# ATEX / IECEx Thermocouples with Termination Entry Gland

## Mineral Insulated Thermocouples 1.0mm to 8.0mm dia.

Our ATEX / IECEx mineral insulated thermocouple assemblies are manufactured from cable that conforms to IEC 61515 and their semi rigid construction allows them to be bent and formed to suit particular applications without impairing performance.

*Model shown is fitted with connection tails.*
*A choice of cables is also available, see section 6*
*The above sensor must be terminated in a suitable ATEX approved Enclosure or Box*

- **Approved to II 2 GD Ex d IIC Gb (Gas) and Ex tb IIIC Db (Dust)**
- **Also suitable for use in intrinsically safe areas to Ex II 1 G Ex ia IIC Ga, see page 19 for details**
- **Temperature classification T6-T1, see page 20 for stand-off requirements**
- **Available in thermocouple types K, T, J, N, E, R, S and B**
- **Sheath diameters from 1.0mm to 8.0mm in a wide choice of materials**
- **Insulated measuring junction gives a floating output with high insulation resistance**
- **Terminated in a compression gland pot seal with 50mm PTFE sleeved tails**
- **Simplex, duplex and triplex sensors available**
- **UKAS calibration available**

| SECTION 1 | Thermocouple Type | Temperature Range (continuous) |
|---|---|---|
| K | Nickel Chromium vs Nickel Aluminium | 0°C to +1100°C |
| T | Copper vs Constantan | -185°C to +400°C |
| J | Iron vs Constantan | +50°C to +800°C |
| N | Nicrosil vs Nisil | 0°C to +1200°C |
| E | Nickel Chromium vs Constantan | 0°C to +800°C |
| R | Platinum - 13% Rhodium vs Platinum | 0°C to +1600°C |
| S | Platinum - 10% Rhodium vs Platinum | 0°C to +1550°C |
| B | Platinum - 30% Rhodium vs Platinum - 6% Rhodium | +100°C to +1600°C |

| SECTION 2 | Sheath Material | Maximum Temperature |
|---|---|---|
| 321 | 321 Stainless Steel (Types K, J, T & E) | 800°C |
| 310 | 310 Stainless Steel (Type K) | 1100°C |
| 600 | Inconel 600 (Types K, N, R, S & B) | 1100°C |
| 114 | Nicrobell D (Types K & N) | 1250°C |
| 156 | Hastelloy X (Type K) | 1220°C |
| 446 | AISI 446 (Type K) | 1150°C |
| 800 | Incoloy 800 (Type K) | 1100°C |

| SECTION 3 | Sheath Diameter (mm) | Sheath Diameter (inches) |
|---|---|---|
| Standard Sizes | 1.0mm | 0.039" |
| | 1.5mm | 0.059" |
| | 3.0mm | 0.118" |
| | 4.5mm | 0.177" |
| | 6.0mm | 0.236" |
| | 8.0mm | 0.315" |

| SECTION 4 | Type of Sensing Junction |
|---|---|
| 2I<br>2ID<br>2IT | **INSULATED**<br>The hot (measuring) junction is insulated from the sheath and this gives a floating output with a typical insulation resistance in excess of 100 megohms.<br>Enter **2I** for simplex, **2ID** for duplex or **2IT** for a triplex element. |

| SECTION 5 | Termination Entry Gland (please use code number to specify thread size and material for the sensor diameter chosen) | | |
|---|---|---|---|
| Dia. | Thread Size | Order Code for **Brass** | Order Code for **Stainless Steel** |
| 1.0mm | 16mm ISO | SFBM16-10CBEX | SFSM16-10CBEX |
| 1.5mm | 16mm ISO | SFBM16-15CBEX | SFSM16-15CBEX |
| 3.0mm | 16mm ISO | SFBM16-30CBEX | SFSM16-30CBEX |
| 4.5mm | 16mm ISO | SFBM16-45CBEX | SFSM16-45CBEX |
| 6.0mm | 16mm ISO | SFBM16-60CBEX | SFSM16-60CBEX |
| 8.0mm | 16mm ISO | SFBM16-80CBEX | SFSM16-80CBEX |
| 3.0mm | 20mm ISO | SFBM20-30CBEX | SFSM20-30CBEX |
| 4.5mm | 20mm ISO | SFBM20-45CBEX | SFSM20-45CBEX |
| 6.0mm | 20mm ISO | SFBM20-60CBEX | SFSM20-60CBEX |
| 8.0mm | 20mm ISO | SFBM20-80CBEX | SFSM20-80CBEX |

