MI Thermocouple & RTD Units

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Thermocouple Probe Data Sheet - 3.0mm, 4.5mm & 6.0mm Type K, J, T, E or N Thermocouples Terminated with Transmitter Mounting Plate

To order please specify the following:

1. Part reference (see example).
2. Design lengths specified in mm, including immersion length and tail length.
3. Type of junction -insulated (IJ) or bonded (BJ).
4. Any accessories required e.g. Lock nuts or termination glands.
5. Any special test requirements.

Part Reference Example:
See table 1 for cables and specifications

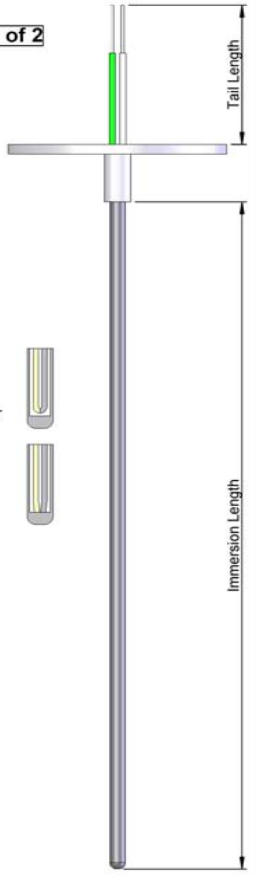
P 2 K - 321 - 60 S

- P — Categorise Probe
- 2 — Number of Conductors
- K — Conductor Material
- 321 — Sheath Material
- 60 — Overall Cable Diameter x 10 (Metric)
- S — EMF Tolerance

Junction Types.

IJ - Insulated junction. Conductors welded together and insulated from sheath.

BJ - Bonded Junction. Conductors and sheath welded together.



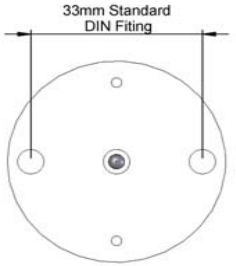


Table 1

Type K - Nickel Chromium/Nickel Aluminium Conductors

Overall Diameter mm	±	Number of Conductors	Sheath Material: AISI 321 (Maximum Operating Temperature 800) Cable Ref.	Sheath Material: Alloy 600 (Maximum Operating Temperature 1100) Cable Ref.	Sheath Material: AISI 310 (Maximum Operating Temperature 1100) Cable Ref.	Nominal Loop Resistance Ω/m@20°C	Nominal Conductor Diameter mm
3.0	0.03	2	T2K-321-30S	T2K-600-30S	T2K-310-30S	3.50	0.60
3.0		4	T4K-321-30S	T4K-600-30S	T4K-310-30S	10.90	0.34
4.5		2	T2K-321-45S	T2K-600-45S	T2K-310-45S	1.56	0.90
6.0		2	T2K-321-60S	T2K-600-60S	T2K-310-60S	0.88	1.20
6.0	0.05	4	T4K-321-60S	T4K-600-60S	T4K-310-60S	2.73	0.68
6.0		6	T6K-321-60S	T6K-600-60S	T6K-310-60S	10.90	0.68

Type J - Iron/Constantan Conductors

Overall Diameter mm	±	Number of Conductors	Sheath Material: AISI 321 (Maximum Operating Temperature 750) Cable Ref.	Sheath Material: Alloy 600 (Maximum Operating Temperature 750) Cable Ref.	Sheath Material: -	Nominal Loop Resistance Ω/m@20°C	Nominal Conductor Diameter mm
3.0	0.03	2	T2J-321-30S	T2J-600-30S	-	2.10	0.60
3.0		4	T4J-321-30S	T4J-600-30S	-	6.60	0.34
4.5		2	T2J-321-45S	T2J-600-45S	-	0.94	0.90
4.5		4	T4J-321-45S	T4J-600-45S	-	2.94	0.51
6.0	0.05	2	T2J-321-60S	T2J-600-60S	-	0.53	1.20
6.0		4	T4J-321-60S	T4J-600-60S	-	1.65	0.68

