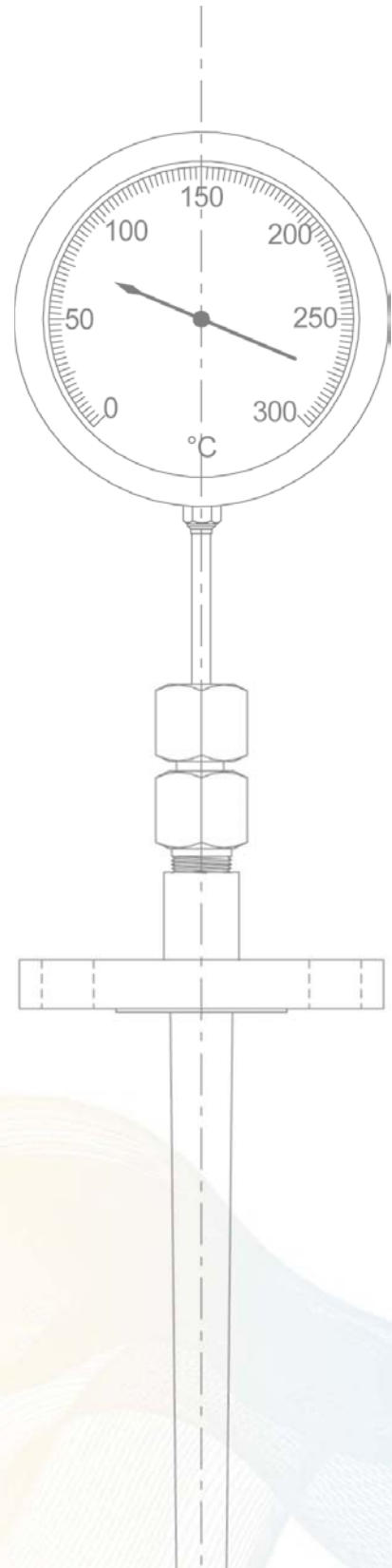
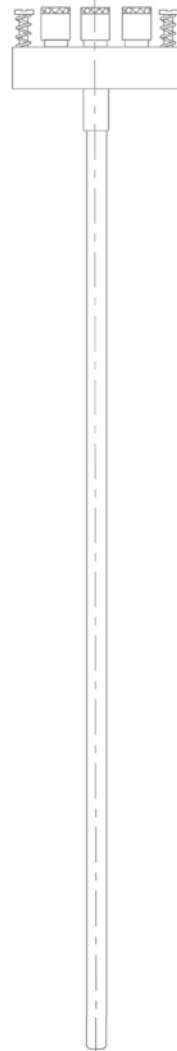
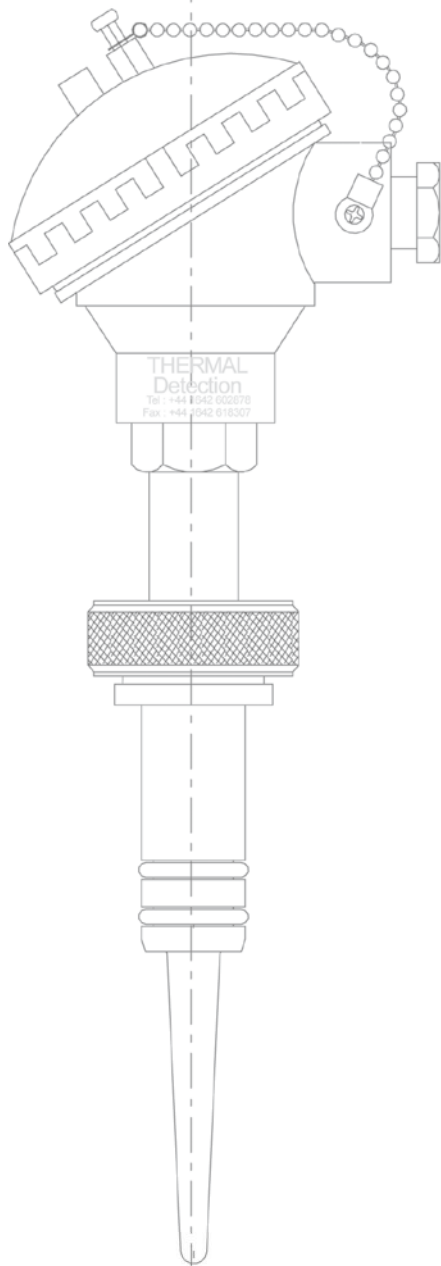


TEMPERATURE SENSORS FOR INDUSTRY

THERMAL
Detection



TEMPERATURE SENSORS FOR INDUSTRY

Welcome to Thermal Detection

Thermal Detection Ltd is an established leader in the design and manufacture of high quality industrial temperature sensors for the process and manufacturing industries locally, nationally and Internationally:

- Petrochemical
- Oil & Gas
- Marine
- Power Generation
- Food
- Pharmaceutical & Healthcare

We are driven by a strong commitment to quality, service and support and accredited to ISO 9001.

The Company is located in a modern manufacturing facility in the North East of England where we have a good combination of technology and experienced engineering staff. This enables us to provide regular 'off-the-shelf' products as well as the in-house capability to custom engineer for our clients particular application. Thermal Detection is also proud to represent Conax Technologies LLC, the leading manufacturer of sealing glands, and we can advise and supply on the full range of products.

This brochure showcases our range of industrial products. For more detail on any of the products, or to discuss your specific requirements, we would love to hear from you.



THERMAL Detection

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TEMPERATURE SENSORS FOR INDUSTRY

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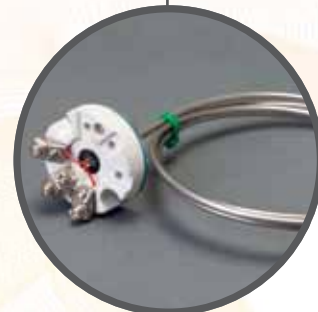
Mineral Insulated Resistance Thermometer PT100

Product Code: MIR

MIR sensors are manufactured from ready made lengths of soft annealed stainless steel sheathed, mineral insulated (MI) 'flexible' copper signal cable.