| SECTION 6 | Optional Extension Cables (please specify length in metres) |
|---|---|
| A82 | PVC Insulation (105°C) (Seal rating: 90°C) |
| B55 | PFA Insulation (250°C) (Seal rating: 230°C) |
| C40 | Fibreglass Insulation (480°C) (Seal rating: 260°C) |

** All cables have 7/0.2mm conductors. If no cable is required, leave this section of the order code blank and the sensor will be supplied with 50mm PTFE 'tails' .*

| SECTION 7 | Optional Stainless Steel Adjustable Compression Fittings | | |
|---|---|---|---|
| Dia. | 1/8" BSPT | 1/4" BSPT | 1/2" BSPT |
| 1.0mm | SFS18T10EX | SFS14T10EX | – |
| 1.5mm | SFS18T15EX | SFS14T15EX | – |
| 3.0mm | SFS18T30EX | SFS14T30EX | SFS12T30EX |
| 4.5mm | SFS18T45EX | SFS14T45EX | SFS12T45EX |
| 6.0mm | SFS18T60EX | SFS14T60EX | SFS12T60EX |
| 8.0mm | – | SFS14T80EX | SFS12T80EX |

*Other thread sizes are available - please see page 14 for details.*

**Order Code** - Example

| Type Nº | I.S. Version (Optional, please see page 19 for details) | Thermocouple Type (See section 1) | Sheath Length in mm | Sheath Material (See section 2) | Sheath Diameter (See section 3) | Sensing Junction (See section 4) | Termination (See section 5) | Extension Cable (Optional, see section 6) | Compression Fitting (Optional, see section 7) |
|---|---|---|---|---|---|---|---|---|---|
| 52 | - IS | - K | - 500 | - 321 | - 3.0 | - 2I | - SFSM1630CBEX | - 2m A82KX | - SFS14T30EX |


Tel: +44 (0)1895 252222 · Fax: +44 (0)1895 273540 · Email: info@tc.co.uk · Web: www.tc.co.uk

# ATEX / IECEx Thermocouples with Termination Entry Gland

**Mineral Insulated Thermocouples 1.0mm to 8.0mm dia.**

Our ATEX / IECEx mineral insulated thermocouple assemblies are manufactured from cable that conforms to IEC 61515 and their semi rigid construction allows them to be bent and formed to suit particular applications without impairing performance.

*Model shown is fitted with connection tails.*
*A choice of cables is also available, see section 6*

*The above sensor must be terminated in a suitable ATEX / IECEx approved enclosure or box*

- **Approved to II 3 GD Ex nA IIC Gc (Gas) and Ex tc IIIC Dc (Dust)**
- **High integrity construction suited to arduous operating conditions**
- **High accuracy and stability maintained throughout operating life**
- **Available in thermocouple types K, T, J, N, E, R, S and B**
- **Sheath diameters from 1.0mm to 8.0mm in a wide choice of materials**
- **Insulated measuring junction gives a floating output with high insulation resistance**
- **Terminated in a compression gland pot seal with 50mm PTFE sleeved tails**
- **Simplex, duplex and triplex sensors available**
- **UKAS calibration available**

| SECTION 1 | Thermocouple Type | Temperature Range (continuous) |
|---|---|---|
| K | Nickel Chromium vs Nickel Aluminium | 0°C to +1100°C |
| T | Copper vs Constantan | -185°C to +400°C |
| J | Iron vs Constantan | +50°C to +800°C |
| N | Nicrosil vs Nisil | 0°C to +1200°C |
| E | Nickel Chromium vs Constantan | 0°C to +800°C |
| R | Platinum - 13% Rhodium vs Platinum | 0°C to +1600°C |
| S | Platinum - 10% Rhodium vs Platinum | 0°C to +1550°C |
| B | Platinum - 30% Rhodium vs Platinum - 6% Rhodium | +100°C to +1600°C |

