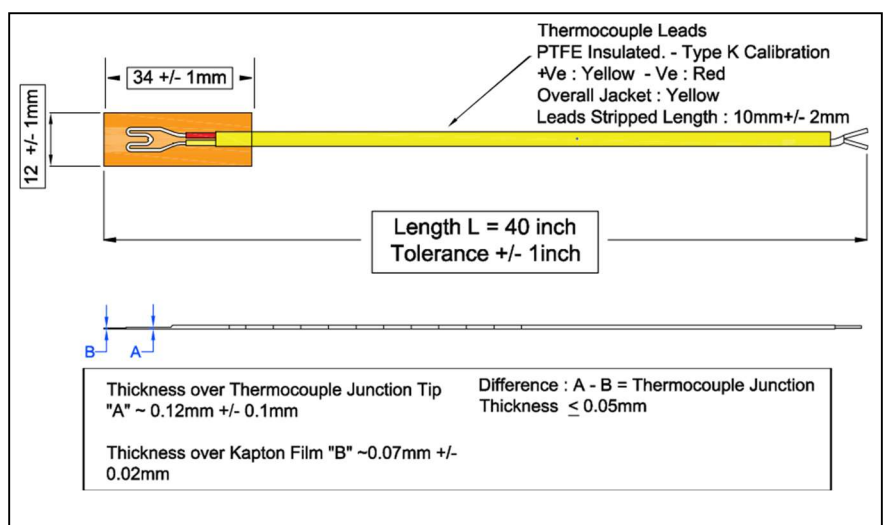
**Lead Wire Length:** 40 inches

**Lead Conductor Size:** 36 gauge

**Lead Wire Insulation:** Teflon

**Foil Thickness:** 0.001 inches

**Response Time:** 10-20 milliseconds



**Contact IOThrifty for any questions on this product or any of your temperature measurement needs.**