Product Information

- Available in PT100 class B, class A and fractional DIN configurations
- Single, duplex or triplex sensors dependant on diameter
- 2, 3 or 4 wire connection
- The soft annealed stainless steel sheath allows bending/flexing to shape and fit for easier installation
- Sheath diameters from as small as 3mm to 8mm, Metric and Imperial. Length as required
- Sheath material in Grade 316L, Grade 304, Grade 310, Grade 321 stainless steel or Inconel
- Supplied as a plain stem with flying leads, or threaded connection, or with terminal head, or plug/connectors.



Mineral Insulated Thermocouple

Product Code: MIT

MIT sensors are manufactured from ready made lengths of soft annealed stainless steel sheathed, mineral insulated (MI) 'flexible' thermocouple cable.

Product Information

- Available in type K, J, T, N, E
- Single, duplex or triplex sensors dependent on diameter
- Insulated, grounded or exposed hot junctions
- The soft annealed stainless steel sheath allows bending/flexing to shape and fit for easier installation
- Sheath diameters from 0.5mm to 10.8mm, Metric and Imperial. 0.25mm is available on special applications. Length as required
- Sheath material in Grade 316L, Grade 304, Grade 310, Grade 321 stainless steel or Inconel & Nicrobel
- Can be supplied as a plain stem with flying leads, threaded connection, or with terminal head or plug/connectors.



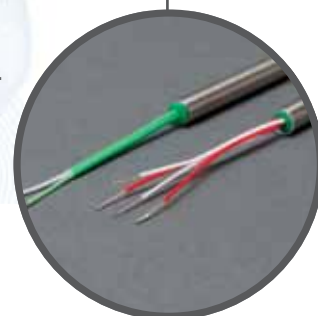
Basic Thermocouple and RTD Temperature Probes

Product Code: PT100 or TC

A simple general purpose temperature probe with a fabricated plain, rigid stainless steel stem.

Product Information

- Thermocouple types K, J, T, N, E
- PT100 class B, class A and fractional DIN configurations
- Single, duplex or triplex sensors dependant on diameter
- 2, 3 or 4 wire connection
- Sheath diameters from 3mm to 12.7mm. Metric and Imperial sizes. Length as required
- Sheath material in Grade 316L, 304 and 310 stainless steel or Inconel
- Supplied with flying leads, threaded connection or plug/connectors.



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Light Duty Temperature Probe

Product Code: LD, LDS, LDF, LDH

General purpose temperature probe for light duty applications for areas where the environment is less demanding.

Product Information

- Thermocouple types K, J, T, N, E
- PT100 class B, class A and fractional DIN configurations
- Single, duplex or triplex sensors dependant on diameter
- 2, 3 or 4 wire connection
- Sheath diameters from 3mm to 15mm. Metric and Imperial sizes. Length as required
- Supplied with a plain stem (LD) or fitted with screwed (LDS) or flanged (LDF) or hygienic/sanitary/dairy (LDH) connection. Fitments can be welded or sliding
- Sheath material in Grade 316L, 304, 321, 310 stainless steel. Inconel and Microbel also available
- Connection head mounting plate can accept either a standard ceramic connection block (up to 8 pole) or a temperature transmitter providing a 4 to 20mA output signal.

Medium Duty Temperature Probe

Product Code: MD, MDS, MDF, MDH

General purpose temperature probe for medium duty applications. Consists of a fabricated thermowell with a spring loaded sensor insert, allowing the sensor be removed/replaced without interrupting the process.

Product Information

- Spring loaded insert housing thermocouple types K, J, T, N, E, R, S & B
- Spring loaded insert housing PT100 class B, class A and fractional DIN configurations
- Single, duplex or triplex sensors dependant on diameter.
- 2, 3 or 4 wire connection
- Sheath diameters from 3mm to ½" NB (21.7mm) and inserts to suit. Metric and Imperial sizes. Length as required
- Supplied with a plain stem (MD) or fitted with screwed (MDS) or flanged (MDF) or hygienic/sanitary/dairy (MDH) connection. Fitments can be welded or sliding
- Sheath material in Grade 316L, 304, 321 or 310 stainless steel. Inconel also available
- Connection head mounting plate can accept either a standard ceramic connection block (up to 8 pole) or a temperature transmitter providing a 4 to 20mA output signal.

TEMPERATURE
SENSORS

Heavy Duty Temperature Probe

Product Code: HD, HDS & HDF

The HD series is of rugged construction. Consists of a solid drilled thermowell, screwed or flanged process connection with extension lagging with a spring loaded sensor insert, allowing the sensor to be removed/replaced without interrupting the process.

Product Information

- Spring loaded insert housing thermocouple types K, J, T, N, E, R, S & B
- Spring loaded insert housing PT100 class B, class A and fractional DIN configurations
- Single, duplex or triplex sensors dependant on diameter
- Solid drilled thermowell with either a screwed [HDS] or flanged [HDF] process connection
- Parallel or tapered stem. Length as required
- Pocket material in grade 316L, 304, 321, 310, Inconel, Hastelloy, Monel, Nickel 200 and Titanium and various other materials to suit the application
- Standard lagging extension or nipple/union/nipple extension with choice of connection head environmentally rated from IP54 to IP68
- Connection head can accept either a standard ceramic connection block (up to 8 poles) or a temperature transmitter providing a 4 to 20mA output signal.



Spring-Loaded Insert

Product Code: SLI

Designed to fit into new or existing thermowells, pockets and other protective sheaths.

Product Information

- Thermocouple types K, J, T, N, E, R, S & B
- PT100 class B, class A and fractional DIN configurations
- Single, duplex or triplex sensors dependant on diameter
- 2, 3 or 4 wire connection
- Available in sheath diameters from 1mm to 12.7mm. Metric and Imperial sizes. Length as required
- Rigid stem or MI flexible sheath
- Sheath material in Grade 316L, 304, 321, 310 stainless steel. Inconel and Nicrobel also available
- Insert mounting plate can accept either a standard ceramic connection block (up to 8 pole) or a temperature transmitter providing a 4 to 20mA output signal.