| SECTION 2 | Sheath Material | Maximum Temperature |
|---|---|---|
| 321 | 321 Stainless Steel (Types K, J, T & E) | 800°C |
| 310 | 310 Stainless Steel (Type K) | 1100°C |
| 600 | Inconel 600 (Types K, N, R, S & B) | 1100°C |
| 114 | Nicrobell D (Types K & N) | 1250°C |
| 156 | Hastelloy X (Type K) | 1220°C |
| 446 | AISI 446 (Type K) | 1150°C |
| 800 | Incoloy 800 (Type K) | 1100°C |

| SECTION 3 | Sheath Diameter (mm) | Sheath Diameter (inches) |
|---|---|---|
| Standard Sizes | 1.0mm | 0.039" |
| | 1.5mm | 0.059" |
| | 3.0mm | 0.118" |
| | 4.5mm | 0.177" |
| | 6.0mm | 0.236" |
| | 8.0mm | 0.315" |

| SECTION 4 | Type of Sensing Junction |
|---|---|
| 2I<br>2ID<br>2IT | **INSULATED**<br>The hot (measuring) junction is insulated from the sheath and this gives a floating output with a typical insulation resistance in excess of 100 megohms.<br>Enter **2I** for simplex, **2ID** for duplex or **2IT** for a triplex element. |

| SECTION 5 | Termination Entry Gland (please use code number to specify thread size and material for the sensor diameter chosen) | | |
|---|---|---|---|
| Dia. | Thread Size | Order Code for **Brass** | Order Code for **Stainless Steel** |
| 1.0mm | 16mm ISO | SFBM16-10CB | SFSM16-10CB |
| 1.5mm | 16mm ISO | SFBM16-15CB | SFSM16-15CB |
| 3.0mm | 16mm ISO | SFBM16-30CB | SFSM16-30CB |
| 4.5mm | 16mm ISO | SFBM16-45CB | SFSM16-45CB |
| 6.0mm | 16mm ISO | SFBM16-60CB | SFSM16-60CB |
| 8.0mm | 16mm ISO | SFBM16-80CB | SFSM16-80CB |
| 3.0mm | 20mm ISO | SFBM20-30CB | SFSM20-30CB |
| 4.5mm | 20mm ISO | SFBM20-45CB | SFSM20-45CB |
| 6.0mm | 20mm ISO | SFBM20-60CB | SFSM20-60CB |
| 8.0mm | 20mm ISO | SFBM20-80CB | SFSM20-80CB |

| SECTION 6 | Optional Extension Cables (please specify length in metres) |
|---|---|
| A82 | PVC Insulation (105°C) (Seal rating: 125°C) |
| B55 | PFA Insulation (250°C) (Seal rating: 225°C) |
| C40 | Fibreglass Insulation (480°C) (Seal rating: 225°C) |

** All cables have 7/0.2mm conductors. If no cable is required, leave this section of the order code blank and the sensor will be supplied with 50mm PTFE 'tails' .*

| SECTION 7 | Optional Stainless Steel Adjustable Compression Fittings | | |
|---|---|---|---|
| Dia. | 1/8" BSPT | 1/4" BSPT | 1/2" BSPT |
| 1.0mm | SFS18T10 | SFS14T10 | – |
| 1.5mm | SFS18T15 | SFS14T15 | – |
| 3.0mm | SFS18T30 | SFS14T30 | SFS12T30 |
| 4.5mm | SFS18T45 | SFS14T45 | SFS12T45 |
| 6.0mm | SFS18T60 | SFS14T60 | SFS12T60 |
| 8.0mm | – | SFS14T80 | SFS12T80 |

*Other thread sizes and materials available. Contact us for details.*

**Order Code** - Example

| Type Nº | Thermocouple Type (See section 1) | Sheath Length in mm | Sheath Material (See section 2) | Sheath Dia. (See section 3) | Sensing Junc. (See section 4) | Termination (See section 5) | Extension Cable (Optional, see section 6) | Compression Fitting (Optional, see section 7) |
|---|---|---|---|---|---|---|---|---|
| 32 | K | 500 | 321 | 3.0 | 2I | SFSM1630CB | 2m A82KX | SFS14T30 |