

ITS TCHH Handheld Temperature Sensors



ITS is one of the leading manufacturers of thermocouples, RTDs, PT100s and thermowells in Ireland. ITS produces a variety of temperature sensors and assemblies in both standard and custom designs, which can be found on equipment and in process applications in the chemical, petrochemical, power generation, food & beverage, dairy, plastics, heat-treating, oil & gas, pharmaceutical, aerospace, biomass, metal processing, rubber, mining, HVAC, water & wastewater, incineration, and many other industries.

- RTDs and thermocouples available to meet any process requirement
- Integrated temperature assembly with transmitters available
- Temperature range of -196 to 650 °C for RTD, -196 to 1450 °C for thermocouple
- Industry-standard sensor types, including RTD and thermocouple varieties
- Variety of enclosure and connection head options
- Calibration services available

Overview

- Sensor with Handle
- Immersion depth & cable configurable
- Various Thermocouple Types



Technical data

Performance characteristics

Thermocouple accuracy
class IEC 60584-1:2013

See page 6

Thermal responsetime
T63 Grounded/Insulated

1.5 s ± 0.14s/0.24s
3.0 s ± 0.4s/1.0s
6.0 s ± 1.6s/3.2s

Process temperature

Selection dependant"

Stem

Sensor length

30 ... 3000 mm

Sensor Tip Style

Standard Rounded or Pointed

Sensor outside diameter

Available from 1.5mm ø to ø 12mm

Handle Material

Sensor length

Standard Nylon or 316L optional

Operating Temperature

Thermocouple Type
Dependant

-200 °C +1250 °C

Sensor tube material

AISI 316L (1.4404)
AISI 310 (1.4845)
Inconel
Microbell

Thermocouple Type

Class & material dependant

Type T
Type J
Type K
Type N

-200 °C +300 °C
0 °C +750 °C
0 °C +1110 °C
0 °C +1250 °C

Surface roughness wetted parts

Surface roughness wetted
parts

Ra ≤ 0.8 µm

Ambient conditions

temperature range

Cable selection dependant

Storage temperature range

0°C+85°C

Degree of protection (EN
60529)

