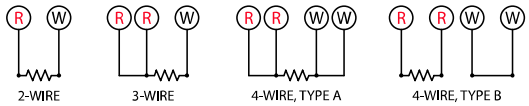
# TE-01 Industrial RTD Assembly

## Spring Loaded (Head Internal)

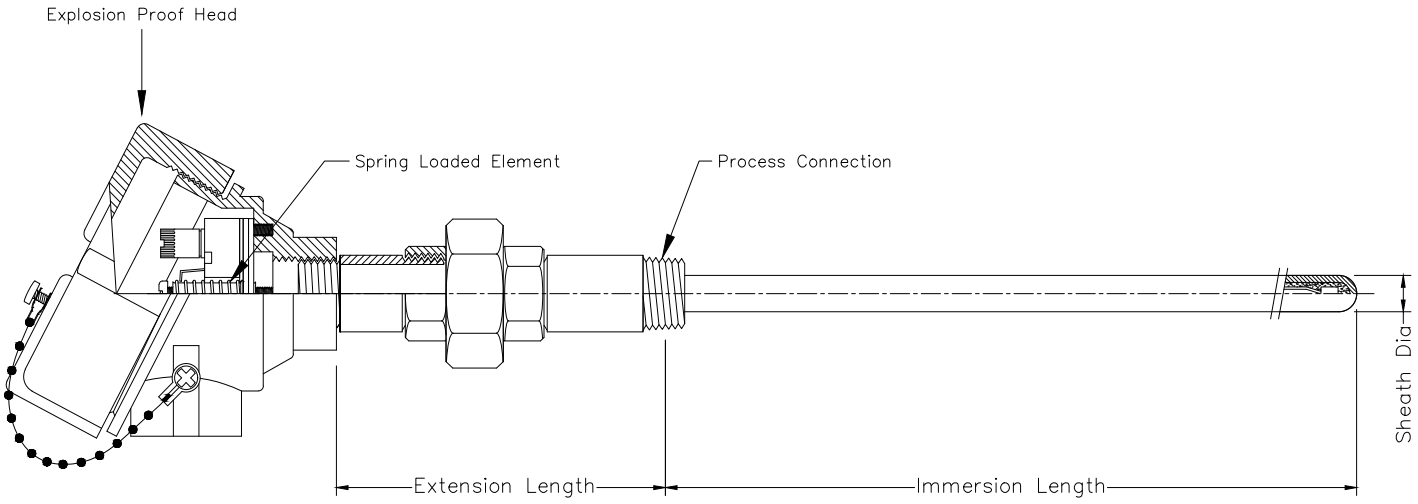
TE-01 resistance temperature detectors (RTDs) are industrial assemblies supplied with or without a temperature transmitter. An extensive range of elements, connection heads, insertion lengths and neck lengths can be individually selected for the appropriate application.
RTDs in this series are designed to fit into a variety of thermowell configurations. Spring loading is acheived within the termination head utilizing a self-gripping spring or spring loaded DIN plate.
Replacement sensors can also be configured for this model.

## Features:

- The sensor is designed to be mounted in to a thermowell.
- The assembly has electrical approvals for explosion proof hazardous locations, ingress protection and general purpose areas.
- Electrical authorities that have registered these approvals include CSA, IECEx, IEC.The approvals can be with or without an attached thermowell. Our patented integral flame path fitting is required when supplied without a thermowell.
- The RTD sensor is spring-loaded ensuring a positive contact to the base of a thermowell bore.




## Dimensions:




Please consult factory for full specification/ Data sheet.

# Ordering Information for Sheathed RTD Sensor(TE-01 Series)

| Model | Product Description | | |
|---|---|---|---|
| TE-01 | Sheathed RTD(Resistance Temperature Detector) Sensor | | |
| **Code(1)** | **Connection Head type** | | **Explosion Proof** |
| 1 | Explosion Proof Aluminum Head | (Dual Conduits) | Eex d IIC |
| 2 | Explosion Proof Aluminum Head | (Single Conduits) | Eex d IIC (IP66, 68) |
| 3 | General Aluminum Head | (Single Conduits) | None (IP65) |
| 4 | Stainless Steel Head | (Single Conduits) | Eex d IIC (IP66, 68) |
| 5 | Sensor only with 150mm long TEFLON insulated lead wires | | N/A |
| **Code(2)** | **Sensor type** | | |
| GP | General purpose style | | |
| SL | Spring Loaded style | | |
| **Code(3)** | **Terminal** | | |
| S | Single junction | | |
| D | Dual junction | | |
| **Code(3)** | **No. of Conductor wire** | | |
| 2 | 2-wire | | |
| 3 | 3-wire | | |
| 4 | 4-wire | | |
| **Code(5)** | **Applicable standard for RTD** | | |
| D | DIN43760-'79 | | |
| I | IEC STANDARD Publication 60751 | | |
| **Code(6)** | **Element Type** | **Material** | **Tempearture Range** |
| P | Pt 100 Ωat 0°C | Pure Platinum | -196 ~ 660°C |
| Q | Pt 1000 Ωat 0°C | Pure Platinum | -70 ~ 550°C |
| R | Pt 100 Ωat 0°C | Pure Platinum | -70 ~ 550°C |

| Code(7) | Extension Type | Extension Length(mm) |
|---|---|---|
| 00 | None | |
| 10 | Fixed Thread | None |
| 11 | Fixed Thread | 100 |
| 13 | Fixed Thread | 150 |
| 19 | Fixed Thread | others |
| 23 | Nipple Thread | 100 |
| 29 | Nipple Thread | others |
| 33 | Nipple, Union & Nipple Thread | 150 |
| 39 | Nipple, Union & Nipple Thread | others |
| 43 | Nipple & Flange Welded | 100 |
| 44 | Nipple & Flange Welded | 150 |
| 49 | Nipple & Flange Welded | others |
| 50 | Compression Fitting | None |
| 60 | Movable Thread | None |
| 61 | Movable Flange | None |
| 73 | Tube welded Flange | 100 |
| 74 | None Metal Only Tube | None |
| 75 | None Metal Only Flange | 100 |

Please consult factory for full specification/ Data sheet.

| | | | |
|---|---|---|---|
| 76 | Ring welded screwed | | 100 |
| 99 | Others | | |
| **Code(8)** | **Sheath Material** | | |
| A | 304SS | | |
| B | 316SS | | |
| C | INCONEL 600 | | |
| D | 310SS | | |
| E | 446SS | | |
| F | 347SS | | |
| G | 321SS | | |
| H | 316LSS | | |
| **Code(9)** | **Sheath Outer Diameter** | | |
| 32 | 3.2mm | 60 | 6.0mm |
| 48 | 4.8mm | 12 | 12.0mm |
| 64 | 6.4mm | | |
| 80 | 8.0mm | | |
| **Code(10)** | **Conduit Connection** | | |
| A | 1/2"PF | G | M20x1.5 |
| B | 1/2"PT | | |
| C | 1/2"NPT | | |
| D | 3/4"PF | | |
| E | 3/4"PT | | |
| F | 3/4"NPT | | |
| **Code(11)** | **Connection Type** | | |
| 0 | None | | |
| 2 | PT | | |
| 3 | PF | | |
| 4 | NPT | | |
| 8 | NPS | | |
| F01 | ANSI 150# RF | | |
| F02 | ANSI 150# FF | | |
| F03 | ANSI 300# RF | | |
| F04 | ANSI 300# FF | | |
| F05 | ANSI 600# RF | | |
| 9 | Compression fitting connector | | |
| F99 | Others | | |

| Code(12) | Process Connection Size | Material |
|---|---|---|
| ZZ | None | None |
| H3 | 1/2" | 304 SS |
| H4 | 1" | 304 SS |



Please consult factory for full specification/ Data sheet.

| | | |
|---|---|---|
| H5 | 1 1/2" | 304 SS |
| H6 | 2" | 304 SS |
| M3 | 1/2" | 316 SS |
| M4 | 1" | 316 SS |
| M5 | 1 1/2" | 316 SS |
| M6 | 2" | 316 SS |
| X | Others | |
| **Code(13)** | **Sensor Immersion Length(L)** | |
| L0100 | 100mm | |
| L0150 | 150mm | |
| L0200 | 200mm | |
| L0250 | 250mm | |
| L0300 | 300mm | |
| L0350 | 350mm | |
| L0400 | 400mm | |
| L0450 | 450mm | |
| L0500 | 500mm | |
| L0550 | 550mm | |
| L0600 | 600mm | |
| L0700 | 700mm | |
| L0800 | 800mm | |
| L0900 | 900mm | |
| L1000 | 1000mm | |
| XXXXX | Others | |
| **Code(14)** | **Tolerance Grade** | |
| R1 | CLASS B(±0.3 +0.005 \| t \| ) | |
| R2 | CLASS A(±0.15 +0.002 \| t \| ) | |
| X | Others | |
| **Code(15)** | **Calibrate certifications** | |
| N | Not apply | |
| T1 | Test Report byManufacturer | |
| **Code(16)** | **Accessory Options** | |
| 0 | None | |
| 1 | Thermowell | |
| 2 | Skin Pad | |

Sample ordering code : RTD;

TE-011GPS3DP33B32A4M3L0300R2T1

Please consult factory for full specification/ Data sheet.

# SHEATHED THERMOCOUPLE SENSOR

TE-02

## Applications:

- Chemical and petrochemical industries
- Machinery, plant and tank measurement
- Oil and gas industries
- Power and utilities
- Pulp and paper

## Special features:

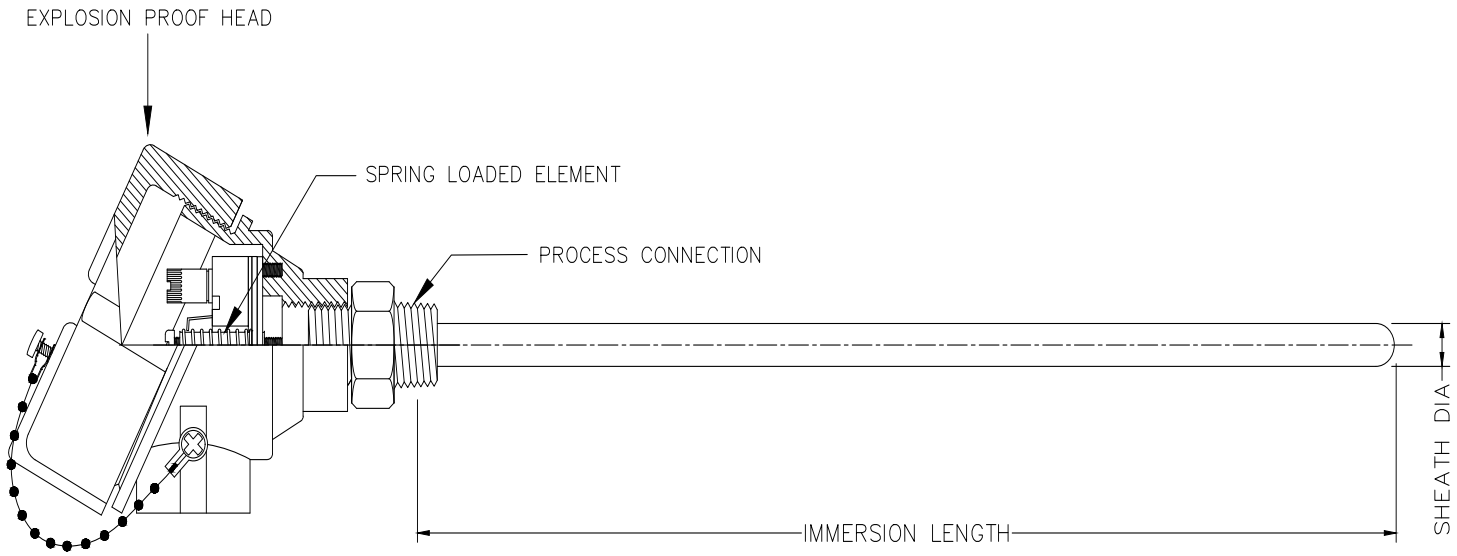
- Sensor ranges from -200 ... +1,260 °C [-328 ... +2,300 °F]
- For mounting in all standard thermowell designs
- Spring-loaded measuring insert (replaceable)
- Explosion-protected versions
- Fixed fitting (welded) measuring insert

## Description:

Thermocouples in this series can be combined with a large number of thermowell designs. Use without a thermowell is permitted when using a fixed (welded) fitting.

