

## Product Description

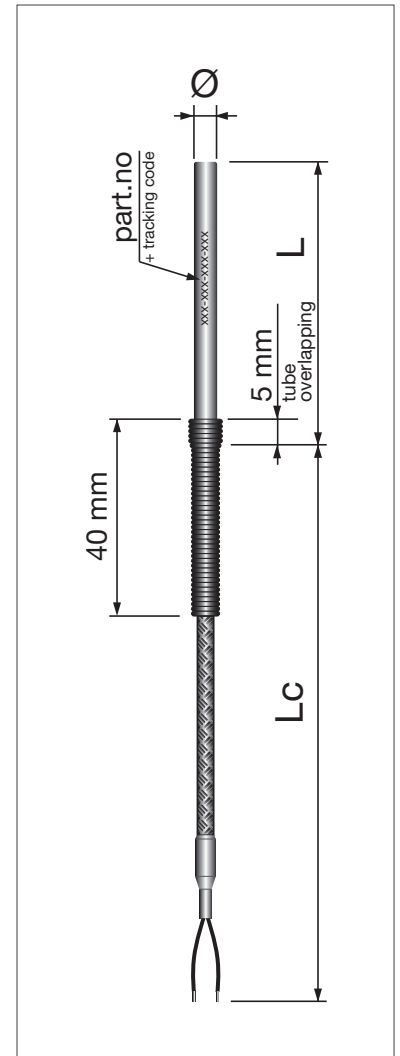
Rigid sheath provides protection and accurate placement through bulkheads or platens. Cylindrical probes are commonly used for generic measurements and regulations. Thermocouple or RTD probes without a transition to lead wire are one of most utilized thermocouple designs. The output of the cable from the tube is protected with a stainless steel spring.

## Application

- Solar Technology
- Heating and Cooling Technology
- Plastic and Rubber Machines
- Packaging Machinery
- Fridges and Freezers

## Sensor Specification

- Number of Sensing Elements: 1
- Type of Thermocouple Sensing Junction: Ungrounded
- Thermocouple Tolerance: Class 1 - EN 60584  
Class Special - ASTM E230
- Thermocouples are also available according to color coding DIN 43714 (withdrawn)
- RTD Tolerance: Class B - EN 60751



## Technical Features

- Sheath Material (Ø4 or Ø6mm) with Sheath Length ≤60mm: AISI 304L (1.4307)
- Sheath Material (Ø4 or Ø6mm) with Sheath Length >60mm: AISI 316L (1.4404)
- Probe Diameter Tolerance: -0,15 / +0,05 mm
- Probe Length Tolerance: ±1,00 mm
- Anti-kink spring Length: 40 mm
- Spring material: AISI 303 (1.4305)
- Terminals: stripped leads or split leads
- Max Operating Temperature: depending on the selected cable type
- Polyolefin Heat-Shrink Sleeve: used only with "BRA" type cable
- Product Identification: Product part number and work order number are laser printed on sensor sheath

## Product Configurator

5ST

| TYPE OF SENSOR |                        |
|----------------|------------------------|
| J              | TC J (Fe-Co)           |
| K              | TC K (Cr-Al)           |
| D              | RTD - PT100 (2 wires)  |
| F              | RTD - PT100 (3 wires)  |
| G              | RTD - PT1000 (2 wires) |
| H              | RTD - PT1000 (3 wires) |

| WIRE COLOUR CODE |                |
|------------------|----------------|
| A                | ASTM E230 (TC) |
| D                | DIN 43714 (TC) |
| E                | EN 60584 (TC)  |
| R                | EN 60751 (RTD) |

| STEM DIAMETER (Ø) |       |
|-------------------|-------|
| A                 | Ø4 mm |
| B                 | Ø6 mm |

| STEM LENGTH (L) |        |
|-----------------|--------|
| A               | 30 mm  |
| B               | 40 mm  |
| C               | 50 mm  |
| D               | 75 mm  |
| E               | 100 mm |
| F               | 150 mm |
| G               | 200 mm |

| ORDER QUANTITY |         |
|----------------|---------|
| S              | 10 pcs  |
| T              | 20 pcs  |
| U              | 50 pcs  |
| V              | 75 pcs  |
| W              | 100 pcs |
| X              | 150 pcs |
| Y              | 200 pcs |

| TERMINALS |                |
|-----------|----------------|
| S         | Stripped Leads |
| P         | Split Leads    |

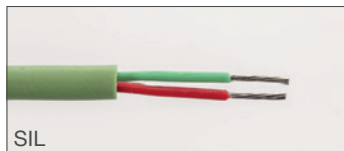
| CABLE LENGTH (Lc) |         |
|-------------------|---------|
| A                 | 500 mm  |
| B                 | 1000 mm |
| C                 | 1500 mm |
| D                 | 2000 mm |
| E                 | 3000 mm |

| TYPE OF CABLE |                                    |
|---------------|------------------------------------|
| 1             | SIL (max 200°C)                    |
| 2             | MFA (max 220°C)                    |
| 3             | BRA (RTD max 220°C / TC max 400°C) |