IP 65

Humidity

≤ 100 % RH , condensing

Output signal

Standard

Thermocouple

Cable

Type

Configurable

Length

Configurable

Material

PVC, PTFE, Silicon Rubber, Fibreglass

Electrical connection

Tails

100mm Free tails

Connector

Various upon request

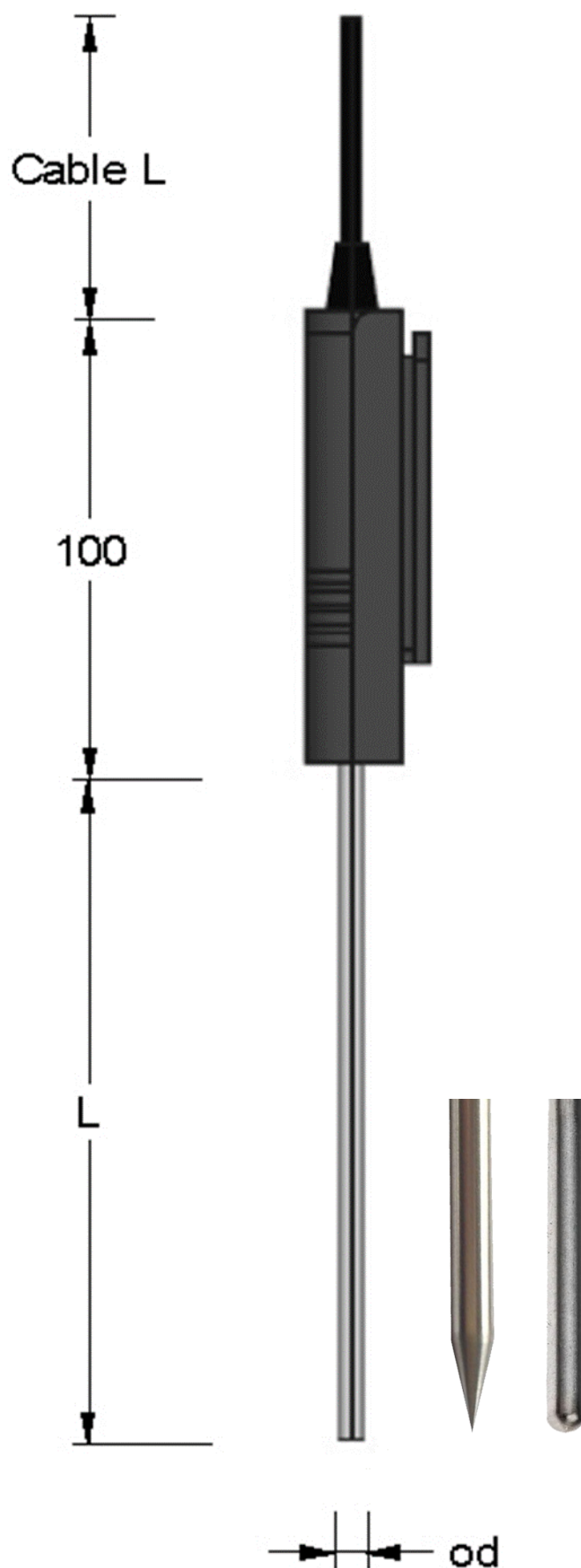
Housing

Option wall enclosure

Compliance

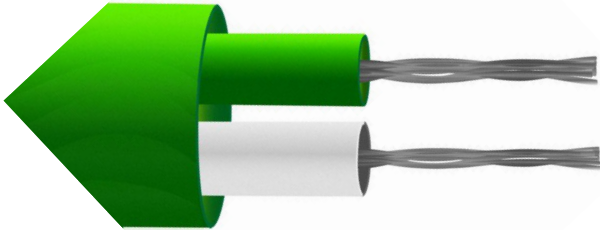
EN 61326-1:2013
EN IEC 63000:2018

Dimensional drawings (mm)



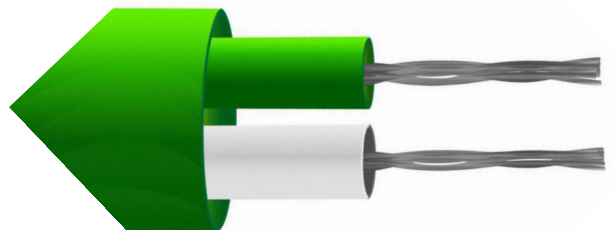
Cable Specification

PVC



Temperature range -10C to 105C
Good general-purpose insulation for medium temperature environments. Waterproof and very flexible.

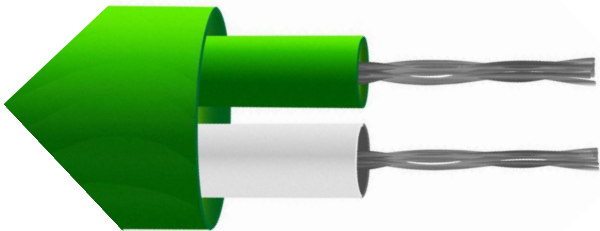
PTFE/PFA/MFA



Temperature range -200C to +250C
Resistant to oils, acids, other adverse agents and fluids. Good mechanical strength and flexibility.

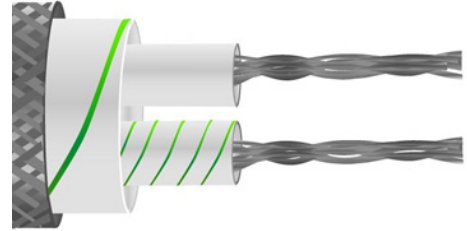
Cable Specification

Silicone Rubber



Temperature range -50 to +200
Offers excellent dielectric strength and flexibility. Operation over a wide temperature range and ease of silastic bonding are other outstanding characteristics of silicone rubber cable.

Fibreglass with overbraid



Standard temperature range -60C to 450C
High temperature range -60C to 750C
Good temperature range but will not prevent ingress of fluids.
Fairly flexible but does not provide good mechanical protection.

