

Thermocouple Probe TCP KC

www.bosch-motorsport.com



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Invented for life



- ▶ Thermocouple Type K
- ▶ Thermo material: NiCr-Ni
- ▶ Measurement range: 0 to 1,250°C
- ▶ Analog output (0 to 5 V) or CAN

This sensor is designed to measure exhaust gas temperatures up to 1,250°C.

Thermocouples are temperature sensors that supply a temperature corresponding voltage without any additional external energy source. The thermocouple has a metal mantle that includes two isolated inner wires made of thermo material NiCr-Ni Type K.

The voltage is amplified by an electronic circuit powered by 12 V. Please note that the operating temperature of the external electronics is from 0 to 120°C.

The sensing element is protected by a single-walled housing made of Nimonic 75 to enable its placement before turbo chargers.

The benefits of this sensor are the combination of high quality production part, robust design and its integrated amplifier at more attractive price.

Application

| | |
|--|---|
| Application | 0 to 1,250°C |
| Max. vibration | Vibration profile 1 (see www.bosch-motorsport.com) |
| Operating temp. range (ext. electronics) | 0 to 120°C |

Technical Specifications

Mechanical Data

| | |
|---------------------|----------|
| Male thread | M8x1 |
| Wrench size | 11 mm |
| Installation torque | 12 Nm |
| Weight w/o wire | Ca. 18 g |

Electrical Data

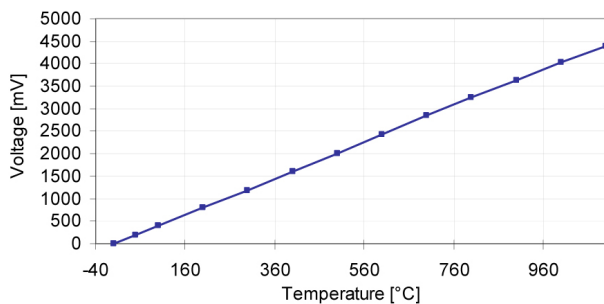
| | |
|----------------|------|
| Voltage supply | 12 V |
|----------------|------|

Analog Variant

| | |
|-------------------|----------|
| Full scale output | 0 to 5 V |
|-------------------|----------|

| T [°C] | U [mV] |
|--------|--------|
| 0 | 0 |
| 50 | 197 |
| 100 | 399 |
| 200 | 793 |
| 300 | 1,190 |
| 400 | 1,598 |
| 500 | 2,012 |

| Analog Variant | |
|----------------|-------|
| 600 | 2,427 |
| 700 | 2,839 |
| 800 | 3,243 |
| 900 | 3,638 |
| 1,000 | 4,022 |
| 1,100 | 4,396 |
| 1,200 | 4,759 |
| 1,250 | 5,000 |



| CAN Variant | |
|------------------------|---|
| CAN Message | |
| CAN ID 0x3F0 (default) | |
| Byte | Value |
| 0 | Thermocouple Temperature |
| 1 | |
| 2 | Ambient Temperature |
| 3 | |
| CAN Signals | |
| Length | 16 Bit |
| Byte order | Motorola (Big Endian) |
| Bit mask | Signed |
| Factor | 0.1°C/Bit |
| Offset | 0.0 |
| CAN Parameter | |
| CAN speed | 1 Mbaud/s or 500 kbaud/s (default 1 Mbaud) |
| CAN frequency | 100 Hz Thermocouple Temp. 1 Hz Ambient Temp. |

| CAN Variant | |
|---|---|
| Phys. unit | Degrees Celsius (default) or Degrees Fahrenheit |
| CAN Frame ID | 0x1 to 0x7F0 (default 0x3F0) |
| Please specify the requested CAN parameters with your order in the calibration sheet. | |

Connectors and Wires

| | |
|------------------------------------|-------------|
| Sleeve | DR-15 |
| Sleeve from amplifier to connector | DR-25 |
| Wire size | AWG 24 |
| Wire length L | 20 to 92 cm |

| Analog Variant | |
|------------------|------------------------|
| Connector | ASU 6-03-03PD-HE |
| Mating connector | ASU 0-03-03SD-HE |
| Pin 1 | Power supply 5 to 16 V |
| Pin 2 | Gnd |
| Pin 3 | Signal 0 to 5 V |

| CAN Variant | |
|------------------|------------------|
| Connector | ASU 6-03-05PB-HE |
| Mating connector | F 02U 000 207-01 |
| ASU 0-03-05SB-HE | |
| Pin 1 | U _s |
| Pin 2 | Gnd |
| Pin 3 | CAN High |
| Pin 4 | CAN Low |
| Pin 5 | Not connected |

Installation Notes

The TCP KC can be connected to Bosch Motorsport ECUs with a 0 to 5 V analog signal input (w/o pull-up resistor) or to external data logging devices.

The sensor can be mounted individually according to the customer's request.

Please note that the operating temperature range of the external electronics is from 0 to 120°C.

Recommended bending radius of the wire of the sensor element is minimum 20 mm to ensure the sensor works properly and for a longer lifespan of the sensor.

Any mounting orientation is possible.