Fire Detection Duty Sensor

Product Code: FDD

A sensor with multipoint thermocouples designed for fire detection duties, the thermocouples are connected in parallel to provide an average temperature across the measurement span.

Product Information

- MI thermocouple type K, all sensor tips are in direct contact with the thermowell inner wall
- From 2-8 integral sensors per thermowell
- Available in thermowell diameters from 25mm to 50mm. Metric and Imperial sizes. Length up to 2m
- Flanged or screwed connection
- Sheath material in Grades 316L, 304, 321 or 310 stainless steel
- Standard ceramic connection blocks or a temperature transmitters providing a 4 to 20mA output signal.



TEMPERATURE SENSORS

Furnace Temperature Probe

Product Code: FSS, FSF

The furnace sensor is for applications with a maximum operating temperature of 1250°C. The selection of the correct probe material ensures reliability and maximised life for the probe in this challenging environment.

Product Information

- Thermocouples type K or N in heavy duty wire gauge or in a mineral insulated (MI) thermocouple format. Type 'R' also available
- Single, duplex or triplex sensors dependant on diameter
- Process connections Screwed (FSS) or flanged (FSF) welded to sheath or sliding
- Parallel or tapered stem
- Thermocouple protection tubes in grade 310 stainless steel, Inconel, Hastelloy and various other materials to suit the application
- Standard lagging extension or nipple/union/nipple extension with choice of connection head environmentally rated from IP54 to IP68
- Connection head can accept either a standard ceramic connection block (up to 8 poles) or a temperature transmitter providing a 4 to 20mA output signal.

High Temperature Furnace Probe

Product Code: [HTFS, HTFF]

For continuously high temperatures in excess of 1250°C. Precious metal thermocouple types R, S & B are required and supplied with inner and outer protection tubes, complete with support.

Product Information

- Thermocouple protection tubes in aluminous porcelain, recrystallised alumina, silicone carbide and others. Length as required depending on mounting orientation
- Support tubes in Grade 310 stainless steel or Inconel
- Supplied as a plain stem with the option of either a screwed (HTFS) or flanged (HTFF) process connection
- Type R (Pt-13%Rh/Pt), type S (Pt-10%Rh/Pt) or type B (Pt-30%Rh/Pt-6%Rh) thermocouple wire 0.3mm to 0.5mm OD as standard. Other diameters available
- Single, duplex or triplex sensors dependant on diameter dependant on diameter
 - Connection head can accept either a standard ceramic connection block or a temperature transmitter providing a 4 to 20mA output signal.

TEMPERATURE
SENSORS

Fabricated Thermowells

Product Code: MTWS, MTWF, MTWW, MTWP

Medium duty fabricated thermowells can be supplied with various thread forms or flanges.

Product Information

- Screwed [MTWS], flanged [MTWF], weld-in [MTWW] or plain [MTWP]
- Fabricated where process pressures is up to 10 bar
- Threads supplied in taper or parallel format for both male or female versions and in various thread forms to meet most International standards
- Flanges to ANSI, DIN, BS and JIS. Hygienic and vacuum flanges also available
- Available in pocket diameters parallel from 6mm to ½" NB (21.7mm) in plain stem or stepped with a reduced tip
- Length as required and various bore sizes to suit temperature sensor
- Pocket material in grade 316L, 304, 310, Inconel, Hastelloy, and various other materials to suit the application. Teflon® coating also available
- Various instrument connections BSPT, BSP & NPT and lagging extensions
- Can be supplied on their own to suit the customer's existing temperature sensors or together with temperature sensors manufactured by Thermal Detection.



Solid Drilled Thermowell

Product Code: HTWS, HTWF, HTWW, HTWP

Heavy duty solid drilled thermowells can be supplied with various thread forms or flanges.

Product Information

- Screwed [HTWS], flanged [HTWF], Weld-in [HTWW] or plain [HTWP]
- Solid drilled where process pressures are above 10 bar
- Threads supplied in taper or parallel format for both male or female versions and in various thread forms to meet most International standards
- Flanges to ANSI, DIN, BS and JIS. Hygienic and sanitary flanges also available
- Available in pocket diameters from 6mm to 30mm in parallel and/or tapered stem, with plain or reduced tip
- Length as required and various bore sizes to suit temperature sensor
- Various instrument connections BSPT, BSP & NPT and lagging extensions
- Pocket material in grade 316L, 304, 310, Inconel, Hastelloy, Monel, Nickel 200 and Titanium and various other materials to suit the application. Teflon® coating also available.
- Can be supplied on their own to suit the customer's existing temperature sensors or together with temperature sensors manufactured by Thermal Detection.



TEMPERATURE SENSORS

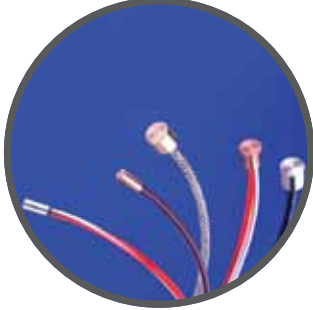
Miniature Bearing Temperature Sensor

Product Code: MBS

Miniature bearing sensors are designed to monitor the temperature of bearings on large rotating plant. The sensor provides critical indication of the status of the bearings allowing for preventative maintenance to take place.

Product Information

- Thermocouple types K, J, and T
- PT100 class B with 2 or 3 wire connection
- Single or duplex sensors
- Sensor caps in Grade 316L stainless steel, copper and brass also available
- Teflon® insulated conductors, with or without stainless steel braid. Length as required
- Small physical size allows the unit to be positioned close to the surface, sensing an early change in temperature
- Available with oil seal barriers or bearing sensor wire seals to prevent wicking.



Standard Bearing Temperature Sensor

Product Code: SBS

Temperature is a critical indication of the status of bearings on all rotating plant. Early indication of a rise in temperature allows the plant engineer to instigate a planned maintenance schedule and so prevent production upset's and expensive replacements. The SBS bearing sensor is designed to allow a quick and simple installation as close to the bearing surface as possible.