Type T - Copper/Constantan Conductors

Overall Diameter mm	±	Number of Conductors	Sheath Material: AISI 321 (Maximum Operating Temperature 400) Cable Ref.	Sheath Material: Cupro Nickel (Maximum Operating Temperature 400) Cable Ref.	Sheath Material: -	Nominal Loop Resistance Ω/m@20°C	Nominal Conductor Diameter mm
3.0	0.03	2	T2T-321-30S	-	-	1.80	0.60
6.0	0.05	2	T2T-321-60S	-	-	0.45	1.20
3.0	0.03	2	-	T2T-400-30S	-	1.15	0.75
6.0	0.05	2	-	T2T-400-60S	-	0.29	1.50

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Table 1 Cont.

Type E - Nickel Chromium/Constantan Conductors

Overall Diameter mm	♀	Number of Conductors	Sheath Material: AISI 321 (Maximum Operating Temperature 800) Cable Ref.	-	-	Nominal Loop Resistance Ξ/m@20°C	Nominal Conductor Diameter mm
3.0	0.03	2	T2E-321-30S	-	-	4.20	0.60
4.5	0.03	2	T2E-321-45S	-	-	1.87	0.90
6.0	0.05	2	T2E-321-60S	-	-	1.05	1.20

Type N - Nicrosil/Nisil Conductors

Overall Diameter mm	♀	Number of Conductors	Sheath Material: Alloy 600 (Maximum Operating Temperature 1100) Cable Ref.	Sheath Material: Nicrobell (Maximum Operating Temperature 1280) Cable Ref.	-	Nominal Loop Resistance Ξ/m@20°C	Nominal Conductor Diameter mm
3.0	0.03	2	T2N-600-30S	T2N-NIC-30S	-	4.83	0.60
3.0		4	T4N-600-30S	T4N-NIC-30S	-	15.05	0.34
4.5		2	T2N-600-45S	T2N-NIC-45S	-	2.15	0.90
4.5		4	T4N-600-45S	T4N-NIC-45S	-	6.69	0.51
6.0	0.05	2	T2N-600-60S	T2N-NIC-60S	-	1.21	1.2
6.0		4	T4N-600-60S	T4N-NIC-60S	-	3.76	0.68

Table 3 - Thermocouple EMF Tolerances

Cond. Config.	Tolerances: Class 1 (S*)	Tolerances: Class 2 (SS*)
K & N	±1.5°C from 40°C to 375°C ±0.4% above 375°C	±2.5°C from 40°C to 333°C ±0.75% above 333°C
J	±1.5°C from 40°C to 375°C ±0.4% above 375°C	±2.5°C from 40°C to 333°C ±0.75% above 333°C
T	±0.5°C from 40°C to 125°C ±0.4% above 125°C	±1.0°C from 40°C to 333°C ±0.75% above 183°C
E	±1.5°C from 40°C ±0.4% above 375°C	±2.5°C from 40°C ±0.75% above 333°C

*Where class 2 cable is required the final letter of cable/probe reference (nominally 'S') is replaced w ith 'SS'

Table 2 - Insulation Colour Coding for Flexible Thermocouple Tails

Conductor Configuration		IEC 584		BS 1843		ANSI MC 96		DIN 43714		NFC 42-324	
Type	Mat'l	Sheath	Cond.	Sheath	Cond.	Sheath	Cond.	Sheath	Cond.	Sheath	Cond.
K	NiCR +										
	NiAL-										
J	Iron +										
	Con -										
T	Copper+										
	Con -										
E	NiCR+										
	Con -										
N	Nicrosil+										
	Nisil-										

Notes.

Minimum immersion length is 100mm

ISO termination is sealed with epoxy resin as standard. Maximum operating temperature of seal: Alternative resins available on request.

Flexible stranded tails are available with PVC or PTFE IEC colour coded insulation as standard. Other materials and colour coding available on request.

EMF Characteristic: B nominal EMF to IEC 584-3.