A wide variety of possible combinations of sensor, connection head, insertion length, neck length, connection to thermowell etc. are available for the thermometers; suitable for almost any thermowell dimension.

## Dimensions:




Please consult factory for full specification/ Data sheet.

## Ordering Information for Sheathed Thermocouple Sensor(TE-02 Series)

| Model | Product Description | | |
|---|---|---|---|
| TE-02 | Sheathed Thermocouple Sensor | | |
| **Code(1)** | **Connection Head type** | | **Explosion Proof** |
| 1 | Explosion Proof Aluminum Head | (Dual Conduits) | Eex d IIC T5 |
| 2 | Explosion Proof Aluminum Head | (Single Conduits) | Eex d IIB+H2 T6 |
| 3 | General Aluminum Head | (Single Conduits) | None(IP65) |
| 4 | General Stainless Steel Head | (Single Conduits) | None(IP65) |
| 5 | Sensor only with 150mm long TEFLON insulated lead wires | | N/A |
| **Code(2)** | **Element Type** | **Thermocouple Wire Alloys** | **Tempearture Range** |
| B | Thermocouple "B" | Pt Rh30 / Pt Rh6 | 200 ~ 1700°C |
| R | Thermocouple "R" | Pt Rh13 / Pt | 0 ~ 1600°C |
| S | Thermocouple "S" | Pt Rh10 / Pt | 0 ~ 1600°C |
| K | Thermocouple "K" | Chromel / Alumel | -200 ~ 1200°C |
| E | Thermocouple "E" | Chromel / Constantan | -200 ~ 800°C |
| J | Thermocouple "J" | Iron / Constantan | 0 ~ 750°C |
| T | Thermocouple "T" | Copper / Constantan | -200 ~ 350°C |
| X | Others | | |
| **Code(3)** | **Terminal** | | |
| S | Single junction | T Triple junction | |
| D | Dual junction | | |
| **Code(4)** | **No. of Conductor wire** | | |
| 2 | 2-wire | | |
| 4 | 2-wire duplex | | |
| 6 | 2-wire triplex | | |
| **Code(5)** | **Sensor type** | | |
| GG | General purpose style & Grounded tip | | |
| GU | General purpose style & Ungrounded tip | | |
| SG | Spring Loaded style & Grounded tip | | |
| SU | Spring Loaded style & Ungrounded tip | | |
| ES | Exposed style | Length(mm) | |
| **Code(6)** | **Extension Type** | | |
| 00 | None | None | |
| 10 | Fixed Thread | 100 | |
| 11 | Fixed Thread | 150 | |
| 13 | Fixed Thread | others | |
| 19 | Fixed Thread | 100 | |
| 21 | Nipple Thread | others | |
| 29 | Nipple Thread | 150 | |
| 33 | Nipple, Union & Nipple Thread | others | |
| 39 | Nipple, Union & Nipple Thread | 100 | |
| 43 | Nipple & Flange Welded | 150 | |
| 44 | Nipple & Flange Welded | others | |
| 49 | Nipple & Flange Welded | None | |
| 50 | Compression Fitting | None | |
| 60 | Movable Thread | None | |

Please consult factory for full specification/ Data sheet.

| | | |
|---|---|---|
| 61 | Movable Flange | 100 |
| 73 | Tube welded Flange | None |
| 74 | None Metal Only Tube | 100 |
| 75 | None Metal Only Flange | 100 |
| 76 | Ring welded screwed | |
| 99 | Others | |
| **Code(7)** | **Sheath Material** | |
| A | 304SS | |
| B | 316SS | |
| C | INCONEL 600 | |
| D | 310SS | |
| E | 446SS | |
| F | 347SS | |
| G | 321SS | |
| X | Others | |
| **Code(8)** | **Sheath Outer Diameter** | |
| 31 | 1.6mm | XX Others |
| 32 | 3.2mm | |
| 34 | 4.8mm | |
| 36 | 6.4mm | |
| 38 | 8.0mm | |
| **Code(9)** | **Conduit Connection** | |
| A | 1/2"PF | G M20x1.5 |
| B | 1/2"PT | |
| C | 1/2"NPT | |
| D | 3/4"PF | |
| E | 3/4"PT | |
| F | 3/4"NPT | |
| **Code(10)** | **Process Connection Size** | **Material** |
| Z | None | None |
| H3 | 1/2" | 304 SS |
| H4 | 1" | 304 SS |
| H5 | 1 1/2" | 304 SS |
| H6 | 2" | 304 SS |
| M3 | 1/2" | 316 SS |
| M4 | 1" | 316 SS |
| M5 | 1 1/2" | 316 SS |
| M6 | 2" | 316 SS |
| X | Others | |
| **Code(11)** | **Connection Type** | |
| 0 | None | |
| 2 | PT | |
| 3 | PF | |
| 4 | NPT | |



Please consult factory for full specification/ Data sheet.

| | |
|---|---|
| 8 | NPS |
| F01 | ANSI 150# RF |
| F02 | ANSI 150# FF |
| F03 | ANSI 300# RF |
| F04 | ANSI 300# FF |
| 9 | Compression fitting connector |
| F99 | Others |
| **Code(12)** | **Lead wire diameter** |
| 33 | 0.18mm(AWG 33) |
| 30 | 0.25mm(AWG 30) |
| 24 | 0.51mm(AWG 24) |
| 21 | 0.72mm(AWG 21) |
| 18 | 1.02mm(AWG 18) |
| 16 | 1.27mm(AWG 16) |
| 14 | 1.63mm(AWG 14) |
| XX | Others |
| **Code(13)** | **Sensor Immersion Length(L)** |
| L0100 | 100mm |
| L0150 | 150mm |
| L0200 | 200mm |
| L0250 | 250mm |
| L0300 | 300mm |
| L0350 | 350mm |
| L0400 | 400mm |
| L0450 | 450mm |
| L0500 | 500mm |
| L0550 | 550mm |
| L0600 | 600mm |
| L0700 | 700mm |
| L0800 | 800mm |
| L0900 | 900mm |
| L1000 | 1000mm |
| XXXXX | Others |
| **Code(14)** | **Tolerance Grade** |
| A0 | ANSI Grade (STD) |
| A1 | AFTM Grade (STD) |
| A2 | IEC Grade(STD) |
| A3 | ANSI Grade (SP) |

Please consult factory for full specification/ Data sheet.

| Code(15) | Calibrate certifications |
|---|---|
| N | Not apply |
| T1 | Test Report by Manufacturer |

| Code(16) | Accessory Options | | |
|---|---|---|---|
| 0 | Not apply | 2 | Weld Pad |
| 1 | Thermowell | | |
| X | Others | | |

Sample ordering code : Thermocouple;

TE021KS2GU33B36AM34L0300A0TI



Please consult factory for full specification/ Data sheet.

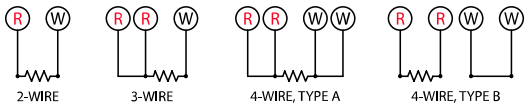
# AM-TE03 Industrial RTD Assembly

## Fixed (Direct Mount Into Process)

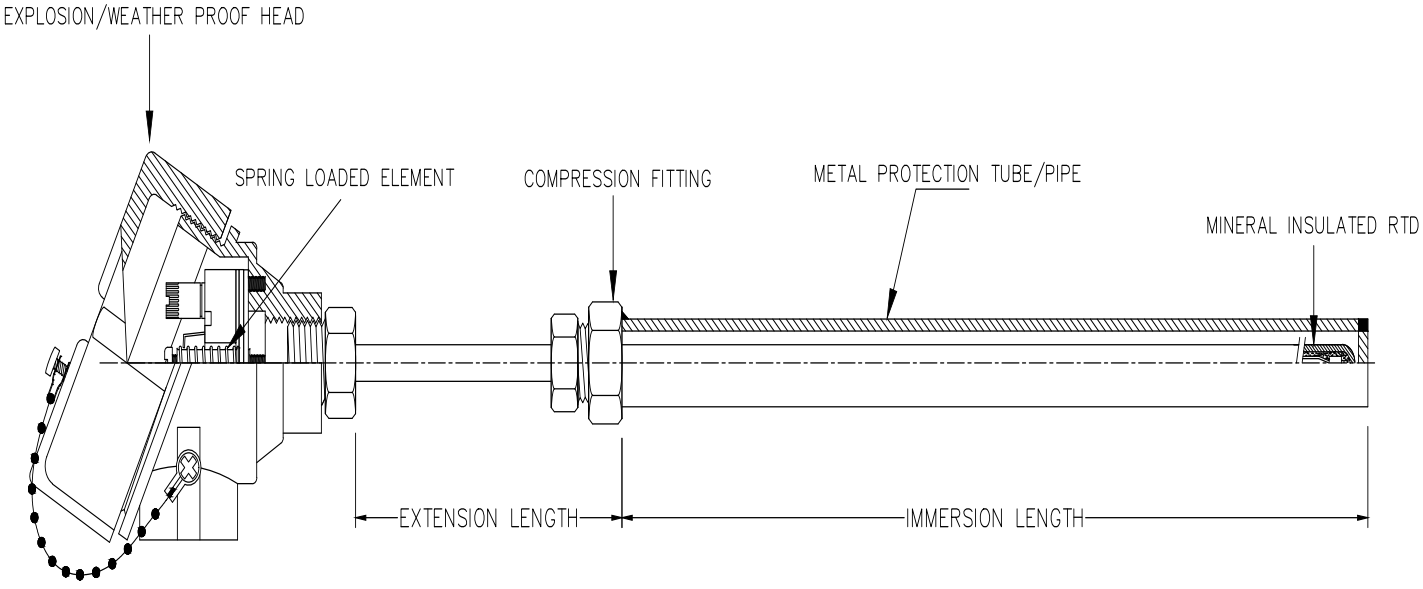
TE-03 resistance temperature detectors (RTDs) are industrial assemblies supplied with or without a temperature transmitter. An extensive range of elements, connection heads, insertion lengths and neck lengths can be individually selected for the appropriate application.
RTDs in this series are designed to be installed directly into the process. The welded fitting or optional compression fitting make this ideal for use without a thermowell.
Replacement sensors can also be configured for this model.

## Features:

- The sensor is designed to be mounted directly into process.
- The assembly has electrical approvals for explosion proof hazardous locations, ingress protection and general purpose areas.
- Electrical authorities that have registered these approvals include CSA, IECEx, IEC.
- Optional compression fitting allows insertion depth to be adjusted during installation.




## Dimensions:




Please consult factory for full specification/ Data sheet.