Product Information

- Thermocouple types K, J, and T
- PT100 class B with 2, 3 or 4 wire connection
- Single, duplex or triplex sensors
- Teflon® insulated conductors, with or without stainless steel flexible conduit. Length as required.



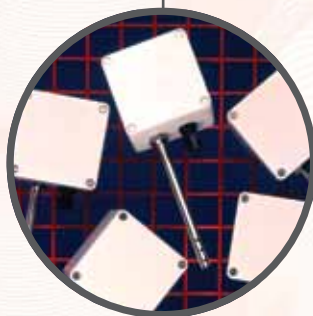
Ambient Air Temperature Sensors

Product Code: AA

Ambient Air sensors are designed for wall or surface mounting in cleanrooms, laboratories and computer rooms. Available for outside use as a plant frost protection device.

Product Information

- Thermocouple type T
- PT100 class B and class A configurations
- Single and duplex sensors
- 2, 3 or 4 wire connection
- Enclosures available in ABS thermoplastic or die-cast aluminium
- Sheath in Grade 316L stainless steel
- Available with plain stem as standard or with a perforated shroud to avoid wind chill in outdoor applications
- Available with a temperature transmitter to provide a signal output of 4 to 20mA for transmission to an indicator, recorder, data-logger or other instrumentation.



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Pipe Surface Temperature Probe

Product Code: PSP

Pipe mounted surface probes to measure the surface temperature of process piping.

Product Information

- Thermocouple types K, J and T
- PT100 class B and class A configurations
- Single, duplex or triplex sensors dependant on diameter
- To suit various tube and pipe size distribution lines, metric and imperial
- Clamp in 304 and 316 stainless steel (also available highly polished)
- Various insert materials
- Hygienic version available [HSP] for pharmaceutical application with FDA compliant insert.



Hand Held Temperature Probe

Product Code: CMP or HHP

Cooked Meat Probe or Hand Held Probe for accurate measurement of product temperature in food processing. Essential for ensuring product quality and meeting current legislation.

Product Information

- Thermocouple types K, J and T
- PT100 class B, class A and fractional DIN configurations
- Single, duplex or triplex sensors dependant on diameter
- 2, 3 or 4 wire connection
- Sheath diameters from 1.5mm to 12.7mm, with plain or pointed tip. Metric and Imperial sizes
- Sheath material in Grade 316L and 304 stainless steel. Handle in polypropylene or stainless steel
- Supplied with coiled or straight flying leads with plug/connectors, also available conduit covered for mechanical strength
- Digital indicators to suit – see HHI.



Bi-metal Temperature Indicator or Dial Thermometer

Product Code: BMI

BI metal indicator for simple and inexpensive plant temperature monitoring or where no power is available, supplied either as bottom entry, back entry or in 'any-angle' format.

Product Information

- Measurement range can be specified between -30°C to +500°C
- Units in °C, °F or dual scaled
- 63mm, 100mm, and 160mm dial sizes
- Stem diameters 6mm, 1/4", 8mm, 1/2" x various lengths
- Stem in Grade 316L stainless steel, case in Grade 304 stainless steel
- External zero adjustment and available with max/min value and index pointers
- No contaminants – safe for food and chemical applications.



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Filled System Temperature Indicator



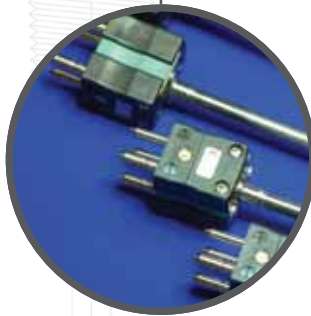
Product Code: FSI

Filled system indicator with non toxic filling with either rigid stem for direct mounting or with flexible capillary for remote reading.

Product Information

- Measurement range can be specified between -30°C to $+500^{\circ}\text{C}$
- Units in $^{\circ}\text{C}$, $^{\circ}\text{F}$ or dual scaled
- 100mm and 160mm dial sizes
- Bottom, back entry, surface or panel mount
- Bulb and stem in Grade 316 and 321 stainless steel, case in grades 304 stainless steel. Various capillary options available.

Multipoint Temperature Sensor



Product Code: MPS

Multipoint sensors designed for measuring various designated points within a single thermowell.

Product Information

- MI flexible thermocouple types K, J, T & N
- MI flexible PT100 class B, class A configurations
- From 2-8 integral sensors per thermowell
- Available in thermowell diameters from 6mm to 50mm. Metric and Imperial sizes. Length as required
- Flanged or screwed connection
- Sheath material in Grade 316L, 304, 321, 310 stainless steel & Inconel
- Standard ceramic connection blocks or temperature transmitters providing a 4 to 20mA output signal.

Averaging Temperature Sensor



Product Code: ATS

Designed to find the average temperature within a given area, the sensors are connected in parallel to provide an average temperature.

Product Information

- MI flexible thermocouple types K, J, T & N
- MI flexible PT100 class B, class A configurations
- From 2-8 integral sensors per thermowell
- Available in thermowell diameters from 25mm to 50mm. Metric and Imperial sizes. Length as required
- Flanged or screwed connection
- Sheath material in Grade 316L, 304, 321, 310 stainless steel. Inconel and Nicobrel also available
- Standard ceramic connection blocks or a temperature transmitters providing a 4 to 20mA output signal.

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Magnet Surface Temperature Sensor

Product Code: MSS

Designed for use on flat metal surfaces to measure surface temperature.

Product Information

- Available in type K, J & T
- Single or duplex sensors
- Insulated or grounded hot junctions
- Can be supplied with flying leads only or with plug/connectors.



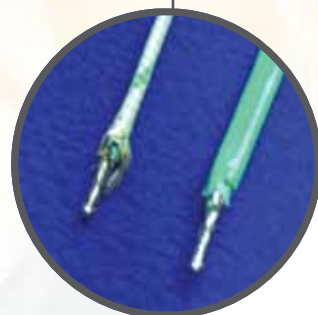
Welded Tip Thermocouple

Product Code: VTFP

Fast response basic and economical bare thermocouples.

