

CERTIFICATE OF CALIBRATION

Issued By Transmille Ltd.

Certificate Number EXAMPLE

Date of Issue EXAMPLE



0324



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Approved Signatory

G.A. Shapland M.A. Bailey S.A. Hawkins J.J. Bailey

Customer : EXAMPLE

Date Received : EXAMPLE

Instrument :	System ID :	EXAMPLE	Job Number :	EXAMPLE
	Description :	Thermocouple Simulator Adapter	Ref. Number :	
	Manufacturer :	Transmille	Site :	
	Model Number :	EA001A	Location :	
	Serial Number :	EXAMPLE		
	Procedure Version :	13.00/N		

Environmental Conditions

Temperature : 20°C +/- 1°C
Relative Humidity : 40% +/- 20%

Mains Voltage : 230V +/- 12V
Mains Frequency : 50Hz +/- 1Hz

Comments

Instrument was allowed to stabilise for at least 12 hours before calibration.
Reference temperature of 0°C used for the thermocouple CJC.
Temperature Scale ITS90
Temperature reference tables EN60584-1 : 2013

Calibration Information

The instrument was calibrated against laboratory standards whose values are traceable to recognised National Standards. The uncertainty limits quoted refer to the measured values only, with no account being taken of the instruments ability to maintain its calibration.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

Calibrated By : EXAMPLE

Date of Calibration : EXAMPLE

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

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Test Title	Applied Value	Reading	Uncertainties
Cold Junction Compensation - Simulation (Source)			
CJC Temp Measurement	20.00°C	20.00°C	±0.12°C
Cold Junction Compensation - Measure (Readback)			
CJC Temp Measurement	20.00°C	20.00°C	±0.22°C

Figures in brackets () are the equivalent voltage for the temperature input

Temperature Measure - Type K - CJC at 0°C - ITS90

-190°C (-5.730mV)	-190.000°C	-189.93°C	±50m°C
-140°C (-4.669mV)	-140.000°C	-140.02°C	±50m°C
-100°C (-3.554mV)	-100.000°C	-99.97°C	±50m°C
-50°C (-1.889mV)	-50.000°C	-49.98°C	±50m°C
-25°C (-0.968mV)	-25.000°C	-25.00°C	±50m°C
0°C (0.000mV)	0.000°C	0.02°C	±50m°C
100°C (4.096mV)	100.000°C	99.98°C	±50m°C
122°F (2.023mV)	122.000°F	122.00°F	±90m°F
212°F (4.096mV)	212.000°F	212.00°F	±90m°F
120°C (4.920mV)	120.000°C	119.99°C	±50m°C
200°C (8.138mV)	200.000°C	199.95°C	±50m°C
500°C (20.644mV)	500.000°C	499.96°C	±50m°C
700°C (29.129mV)	700.000°C	700.00°C	±50m°C
1000°C (41.276mV)	1 000.000°C	999.91°C	±50m°C
1370°C (54.819mV)	1 370.000°C	1 369.94°C	±50m°C

Temperature Measure - Type J - CJC at 0°C - ITS90

-200°C (-7.890mV)	-200.000°C	-199.94°C	±50m°C
0°C (0.000mV)	0.000°C	0.01°C	±50m°C
400°C (21.848mV)	400.000°C	399.98°C	±50m°C
1200°C (69.553mV)	1 200.000°C	1 199.97°C	±50m°C

Temperature Measure - Type T - CJC at 0°C - ITS90

-240°C (-6.105mV)	-240.000°C	-239.79°C	±170m°C
0°C (0.000mV)	0.000°C	0.01°C	±50m°C
400°C (20.872mV)	400.000°C	399.98°C	±50m°C

Temperature Measure - Type R - CJC at 0°C - ITS90

0°C (0.000mV)	0.000°C	0.03°C	±120m°C
400°C (3.408mV)	400.000°C	400.00°C	±120m°C
1760°C (21.003mV)	1 760.000°C	1 759.84°C	±120m°C

Temperature Measure - Type S - CJC at 0°C - ITS90

0°C (0.000mV)	0.000°C	0.16°C	±120m°C
400°C (3.259mV)	400.000°C	400.05°C	±120m°C
1760°C (18.609mV)	1 760.000°C	1 759.79°C	±120m°C

Temperature Measure - Type N - CJC at 0°C - ITS90

-190°C (-3.884mV)	-190.000°C	-190.03°C	±80m°C
-25°C (-0.646mV)	-25.000°C	-25.04°C	±80m°C
120°C (3.374mV)	120.000°C	119.97°C	±80m°C
1300°C (47.513mV)	1 300.000°C	1 299.95°C	±80m°C

Temperature Measure - Type B - CJC at 0°C - ITS90

600°C (1.792mV)	600.000°C	600.12°C	±110m°C
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Test Title	Applied Value	Reading	Uncertainties
1000°C (4.834mV)	1 000.000°C	1 000.00°C	±110m°C
1820°C (13.820mV)	1 820.000°C	1 819.84°C	±110m°C
Temperature Measure - Type E - CJC at 0°C - ITS90			
-240°C (-9.604mV)	-240.000°C	-239.97°C	±320m°C
-25°C (-1.432mV)	-25.000°C	-25.02°C	±40m°C
350°C (24.964mV)	350.000°C	349.97°C	±40m°C
1000°C (76.373mV)	1 000.000°C	999.99°C	±40m°C
Temperature Measure - Type L - CJC at 0°C - ITS90			
-200°C (8.158mV)	-200.000°C	-200.00°C	±40m°C
0°C (0.000mV)	0.000°C	0.01°C	±40m°C
900°C (53.154mV)	900.000°C	899.97°C	±40m°C
Temperature Measure - Type U - CJC at 0°C - ITS90			
-200°C (-5.696mV)	-200.000°C	-199.90°C	±50m°C
0°C (0.000mV)	0.000°C	-0.01°C	±50m°C
600°C (34.309mV)	600.000°C	599.96°C	±50m°C
Temperature Measure - Type C - CJC at 0°C - ITS90			
10°C (0.135mV)	10.000°C	10.00°C	±60m°C
650°C (11.583mV)	650.000°C	649.88°C	±60m°C
1000°C (18.257mV)	1 000.000°C	999.89°C	±60m°C
2316°C (37.070mV)	2 316.000°C	2 315.67°C	±60m°C

