DATASHEET

KSS Temperature Sensors

KSS Data Sheet - DS - TP - 001- 00

Temperature Sensors

Industrial Thermocouple

Temperature Transmitters and Controllers

Thermocouple and RTD Connectors

RTD Extension Wire

Thermocouple Wire

since 1989 TempoTech Controls

KHOT SYSTEMS AND SOLUTION

About The Products & Manufacturer

The Temperature Products is distributed by **Khot Systems and solution**, an authorized distributor of high-quality temperature measurements and solutions manufacturer **TempoTech Controls**.

TempoTech Established in 1989. Specialists in industrial process temperature measurement & control (-200°C to + 2500°C) using custom application specific sensors including infrared technology. Manufacturer of sensors and distributor of instrumentation products.

TempoTech Controls temperature solutions across Australia and in India it is **TempoTech Controls India Pvt Ltd.** in Gurgaon, Haryana, India. With headquarters in **Canada.**

Product Overview

Temperature sensors and temperature instrumentation products range of units include thermocouples, RTDs, thermowells, transmitters, data loggers, bayonet adaptors, connectors, thermocouple cable, RTD extension wire.

Probes and temperature sensors are available in all the normal K, J, T, N, E thermocouple materials, RTD Pt100, Pt1000, Ni120 and Cu10 Ohms. Industrial probes are available with cable, threaded boss, or weatherproof heads. Hand-held probes come with a choice of handle and retractile or normal cable. A range of plugs, sockets, and 2-wire transmitters complement our range of temperature sensors

Types Of Sensors

The Resistance Temperature Detector (RTD):

An RTD (Resistance Temperature Detector) looks similar to a thermocouple, but works on the principal of resistance increasing with temperature. 100 Ohms @ O°C, 138.51 Ohms @ 100°C etc.

RTD are much more accurate and linear than thermocouples and may be connected to instrumentation using copper wire.

RTD have a Platinum element and therefore are more expensive than equivalent J or K Thermocouples.

They come in (2), (3) or (4) wire versions, colour coded R&W, RR&W or RR&WW. Generally, RTD are installed up to 450°C (842°F).

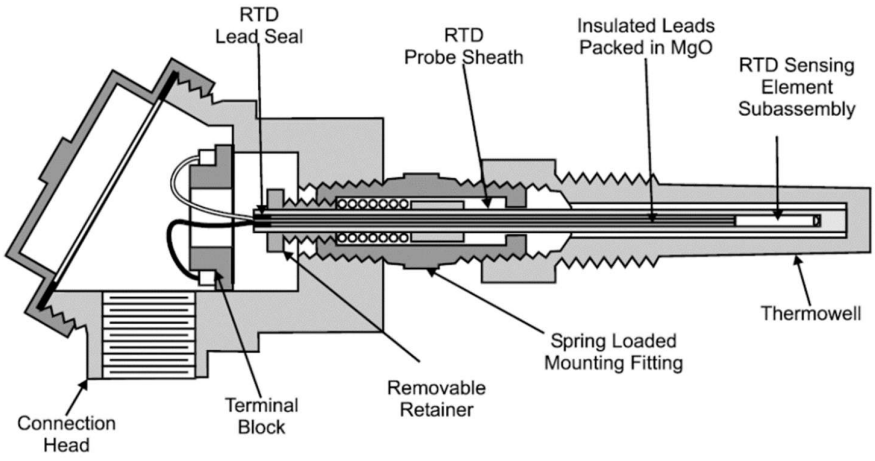
Standard Probe Specifications:

TempoTech manufactured stainless steel RTD Probes use Platinum wire wound detectors for temperatures from -200 to 800°C continuous operation and Thin Film Platinum detectors for temperature range –50 to 400° C. Probes is Magnesium Oxide (MGO) filled with Teflon (PFA) insulated lead wires.