Product Information

- Available in type K, J, T & E
- Bare hot junctions, can be capped
- Teflon® insulation 250°C or glass fibre 400°C
- Can be supplied with flying leads only or with plug/connectors
- Ceramic beaded versions for higher temperatures.



Washer/Ring or Bolt Thermocouple

Product code: WR, BT

Designed for use on surface, vessel or pipe measurement.

Product Information

- Available in type K, J, T & E
- Metric thread forms M8, M10 & M12 various lengths
- Washer eyelets M3.5, M6 & M8
- Teflon® insulation 250°C or glass fibre 400°C
- Can be supplied with flying leads only or with plug/connectors
- Ceramic beaded versions for higher temperatures.



Calibration Service

Thermal Detection can arrange for calibration of any of our temperature probes.

- Certification is produced conforming to the United Kingdom Accreditation Service
- Choose from either 'In-house' or UKAS calibration
- Calibration can be performed at any temperature point between -196 and 1600°C (for thermocouples) or -196 to 525°C (for RTD's).



ACCESSORIES

Temperature Transmitters

Product code: TTH, TTD

In head and DIN rail mounted temperature transmitters that convert the signal from the sensor to a 4-20mA output.

- PT100 input 2, 3 and 4 wire connection
- Thermocouple input types K, J, T, N, E, R, S & B
- Ranges from -200 to +850°C
- Pre-programmed or with software supplied to enable programming by customer
- Approved to ATEX and IEC Ex standards for use in hazardous area applications
- HART programmable
- In-head 'hockey puck' style [TTH] or DIN rail mounting [TTD].

Compression Fittings

Product Code: MSC

Compression fittings (male stud couplings) designed for use with sensor probes allowing various insertion depths.

- BSPT, BSPP, NPT, Metric and tri-clover (sanitary & vacuum). Female threads also available
- Thread size 1/8", 1/4", 3/8", 1/2", 3/4", 1" and metric M8 through to M24
- Various tube and pipe sizes available from 1.0mm to 1" OD
- Material in Grade 316 as standard. Brass also available
- Stainless olives as standard. Teflon olives can be purchased separately.

Thermocouple Connectors (Male & Female)

Product code: MMC, MFC, SMC, SFC

A range of thermocouple and RTD connectors (IEC colours) to suit all popular calibrations.

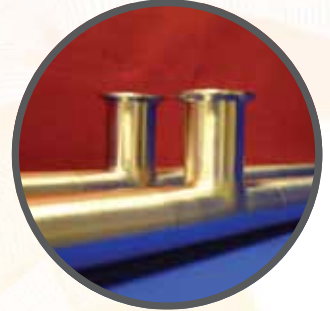
Product Information

- Thermocouples: T, K, J, B, N & R [Copper also available for RTD's]
- Contacts are polarised to prevent incorrect connection
- Maximum operating temperature for standard units 200°C, high temperature version available for up to 350°C
- Flat pins for mini range [MMC, MFC] and rounded pins for standard range [SMC, SFC]
- Panel mounted versions also available
- Clamps, inserts and grommets for fitting to sensors/cables.

Custom Engineered Parts

Thermal Detection have the facilities to manufacture bespoke stainless steel pipe and tube parts for a wide range of applications.

- One off or repeat manufacture can be performed
- Parts can be passivated and electropolished for hygienic applications
- Examples include steam elbows, concentric reducers, spools, T and Y pieces
- Threaded, flanged, tri-clover and vacuum flanges available.

**Capacitance Welder****Product Code: CW**

Using a capacitance welder to form thermocouples gives a major advantage over a simple twisted hot junction, leading to a more accurate and repeatable temperature measurement.

Product Information

- SR48 - low cost unit, 0-48 joules and can weld up to 2x 1.1mm conductors
- SR50 - portable unit, 0-30 joules and can weld up to 2x 0.9mm conductors
- SR80 - bench mounted unit, 0-80 joules and can weld up to 2x 1.6mm conductors
- Optional accessories available for all models
- CE marked.

**Hand Held Indicator****Product Code: HHI**

Hand held digital temperature indicator with various sensor inputs.

Product Information

- Single input for thermocouples types J, K & T
- PT100 2, 3 and 4 wire measurement
- Max/min and hold functions
- Thermocouple simulator version available.



THERMOCOUPLE WIRE

PFA/PFA Flat Pair 'Extruded' Jacket

Product Code: TE-PFA

- Single pair, PFA insulated wire with a PFA flat pair 'extruded' jacket in IEC colours
- Temperature range -75 to +260°C
- Available in thermocouple materials: J, K, T & N
- Tolerance: Class 1
- Also available with stainless steel overbraid.

Conductor	mm2	AWG	J	K	T	N	KCA	SCA/ RCA
1/0.2mm	0.03mm	32	Yes	Yes	Yes	Yes	-	-
1/0.3mm	0.08mm	28	Yes	Yes	Yes	Yes	-	-
1/0.5mm	0.20mm	24	Yes	Yes	Yes	Yes	-	-
7/0.2mm	0.22mm	24	Yes	Yes	Yes	Yes	-	-
13/0.2mm	0.44mm	20	-	-	Yes	-	-	-

Glass Fibre Flat Pair Wire

Product Code: TE-GF

- Single pair, glass fibre insulated wire with a glass fibre flat pair jacket in IEC colours
- Temperature range -10 to +400°C
- Available in thermocouple materials: J, K, T & N
- Tolerance: Class 1
- Also available with stainless steel overbraid.

Conductor	mm2	AWG	J	K	T	N	KCA	SCA/ RCA
1/0.5mm	0.20mm	24	Yes	Yes	Yes	Yes	-	-
7/0.2mm	0.22mm	24	Yes	Yes	Yes	Yes	-	-
13/0.2mm	0.44mm	20	Yes	Yes	Yes	Yes	-	-

High Temperature Glass Fibre Flat Pair Wire

Product Code: TE-GFH

- Single pair, high temperature glass fibre insulated thermocouple wire with a high temperature glass fibre flat pair jacket in IEC colours
- Temperature range -60 to +700°C
- Available only in thermocouple type 'K' material.
- Tolerance: Class 1.