## Ordering Information for Metallic Protection Tube RTD Sensor(TE-03)

| Model | Product Description | | |
|---|---|---|---|
| TE-03 | Metallic Protection Tube RTD(Resistance Temperature Detector) Sensor | | |
| **Code(1)** | **Connection Head type** | | **Explosion Proof** |
| 1 | Explosion Proof Aluminum Head | (Dual Conduits) | Eex d IIC T5 |
| 2 | Explosion Proof Aluminum Head | (Single Conduits) | Eex d IIB+H2 T6 |
| 3 | General Aluminum Head | (Single Conduits) | None(IP65) |
| 4 | General Stainless Steel Head | (Single Conduits) | None(IP65) |
| 5 | Sensor only with 150mm long TEFLON insulated lead wires | | N/A |
| **Code(2)** | **Sensor type** | | |
| GP | General purpose style | | |
| SL | Spring Loaded style | | |
| **Code(3)** | **Terminal** | | |
| S | Single junction | | |
| D | Dual junction | | |
| **Code(4)** | **No. of Conductor wire** | | |
| 2 | 2-wire | | |
| 3 | 3-wire | | |
| 4 | 4-wire | | |
| **Code(5)** | **Applicable standard for RTD** | | |
| D | DIN 43760-'79 | | |
| I | IEC STANDARD Publication 751 | | |
| **Code(6)** | **Element Type** | **Material** | **Tempearture Range** |
| P | Pt 100 Ω at 0°C | Pure Platinum | -196 ~ 660°C |
| Q | Pt 1000 Ω at 0°C | Pure Platinum | -70 ~ 550°C |
| R | Pt 100 Ωat 0°C | Pure Platinum | -70 ~ 550°C |
| **Code(7)** | **Extension Type** | **Extension Length(mm)** | |
| 00 | None | | |
| 10 | Fixed Thread | None | |
| 11 | Fixed Thread | 100 | |
| 13 | Fixed Thread | 150 | |
| 19 | Fixed Thread | others | |
| 23 | Nipple Thread | 100 | |
| 29 | Nipple Thread | others | |
| 33 | Nipple, Union & Nipple Thread | 150 | |
| 39 | Nipple, Union & Nipple Thread | others | |
| 43 | Nipple & Flange Welded | 100 | |
| 44 | Nipple & Flange Welded | 150 | |
| 49 | Nipple & Flange Welded | others | |
| 50 | Compression Fitting | None | |
| 60 | Movable Thread | None | |
| 61 | Movable Flange | None | |
| 73 | Tube welded Flange | 100 | |
| 74 | None Metal Only Tube | None | |
| 75 | None Metal Only Flange | 100 | |

Please consult factory for full specification/ Data sheet.

| | | |
|---|---|---|
| 76 | Ring welded screwed | 100 |
| 99 | Others | |
| **Code(8)** | **Sheath Material** | |
| A | 304SS | |
| B | 316SS | |
| C | INCONEL 600 | |
| D | 310SS | |
| E | 446SS | |
| F | 347SS | |
| G | 321SS | |
| X | Others | |
| **Code(9)** | **Sheath Outer Diameter** | |
| 32 | 3.2mm | |
| 34 | 4.8mm | |
| 36 | 6.4mm | |
| 38 | 8.0mm | |
| **Code(10)** | **Conduit Connection** | |
| A | 1/2"PF | |
| B | 1/2"PT | |
| C | 1/2"NPT | |
| D | 3/4"PF | |
| E | 3/4"PT | |
| F | 3/4"NPT | |
| **Code(11)** | **Connection Type** | |
| 0 | None | |
| 2 | PT | |
| 3 | PF | |
| 4 | NPT | |
| 8 | NPS | |
| F01 | ANSI 150# RF | |
| F02 | ANSI 150# FF | |
| F03 | ANSI 300# RF | |
| F04 | ANSI 300# FF | |
| F05 | ANSI 600# RF | |
| 9 | Compression fitting connector | |
| F99 | Others | |
| **Code(12)** | **Process Connection Size** | **Material** |
| Z | None | None |
| H3 | 1/2" | 304 SS |
| H4 | 1" | 304 SS |



Please consult factory for full specification/ Data sheet.

| | | |
|---|---|---|
| H5 | 1 1/2" | 304 SS |
| H6 | 2" | 304 SS |
| M3 | 1/2" | 316 SS |
| M4 | 1" | 316 SS |
| M5 | 1 1/2" | 316 SS |
| M6 | 2" | 316 SS |
| M7 | 3" | 316 SS |
| X | Others | |
| **Code(13)** | **Sensor Immersion Length(L)** | |
| L0100 | 100mm | |
| L0150 | 150mm | |
| L0200 | 200mm | |
| L0250 | 250mm | |
| L0300 | 300mm | |
| L0350 | 350mm | |
| L0400 | 400mm | |
| L0450 | 450mm | |
| L0500 | 500mm | |
| L0550 | 550mm | |
| L0600 | 600mm | |
| L0700 | 700mm | |
| L0800 | 800mm | |
| L0900 | 900mm | |
| L1000 | 1000mm | |
| XXXXX | Others | |
| **Code(14)** | **Tolerance Grade** | |
| R1 | CLASS B(±0.3 +0.005 \| t \| ) for RTD | |
| R2 | CLASS A(±0.15 +0.002 \| t \| ) for RTD | |
| X | Others | |
| **Code(15)** | **Calibrate certifications** | |
| N | Not apply | |
| T1 | Test Report by Manufacturer | |
| **Code(16)** | **Accessory Options** | |
| 0 | Not apply | |
| 1 | Thermowell | |
| X | Others | |

Sample ordering code : RTD;

TE031GPS3DP33B36A4M3L0300R2T1

Please consult factory for full specification/ Data sheet.

# THREADED THERMOCOUPLE WITH PROTECTION TUBE

TE-04

## Applications:

- Machine building, plant and vessel construction
- Energy and power plant technology
- Chemical industry
- Food and beverage industry
- Sanitary, heating and air-conditioning technology

## Special features:

- Sensor ranges from -200 ... +1,200 °C [-328 ... +2,192 °F]
- With integrated protection tube
- Spring-loaded measuring insert (replaceable)
- Explosion-protected versions are available for many approval types

## Description:

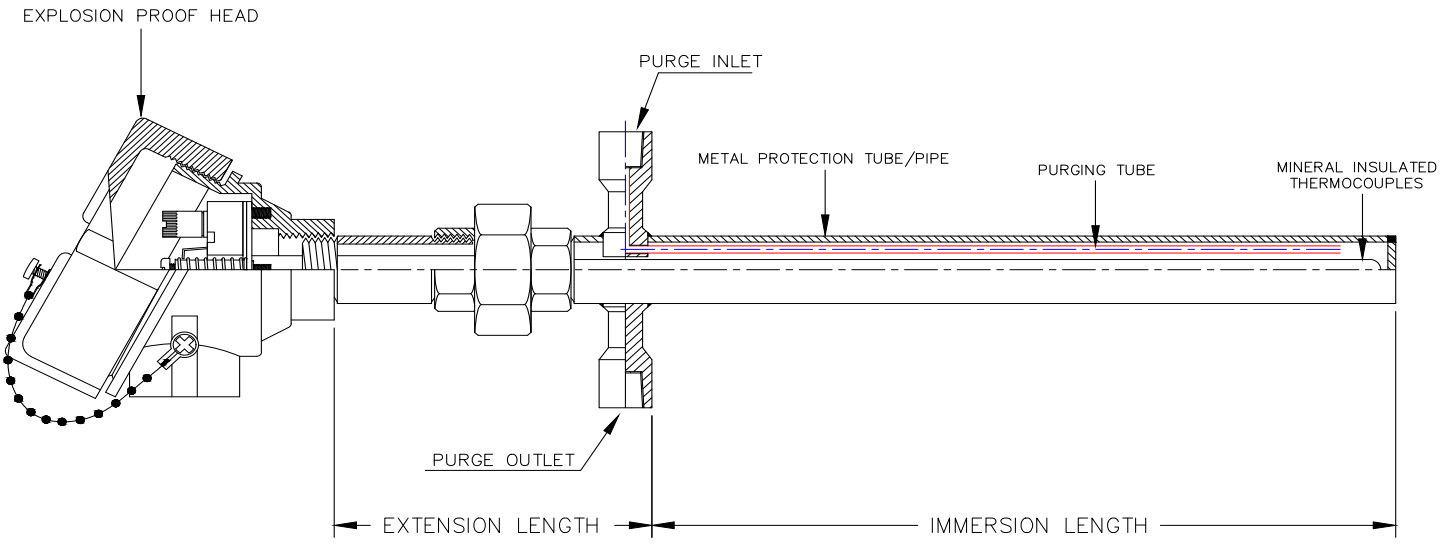
Thermocouples of this model series are designed for screw-fitting directly into the process, mainly in vessels and pipelines. These thermometers are suitable for liquid and gaseous media under moderate mechanical load and normal chemical load.

The protection tube is fully welded and screwed into the connection head. The interchangeable measuring insert can be removed without taking out the complete probe from the plant. This nables inspection, measuring equipment monitoring or, when servicing is necessary, replacement while the plant is running.

The choice of standard lengths assists with short delivery times and the possibility of stocking spare parts.

Insertion length, process connection, protection tube design, connection head, type and number of sensors and accuracy can each be selected to suit the respective application. A large number of different explosion protection certificates are available for the TE-04.
On request, we can mount analogue or digital transmitters in the connection head of the TE-04.

## Dimensions:




Please consult factory for full specification/ Data sheet.

# THREADED THERMOCOUPLE WITH PROTECTION TUBE



## Ordering Information for AM-TE04 Series

| Model | Product Description | | |
|---|---|---|---|
| TE-04 | Metallic Protection Tube Thermocouple Sensor | | |
| **Code(1)** | **Connection Head type** | | **Explosion Proof** |
| 1 | Explosion Proof Aluminum Head | (Dual Conduits) | Eex d IIC T5 |
| 2 | Explosion Proof Aluminum Head | (Single Conduits) | Eex d IIB+H2 T6 |
| 3 | General Aluminum Head | (Single Conduits) | None(IP65) |
| 4 | General Stainless Steel Head | (Single Conduits) | None(IP65) |
| 5 | Sensor only with 150mm long TEFLON insulated lead wires | | N/A |
| **Code(2)** | **Element Type** | **Thermocouple Wire Alloys** | **Tempearture Range** |
| B | Thermocouple "B" | Pt Rh30 / Pt Rh6 | 200 ~ 1700°C |
| R | Thermocouple "R" | Pt Rh13 / Pt | 0 ~ 1600°C |
| S | Thermocouple "S" | Pt Rh10 / Pt | 0 ~ 1600°C |
| K | Thermocouple "K" | Chromel / Alumel | -200 ~ 1200°C |
| X | Others | | |
| **Code(3)** | **Terminal** | | |
| S | Single junction | T Triple junction | |
| D | Dual junction | | |
| **Code(4)** | **No. of Conductor wire** | | |
| 2 | 2-wire | | |
| 4 | 2-wire duplex | | |
| 6 | 2-wire triplex | | |
| **Code(5)** | **Sensor type** | | |
| GG | General purpose style & Grounded tip | | |
| GU | General purpose style & Ungrounded tip | | |
| SG | Spring Loaded style & Grounded tip | | |
| SU | Spring Loaded style & Ungrounded tip | | |
| ES | Exposed style | | |
| **Code(6)** | **Extension Type** | **Length(mm)** | |
| 00 | None | | |
| 10 | Fixed Thread | None | |
| 11 | Fixed Thread | 100 | |
| 13 | Fixed Thread | 150 | |
| 19 | Fixed Thread | others | |
| 23 | Nipple Thread | 100 | |
| 29 | Nipple Thread | others | |
| 33 | Nipple, Union & Nipple Thread | 150 | |
| 39 | Nipple, Union & Nipple Thread | others | |
| 43 | Nipple & Flange Welded | 100 | |
| 44 | Nipple & Flange Welded | 150 | |
| 49 | Nipple & Flange Welded | others | |
| 50 | Compression Fitting | None | |
| 60 | Movable Thread | None | |
| 61 | Movable Flange | None | |
| 73 | Tube welded Flange | 100 | |
| 74 | None Metal Only Tube | None | |

Please consult factory for full specification/ Data sheet.

| | | |
|---|---|---|
| 75 | None Metal Only Flange | 100 |
| 76 | Ring welded screwed | 100 |
| 99 | Others | |
| **Code(7)** | **Sheath Material** | |
| A | 304SS | |
| B | 316SS | |
| C | INCONEL 600 | |
| D | 310SS | |
| E | 446SS | |
| F | 347SS | |
| G | 321SS | |
| X | Others | |
| **Code(8)** | **Sheath Outer Diameter** | |
| 31 | 1.6mm | |
| 32 | 3.2mm | |
| 34 | 4.8mm | |
| 36 | 6.4mm | |
| 38 | 8.0mm | |
| **Code(9)** | **Conduit Connection** | |
| Z | None | |
| A | 1/2"PF | |
| B | 1/2"PT | |
| C | 1/2"NPT | |
| D | 3/4"PF | |
| E | 3/4"PT | |
| F | 3/4"NPT | |
| **Code(10)** | **Process Connection Size** | **Material** |
| ZZ | None | None |
| H3 | 1/2" | 304 SS |
| H4 | 1" | 304 SS |
| H5 | 1 1/2" | 304 SS |
| H6 | 2" | 304 SS |
| M3 | 1/2" | 316 SS |
| M4 | 1" | 316 SS |
| M5 | 1 1/2" | 316 SS |
| M6 | 2" | 316 SS |
| M7 | 3" | 316 SS |
| X | Others | |
| **Code(11)** | **Connection Type** | |
| 0 | None | |
| 2 | PT | |
| 3 | PF | |
| 4 | NPT | |
| 8 | NPS | |



Please consult factory for full specification/ Data sheet.

| | |
|---|---|
| F01 | ANSI 150# RF |
| F02 | ANSI 150# FF |
| F03 | ANSI 300# RF |
| F04 | ANSI 300# FF |
| F05 | ANSI 600# RF |
| 9 | Compression fitting connector |
| F99 | Oth |
| **Code(12)** | **Lead wire diameter** |
| 33 | 0.18mm(AWG 33) |
| 30 | 0.25mm(AWG 30) |
| 24 | 0.51mm(AWG 24) |
| 21 | 0.72mm(AWG 21) |
| 18 | 1.02mm(AWG 18) |
| 16 | 1.27mm(AWG 16) |
| 14 | 1.63mm(AWG 14) |
| XX | Others |
| **Code(13)** | **Sensor Immersion Length(L)** |
| L0100 | 100mm |
| L0150 | 150mm |
| L0200 | 200mm |
| L0250 | 250mm |
| L0300 | 300mm |
| L0350 | 350mm |
| L0400 | 400mm |
| L0450 | 450mm |
| L0500 | 500mm |
| L0550 | 550mm |
| L0600 | 600mm |
| L0700 | 700mm |
| L0800 | 800mm |
| L0900 | 900mm |
| L1000 | 1000mm |
| XXXXX | Others |
| **Code(14)** | **Tolerance Grade** |
| A0 | ANSI Grade(STD) |
| A1 | ASTM Grade (STD) |
| A2 | IEC (STD) |
| A3 | ANSI Grade (SP) |

Please consult factory for full specification/ Data sheet.

| Code(15) | Calibrate certifications |
|---|---|
| N | Not apply |
| T1 | Test Report by Manufacturer |
| **Code(16)** | **Accessory Options** |
| 0 | None |
| 1 | Thermowell |
| X | Others |
| Sample ordering code : Thermocouple; 1401SS2GU33B36AM34L0300A0T1 | |



Please consult factory for full specification/ Data sheet.