- ACCURACY (DIN class “A”, PT100, 100 Ohms @ 0°C):
  - + - 0.35°C @ -100°C
  - + - 0.15°C @ 0°C
  - + - 0.35°C @ 100°C
  - Tighter tolerances are available i.e. 1/10 DIN B
- TEMPERATURE COEFFICIENT (Alpha): 0.00385 Ohms/Ohm/°C
- STANDARDS: DIN 43760 (1980), IEC 751 (1995), BS EN 6075 (1996), International Temperature Scale (ITS-90)
- SELF HEATING (detector): Less than 0.3°C with 10 mw dissipation @ 0°C
- RESPONSE TIME: 4 seconds for a 63% step change when measured in 25 and 100°C water flowing @ 3 ft/sec

Optional Features:

- I600 sheath
- 392 alpha
- Duplex
- Other diameters including Metric, B, 1/3, 1/5, or 1/10 DIN tolerances
- Pt1000
- Fiberglass insulated lead wire



Thermocouple Sensor:

Thermocouples are used to measure industrial process temperatures from -184°C (-300°F) to 1482°C (2700°F). They sense temperature at the tip when two dissimilar metal wires are joined together to form a junction. At the (+) & (-) terminals a millivolt age increases as the temperature goes up.

Thermocouples are "application specific" to exactly meet each customer's process needs... made to order and rarely off the shelf.

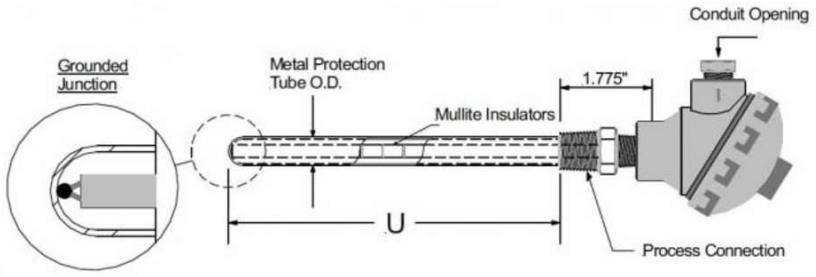
Since there are millions of industrial processes, there are millions of thermocouple variations. If the Thermocouple is specified incorrectly, it may last for only a few minutes in the process. For harsh applications, some thermocouples last only a few months. It is difficult to predict service life for all applications.

As a manufacturer, TempoTech selects the "best fit" thermocouple for longest service life based on...

- Maximum operating temperature
- Environment (liquid, gas, atmosphere, chemical etc)
- Mechanical Mounting Requirements

The most common thermocouple calibration types are J & K and one lead is magnetic. The lead wires and outer jacket are colour coded.

A thermocouple must be hooked up to instrumentation with thermocouple extension wire and the red lead is always negative.



Thermocouple Grade

Thermocouple wire is used in the manufacture of thermocouple sensors and may be calibrated at temperatures above 200°C (392°F). It is exposed to high oven, furnace, and other process temperatures.

Thermocouple Extension Grade

Thermocouple extension wire is used to connect a thermocouple temperature sensor to a measurement or control device such as a transmitter, controller, recorder, or PLC. Extension wire is calibrated for operating temperatures below 200°C (392°F). Runs should not exceed 150 meters (500ft) with consideration for electrical noise pickup and grounding practices.

ANSI, IEC & JIS Insulation Colour Coding & Magnet Check

Type	Color Codes				
	ANSI	IEC	JIS	(+)	(-)
T				Copper	Constantan
J				Iron (Magnetic)	Constantan
E				Chromel	Constantan
K				Chromel	Alumel (Magnetic)
R				Platinum	Platinum, 13% Rhodium
N				Nicrosil	Nisil
S				Platinum	Platinum, 10% Rhodium
B				Platinum,30% Rhodium	Platinum, 6% Rhodium

Thermocouple grade wire has a brown outer jacket.

- Braided insulations (i.e., fiberglass) may have a colored tracer.
- Extruded insulations (i.e., PVC) will be a solid color.
- The RED conductor is always of negative polarity, As per ANSI and The WHITE conductor is always negative as per IEC.
- ANSI: American National Standards Institute, standard MC96.1.