Conductor	mm2	AWG	J	K	T	N	KCA	SCA/ RCA
1/0.5mm	0.20mm	24	-	Yes	-	-	-	-
7/0.2mm	0.22mm	24	-	Yes	-	-	-	-
13/0.2mm	0.44mm	20	-	Yes	-	-	-	-



THERMOCOUPLE
WIRE

Kapton/Kapton Flat Pair 'Lapped' Wire

Product Code: TE-Kap

- Single pair, Kapton insulated wire with a Kapton flat pair 'lapped' jacket.
- Temperature range -40 to +350°C.
- Available in thermocouple materials: J, K, & T.
- Tolerance: Class 1.

Conductor	mm2	AWG	J	K	T	N	KCA	SCA/ RCA
1/0.3mm	0.08mm	28	Yes	Yes	Yes	-	-	-
7/0.2mm	0.22mm	24	Yes	Yes	Yes	-	-	-

PVC/PVC Flat Pair Wire

Product code: TE-PVC

- Single pair, PVC insulated wire with a PVC flat pair jacket in IEC colours
- Temperature range -10 to +105°C
- Available in thermocouple materials: J, K, T, N and KCB & RCA
- Tolerance: Class 2
- Also available with stainless steel overbraid.

Conductor	mm2	AWG	J	K	T	N	KCA	SCA/ RCA
7/0.2mm	0.22mm	24	Yes	Yes	Yes	Yes	Yes	Yes
13/0.2mm	0.44mm	20	Yes	Yes	Yes	Yes	Yes	Yes
23/0.2mm	0.75mm	18	Yes	Yes	Yes	Yes	Yes	Yes

PVC/PVC Copper Wire

Product Code: CE-PVC

- Stranded copper wire, PVC insulated conductors with a PVC jacket, unscreened
- For PT100 sensors
- Temperature range -10 to +105°C
- Also available with stainless steel overbraid
- Also available screened.

Conductor	mm2	AWG	3 Core	4 Core	6 Core	8 Core
7/0.2mm	0.22mm	24	Yes	Yes	Yes	Yes

PFA/PFA Copper Wire

Product Code: CE-PFA

- Stranded copper wire, PFA insulated conductors with a PFA jacket, unscreened
- For PT100 sensors
- Temperature range -75 to +260°C
- 2, 3, 4, 6 & 8 wire multicore
- Also available with stainless steel overbraid
- Also available screened.

Conductor	mm2	AWG	3 Core	4 Core	6 Core	8 Core
7/0.2mm	0.22mm	24	Yes	Yes	Yes	Yes

SEALING GLANDS



Thermal Detection Ltd are the UK distributor for the full range of products from Conax Technologies LLC, USA. Conax Technologies have specialised in sealing glands, feedthroughs and fittings for over 60 years during which time they have become the market leaders through their innovative approach to development, design and manufacture.

- Sealants in Teflon® or Viton®, Neoprene, Lava and Grafoil®
- Optional types of mounting arrangement, screwed NPT, BSPT, BSPP, SAE and metric. Also available with weld-neck or vacuum KF & CF flange mounts or Tri-clover flange (for sanitary/hygienic applications)
- All wetted parts are in 316 stainless steel as standard, unless otherwise stated.

Single Probe/Tube Feedthrough



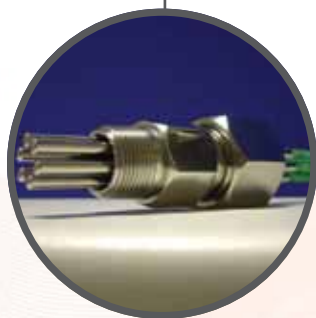
Product Code: PG

The PG range offer a fast and economical method of sealing a single sensor, tube or element or soft cables, using soft seal technology. Used in both pressure and vacuum applications.

Product Information

- Temperature range from -240° to +870°C at ambient pressure
- Pressure range vacuum to 690 bar at 20°C
- Hole sizes from 1.0mm to 47.5mm.

Multiple Probe/Tube Feedthrough



Product Code: MHC, MHM

The MHC range enables multiple probe/sensors to pass through a single gland/entry, using soft seal technology. Used in both pressure and vacuum applications. The MHM range allows for custom hole dimensions and configurations.

Product Information

- Temperature range from -240° to +870°C at ambient pressure
- Pressure range vacuum to 690 bar at 20°C
- Hole sizes from 0.5mm to 1/8" (seals 1 to 60 elements).

Replacement Sealants and Packing Sets for Sealing Glands



Product Code: RS, RPS

The replacement packing set and replacement sealants allows repeated use of the same fitting.

Product Information

- Replacement sealants [RS] are available in Teflon® or Viton®, Neoprene, Lava and Grafoil®
- Replacement Packing Sets [RPS] for MHC, TG, PL and EG series assemblies consist of one replacement sealant with the appropriate number of ceramic insulators for that specific assembly
- Replacement Packing Sets [RPS] for MHM, SPG, DSPG and PGS series assemblies consist of one replacement sealant with a seat and follower.

SEALING GLANDS

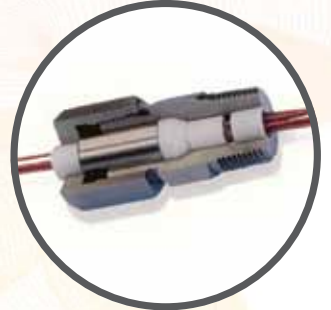
Insulated Wire Feedthrough

Product Code: PL

The power lead (PL) range enables multiple insulated conductors to pass through a single gland/entry, using soft sealant technology. Used in both pressure and vacuum applications.