# EXTENSION LEAD TYPE RESISTANCE TEMPERTURE DETECTOR SENSOR



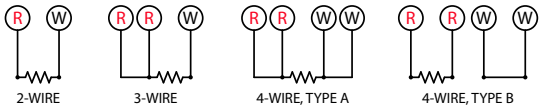
## TE-05 Remote Mount Industrial

### RTD Assembly:

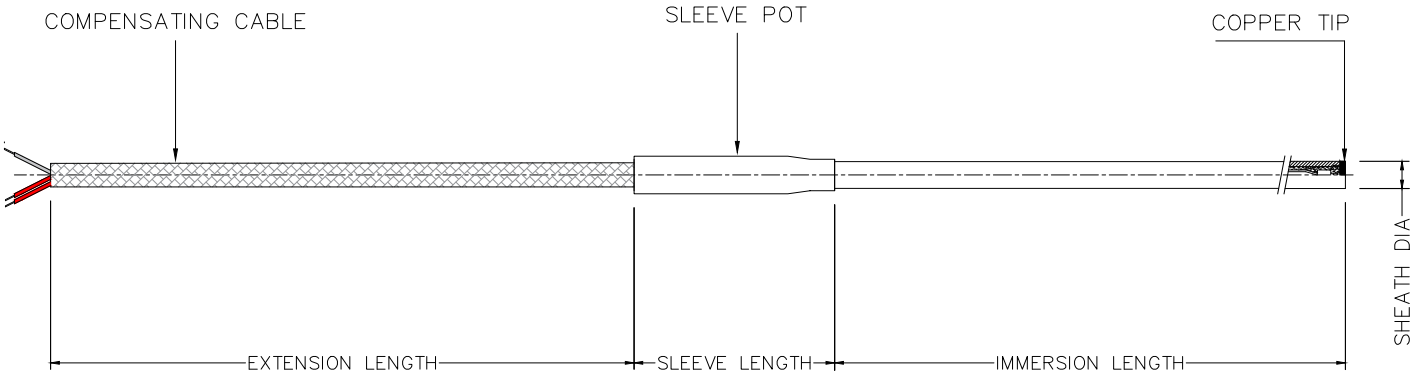
AM-TE05 series resistance temperature detectors (RTDs) are remote mounted industrial assemblies supplied with or without a temperature transmitter. They are designed for applications where direct mounting is inaccessible, where there is excessive radiated or conducted heat, or applications where high vibrations exist.
An extensive range of elements, connection heads, insertion lengths and process connections can be individually selected for the appropriate application. Replacement sensors can also be configured for this model.
RTDs in this series can be inserted directly into a process or combined with a variety of thermowell designs.

### Features:

- The sensor can be mounted into a thermowell for directly into a process with the use of a spring loaded or compression process fitting.
- The assembly has electrical approvals for explosion proof hazardous locations, ingress protection and general purpose areas.
- Electrical authorities that have registered these approvals include CSA, IECEx, IEC.
- The RTD sensor can be spring-loaded ensuring a positive contact to the required location.
- For applications that are exposed to outside weather conditions or where moisture is present, the flexible armour extension can be provided with a moisture-proof jacket of PTFE (Teflon) or PVC.




### Dimensions:




Please consult factory for full specification/ Data sheet.

# EXTENSION LEAD TYPE RESISTANCE TEMPERTURE DETECTOR SENSOR



## Ordering Information for TE-05 Series

| Model | Product Description | | |
|---|---|---|---|
| TE-05 | Extension Lead type RTD sensor | | |
| **Code(1)** | **Connection Head type** | | **Explosion Proof** |
| 1 | Explosion Proof Aluminum Head | (Dual Conduits) | Eex d IIC T5 |
| 2 | Explosion Proof Aluminum Head | (Single Conduits) | Eex d IIB+H2 T6 |
| 3 | General Aluminum Head | (Single Conduits) | None(IP65) |
| 4 | General Stainless Steel Head | (Single Conduits) | IP66, IP68) |
| 5 | Sensor only with 150mm long TEFLON insulated lead wires | | N/A |
| **Code(2)** | **Terminal** | | |
| S | Single junction | | |
| D | Dual junction | | |
| **Code(3)** | **No. of Conductor wire** | | |
| 2 | 2-wire | | |
| 3 | 3-wire | | |
| 4 | 4-wire | | |
| **Code(4)** | **Extension lead type** | | |
| FS | Flexible Copper shield type | | |
| FF | Flexible Copper shield with compression fitting | | |
| FA | Flexible armoured type | | |
| FQ | Flexible armoured with compression fitting | | |
| BS | Bayonet spring load type | | |
| **Code(5)** | **Applicable standard for RTD** | | |
| D | DIN 43760-'79 | | |
| I | IEC STANDARD Publication 751 | | |
| **Code(6)** | **Element Type** | **Material** | **Tempeature Range** |
| P | Pt 100 Ωat 0°C | Pure Platinum | -196 ~ 660°C |
| Q | Pt 1000 Ωat 0°C | Pure Platinum | -70 ~ 550°C |
| R | Pt 100 Ωat 0°C | Pure Platinum | -70 ~ 550°C |
| **Co** | **xtension Length(mm)** | | |
| 2000 | 2000 | | |
| XXXX | others | | |
| **Code(8)** | **Sleeve type** | | |
| 10 | 55 mmL, Epoxy molded | | |
| XX | others | | |
| **Code(9)** | **Sheath Material** | | |
| A | 304SS | | |
| B | 316SS | | |
| C | INCONEL 600 | | |
| D | 310SS | | |
| E | 446SS | | |
| F | 347SS | | |
| G | 321SS | | |
| X | Others | | |

Please consult factory for full specification/ Data sheet.

# EXTENSION LEAD TYPE RESISTANCE TEMPERTURE DETECTOR SENSOR



| Code(10) | Sheath Outer Diameter |
|---|---|
| 32 | 3.2mm |
| 34 | 4.8mm |
| 36 | 6.4mm |
| 38 | 8.0mm |
| **Code(11)** | **Conduit Connection** |
| Z | None |
| A | 1/2"PF |
| B | 1/2"PT |
| C | 1/2"NPT |
| D | 3/4"PF |
| E | 3/4"PT |
| F | 3/4"NPT |
| **Code(12)** | **Connection Type** |
| 0 | None |
| 2 | PT |
| 3 | PF |
| 4 | NPT |
| 8 | NPS |
| F01 | ANSI 150# RF |
| F02 | ANSI 150# FF |
| F03 | ANSI 300# RF |
| F04 | ANSI 300# FF |
| F05 | ANSI 600# RF |
| 9 | Compression fitting connector |
| F99 | Others |

| Code(13) | Process Connection Size | Material |
|---|---|---|
| ZZ | None | None |
| H3 | 1/2" | 304 SS |
| H4 | 1" | 304 SS |
| H5 | 1 1/2" | 304 SS |
| H6 | 2" | 304 SS |
| M3 | 1/2" | 316 SS |
| M4 | 1" | 316 SS |
| M5 | 1 1/2" | 316 SS |
| M6 | 2" | 316 SS |
| M7 | 3" | 316 SS |
| X | Others | |



Please consult factory for full specification/ Data sheet.

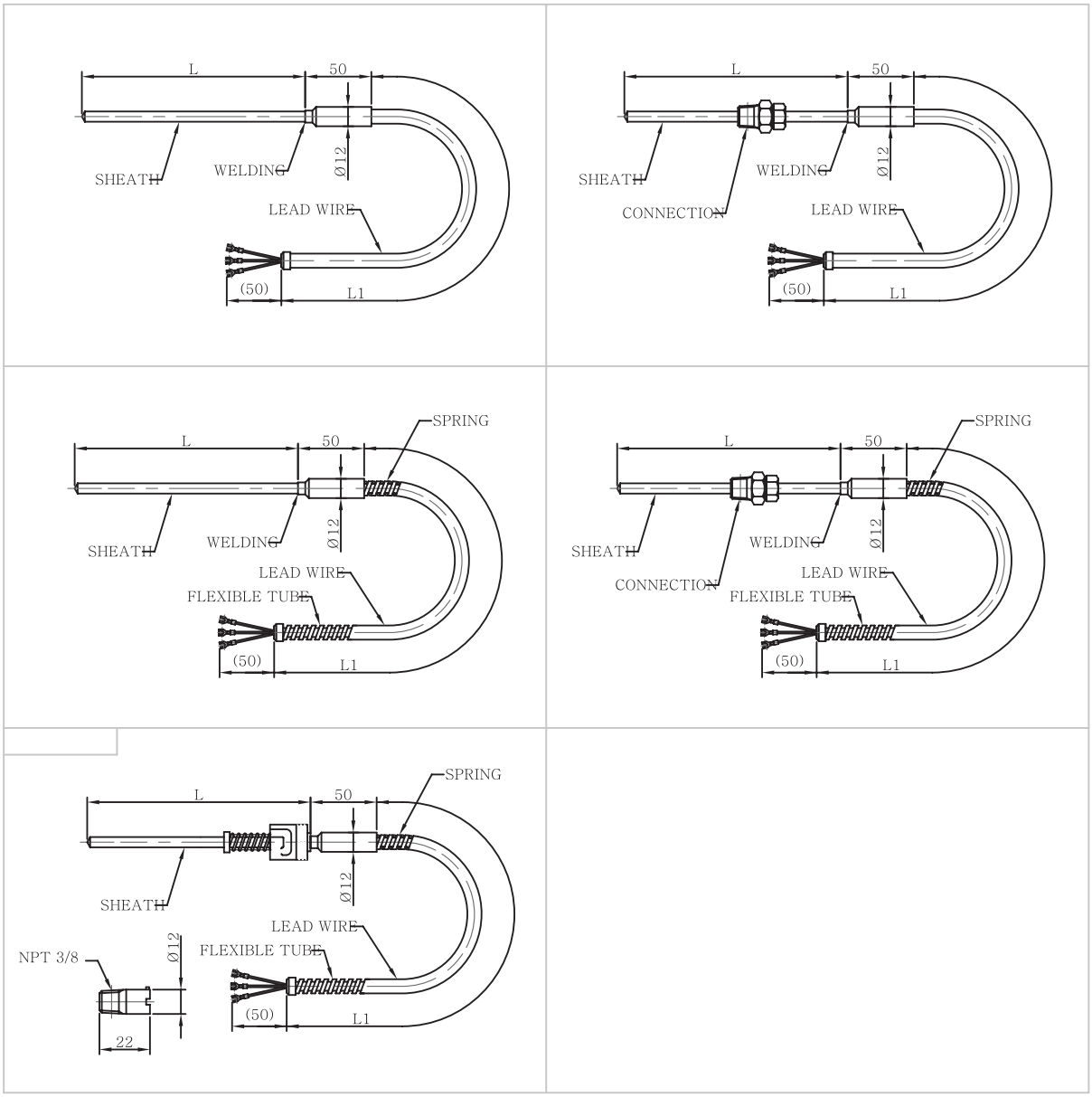
| Code(14) | Sensor Immersion Length(L) |
|---|---|
| L0100 | 100mm |
| L0150 | 150mm |
| L0200 | 200mm |
| L0250 | 250mm |
| L0300 | 300mm |
| L0350 | 350mm |
| L0400 | 400mm |
| L0450 | 450mm |
| L0500 | 500mm |
| L0550 | 550mm |
| L0600 | 600mm |
| L0700 | 700mm |
| L0800 | 800mm |
| L0900 | 900mm |
| L1000 | 1000mm |
| XXXXX | Others |
| **Code(15)** | **Tolerance Grade** |
| R1 | CLASS B(±0.3 +0.005 \| t \| ) for RTD |
| R2 | CLASS A(±0.15 +0.002 \| t \| ) for RTD |
| X | Others |
| **Code(16)** | **Calibrate certifications** |
| N | Not apply |
| T1 | Test Report by Manufacturer |
| T2 | Test Report by KOLAS(ILAC-MRA) ; Customer-specified max. three[3)] temperature point |
| **Code(17)** | **Accessory Options** |
| 0 | Not apply |
| 1 | Thermowell |
| X | Others |

Sample ordering code : RTD;

TE055S3FPDP200010B36Z4M3L0150R1T1

Please consult factory for full specification/ Data sheet.

