

Linear sensor for hot spot detection Model TCC

WIKA data sheet TE 64.40

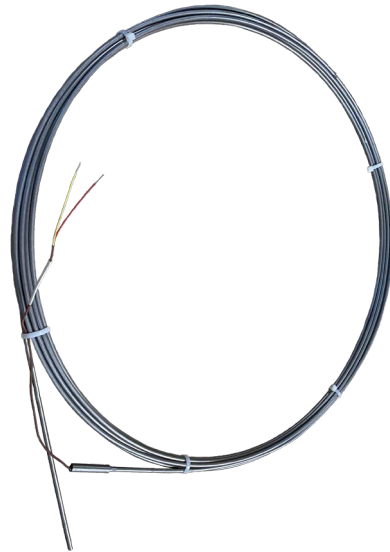
Approvals, see page 4

Applications

- Detection of refractory failure in refractory-lined reactors
- Coal conveyors
- Floating roof tanks
- Pipeline monitoring
- Fire detection

Special features

- Continuous measuring junction running over entire length of sensor sheath
- Temperature measurement up to 400 °C [750 °F]
- Type K thermocouple conductors
- Self-restoring



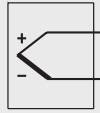
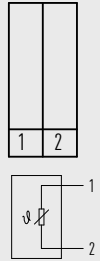
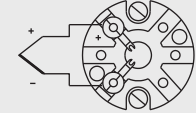
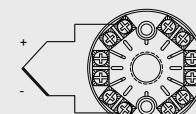
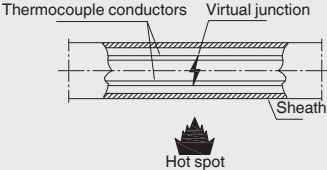
Linear sensor for hot spot detection, model TCC

Description

Unlike a traditional thermocouple which has a hot junction made of a physical union of two conductors, the model TCC creates a virtual junction at the maximum temperature point. With this virtual junction, the sensor is able to detect a maximum temperature along its entire length. It can even detect, in real time, the maximum temperature even if the location of the hot spot changes.

By setting up multiple sensors to cover a large surface area, monitoring of different zones can be achieved to indicate a more direct location of the hot spot.

Measuring element

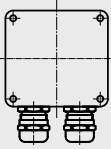
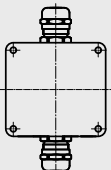

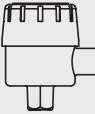
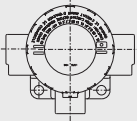
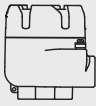
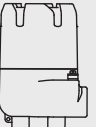
Measuring element		
Type of measuring element	Thermocouple characteristics per IEC 60584-1 or ASTM E230	
	Type K thermocouple conductors	
Connection method		
Single element	1 x 2-wire	
Single element	Rack-mounting terminals	
Single element	Ceramic terminal block	
Single element	Thermoplastic terminal block	
Probe tip designs	Measuring location	
Marking of the polarity	Single thermocouple marking per IEC 60584-1 or ASTM E230	
Validity limits	± 3 °C [± 6 °F]	

For the tolerance value of the sensors, a cold junction temperature of 0 °C [32 °F] has been taken as the basis.

Sheathed cable		
Design	MIMS cable (sheathed cable) Thermocouple wires embedded in highly compressed ceramic powder	
Diameter	3.0 ... 4.5 mm [0.12 ... 0.18 in]	
Material	<ul style="list-style-type: none"> ■ Stainless steel 316 ■ Alloy 600 	<ul style="list-style-type: none"> ■ Up to 900 °C [1,650 °F] ■ Self-reinstatement of normal operating conditions after any hot spot
	→ Other materials on request	

The maximum temperature of the linear sensor is limited both by the maximum permissible working temperature and the sheath material.