Product Information

- Sealants in Teflon® or Grafoil® and gland supplied with 600mm Kapton® insulated wire as standard
- Temperature range from -185°C to +232°C at ambient pressure. Pressure range vacuum to 690 bar at 20°C.
- Wire sizes from 20AWG to 8AWG (seals 1 to 18 wires)
- 600V AC or 850V DC at a maximum of 55A
- Copper conductors or thermocouple material
- Can also be supplied un-torqued and without wires
- No potting required
- High pressure (HPPL) version available for up to 2067 Bar at 20°C.



Bare Wire Feedthrough

Product Code: TG

The transducer (TG) range enables solid bare wire transducers to pass through a single gland/entry, using soft seal technology. Used in both pressure and vacuum applications.

Product Information

- Temperature range from -185°C to +870°C
- Wire sizes from 24AWG to 8AWG (seals 1 to 24 wires)
- For millivolt voltage applications.



Single (Split) Probe/Tube Feedthrough

Multiple (Double-Split) Probe Feedthrough

Multiple (Single-Split) Probe/Tube Feedthrough

Product Codes: PGS, DSPG, SPG

Ideal when the sensor tip has a larger diameter than the element at the location of the seal. The sealant, follower and seat have splits to facilitate easy sealant change.

Product Information

- Temperature range from -240° to +870°C and Pressure range at 20°C: Vacuum to 690 bar
- Hole sizes from 1.5mm to 1/2" OD
- Elements are independently adjustable.



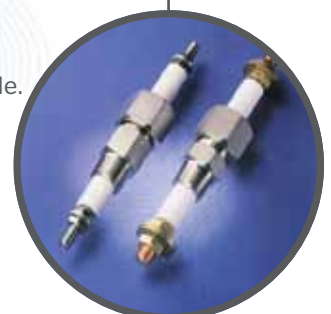
Electrode Feedthrough

Product Code: EG

The electrode EG range are pressure/vacuum sealing assemblies with a single integral electrode.

Product Information

- Electrodes available in Copper, Nickel or stainless steel. Also available without an electrode
- Voltage to 2000VDC and amperage to 400A
- Temperature range from -185° to +870°C. Pressure range vacuum to 550 bar at 20°C
- High pressure (HPEG) version available for up to 1378 Bar at 20°C
- For voltages up to 8000V DC and amperage to 525A, see the EGT range.



SEALING GLANDS

High Density Multiple Wire Feedthrough

Product Code: HD

The HD range of high density mechanically sealed feedthrough is a swaged tube of 24 AWG solid Teflon® insulated thermocouple or copper wires. Used in both pressure and vacuum applications.

Product Information

- Temperature range from -80°C to +120°C at ambient pressure
- Pressure range up to 345 bar at 20°C
- Leak rate 1×10^{-9} He scc/sec at 20°C
- Vacuum rating 5×10^{-3} mtorr at 20°C
- Electrical rating 100V DC at 500mA
- Up to 60 total conductors or 30 thermocouple pairs
- With an MHM gland can accommodate up to 240 total conductors or 120 thermocouple pairs.

Products for Power Generation

Products for use in Power Generation. Sensors and fittings for Gas turbines, Steam turbines, Heat Recovery Steam Generator (HRSG's) and Hydro turbines.

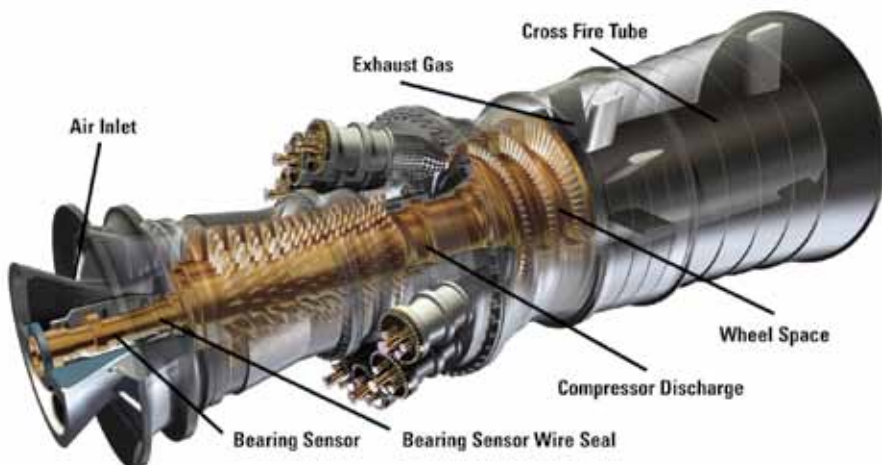
- Exhaust Gas sensors
- Wheel space sensors
- Air Inlet sensors
- Compressor Discharge sensors
- Miniature bearing sensors
- Blade Path sensors
- Disc Cavity sensors
- Flashback thermocouples.

Supplying to the aftersales market for the following turbines and combined cycle plants:

- GE Gas turbines frames 5 to 9
- GE Steam turbines
- Siemens Westinghouse W701 turbines
- Pratt Whitney FT8 Exhaust gas.

Highly reliable Retrofit Exhaust Gas Sensors (for older frame 5,6,7 & 9), a time saving solution.

- No need to replace existing radiation shields when using upgraded sensor for base GE part numbers: 351A3711, 238A7864, 219B6376 or 205B3060
- Hermetically sealed for high accuracy and long life
- Superior quality
- Cabling purchased with sensor can be made to length
- Cables remain fixed in turbine hot box and only the sensor needs to be removed
- Simple and quick installation saves time.