## R.T.D EXTENSION LEAD WIRE TYPE (TE-05 Series)




Please consult factory for full specification/ Data sheet.

# EXTENSION LEAD WIRE THERMOCOUPLE

TE-06

## Applications:

- For direct installation into the process
- Machine building
- Motors
- Bearings
- Pipes and vessels

## Special features:

- Sensor ranges from -200 ... +1,260 °C [-328 ... +2,300 °F]
- For insertion or screw-in with optional process connection
- Versions with/without connector or connection housing (option)
- Explosion-protected versions (option)

## Description:

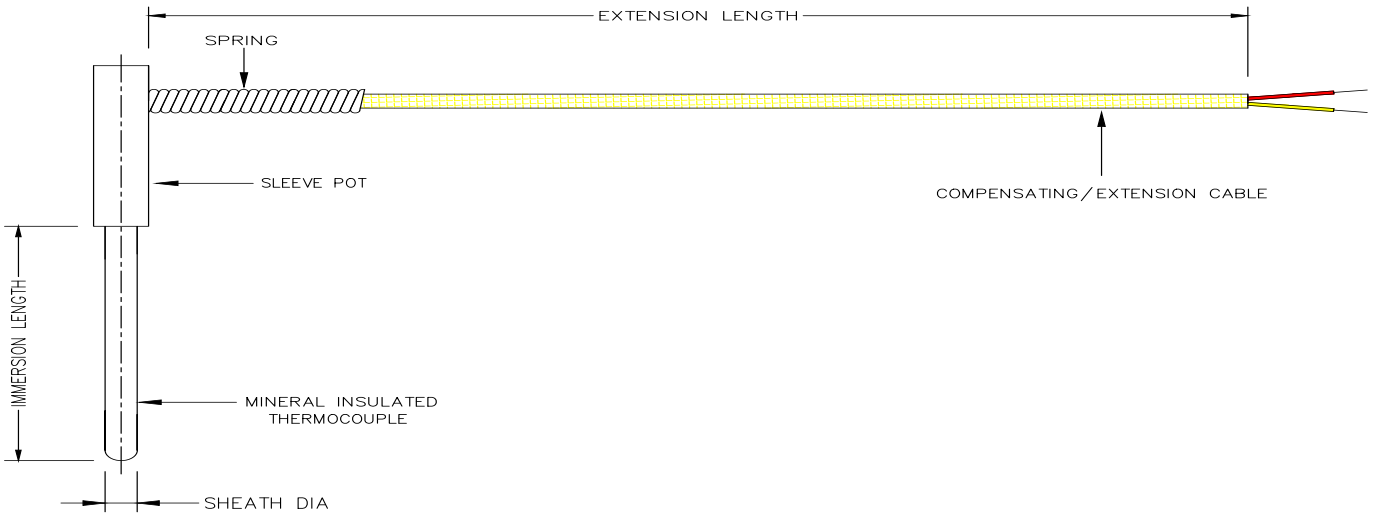
Cable thermocouples are particularly suited to those applications in which the metal probe tip is mounted directly into bored holes (e.g. in machine components) or directly into the process for any application with no chemically aggressive media or abrasion.

A large number of different explosion protection approvals are available for the TE-06.

For mounting into a thermowell, a spring-loaded compression fitting should be provided, since only this can press the measuring tip into the bottom of the thermowell. Otherwise a potentially critical force could be exerted on the measuring tip.

In the standard version the cable probes are manufactured without process connections. Fastening elements such as threaded connections, compression fittings, etc. are possible as options.

## Dimensions:




Please consult factory for full specification/ Data sheet.

## Ordering Information for TE-06 Series

| Model | Product Description | | |
|---|---|---|---|
| TE-06 | Extension Lead Wire Thermocouple | | |
| **Code(1)** | **Connection Head type** | | **Explosion Proof** |
| 1 | Explosion Proof Aluminum Head | (Dual Conduits) | Eex d IIC T5 |
| 2 | Explosion Proof Aluminum Head | (Single Conduits) | Eex d IIB+H2 T6 |
| 3 | General Aluminum Head | (Single Conduits) | None(IP65) |
| 4 | General Stainless Steel Head | (Single Conduits) | None(IP65) |
| 5 | Sensor only with 150mm long TEFLON insulated lead wires | | N/A |
| **Code(2)** | **Terminal** | | |
| S | Single junction | T Triple junction | |
| D | Dual junction | | |
| **Code(3)** | **No. of Conductor wire** | | |
| 2 | 2-wire | | |
| 4 | 2-wire duplex | | |
| 6 | 2-wire triplex | | |
| **Code(4)** | **Extension lead type** | | |
| FS | Flexible Copper shield type | | |
| FF | Flexible Copper shield with compression fitting | | |
| FA | Flexible armoured type | | |
| FQ | Flexible armoured with compression fitting | | |
| BS | Bayonet spring load type | | |
| **Code(5)** | **Element Type** | **Thermocouple Wire Alloys** | **Tempearture Range** |
| K | Thermocouple "K" | Chromel / Alumel | -200 ~ 1200°C |
| E | Thermocouple "E" | Chromel / Constantan | -200 ~ 800°C |
| J | Thermocouple "J" | Iron / Constantan | 0 ~ 750°C |
| T | Thermocouple "T" | Copper / Constantan | -200 ~ 350°C |
| **Code(6)** | **Tip shape** | | |
| G | Grounded tip | | |
| U | Ungrounded tip | | |
| **Code(6)** | **Extension Length(mm)** | | |
| 2000 | 2000 | | |
| XXXX | others | | |
| **Code(7)** | **Sleeve type** | | |
| 10 | 55 mmL, Epoxy molded | | |
| XX | others | | |
| **Code(8)** | **Sheath Material** | | |
| A | 304SS | | |
| B | 316SS | | |
| C | INCONEL 600 | | |
| D | 310SS | | |
| E | 446SS | | |
| F | 347SS | | |
| G | 321SS | | |
| X | Others | | |

Please consult factory for full specification/ Data sheet.

| Code(9) | Sheath Outer Diameter | |
|---|---|---|
| 31 | 1.6mm | |
| 32 | 3.2mm | |
| 34 | 4.8mm | |
| 36 | 6.4mm | |
| 38 | 8.0mm | |
| **Code(10)** | **Conduit Connection** | |
| O | None | |
| A | 1/2"PF | |
| B | 1/2"PT | |
| C | 1/2"NPT | |
| D | 3/4"PF | |
| E | 3/4"PT | |
| F | 3/4"NPT | |
| **Code(11)** | **Process Connection Size** | **Material** |
| ZZ | None | None |
| H3 | 1/2" | 304 SS |
| H4 | 1" | 304 SS |
| H5 | 1 1/2" | 304 SS |
| M3 | 2" | 304 SS |
| M4 | 1/2" | 316 SS |
| M5 | 1" | 316 SS |
| M6 | 1 1/2" | 316 SS |
| M7 | 2" | 316 SS |
| X | Others | |
| **Code(12)** | **Connection Type** | |
| 0 | None | |
| 2 | PT | |
| 3 | PF | |
| 4 | NPT | |
| 8 | NPS | |
| F01 | ANSI 150# RF | |
| F02 | ANSI 150# FF | |
| F03 | ANSI 300# RF | |
| F04 | ANSI 300# FF | |
| F05 | ANSI 600# RF | |
| F15 | JIS 10K RF | |
| F16 | JIS 10K FF | |
| F17 | JIS 20K RF | |
| F18 | JIS 20K FF | |
| 9 | Compression fitting connector | |
| F99 | Others | |



Please consult factory for full specification/ Data sheet.

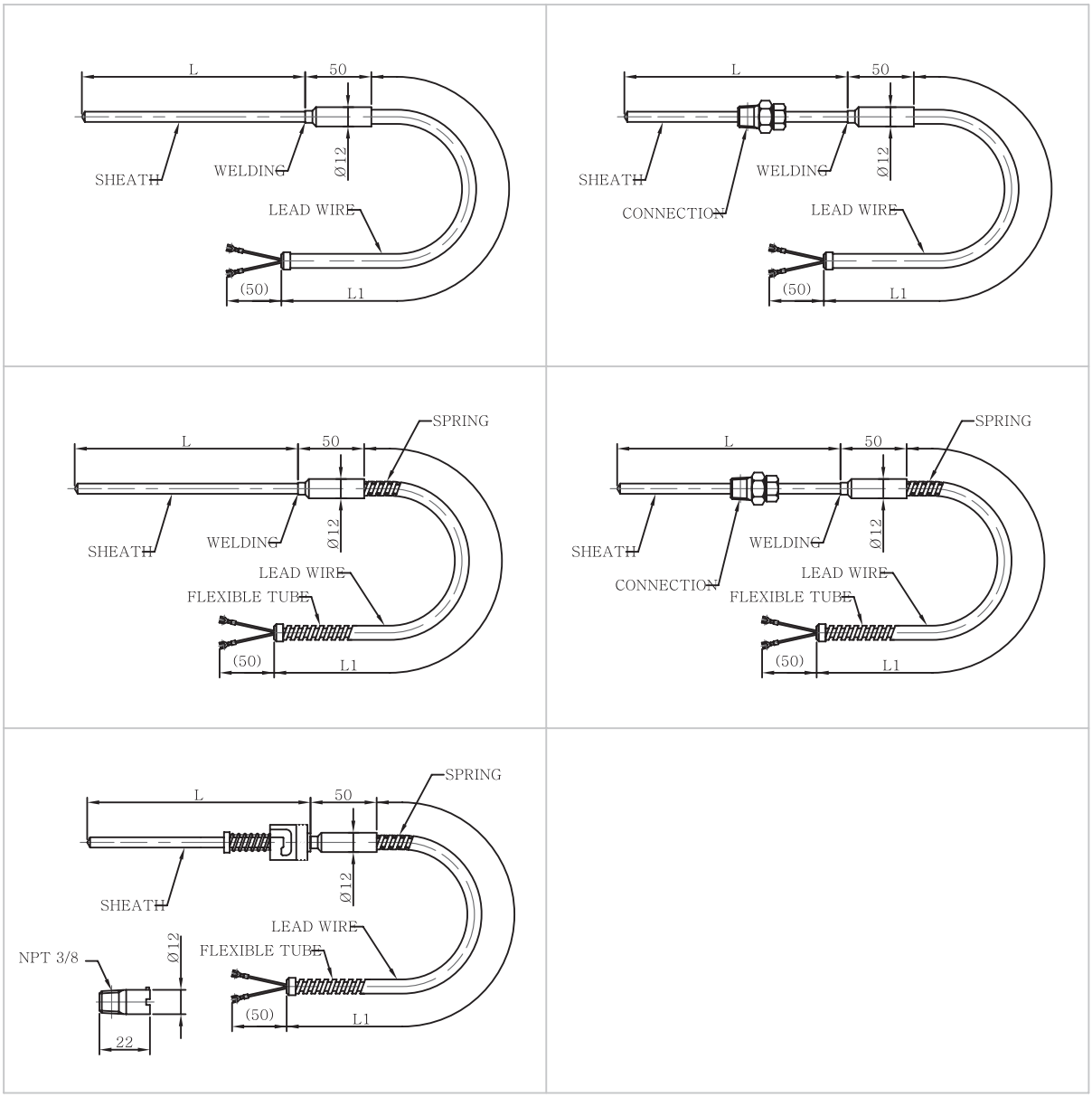
| Code(13) | Lead wire diameter |
|---|---|
| 33 | 0.18mm(AWG 33) |
| 30 | 0.25mm(AWG 30) |
| 24 | 0.51mm(AWG 24) |
| 21 | 0.72mm(AWG 21) |
| 18 | 1.02mm(AWG 18) |
| 16 | 1.27mm(AWG 16) |
| 14 | 1.63mm(AWG 14) |
| XX | Others |
| **Code(14)** | **Sensor Immersion Length(L)** |
| L0100 | 100mm |
| L0150 | 150mm |
| L0200 | 200mm |
| L0250 | 250mm |
| L0300 | 300mm |
| L0350 | 350mm |
| L0400 | 400mm |
| L0450 | 450mm |
| L0500 | 500mm |
| L0550 | 550mm |
| L0600 | 600mm |
| L0700 | 700mm |
| L0800 | 800mm |
| L0900 | 900mm |
| L1000 | 1000mm |
| XXXXX | Others |
| **Code(15)** | **Tolerance Grade** |
| A0 | ANSI Grade(STD) |
| A1 | ASTM Grade (STD) |
| A2 | IEC (STD) |
| A3 | ANSI Grade (SP) |
| **Code(16)** | **Calibrate certifications** |
| N | Not apply |
| T1 | Test Report by Manufacturer |
| **Code(17)** | **Accessory Options** |
| 0 | Not apply |
| 1 | Thermowell |
| X | Others |