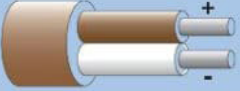
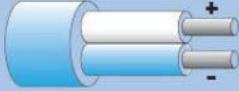
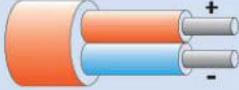
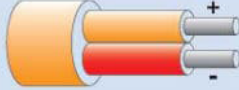
Stainless Steel Flexible Conduit



withstands high temperatures
•Durable crush-proof construction
•Corrosion and rust resistant

Configuration & Order Information																				
Product	TCHH	####	-	##	-	##	-	##	-	##	-	####	-	##	-	##	-	####	-	##
Max Operating Temperature °C																				
250C		250C																		
350C		350C																		
750C		750C																		
1150C		1150C																		
1250C		1250C																		
Thermocouple Type & Configuration																				
Single Type K													SK							
Dual Type K													DK							
Single Type J													SJ							
Dual Type J													DJ							
Single Type T													ST							
Dual Type T													DT							
Single Type N													SN							
Dual Type N													DN							
Hot Junction																				
Grounded													G							
Ungrounded													UG							
Sheath Diameter in mm																				
Standard 6mm or from 1.5mm to 12mm													#							
Custom													#							
Tip Style																				
Rounded													ST							
Pointed													PT							
Probe Sheath Length in mm																				
30mm to 3000mm													####							
Handle Material																				
Plastic													PH							
Stainless Steel													SS							
Cable Length in meters																				
Specify													##							
2 meter Curley Lead													CL							
Plug/Connector																				
Miniture Plug													MP							
Standard Plug													SP							
Din 8 Pin													DINPLG							
Specify													###							
Options																				
Traceable Calibration 3 Point													CC							

Thermocouple Colour Code

Thermocouple Type	IEC BS EN 60584-3:2008	BS BS4937:1993	ANSI ANSI MC96.1	DIN DIN 43714
K				
J				
T				
N				NONE SPECIFIED
E				
KCA/KCB				
RCA/SCA				

Thermocouple Materials & Accuracy Tolerances

Thermo-couple	Material (+ / -)	Class 1 Tolerance	Class 2 Tolerance	Class 3 Tolerance
Type J	Iron / Constantan	-40 to +375 : $\pm 1.5^{\circ}\text{C}$ +375 to +750 : $\pm 0.4\%$	-40 to +333 : $\pm 2.5^{\circ}\text{C}$ +333 to +750 : $\pm 0.75\%$	N/A
Type K	Chromel / Alumel	-40 to +375 : $\pm 1.5^{\circ}\text{C}$ +375 to +1000 : $\pm 0.4\%$	-40 to +333 : $\pm 2.5^{\circ}\text{C}$ +333 to +1200 : $\pm 0.75\%$	-200 to -167 : $\pm 1.5\%$ -167 to +40 : $\pm 2.5^{\circ}\text{C}$
Type N	Nicrosil / Nisil	-40 to +375 : $\pm 1.5^{\circ}\text{C}$ +375 to +1000 : $\pm 0.4\%$	-40 to +333 : $\pm 2.5^{\circ}\text{C}$ +333 to +1200 : $\pm 0.75\%$	-200 to -167 : $\pm 1.5\%$ -167 to +40 : $\pm 2.5^{\circ}\text{C}$
Type R & Type S	Platinum-Rhodium / Platinum	0 to +1100 : $\pm 1^{\circ}\text{C}$ +1100 to +1600 : $\pm (1^{\circ}\text{C} + 0.003^{\circ}\text{C})$	0 to +600 : $\pm 1.5^{\circ}\text{C}$ +600 to +1600 : $\pm 0.25\%$	N/A
Type T	Copper / Constantan	-40 to +125 : $\pm 0.5^{\circ}\text{C}$ +125 to +350 : $\pm 0.4\%$	-40 to +133 : $\pm 1^{\circ}\text{C}$ +133 to +350 : $\pm 0.75\%$	-200 to -67 : $\pm 1.5\%$ -67 to +40 : $\pm 1^{\circ}\text{C}$



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