Temperature Ratings of Insulation Materials

Material	Cont. Op. Temp Range C&F
PVC - Polyvinyl Chloride	-40°C to 105°C (-40 to 221°F)
NYL - Nylon	-51°C to 149°C (-60 to 300°F)
FEP - Teflon	-68°C to 260°C (-90 to 500°F)
TZL - Tefzel	-68°C to 260°C (-90 to 500°F)
KAP - Kapton	-20°C to 316°C (-4 to 600°F)
FGG - Fiberglass	0°C to 482°C (32 to 900°F)
HFG - High Temp. Fiberglass	0°C to 704°C (32 to 1300°F)
CFR - Ceramic Fiber	0°C to 1204°C (32 to 2200°F)

ANSI Limits of Error for Thermocouple Grade Wire

ANSI Letter	Standard Limits of Error (whichever is greater)	Special Limits of Error (whichever is greater)
T	+/- 1.0°C(1.8°F) or +/- 0.75%	+/- 0.5°C(0.9°F) or +/- 0.4%
J	+/- 2.0°C(4.0°F) or +/- 0.75%	+/- 1.1°C(2.0°F) or +/- 0.4%
E	+/- 1.7°C(3.1°F) or +/- 0.5%	+/- 1.0°C(1.8°F) or +/- 0.4%
K	+/- 2.2°C(4.0°F) or +/- 0.75%	+/- 1.1°C(2.0°F) or +/- 0.4%
R&S	+/- 1.5°C(2.7°F) or +/- 0.25%	+/- 0.6°C(1.1°F) or +/- 0.1%
B	+/- 0.5%	--
N	+/- 2.2°C(4.0°F) or +/- 0.75%	+/- 1.1°C(2.0°F) or +/- 0.4%

NOTE: Special quarter limits of error available upon request.

Operating Temperature Range for Thermocouple Wire

ANSI Letter	Range
T	-184°C (-300°F) to 371°C (700°F)
J	0°C (32°F) to 760°C (1400°F)
E	0°C (32°F) to 871°C (1600°F)
K&N	0°C (32°F) to 1260°C (2300°F)
R&S	538°C (1000°F) to 1482°C (2700°F)

NOTE: Types R, S & B extension wire for Platinum thermocouples is Copper (+) and an Alloy of Copper (-).

ANSI Limits of Error for Thermocouple Extension Wire Operating Temp. Range: 0°C (32°F) to 200°C (392°F)

ANSI Letter	Standard Limits of Error (whichever is greater)	Special Limits of Error (whichever is greater)
TX	+/- 1.0°C (1.8°F)	+/- 0.5°C (0.9°F)
JX	+/- 2.0°C (4.0°F)	+/- 1.1°C (2.0°F)
EX	+/- 1.7°C (3.1°F)	+/- 1.0°C (1.8°F)
KX	+/- 2.2°C (4.0°F)	+/- 1.1°C (2.0°F)
RX & SX	+/- 5.0°C (9.0°F)	N/A
BX	+/- 5.0°C (9.0°F)	N/A
NX	+/- 2.2°C (4.0°F)	+/- 1.1°C (2.0°F)

How to Specify Single & Multipair Wire & Cable

#TT [1] - [2] -_____ -_____

Conductor Gauge	Ansi Calibration	Ins. & Jacket Material	Options (Wire)	Options (Cable)
16 or 16S	T or TX	PVC	"L" - Spec. Limits	
18 or 18S	J or JX	NYL	of Error	
20 or 20S	K or KX	FEP	"B" - Stainless Steel	
24 or 24S	E or EX	TZL	Over braid	
30 or 30S	N or NX	KAP	"S" - Shield, Twisted	
	RX, SX, or BX	FGG	with Drain wire	
		HFG		
		CFR		

[1] - "S" - Stranded conductor, otherwise solid
[2] - "X" - Extension Grade, otherwise Thermocouple Grade

Multipair Thermocouple Extension Cable

Add to Options in above catalogue number as follows:

- XPR - "X" No. of twisted pairs (ie. 4PR is 4 pairs), cabled
- OVS - Overall Al mylar shield with drain wire
- IOS - Individual pair and overall, Al mylar shield with drain wire
- SIA - Steel (galvanized) interlocked armour, PVC jacket
- AIA - Aluminum interlocked armour, PVC jacket
- UUL - UL Approved for USA
- CUL - UL Approved for Canada
- CSA - CSA Certified
- FT4 - Flame Test 4 rated outer jacket
- CHL - Hazardous Locations rated
- 300 - 300 Volt insulation rating
- 600 - 600 Volt insulation rating
- SPE - Other special features

Examples:

- #TT16S-K-FGG-B-Specifies #16-gauge stranded conductor, type K calibration, thermocouple grade, fibreglass insulation with stainless steel over braid, single pair wire
- #TT20-JX-PVC-6PR-IOA-CSA-FT4-300 - Specifies #20-gauge solid conductor, type J calibration, extension grade, PVC insulation, 6 twisted pairs, individual & overall shield, CSA certified, Flame Test 4, 300V insulation rating, multipair cable

Registered Trade Names

- Kapton (KAP), Nylon (NYL), Teflon (FEP), Tefzel (TZL), Mylar ... Dupont Co
- Nextel (CFR) ... 3M Co.
- Chromel(K+), Alumel (K-) ... Hoskins Co.
- Alloy 11® & S -) ... Harrison Driver Harris
- Alloy 30-6 ... Carpenter Technology

Miniature Temperature sensor

Series TC10 & RTD10
Miniature Thermocouple & RTD

Series TC20 & RTD20
Bolt On Thermocouple & RTD

Series TC30 & RTD30
Surface Mount Thermocouple & RTD

	Miniature Thermocouple/RTD	Bolt On Thermocouple/RTD	Surface Mount Temperature Thermocouple/RTD
Models	General Purpose bare end Plug and Jack Connector style Cut to length style	Gasket Style Bolt on Surface Mount Screw in / Nozzle Style Melt Bolt Thermocouple/RTD Ring Type Thermocouple	Magnet Thermocouple/ RTD Weld pad Thermocouple Shim Stock Thermocouple
Application	Basic Industrial Ovens and Heaters HVAC Food and Pharma Heat Treatment Plastic	Oil and Gas Plastic Injection Moulding Heaters Storage Tank surface	Heat Exchangers Boiler Chemical Industry
Measuring Range	-200^{O}C to 1250^{O}C (Temperature may vary to selected type of sensor)	-200^{O}C to 1250^{O}C (Temperature may vary to selected type of sensor)	-200^{O}C to 1250^{O}C (Temperature may vary to selected type of sensor)
Process Connection	Adjustable Fitting 1/8” NPT to 1/2” NPT, G1/2 Fixed Bushing 1/8” NPT to 1.0” NPT, G1/2, G1	Melt Bolt UNF ½ Bolt on Sensor 1/4” to 1/2 (Std Pitch) 6 mm to 14 mm (Std Pitch)	NA

Key Features:

- Available in thermocouple type J, K, E, N, T, RTD Pt100, Pt1000, Ni120 and Cu10 Ohms.
- A wide selection of sheath material to suit application requirement, 304ss, 316ss, 321ss, Inconel® 600, 800, Monel, etc.
- Sheath diameter is available from 0.040″ to 0.750″.
- Grounded, Ungrounded and Exposed junction to suite application requirement.
- Available with or without lead wire and connectors.

Miniature Temperature Sensor

Series TC40 & RTD40
Bayonet Style TC and RTD

Series TC50 & RTD50
Tube and Wire Style TC and RTD

Series EXT
Thermocouple and RTD Extension wire

	Bayonet Style Thermocouple and RTD	Tube and Wire Thermocouple	Thermocouple and RTD Extension wire
Models	Flexible Armor Bayonet Probe Rigid Probe Bayonet Flexible Spring Bayonet Probe	Insulated wire Thermocouple with exposed Junction Wire Thermocouple with SS TIP Wire Thermocouple with Ceramic Insulator	Extension wire with Connector Armoured Extension wire with connector
Application	Plastic Extrusion Injection Moulding Boiler Chemical Industry	Plastic Extrusion Injection Moulding Boiler Injection Moulding Boiler Chemical Industry	Plastic Extrusion Injection Moulding Boiler Chemical Industry
Measuring Range	-200^{O} C to 700^{O} C (Temperature may vary to selected type of sensor)	-200^{O} C to 700^{O} C (Temperature may vary to selected type of sensor)	-200^{O} C to 700^{O} C (Temperature may vary to selected type of sensor)
Process Connection	NA	NA	NA