Sample ordering code : Thermocouple;

TE065KS2GU331336ZM340150K2T1

Please consult factory for full specification/ Data sheet.

## THERMOCOUPLE EXTENSION LEAD WIRE TYPE (TE-06 Series)





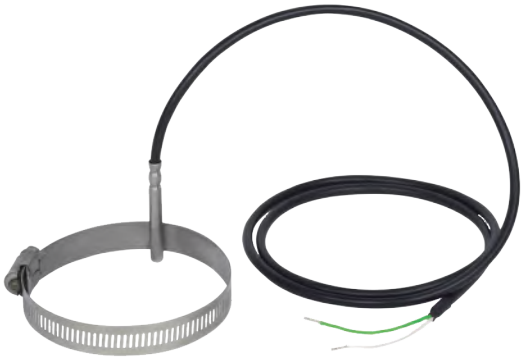

Please consult factory for full specification/ Data sheet.

# SKIN TYPE THERMOCOUPLE SENSOR

TE-07

## Applications:

To measure surface temperatures on flat surfaces or pipes, in both laboratory and industrial applications.



## Special features:

- Sensor ranges from -200 ... +1,200 °C [-328 ... +2,192 °F]
- Easily exchanged, no thermowell necessary
- For screw-fitting, welding or using a tightening strap
- Cable from PVC, silicone, PTFE or glass fibre
- Explosion-protected versions

## Description:

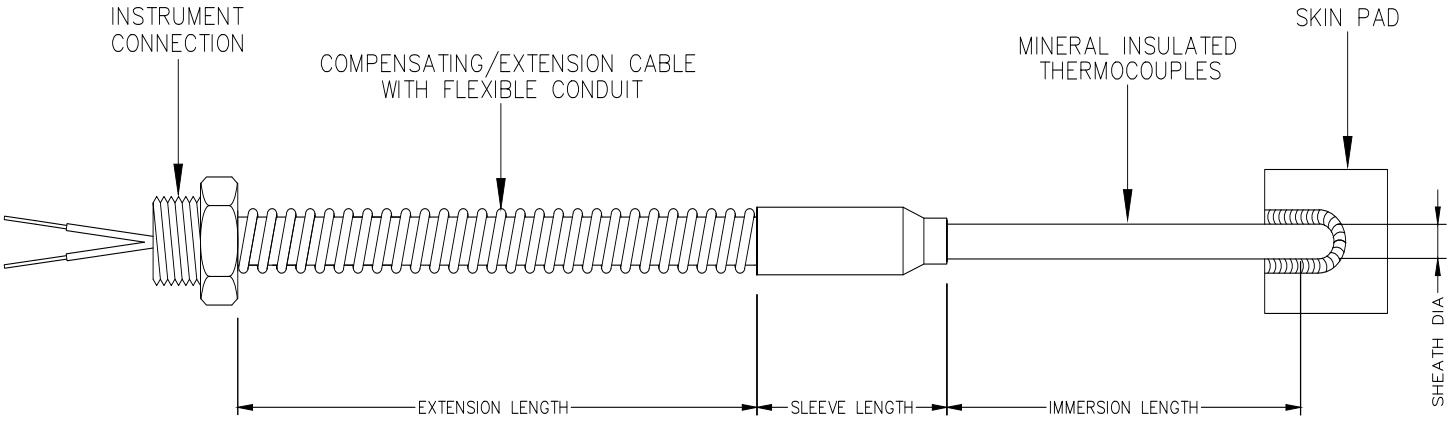
### Probe

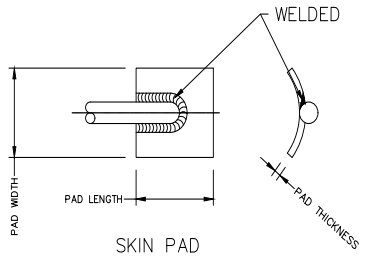
In the variants for flat surfaces, the probe is fitted within a contact block. This can be screwed or welded onto the vessel surface. Variants for pipes are secured using a tightening strap.

### Cable

There are various insulating materials available to suit any particular environmental conditions. The cable end is made up, ready for connection, but can also be fitted with a connector or connected to a field case, as options.

## Dimensions:




Please consult factory for full specification/ Data sheet.

# SKIN TYPE THERMOCOUPLE SENSOR



## Ordering Information for TE-07 Series

| Model | Product Description | | |
|---|---|---|---|
| TE-07 | Skin type Thermocouple sensor | | |
| **Code(1)** | **Connection Head type** | | **Explosion Proof** |
| 1 | Explosion Proof Aluminum Head | (Dual Conduits) | Eex d IIC T5 |
| 2 | Explosion Proof Aluminum Head | (Single Conduits) | Eex d IIB+H2 T6 |
| 3 | General Aluminum Head | (Single Conduits) | None(IP65) |
| 4 | General Stainless Steel Head | (Single Conduits) | None(IP65) |
| 5 | Sensor only with 150mm long TEFLON insulated lead wires | | N/A |
| **Code(2)** | **Element Type** | **Thermocouple Wire Alloys** | **Tempearture Range** |
| Thermocouple "K" | | Chromel / Alumel | -200 ~ 1200°C |
| E | Thermocouple "E" | Chromel / Constantan | -200 ~ 800°C |
| J | Thermocouple "J" | Iron / Constantan | 0 ~ 750°C |
| T | Thermocouple "T" | Copper / Constantan | -200 ~ 350°C |
| **Code(3)** | **Terminal** | | |
| S | Single junction | T Triple junction | |
| D | Dual junction | | |
| **Code(4)** | **No. of Conductor wire** | | |
| 2 | 2-wire | | |
| 4 | 2-wire Duplex | | |
| 6 | 2-wire Triplex | | |
| **Code(5)** | **Extension Type** | **Length(mm)** | |
| 10 | Fixed Thread | None | |
| 11 | Fixed Thread | 100 | |
| 13 | Fixed Thread | 150 | |
| 19 | Fixed Thread | others | |
| 23 | Nipple Thread | 100 | |
| 29 | Nipple Thread | others | |
| 33 | Nipple, Union & Nipple Thread | 150 | |
| 34 | Nipple, Union & Nipple Thread | 200 | |
| 39 | Nipple, Union & Nipple Thread | others | |
| 43 | Nipple & Flange Welded | 100 | |
| 44 | Nipple & Flange Welded | 150 | |
| 49 | Nipple & Flange Welded | others | |
| 50 | Compression Fitting | None | |
| 60 | Movable Thread | None | |
| 61 | Movable Flange | None | |
| 73 | Tube welded Flange | 100 | |
| 74 | None Metal Only Tube | None | |
| 75 | None Metal Only Flange | 100 | |
| 76 | Ring welded screwed | 100 | |
| 99 | Others | | |
| **Code(6)** | **Extension lead type** | | |
| OO | None | | |
| FS | Flexible shield lead type | | |
| FA | Flexible tube armoured lead type | | |

Please consult factory for full specification/ Data sheet.

| | | |
|---|---|---|
| FQ | Flexible lead type with quick connector | |
| FP | Flexible lead type with with metal Plug & socket | |
| BS | Bayonet spring load type | |
| **Code(7)** | **Tip shape** | |
| P | Padded type & Grounded junction | |
| K | Knife-edge type & Grounded junction | |
| **Code(8)** | **Extension Length(mm)** | |
| 0000 | None | |
| 2000 | 2000 | |
| XXXX | others | |
| **Code(9)** | **Sheath Material** | |
| A | 304SS | |
| B | 316SS | |
| C | INCONEL 600 | |
| D | 310SS | |
| E | 446SS | |
| F | 347SS | |
| G | 321SS | |
| X | Others | |
| **Code(10)** | **Sheath Outer Diameter** | |
| 31 | 1.6mm | |
| 32 | 3.2mm | |
| 34 | 4.8mm | |
| 36 | 6.4mm | |
| 38 | 8.0mm | |
| **Code(11)** | **Conduit Connection** | |
| O | None | |
| A | 1/2"PF | |
| B | 1/2"PT | |
| C | 1/2"NPT | |
| D | 3/4"PF | |
| E | 3/4"PT | |
| F | 3/4"NPT | |
| **Code(12)** | **Process Connection Size** | **Material** |
| ZZ | None | None |
| H1 | 1/4" | 304 SS |
| H2 | 3/8" | 304 SS |
| H3 | 1/2" | 304 SS |
| H4 | 1" | 304 SS |
| H5 | 1 1/2" | 304 SS |
| H6 | 2" | 304 SS |
| H7 | 3" | 304 SS |
| M1 | 1/4" | 316 SS |
| M2 | 3/8" | 316 SS |

Please consult factory for full specification/ Data sheet.

# SKIN TYPE THERMOCOUPLE SENSOR



| | | |
|---|---|---|
| M3 | 1/2" | 316 SS |
| M4 | 1" | 316 SS |
| M5 | 1 1/2" | 316 SS |
| M6 | 2" | 316 SS |
| M7 | 3" | 316 SS |
| P | Pad(19 x 19mm, 3mmT'hk) | Same as sheath material |
| K | Knife edge | Same as sheath material |
| X | Others | |
| **Code(13)** | **Connection Type** | |
| 0 | None | |
| 2 | PT | |
| 3 | PF | |
| 4 | NPT | |
| 8 | NPS | |
| F01 | ANSI 150# RF | |
| F02 | ANSI 150# FF | |
| F03 | ANSI 300# RF | |
| F04 | ANSI 300# FF | |
| F05 | ANSI 600# RF | |
| 9 | Compression fitting connector | |
| F99 | Others | |
| **Code(14)** | **Lead wire diameter** | |
| 33 | 0.18mm(AWG 33) | |
| 30 | 0.25mm(AWG 30) | |
| 24 | 0.51mm(AWG 24) | |
| 21 | 0.72mm(AWG 21) | |
| 18 | 1.02mm(AWG 18) | |
| 16 | 1.27mm(AWG 16) | |
| 14 | 1.63mm(AWG 14) | |
| XX | Others | |
| **Code(15)** | **Sensor Immersion Length(L)** | |
| L0100 | 100mm | |
| L0150 | 150mm | |
| L0200 | 200mm | |
| L0250 | 250mm | |
| L0300 | 300mm | |
| L0350 | 350mm | |
| L0400 | 400mm | |
| L0450 | 450mm | |
| L0500 | 500mm | |

Please consult factory for full specification/ Data sheet.

| | |
|---|---|
| L0550 | 550mm |
| L0600 | 600mm |
| L0700 | 700mm |
| L0800 | 800mm |
| L0900 | 900mm |
| L1000 | 1000mm |
| XXXXX | Others |
| **Code(16)** | **Tolerance Grade** |
| A0 | ANSI Grade(STD) |
| A1 | ASTM Grade( STD) |
| A2 | IEC Grade( STD) |
| A3 | ANSI Grade( SP) |
| **Code(17)** | **Calibrate certifications** |
| N | Not apply |
| T1 | Test Report by Manufacturer |
| **Code(18)** | **Accessory Options** |
| 0 | Not apply |
| 1 | Shield case |
| 2 | Strap |
| 3 | Clip |
| 4 | Ceramic fiber(max. 1300°C) |
| X | Others |

Sample ordering code : Thermocouple;

TE071S2FAKP0000C3618CHT02L1550K3T11/3/4



Please consult factory for full specification/ Data sheet.

