

# MI Thermocouple & RTD Units



**Thermal Resources Management LTD**  
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## Thermocouple Probe Data Sheet - 0.5 to 3.0mm Type K, J, T, E or N Thermocouples Terminated with 8mm ISO Seal

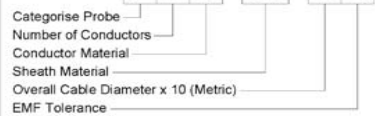
To order please specify the following:

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 - 15 S**

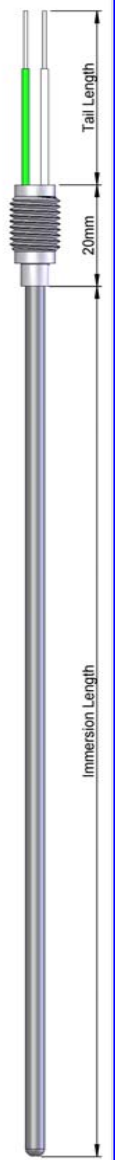


### Junction Types.

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

**BJ - Bonded Junction.**  
 Conductors and sheath welded together.

8mm ISO Lock nuts can be supplied to terminate the thermocouple as necessary



Type K - Nickel Chromium/Nickel Aluminium Conductors							
Overall Diameter	Number of Conductors	Sheath Material			Nominal Loop Resistance	Nominal Conductor Diameter	
		AISI 321	Alloy 600	AISI 310			
		Maximum Operating Temperature					
		800	1100	1100			
		Cable Ref.			Ω/m@20°C		
0.5	±	2	T2K-321-05S	T2K-600-05S	T2K-310-05S	128.00	0.10
1.0	0.02	2	T2K-321-10S	T2K-600-10S	T2K-310-10S	31.50	0.20
1.5		2	T2K-321-15S	T2K-600-15S	T2K-310-15S	14.00	0.30
2.0		2	T2K-321-20S	T2K-600-20S	T2K-310-20S	7.90	0.40
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

Type J - Iron/Constantan Conductors							
Overall Diameter	Number of Conductors	Sheath Material			Nominal Loop Resistance	Nominal Conductor Diameter	
		AISI 321	Alloy 600	-			
		Maximum Operating Temperature					
		750	750	-			
		Cable Ref.			Ω/m@20°C		
1.5	0.02	2	T2J-321-15S	T2J-600-15S	-	8.48	0.30
2.0		2	T2J-321-20S	T2J-600-20S	-	4.78	0.40
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

Type T - Copper/Constantan Conductors							
Overall Diameter	Number of Conductors	Sheath Material			Nominal Loop Resistance	Nominal Conductor Diameter	
		AISI 321	Cupro Nickel	-			
		Maximum Operating Temperature					
		400	400	-			
		Cable Ref.			Ω/m@20°C		
1.5	0.02	2	T2T-321-15S	-	-	7.18	0.30
3.0	0.03	2	T2T-321-30S	-	-	1.80	0.60
1.5	0.02	2	-	T2T-400-15S	-	5.59	0.34
3.0	0.03	2	-	T2T-400-30S	-	1.15	0.75



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Type E - Nickel Chromium/Constantan Conductors							
Overall Diameter	Number of Conductors	Sheath Material			Nominal Loop Resistance	Nominal Conductor Diameter	
		AISI 321	-	-			
		Maximum Operating Temperature					
		800	-	-			
		Cable Ref.			Ω/m@20°C		
1.0	0.02	2	T2E-321-10S	-	-	37.90	0.20
1.5		2	T2E-321-15S	-	-	16.80	0.30
2.0		2	T2E-321-20S	-	-	9.50	0.40
3.0	0.03	2	T2E-321-30S	-	-	4.20	0.60

Type N - Nirosil/Nsil Conductors							
Overall Diameter	Number of Conductors	Sheath Material			Nominal Loop Resistance	Nominal Conductor Diameter	
		Alloy 600	Nicrobell	-			
		Maximum Operating Temperature					
		1100	1250	-			
		Cable Ref.			Ω/m@20°C		
1.0	0.02	2	T2N600-10S	T2N600-10S	-	43.48	0.20
1.5		2	T2N600-15S	T2N600-15S	-	19.32	0.30
2.0		2	T2N600-20S	T2N600-20S	-	10.90	0.40
3.0	0.03	2	T2N600-30S	T2N600-30S	-	4.83	0.60
3.0		4	T4N600-30S	T4N600-30S	-	15.05	0.34

Cond. Config.	Tolerances	
	Class 1 (S)	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
	±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 to 375°C ±0.4% above 375°C	±2.5°C from 40°C to 333°C ±0.75% above 333°C

\*Where class 2 cable is required the final letter of cable/probe reference (normally 'S') is replaced with 'SS'

Conductor Configuration	IEC 684	BS 1843	ANSI MC96	DIN 43714	NFC 42-324
K	NCR+				
	NAL-				
J	Iron+				
	Con-				
T	Copper+				
	Con-				
E	NCR+				
	Con-				
N	Nicrosil+				
	Nsil-				

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.