Key Features:

- Available in thermocouple type J, K, E, N, T, RTD Pt100, Pt1000, Ni120 and Cu10 Ohms.
- A wide selection of sheath material to suit application requirement, 304ss, 316ss, 321ss, Inconel® 600, 800, Monel, etc.
- Sheath diameter is available from 0.040″ to 0.750″.
- Grounded, Ungrounded and Exposed junction to suite application requirement.
- Available with or without lead wire and connectors.

Industrial Temperature Sensor

Series TC60 Tube Skin Thermocouple	Series TC70 & RTD70 Industrial RTD and Thermocouple without extension
	

	Tube Skin Weld pad Style Thermocouple	RTD and Thermocouple without extension
Models	Tube Skin Thermocouple with Head Tube Skin with Head and Retractable Weld pad Tube Tube Skin Thermocouple Bare End Wire Tube Skin Thermocouple Replacement Element	Thermocouple and RTD Less thermowell Thermocouple and RTD with Threaded Thermowell Thermocouple and RTD with Flanged Thermowell Thermocouple and RTD with pipe well
Application	Oil & Gas Chemical Processing Ovens and Heaters Heat Exchangers Boiler Tubes	Oil & Gas Chemical Processing Ovens and Heaters HVAC Food and Pharma Metal Processing
Measuring Range	-200^{O} C to 110^{O} C (Temperature may vary to selected type of sensor)	-200^{O} C to 1250^{O} C (Temperature may vary to selected type of sensor)
Process Connection	Adjustable Fitting 1/8” NPT to 1/2” NPT, G1/2 Fixed Bushing 1/8” NPT to 1.0” NPT, G1/2, G1	Adjustable Fitting 1/8” NPT to 1/2” NPT, G1/2 Fixed Bushing 1/8” NPT to 1.0” NPT, G1/2, G1

Key Features:

- Available in type J, K, E, N, T, RTD Pt100, Pt1000, Ni120 and Cu10 Ohms.
- A wide selection of sheath material to suit application requirement, 304ss, 316ss, 321ss, Inconel® 600, 800, Monel, etc.
- Sheath diameter is available from 0.040″ to 0.750″.
- Grounded, Ungrounded and Exposed junction to suite application requirement.
- Available with or without lead wire and connectors.

Industrial Temperature Sensor

	Series TC80 & RTD80 Industrial RTD and Thermocouple with Nipple Union extension	Series TC90 & RTD90 Remote Mount RTD and Thermocouple Assemblies
		
Models	Thermocouple and RTD Less thermowell Thermocouple and RTD with Threaded Thermowell Thermocouple and RTD with Flanged Thermowell Thermocouple and RTD with pipewell	Thermocouple and RTD with remote head Mount Can be ordered with Thermowell
Application	Oil & Gas Chemical Processing Ovens and Heaters HVAC Food and Pharma Metal Processing	Oil & Gas Chemical Processing Ovens and Heaters HVAC Food and Pharma Metal Processing Excellent product for remote installation of termination head.
Measuring Range	-200^{O} C to 1250^{O} C (Temperature may vary to selected type of sensor)	-200^{O} C to 1250^{O} C (Temperature may vary to selected type of sensor)
Process Connection	Adjustable Fitting 1/8” NPT to 1/2” NPT, G1/2 Fixed Bushing 1/8” NPT to 1.0” NPT, G1/2, G1	Adjustable Fitting 1/8” NPT to 1/2” NPT, G1/2 Fixed Bushing 1/8” NPT to 1.0” NPT, G1/2, G1

Key Features:

- Available in type J, K, R, B and S.
- A wide selection of sheath material to suit application requirement, Siliocne Carbide, Alumina, Mullite, Sailon and Sintered Silicone carbide.
- Sheath diameter is available from 1/4″ to 1.0”.
- Grounded, Ungrounded and Exposed junction to suite application requirement.
- Available with or without lead wire and connectors.