# NON METALLIC PROTECTION TUBE THERMOCOUPLE SENSOR

TE-08

## Applications:

- Sulphur recovery units (SRU)
- Chemical, petrochemical industry
- Hot blast stove

## Special features:

- Flushing connection to prolong the life of the thermocouple (selectable)
- Increased safety against escape of toxic media through double sealing system
- High variance of thermowell / protection tube materials
- Available with temperature transmitter or field transmitter
- High process safety with processes up to 1,800 °C [3,272 °F]

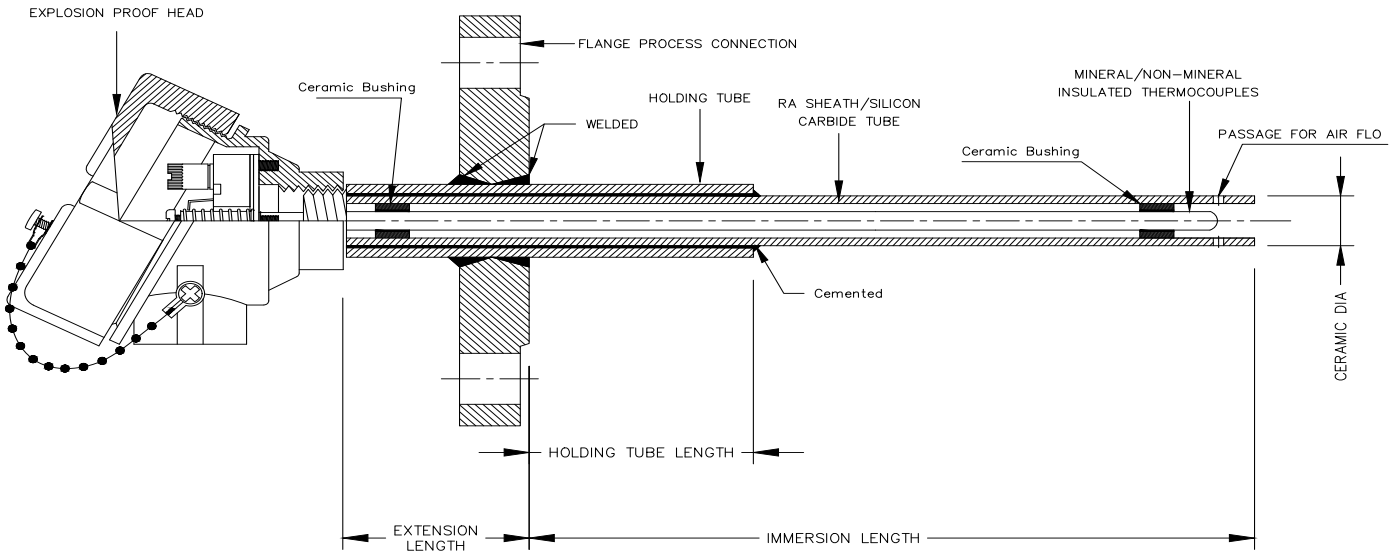
## Description:

This high-temperature thermocouple has been specifically developed for use in hazardous applications. A protection tube made from high-temperature ceramic or silicon-carbide, with or without an additional inner tube, protects the thermocouple from the process medium as well as mechanical damage.

For particularly critical applications as e.g. sulphur recovery units, we offer designs with purge gas connection, to prevent the thermocouple by poisoning by the aggressive process atmosphere.

Hermetically sealed junctions prevent toxic gases from being able to escape the reactor. The high temperatures in the process place very high demands on protection tubes and thermocouples. These process conditions often lead to shutdowns and interruptions in operation. The special design of this Ex-approved high-temperature thermometer can significantly improve life expectancy of the thermocouple and reduce downtime.

## Dimensions:




Please consult factory for full specification/ Data sheet.

# NON METALLIC PROTECTION TUBE THERMOCOUPLE SENSOR



## Ordering Information for TE-08 Series

| Model | Product Description | | |
|---|---|---|---|
| AM-TE08 | Non Metallic Protection Tube Thermocouple Sensor | | |
| **Code(1)** | **Connection Head type** | | **Explosion Proof** |
| 1 | Explosion Proof Aluminum Head | (Dual Conduits) | Eex d IIC T5 |
| 2 | Explosion Proof Aluminum Head | (Single Conduits) | Eex d IIB+H2 T6 |
| 3 | General Aluminum Head | (Single Conduits) | None(IP65) |
| 4 | General Stainless Steel Head | (Single Conduits) | None(IP65) |
| **Code(2)** | **Element Type** | **Thermocouple Wire Alloys** | **Tempearture Range** |
| B | Thermocouple "B" | Pt Rh30 / Pt Rh6 | 200 ~ 1700°C |
| R | Thermocouple "R" | Pt Rh13 / Pt | 0 ~ 1600°C |
| S | Thermocouple "S" | Pt Rh10 / Pt | 0 ~ 1600°C |
| K | Thermocouple "K" | Chromel / Alumel | -200 ~ 1200°C |
| X | Others | | |
| **Code(3)** | **Terminal** | | |
| S | Single junction | | |
| D | Dual junction | | |
| **Code(4)** | **Lead wire termination** | | |
| 2 | 2-wire | | |
| 4 | 2-wire duplex | | |
| 6 | 2-wire triplex | | |
| **Code(5)** | **Construction** | | |
| 05 | Ceramic Protection tube type with Metal support and Slide flange | | |
| 06 | Screwed-in Ceramic Protection tube type with Hex. Nipple | | |
| 07 | Ceramic Protection tube type with Fixed flange | | |
| 08 | Ceramic Protection tube type with Fixed flange on Metal support | | |
| 09 | Dual Protection tube type Inner Ceramic and Outer Metal tube with Slide flange | | |
| 10 | Screwed-in Dual Protection tube type Inner Ceramic and Outer Metal tube with Hex. Nipple | | |
| 11 | Dual Protection tube type Inner Ceramic and Outer Metal tube with Fixed flange | | |
| 12 | Dual Ceramic Protection tube type with Slide flange | | |
| 13 | Screwed-in Dual Ceramic protection tube type with Hex. Metal support | | |
| 14 | Dual Ceramic Protection tube type with Fixed flange | | |
| 15 | Dual Ceramic Protection tube type with Fixed flange on Metal support | | |
| **Code(6)** | **Ceramic Protection tube Material** | | |
| A | PT-1(Mullite, 60% Alumina-40% Silica) | | |
| B | PT-0(Recrystallized Alumina, 99.5% Alumina) | | |
| X | Others | | |
| **Code(7)** | **Outside Metal jacket tube size** | | |
| 0 | None | | |
| 1 | 316SS, 1/2" Sch 40 | | |
| 2 | SANDVIK 253MA, 1/2" Sch 40 | | |
| 3 | 316SS, 3/4" Sch 40 | | |
| 4 | SANDVIK 253MA, 3/4" Sch 40 | | |
| X | Others | | |
| **Code(8)** | **Outside protection tube size(O.D. x I.D.)** | | |
| 0 | None | | |

Please consult factory for full specification/ Data sheet.

| | |
|---|---|
| F | 13.0 x 9.0mm |
| G | 15.0 x 11.0mm |
| H | 17.0 x 13.0mm |
| I | 21.0 x 16.0mm |
| J | 25.0 x 20.0mm |
| X | Others |

| Code(9) | Inside protection tube size(O.D. x I.D.) |
|---|---|
| 0 | None |
| C | 6.0 x 4.0mm |
| D | 8.0 x 5.0mm |
| E | 10.0 x 6.0mm |
| X | Others |

| Code(10) | Conduit Connection |
|---|---|
| A | 1/2"PF |
| B | 1/2"PT |
| C | 1/2"NPT |
| D | 3/4"PF |
| E | 3/4"PT |
| F | 3/4"NPT |

| Code(11) | Process Connection Size | Material |
|---|---|---|
| ZZ | None | None |
| H3 | 1/2" | 304 SS |
| H4 | 1" | 304 SS |
| H5 | 1 1/2" | 304 SS |
| H6 | 2" | 304 SS |
| M3 | 1/2" | 316 SS |
| M4 | 1" | 316 SS |
| M5 | 1 1/2" | 316 SS |
| M6 | 2" | 316 SS |
| X | Others | |

| Code(12) | Connection Type |
|---|---|
| 0 | None |
| 2 | PT |
| 3 | PF |
| 4 | NPT |
| 8 | NPS |
| F01 | ANSI 150# RF |
| F02 | ANSI 150# FF |
| F03 | ANSI 300# RF |
| F04 | ANSI 300# FF |



Please consult factory for full specification/ Data sheet.

| | |
|---|---|
| F99 | Others |
| **Code(13)** | **Element wire size** |
| 33 | 0.18mm(AWG 33) |
| 30 | 0.25mm(AWG 30) |
| 24 | 0.51mm(AWG 24) |
| 21 | 0.72mm(AWG 21) |
| 18 | 1.02mm(AWG 18) |
| 16 | 1.27mm(AWG 16) |
| 14 | 1.63mm(AWG 14) |
| 11 | 2.3mm(AWG 11) |
| 08 | 3.3mm(AWG 8) |
| XX | Others |
| **Code(14)** | **Sensor Immersion Length(L)** |
| L0300 | 300mm |
| L0350 | 350mm |
| L0400 | 400mm |
| L0450 | 450mm |
| L0500 | 500mm |
| L0550 | 550mm |
| L0600 | 600mm |
| L0700 | 700mm |
| L0800 | 800mm |
| L0900 | 900mm |
| L1000 | 1000mm |
| XXXXX | Others |
| **Code(15)** | **Tolerance Grade** |
| A0 | ANSI Grade(STD) |
| A1 | ASTM Grade(STD) |
| A2 | IEC Grade (STD) |
| A3 | ANSI Grade( SP) |
| **Code(16)** | **Calibrate certifications** |
| N | Not apply |
| T1 | Test Report by Manufacturer |
| **Code(17)** | **Accessory Options** |
| - | None |
| X | Others |
| Sample ordering code : Thermocouple; | |
| TE083KS208B1XXAM5F0133L0600K2T1 | |

Please consult factory for full specification/ Data sheet.