TECHNICAL
INFORMATION

Thermocouple Information

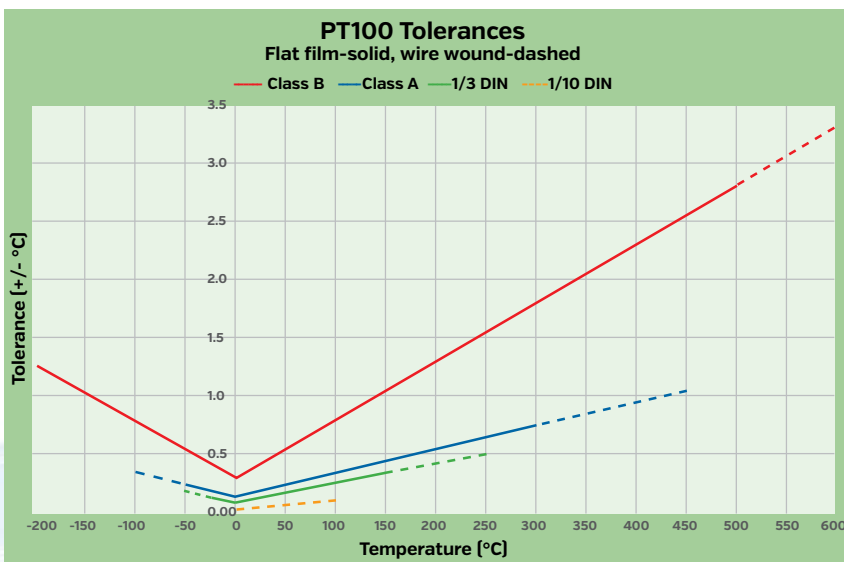
International Thermocouple Colour Codes

TYPE	Conductors Max. Continuous Working Temp.	IEC 584-1:1995 BS EN 60584-1:1996	BS 1843	ANSI MC96.1	DIN 43714	JIS C 1610-1981
J	Iron/Constantan +20 to 700°C					
K	Nickel Chromium/ Nickel Aluminium 0 to 1100°C					
T	Copper/Constantan -185 to +300°C					
E	Nickel Chromium/ Constantan 0 to +800°C					
N	Nicrosil/Nisil 0 to +1100°C					
R	Platinum / 13% Rhodium + Platinum 0 to 1600°C					
S	Platinum / 10% Rhodium + Platinum 0 to 1550°C					
B	30% Rhodium + Platinum / 6% Rhodium + Platinum 0 to 1600°C					
KCA Compensating for type K	Copper/Constantan (Low Nickel) 0 to +90°C					
RCA/SCA Compensating for type R&S	Copper/ Copper Nickel 0 to +50°C					

Thermocouple Tolerances: IEC 60584-2:1993 / BS EN 60584-1:2013

TYPE	Thermocouple Material	Tolerance Class 1	Tolerance Class 2	Tolerance Class 3
Type T	Copper/Constantan (Cu/Con)	-40 to +350°C (+/-0.5°C) or +/-t x 0.004	-40 to +350°C (+/-0.5°C) or +/-t x 0.0075	-200 to +40°C (+/-1.0°C) or +/-t x 0.015
Type J	Iron/Constantan (Fe/Con)	-40 to +750°C (+/-1.5°C) or +/-t x 0.004	-40 to +750°C (+/-2.5°C) or +/-t x 0.0075	
Type E	Nickel Chrome/Constantan (NiCr/Con)	-40 to +800°C (+/-1.5°C) or +/-t x 0.004	-40 to +900°C (+/-2.5°C) or +/-t x 0.0075	-200 to +40°C (+/-2.5°C) or +/-t x 0.015
Type K	Nickel Chrome/Nickel Aluminium (NiCr/NiAl)	-40 to +1000°C (+/-1.5°C) or +/-t x 0.004	-40 to +1200°C (+/-2.5°C) or +/-t x 0.0075	-200 to +40°C (+/-2.5°C) or +/-t x 0.0075
Type N	Nicrosil/Nisil (NiCrNi/NiSi)	-40 to +1000°C (+/-1.5°C) or +/-t x 0.004	-40 to +1200°C (+/-2.5°C) or +/-t x 0.0075	-40 to +1000°C (+/-1.5°C) or +/-t x 0.004
Type R	Platinum-13% Rhodium/Platinum (Pt-13Rh/Pt)	0.0 to +1600°C (+/-1.5°C) or +/-[1+(t-1000)0.003]	-40 to +1600°C (+/-1.5°C) or +/-t x 0.0025	
Type S	Platinum-10% Rhodium/Platinum (Pt-10Rh/Pt)	0.0 to +1600°C (+/-1.5°C) or +/-[1+(t-1000)0.003]	-40 to +1600°C (+/-1.5°C) or +/-t x 0.0025	
Type B	Platinum-30% Rhodium/Platinum-6% Rhodium (Pt-30Rh/Pt-6Rh)		+600 to +1700°C (+/-1.5°C) or +/-t x 0.0025	+600 to +1700°C (+/-4.0°C) or +/-t x 0.005

PT100 Information



General Information

Temperature Conversion Equations

From Unit	To Unit	Formula
Fahrenheit	Celsius	$T[°C] = (T[°F] - 32) \times 5/9$
Celsius	Fahrenheit	$T[°F] = T[°C] \times 9/5 + 32$
Fahrenheit	Kelvin	$T[K] = (T[°F] + 459.67) \times 5/9$
Celsius	Kelvin	$T[K] = T[°C] + 273.15$

Approximate Maximum Service
Temperature of Common Sheath
MaterialsMaximum Intermittent Service
Temperature in Dry Air

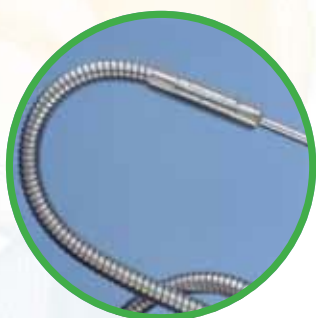
Material	°C
304 Stainless Steel	870
316 Stainless Steel	870
310 Stainless Steel	1050
Inconel 600	1150
Hastelloy C276	900

Temperature Probe Enquiry Form

Please use the form below to tell us about your requirements.
Either scan and email to sales@thermal-detection.com
or fax to +44 [0]1642 618307

Application Detail:

Supporting Sketch:



Interested in pharmaceutical or other hygienic applications?

Thermal Detection manufactures a wide range of sensors, glands and accessories specifically designed for the sterile services sector.

Contact us for a copy of our brochure or visit our website for more details.

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