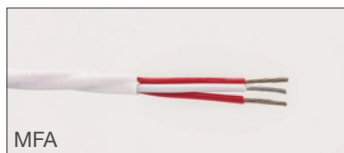


## Temperature sensor cables

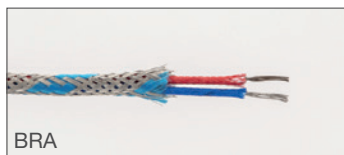
The cables for temperature sensors are the heart of instruments that measure temperature because they are the ones that form the circuit that determines the difference in potential (thermocouple) or transmit the electrical signal (RTD), which then in both cases the measuring instruments convert into the temperature reading. The cables offered by Zoppas meet the requirements of DIN, IEC and ASTM standards. Although the temperature sensor is designed to run at very high temperature, sensor lead wires and terminations are rated for much lower temperatures. Care should be taken to make sure that the sensor lead end temperatures do not exceed their limitations.



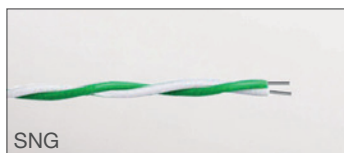
|                      |   |
|----------------------|---|
| Cable Code           | SIL   |
| Description          | Twisted MFA or Silicone insulated conductors covered with external silicone sheath  |
| Features             | Silicone rubber is a common choice for cable temperature sensors. Silicone rubber cables have excellent flexibility at both low temperatures and high temperatures. Furthermore, silicone rubber cables have accomplished electrical insulation properties. |
| Wire type            | Solid or Stranded   |
| Outside Shape        | Rounded   |
| External Jacket      | Silicone Rubber (White for RTD sensors)   |
| Conductor Insulation | MFA - Probe diameter $\leq 4$ mm  |
| Conductor Insulation | Silicone - Probe diameter $> 4$ mm  |
| Temperature range    | -40°C / +200°C  |
| Type of conductors   | J or K (Thermocouple) - Tinned Cu (RTD)   |



|                      |  |
|----------------------|--|
| Cable Code           | MFA  |
| Description          | Twisted MFA insulated conductors covered with external MFA sheath  |
| Features             | MFA cables are heat resistant, chemically inert, and have great dielectric properties. Resistant to oils, acids other adverse agents and fluids. |
| Wire type            | Solid or Stranded  |
| Outside Shape        | Rounded  |
| External Jacket      | MFA (White for RTD sensors)  |
| Conductor Insulation | MFA  |
| Temperature range    | -40°C / +220°C   |
| Type of conductors   | J or K (Thermocouple) - Tinned Cu (RTD)  |



|                      |   |
|----------------------|---|
| Cable Code           | BRA   |
| Description          | Twisted fiberglass insulated conductors, fiberglass filling and external tinned copper armouring  |
| Features             | The tinned copper braided cable provides abrasion resistance, easy installation into cable trays or ducts and resistance to high temperature (up to 400°C). Will not prevent ingress of fluids. |
| Wire type            | Solid or Stranded   |
| Outside Shape        | Rounded   |
| External Jacket      | Tinned Copper   |
| Conductor Insulation | Fiberglass  |
| Temperature range    | Thermocouple: 0°C / 400°C - RTD: 0°C / 220°C  |
| Type of conductors   | J or K (Thermocouple) - Tinned Cu (RTD)   |



|                      |   |
|----------------------|---|
| Cable Code           | SNG   |
| Description          | Twisted cables made of solid or stranded insulated conductors   |
| Features             | PFA is similar to MFA, but has a slightly different chemical composition, allowing it to withstand even higher temperatures than MFA. Good mechanical strength and flexibility. |
| Wire type            | Solid (TC) or Stranded (RTD)  |
| Outside Shape        | Rounded   |
| Conductor Insulation | PFA   |
| Temperature range    | TC -65°C / +260°C - RTD -65°C / +200°C  |
| Type of conductors   | J or K (Thermocouple) - Cu (RTD)  |

## Standard color coding

Color coding of the thermocouple cables according to DIN, IEC and ASTM standards.

Color coding of RTD cables is also represented here below.

| Standard colors    | DIN 43714 | IEC 584-3 | ASTM E230 | RTD TYPE |
|--------------------|-----------|-----------|-----------|----------|
| Thermo couple type |           |           |           |          |
| J                  |           |           |           |          |
| K                  |           |           |           |          |

## Terminals

Our temperature sensors are available with two types of terminals: stripped leads or split leads terminals are made of tin plated electrolytic copper. Working Temperature Range: -20 / +115°C. Flexible temperature sensors available only with Stripped Leads.