# MULTI-POINT THERMOCOUPLE SENSOR

TE-09

## Applications:

- Chemical and petrochemical industry
- Measurement of temperature layerings or hotspots in reactors
- Licensor-specific design

## Special features:

- Versions to customer specification
- Secondary containment option
- Exchangeable measuring inserts
- Anchored support

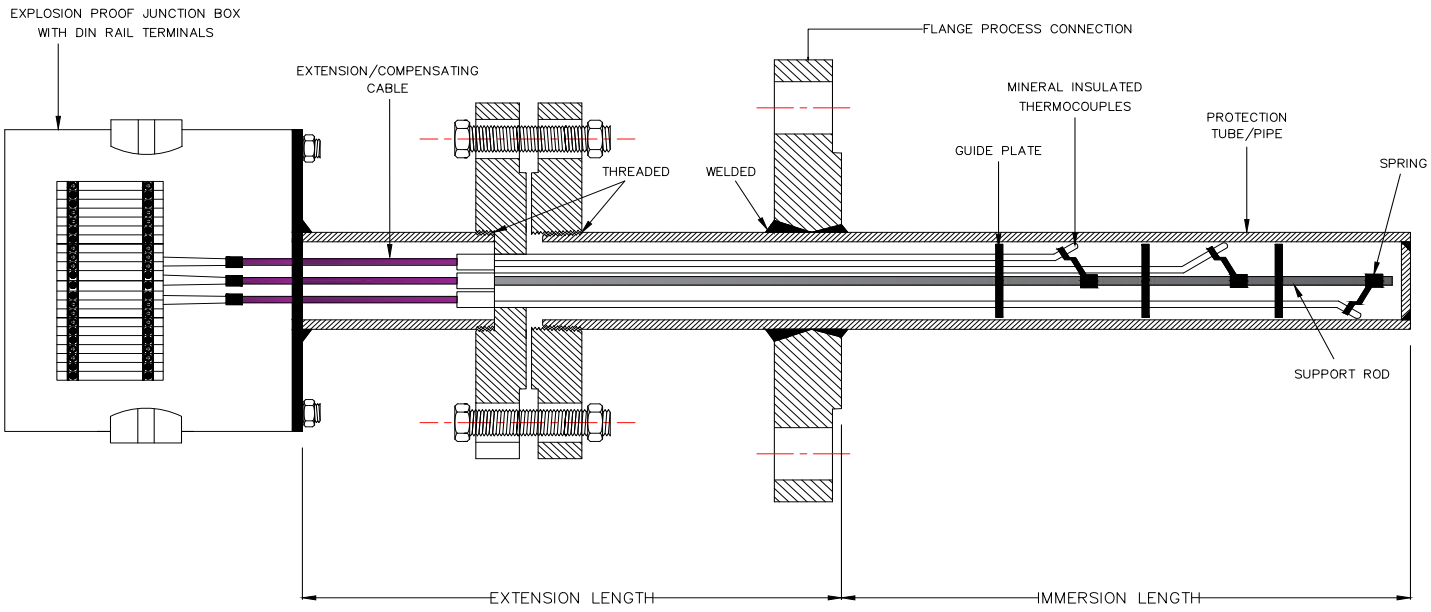
## Description:

Multipoint thermocouples are often used for measuring temperature profiles in reactors or fuel depots or for the detection of the so-called “ hotspots ” .

The so-called multipoint thermocouple T-Bar design is common for certain vessel designs. In this design, several exchangeable thermocouples are linearly arranged in a T-Bar/pipe design.

The thermocouples are replaceable within the protection tube/flanged primary pressure containment. This design can be provided with a secondary containment option and various neck extensions to suit customer requirements. Connection terminals or temperature transmitters are placed in the connection housing which is either a component of the multipoint thermocouple or can be mounted separately, e.g. on a wall or pipeline.

## Dimensions:




Please consult factory for full specification/ Data sheet.

## Ordering Information for (TE-09 series)

| Model | Product Description | | |
|---|---|---|---|
| TE-09 | Multi-point Thermocouple sensor | | |
| **Code(1)** | **Junction box type** | **Explosion Proof** | |
| 1 | Explosion Proof Aluminum Head | Eex d IIB T4 / T6 | |
| 2 | General Aluminum Head | None(IP65) | |
| 3 | General Stainless Steel Head | None(IP65) | |
| 4 | Others | | |
| **Code(2)** | **Element Type** | **Thermocouple Wire Alloys** | **Tempearture Range** |
| B | Thermocouple "B" | Pt Rh30 / Pt Rh6 | 200 ~ 1700°C |
| R | Thermocouple "R" | Pt Rh13 / Pt | 0 ~ 1600°C |
| S | Thermocouple "S" | Pt Rh10 / Pt | 0 ~ 1600°C |
| K | Thermocouple "K" | Chromel / Alumel | -200 ~ 1200°C |
| E | Thermocouple "E" | Chromel / Constantan | -200 ~ 800°C |
| J | Thermocouple "J" | Iron / Constantan | 0 ~ 750°C |
| T | Thermocouple "T" | Copper / Constantan | -200 ~ 350°C |
| **Code(3)** | **Conduit hub** | | |
| S | Single | | |
| D | Dual | | |
| **Code(4)** | **Conduit Connection** | | |
| A | 3/4"PF | | |
| B | 3/4"PT | | |
| C | 3/4"NPT | | |
| D | 1"PF | | |
| E | 1"PT | | |
| F | 1"NPT | | |
| G | 1+1/2"PF | | |
| H | 1+1/2"PT | | |
| I | 1+1/2"NPT | | |
| **Code(5)** | **Design** | | |
| 1 | Free hanging type(2-12 measuring point, assembled length 20 meter max.) | | |
| 2 | Multi-guide Plug type(2-10 measuring point, assembled length 20 meter max.) | | |
| 3 | Spring loaded type(2-10 measuring point, assembled length 20 meter max.) | | |
| 4 | Swaged-in type(3-20 measuring point, assembled length 30 meter max.) | | |
| 5 | Others | | |
| **Code(6)** | **Tip shape** | | |
| G | Grounded tip | | |
| U | Ungrounded tip | | |
| **Code(7)** | **Sheath Outer Diameter** | | |
| 16 | 1.6mm | | |
| 32 | 3.2mm | | |
| 48 | 4.8mm | | |
| 64 | 6.4mm | | |
| 80 | 8.0mm | | |

Please consult factory for full specification/ Data sheet.

| Code(8) | Sheath Material | |
|---|---|---|
| B | 316SS | |
| C | INCONEL 600 | |
| D | 310SS | |
| E | 446SS | |
| F | 347SS | |
| G | 321SS | |
| X | Others | |
| **Code(9)** | **Extension Type** | **Length(mm)** |
| 10 | Pipe nipple | 150 |
| 19 | Pipe nipple | others |
| 23 | Nipple, Union & Nipple Thread | 200 |
| 29 | Nipple, Union & Nipple Thread | others |
| 39 | Nipple, Seal & Support plate with Flange assembly | Later |
| ZZ | Others | |
| **Code(10)** | **Process Connection Size** | **Material** |
| ZZ | None | None |
| H4 | 1" | 316 SS |
| H5 | 1 1/2" | 316 SS |
| M6 | 2" | 316 SS |
| M7 | 3" | 316 SS |
| X | Others | |
| **Code(11)** | **Process connection Type** | |
| 0 | None | |
| 2 | PT | |
| 4 | NPT | |
| F01 | ANSI 150# RF | |
| F02 | ANSI 150# FF | |
| F03 | ANSI 300# RF | |
| F04 | ANSI 300# FF | |
| F05 | ANSI 600# RF | |
| F99 | Others | |
| **Code(12)** | **Lead wire diameter** | |
| 00 | MFR'S standard | |
| 33 | 0.18mm(AWG 33) | |
| 30 | 0.25mm(AWG 30) | |
| 24 | 0.51mm(AWG 24) | |
| 21 | 0.72mm(AWG 21) | |
| 18 | 1.02mm(AWG 18) | |
| 16 | 1.27mm(AWG 16) | |



Please consult factory for full specification/ Data sheet.

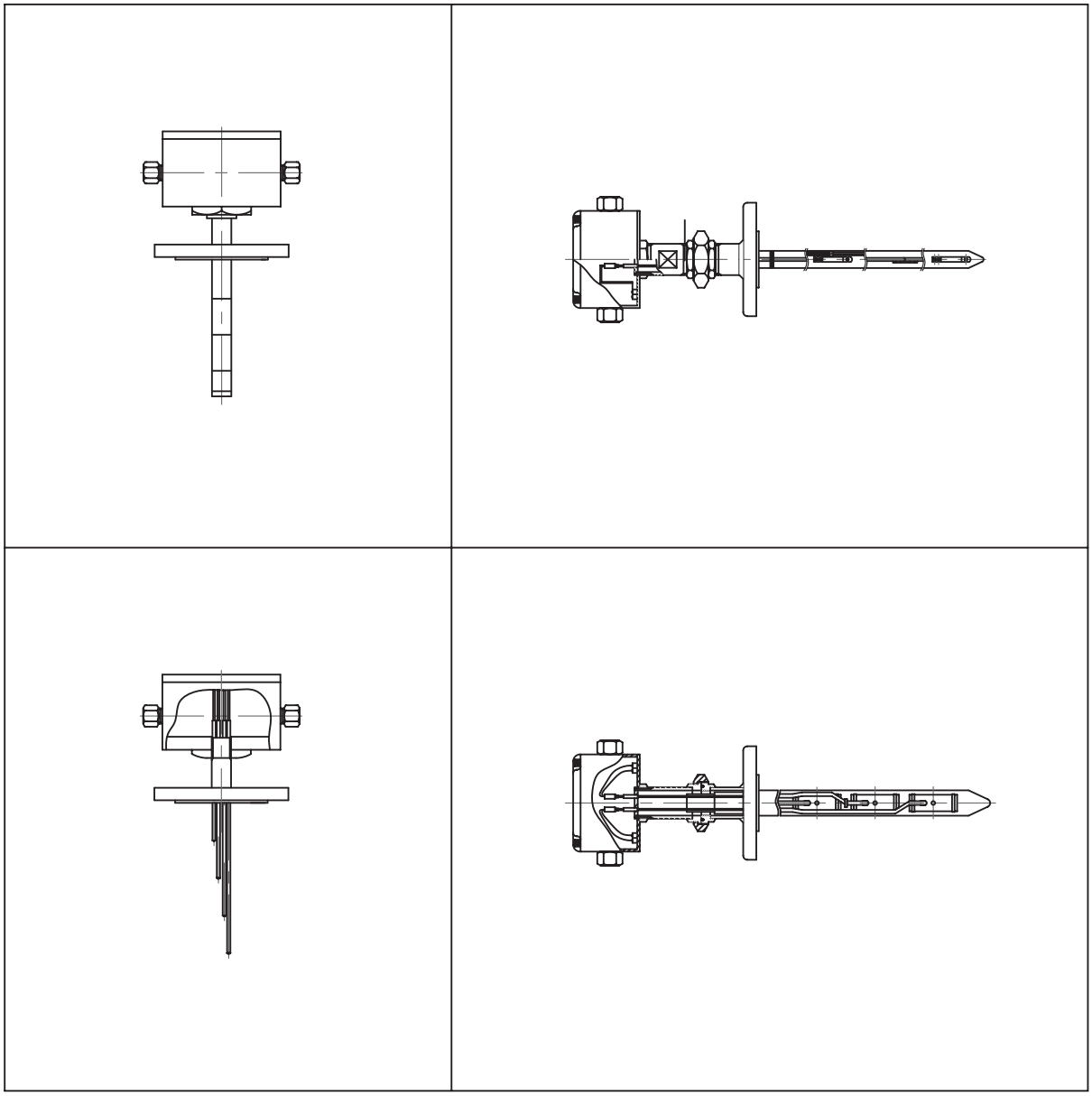
| | |
|---|---|
| XX | Others |
| **Code(13)** | **Thermowell Pipe size** |
| - | None |
| 1A | 3/4" SCH 80 |
| 2A | 1" SCH 80 |
| 3A | 1+1/2" SCH 80 |
| 4A | 2" SCH 80 |
| XX | Others |
| **Code(14)** | **"U" - Pipe Insert length(mm)** |
| 0000 | None |
| 4000 | 4000mm |
| ZZZZ | Others |
| **Code(15)** | **Measuring point(mm)** |
| P2 | 2-Point (P1: , P2: ) |
| P3 | 3-Point (P1: , P2: , P3: ) |
| P4 | 4-Point (P1: , P2: , P3: ,P4: ) |
| P6 | 6-Point (P1: , P2: , P3: , P4: , P5: , P6: ) |
| P10 | 10-Point (P1: , P2: , P3: , P4: , P5: , P6: , etc.) |
| P12 | 12-Point (P1: , P2: , P3: , P4: , P5: , P6: , P7: etc.) |
| ZZ | Others |
| **Code(16)** | **Tolerance Grade** |
| A0 | ANSI Grade(STD) |
| A1 | ASTM Grade( STD) |
| A2 | IEC Grade( STD) |
| A3 | ANSI Grade( SP) |
| **Code(17)** | **Calibrate certifications** |
| N | Not apply |
| T1 | Test Report byManufacturer |
| **Code(18)** | **Accessory Options** |
| 0 | Not apply |
| 1 | Pressure tap(NPT) |
| X | Others |

Sample ordering code : Multi-Thermocouple;

TE-09 1KS1G64B23H5F02331A3000P2K3T1

Please consult factory for full specification/ Data sheet.

## MULTI-POINT THERMOCOUPLE (TE-09 Series)



Please consult factory for full specification/ Data sheet.