Industrial Temperature Sensor

Series TC100 Industrial Thermocouple with Ceramic Protection Tube	Series TC200 Industrial Thermocouple with Dual Ceramic Protection Tube	Series TC300 Industrial Thermocouple with Ceramic Protection 90 Degree Angle
		

Models	Ceramic Protection tube without process threads • With Threaded Process Connection • With Flanged Connection	Ceramic Protection tube without process threads • With Threaded Process Connection • With Flanged Connection	• Ceramic Protection tube without process threads • With Threaded Process Connection • With Flanged Connection
Application	Heating Furnace High Temp Ovens Molten Metal Furnace Kiln Furnace Heat Treatment	Heating Furnace High Temp Ovens Molten Metal Furnace Kiln Furnace Heat Treatment	Heating Furnace High Temp Ovens Molten Metal Furnace Kiln Furnace Heat Treatment
Measuring Range	0^{O} C to 1500^{O} C (Temperature may vary to selected type of sensor)	0^{O} C to 1500^{O} C (Temperature may vary to selected type of sensor)	0^{O} C to 1500^{O} C (Temperature may vary to selected type of sensor)
Process Connection	Fixed Bushing 1/4" NPT to 1.5" NPT, G1/2, G1 Flange: Adjustable Floor Flange Threaded Flange	Fixed Bushing 1/4" NPT to 1.5" NPT, G1/2, G1 Flange: Adjustable Floor Flange Threaded Flange	Fixed Bushing 1/4" NPT to 1.5" NPT, G1/2, G1 Flange: Adjustable Floor Flange Threaded Flang

Key Features:

- Available in type J, K, R, B and S.
- A wide selection of sheath material to suit application requirement, Siliocne Carbide, Alumina, Mullite, Sailon and Sintered Silicone carbide.
- Sheath diameter is available from 1/4″ to 1.0".
- Grounded, Ungrounded and Exposed junction to suite application requirement.
- Available with or without lead wire and connectors.

Temperature Sensor for Electric Motor

Series SSTC SSRTD Silicone Patch Surface RTD	Series KPTTC & KPTRTD Polyamide Surface Patch Thermocouple and RTD	Series EMBTC & EMBRTD Embedment (Button) Style Bearing RTD & Thermocouple
		

Models	General Purpose bare end Plug and Jack Connector style With Adhesive Liner	General Purpose bare end Plug and Jack Connector style With Adhesive Liner	Style A, B and C casing Available with Mounting Kit SS Armored
Application	Motor Winding Pipe Surface Any other uneven Surfac	Motor Winding Pipe Surface Any other uneven Surface	Bearing Temperature Measurement in Electric Motors Pumps Gear Shafts and other moving parts.
Measuring Range	40^{O} C to 260^{O} C (Temperature may vary to elected type of sensor)	40^{O} C to 260^{O} C (Temperature may vary to elected type of sensor)	40^{O} C to 260^{O} C (Temperature may vary to elected type of sensor)
Process Connection	NA	NA	NA

Key Features:

- Available in thermocouple type J, K, E, N, T , RTD Pt100, Pt1000, Ni120 and Cu10 Ohms.
- A wide selection of sheath material to suit application requirement, 304ss, 316ss, 321ss, Inconel® 600, 800, Monel, etc.
- Sheath diameter is available from 0.040″ to 0.750″.
- Grounded, Ungrounded and Exposed junction to suite application requirement.
- Available with or without lead wire and connectors.