Connection housing

Model		Material	Cap	Surface	Cable thread size	Ingress protection (max.) ¹⁾ IEC/EN 60529	Dimensions in mm [in]
	Field case (Inputs on one side)	Plastic (ABS)	Flat cover with 4 plug screws	Grey	<ul style="list-style-type: none"> ■ M12 x 1,5 ■ ½ NPT ■ M16 x 1,5 	IP65	82 x 80 x 55 [3.2 x 3.1 x 2.2] (L x W x H)
	Field case (Inputs on one side)	Aluminium	Flat cover with 4 plug screws	Natural finish	<ul style="list-style-type: none"> ■ M12 x 1.5 ■ ½ NPT ■ M16 x 1.5 	IP65	80 x 75 x 57 [3.1 x 2.9 x 2.3] (L x W x H)
	Field case (Inputs opposite each other)	Plastic (ABS)	Flat cover with 4 plug screws	Grey	<ul style="list-style-type: none"> ■ M12 x 1.5 ■ ½ NPT ■ M16 x 1.5 	IP65	82 x 80 x 55 [3.2 x 3.1 x 2.2] (L x W x H)
	Field case (Inputs opposite each other)	Aluminium	Flat cover with 4 plug screws	Natural finish	<ul style="list-style-type: none"> ■ M12 x 1.5 ■ ½ NPT ■ M16 x 1.5 	IP65	80 x 75 x 57 [3.1 x 2.9 x 2.3] (L x W x H)
	1/4000	Aluminium	Screw-on lid	Blue, painted ¹⁾	<ul style="list-style-type: none"> ■ M20 x 1.5 ■ ½ NPT ■ ¾ NPT 	IP66 ²⁾	-
	1/4000	Stainless steel	Screw-on lid	Natural finish	<ul style="list-style-type: none"> ■ M20 x 1.5 ■ ½ NPT ■ ¾ NPT 	IP66 ²⁾	-
	7/8000	Aluminium	Screw-on lid	Blue, painted ¹⁾	<ul style="list-style-type: none"> ■ M20 x 1.5 ■ ½ NPT ■ ¾ NPT 	IP66 ²⁾	-
	7/8000	Stainless steel	Screw-on lid	Natural finish	<ul style="list-style-type: none"> ■ M20 x 1.5 ■ ½ NPT ■ ¾ NPT 	IP66 ²⁾	-
	5/6000	Aluminium	Screw-on lid, with digital temperature display, model DIH50-B	Blue, painted ¹⁾	<ul style="list-style-type: none"> ■ 2 x M20 x 1.5 ■ 2 x ½ NPT ■ 2 x ¾ NPT 	IP66 ²⁾	-
	5/6000	Stainless steel	Screw-on lid, with digital temperature display, model DIH50-B	Natural finish	<ul style="list-style-type: none"> ■ 2 x M20 x 1.5 ■ 2 x ½ NPT ■ 2 x ¾ NPT 	IP66 ²⁾	-
	PIH-L	Aluminium	Screw-on lid, flat	Blue lid, painted	<ul style="list-style-type: none"> ■ ½ NPT / closed ■ M20 x 1.5 / closed ■ 2 x ½ NPT ■ 2 x M20 x 1.5 	IP66 ²⁾	-
				Grey lower body, painted			
	PIH-H	Aluminium	Screw-on lid, high	Blue lid, painted	<ul style="list-style-type: none"> ■ ½ NPT ■ M20 x 1.5 ■ 2 x ½ NPT ■ 2 x M20 x 1.5 	IP66 ²⁾	-
				Grey lower body, painted			

1) IP ingress protection of the connection head. The IP ingress protection of the complete instrument does not necessarily have to correspond to the connection head.

2) Suitable sealing/cable gland required

Operating conditions

Ambient temperature	250 °C [480 °F]
Operating temperature	Max. 400 °C [752 °F] ¹⁾

1) Continuous operation outside the range of operating temperatures can result in damage to the TCC.

Transmitter models	Model T16.H	Model T16.R	T32.H	T32.R	T38.H	T38.R
Data sheet	TE 16.01	TE 16.01	TE 32.04	TE 32.04	TE 38.01	TE 38.01
Version	Head-mounted	Rail-mounted	Head-mounted	Rail-mounted	Head-mounted	Rail-mounted
Output						
4 ... 20 mA	x	x	x	x	x	x
HART® protocol	-	-	x	x	x	x
Input	Type K	Type K	Type K	Type K	Type K	Type K
Explosion protection	Ex version possible					

Due to diagnostic functionality in current state-of-the-art transmitters on the market, WIKA suggests setting the transmitter configuration range with a starting temperature of 130 °C [260 °F]. For more details on transmitter configuration see the operating instructions of the respective transmitter.

Approvals

Logo	Description	Region
CE	EU declaration of conformity	European Union
	RoHS directive	

Certificates

Certificates	
Certificates	<ul style="list-style-type: none"> ■ 2.2 test report per EN 10204 (e.g. state-of-the-art manufacturing, material proof, indication accuracy) ■ 3.1 inspection certificate per EN 10204 (e.g. material proof for wetted metal parts, indication accuracy, calibration certificate)

Ordering information

Model / Probe length / Probe material / Accuracy / Accessories

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