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Test Title	Applied Value	Reading	Uncertainties
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Figures in brackets () are the equivalent temperature for the mV output

Temperature Simulation - Type K - CJC at 0°C - ITS90

-5.891mV (-200°C)	-200.00°C	-199.994°C	±50m°C
-4.669mV (-140°C)	-140.00°C	-139.999°C	±50m°C
-3.554mV (-100°C)	-100.00°C	-99.999°C	±50m°C
-1.889mV (-50°C)	-50.00°C	-49.939°C	±50m°C
-0.968mV (-25°C)	-25.00°C	-24.967°C	±50m°C
0.000mV (0°C)	0.00°C	0.001°C	±50m°C
4.096mV (100°C)	100.00°C	100.000°C	±50m°C
2.023mV (122°F)	112.00°F	111.996°F	±90m°F
4.096mV (212°F)	212.00°F	212.000°F	±90m°F
4.920mV (120°C)	120.00°C	119.998°C	±50m°C
8.138mV (200°C)	200.00°C	200.007°C	±50m°C
20.644mV (500°C)	500.00°C	500.021°C	±50m°C
29.129mV (700°C)	700.00°C	700.038°C	±50m°C
41.276mV (1000°C)	1 000.00°C	1 000.054°C	±50m°C
54.819mV (1370°C)	1 370.00°C	1 370.070°C	±50m°C

Temperature Simulation - Type J - CJC at 0°C - ITS90

-8.095mV (-210°C)	-210.00°C	-210.025°C	±50m°C
0.000mV (0°C)	0.00°C	0.000°C	±50m°C
21.848mV (400°C)	400.00°C	400.012°C	±50m°C
69.553mV (1200°C)	1 200.00°C	1 200.079°C	±50m°C

Temperature Simulation - Type T - CJC at 0°C - ITS90

-6.180mV (-250°C)	-250.00°C	-249.990°C	±170m°C
0.000mV (0°C)	0.00°C	0.001°C	±50m°C
20.872mV (400°C)	400.00°C	400.007°C	±50m°C

Temperature Simulation - Type R - CJC at 0°C - ITS90

0.000mV (0°C)	0.00°C	0.007°C	±120m°C
3.408mV (400°C)	400.00°C	400.003°C	±120m°C
21.003mV (1760°C)	1 760.00°C	1 760.082°C	±120m°C

Temperature Simulation - Type S - CJC at 0°C - ITS90

0.000mV (0°C)	0.00°C	0.006°C	±120m°C
3.259mV (400°C)	400.00°C	399.981°C	±120m°C
18.609mV (1760°C)	1 760.00°C	1 760.057°C	±120m°C

Temperature Simulation - Type N - CJC at 0°C - ITS90

-3.990mV (-200°C)	-200.00°C	-200.003°C	±80m°C
-0.646mV (-25°C)	-25.00°C	-24.956°C	±80m°C
3.374mV (120°C)	120.00°C	119.996°C	±80m°C
47.513mV (1300°C)	1 300.00°C	1 300.059°C	±80m°C

Temperature Simulation - Type B - CJC at 0°C - ITS90

1.792mV (600°C)	600.00°C	599.980°C	±110m°C
4.834mV (1000°C)	1 000.00°C	999.992°C	±110m°C
13.820mV (1820°C)	1 820.00°C	1 820.040°C	±110m°C

Temperature Simulation - Type E - CJC at 0°C - ITS90

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-9.718mV (-250°C)	-250.00°C	-250.003°C	±320m°C
-1.432mV (-25°C)	-25.00°C	-24.973°C	±40m°C
24.964mV (350°C)	350.00°C	350.007°C	±40m°C
76.373mV (1000°C)	1 000.00°C	1 000.091°C	±40m°C
Temperature Simulation - Type L - CJC at 0°C - ITS90			
-8.158mV (-200°C)	-200.00°C	-200.221°C	±40m°C
0.000mV (0°C)	0.00°C	0.005°C	±40m°C
53.140mV (900°C)	900.00°C	899.928°C	±40m°C
Temperature Simulation - Type U - CJC at 0°C - ITS90			
-5.696mV (-200°C)	-200.00°C	-199.860°C	±50m°C
0.000mV (0°C)	0.00°C	0.004°C	±50m°C
34.309mV (600°C)	600.00°C	599.982°C	±50m°C
Temperature Simulation - Type C - CJC at 0°C - ITS90			
0.000mV (0°C)	0.00°C	0.021°C	±60m°C
11.583mV (650°C)	650.00°C	650.021°C	±60m°C
18.257mV (1000°C)	1 000.00°C	1 000.047°C	±60m°C
37.070mV (2316°C)	2 316.00°C	2 316.105°C	±60m°C

End of results