Temperature Sensor for Electric Motor

Series BTC & BRTD

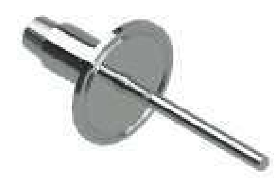
Bearing Thermocouple, RTD elements & Assemblies

Models	Standard Copper Tip Cut to length style With Connection Head and Mounting fitting
Application	Bearing temperature Surface Temperature& Other Industrial Applications
Measuring Range	50^{O} C to 260^{O} C (Temperature may vary to selected type of sensor)
Process Connection	Adjustable Fitting 1/8" NPT to 1/2" NPT, G1/2 Fixed Bushing 1/8" NPT to 1.0" NPT, G1/2, G1

Key Features:

- Available in thermocouple type J, K, E, N, T , RTD Pt100, Pt1000, Ni120 and Cu10 Ohms.
- A wide selection of sheath material to suit application requirement, 304ss, 316ss, 321ss, Inconel® 600, 800, Monel, etc.
- Sheath diameter is available from 0.188″, 0.215" and 0.250"
- Grounded, Ungrounded and Exposed junction to suite application requirement. Available with or without lead wire and connectors.

Food and Pharma Temperature Sensor

	Series RTD4000 Compact Sanitary RTD with Circular connector	**Series ITRM** Integral Transmitter RTD	**Series TC5000 & RTD5000** Sanitary Thermocouple and RTD less thermowell
			
Models	Standard RTD output with M12 Connector Standard RTD output with Extension Cable and connector	Standard 4-20 mA output with M12 Connector Standard 4-20 mA output with Extension Cable and M12 connector	Standard RTD output with Connection head SS, Poly, or Aluminium RTD with 4-20 mA output head mount transmitter
Application	CIP System Food processing Kettles Extruders Food Storage Tank Pasteurization Tank	CIP System Food processing Kettles Extruders Food Storage Tank Pasteurization Tank	CIP System Food processing Kettles Extruders Food Storage Tank Pasteurization Tank
Measuring Range	-200^{O} C to 260^{O} C (Temperature range may vary to selected type of sensor)	-200^{O} C to 260^{O} C (Temperature range may vary to selected type of sensor)	-200^{O} C to 260^{O} C (Temperature range may vary to selected type of sensor)
Process Connection	Adjustable Fitting 1/8" NPT to 1/2" NPT, G1/2 Fixed Bushing 1/8" NPT to 1.0" NPT, G1/2, G1 Tri-Clamp 16 AMP 1.0", 1.5", 2.0" and 3.0"	Adjustable Fitting 1/8" NPT to 1/2" NPT, G1/2 Fixed Bushing 1/8" NPT to 1.0" NPT, G1/2, G1 Tri-Clamp 16 AMP 1.0", 1.5", 2.0" and 3.0"	Adjustable Fitting 1/8" NPT to 1/2" NPT, G1/2 Fixed Bushing 1/8" NPT to 1.0" NPT, G1/2, G1 Tri-Clamp 16 AMP 1.0", 1.5", 2.0" and 3.0"

Key Features:

- Available in RTD Pt100, Pt1000, Ohms.
- A wide selection of sheath material to suit application requirement, 304ss, 316ss, 321ss, Inconel® 600, 800, Monel, etc.
- Sheath diameter is available from 0.040″ to 0.750″.
- Grounded, Ungrounded and Exposed junction to suite application requirement.
- Available with or without lead wire and connectors.

Food and Pharma Temperature Sensor

Series HH
Compact RTD and TC with Handle

Models	**Compact RTD with Handle** Standard RTD output with M12 Connector Standard RTD output with Extension Cable and connector
Application	General Temperature measurement. Food Processing Other application
Measuring Range	-200^{O} C to 260^{O} C (Temperature range may vary to selected type of sensor)
Process Connection	NA

Key Features:

- Available in RTD Pt100, Pt1000, Ohms.
- Available with Plastic and Stainless-steel handle.
- Sheath diameter is available from 0.125″ to 0.375″.
- Available with or without lead wire and connectors.

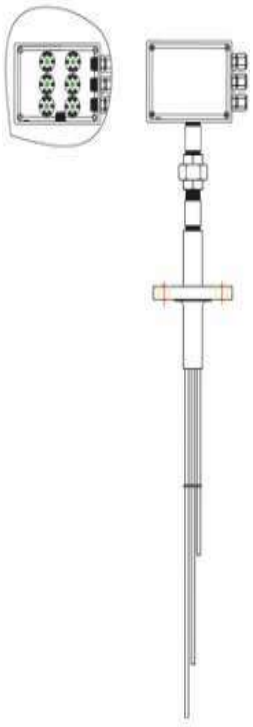
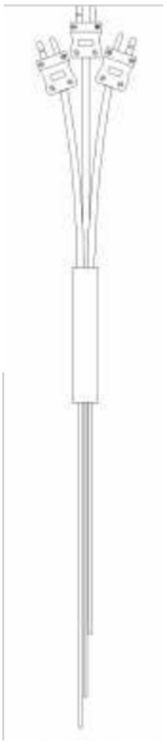
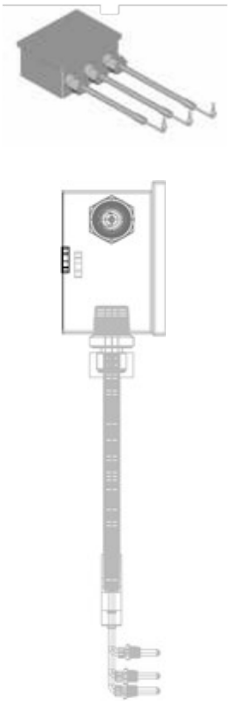
Thermowell and Pipe Well

	Machined Bar stock Thermowell	Welded Flange Bar stock Thermowell	Pipe Well
			
	Threaded Bar stock Thermowell	**Welded Flange Thermowell**	**Metal and Ceramic Protection Wells**
Models	Straight Shank Threaded Well Tapered Shank Threaded Well Stepdown Threaded Thermowell Welding Socket Thermowell	Straight Shank Flanged Well Tapered Shank Flanged Well Stepdown Flanged Thermowell	Ceramic Protection Well with Threaded Connection Metal Protection Well Threaded Metal Protection Well Flanged
Application	General Temperature measurement Oil and Gas Chemical Processing Metal Procession Other application	General Temperature measurement Oil and Gas Chemical Processing Metal Procession Other application	General Temperature measurement Oil and Gas Chemical Processing Metal Procession Other application
Process Connection	Various as Required by Thermowell Design	Various as Required by Thermowell Design	Various as Required by Pipe Well Design
Approvals	CRN	CRN	CRN

Key Features:

- Wide selection of material o suite application.
- Bore to Suite Sheath diameter is available from 0.125″ to 0.375″.
- CRN Number for all Canadian Province and Canada.
- Available NACE Certification on request.
- Internal and External Pressure testing.

Multipoint Temperature Sensor Assemblies

Multipoint Sensor Assembly Free Hanging Style	Miniature Multipoint Sensor Assemblies	Flexible Multipoint Sensor Assembly
		

Application	Oil & Gas Chemical Processing Ovens and Heaters Heat Exchangers Boiler Tubes	Oil & Gas Chemical Processing Ovens and Heaters Heat Exchangers Boiler Tubes	Oil & Gas Chemical Processing Ovens and Heaters
Approvals	CRN for Protection Well (On Request)	NA	NA

Key Features:

- Wide selection of material o suite application.
- Can be customized to suit application.
- CRN Number for all Canadian Province and Canada for Protection well.
- Available NACE Certification on request for Protection wells.

Thermocouple and RTD Connectors

Mini Thermocouple an RTD connector

Standard Thermocouple an RTD connector

Instrument Cable with M8 and M12 Circular Connector

M8 and M12 Circular Connectors

Process Instruments and Transmitters

Data Loggers

Temeprature Controllers

Loop Powered

Head mount Transmitter

DIN Rail Mount Transmitter and Signal Conditioner

Loop Powered Indicators

Wireless Data Logger

Tag Temp Data Logger

Tag Temp Data Logger

Compact Transmitter with Display

Tag Temp Data Logger

Submersible Level Transmitter

Wire and Cable

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