

Schedule

UniCal Pte Ltd
Blk 28F Penjuru Close
#01-05
Singapore 609134

Certificate No. : LA-2018-0688-C
Issue No. : 07
Date : 02 September 2024
Expiry of Certificate : 29 June 2026
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FIELD OF TESTING: Calibration and Measurement

MEASURED QUANTITIES / INSTRUMENTS / RANGE TO BE CALIBRATED	METHOD	CALIBRATION MEASUREMENT CAPABILITY(CMC)*
A TEMPERATURE		
1. <u>Resistance Temperature Devices Indicators</u>	UTCP-001-V04	
<u>In-house</u> -200 °C to 800 °C		0.17 °C
<u>On-site</u> -200 °C to 800 °C		0.18 °C
2. <u>Resistance Temperature Devices Simulators</u>	UTCP-001-V04	
<u>In-house</u> -200 °C to 800 °C		0.16 °C
<u>On-site</u> -200 °C to 800 °C		0.16 °C
3. <u>Thermocouple Indicators</u>	UTCP-002-V04	
<u>In-house</u> Type J -200 °C to 1200 °C		0.20 °C
Type K -200°C to 1300°C		0.42 °C
Type N -200 °C to 1200 °C		0.34 °C

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Type T -200 °C to 400 °C	UTCP-002-V04	0.33 °C
<u>On-site</u> Type J -200 °C to 1200 °C		0.35 °C
Type K -200 °C to 1300 °C		0.52 °C
Type N -200 °C to 1200 °C		0.45 °C
Type T -200 °C to 400 °C		0.41 °C
4. <u>Thermocouple Simulators</u>		
<u>In-house</u> Type J -210 °C to 1200 °C		0.20 °C
Type K -200 °C to 1300 °C		0.34 °C
Type N -200 °C to 1300 °C		0.27 °C
Type T -200 °C to 400 °C		0.27 °C
<u>On-site</u> Type J -210 °C to 1200 °C		0.35 °C
Type K -200 °C to 1300 °C		0.45 °C
Type N -200 °C to 1300 °C		0.41 °C
Type T -200 °C to 400 °C		0.36 °C

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5. <u>Resistance Temperature Detectors With or Without Display</u> <u>In-house</u> -80 °C to -40 °C -40 °C to -30 °C -30 °C to 0 °C 0 °C (ice point) 0 °C to 50 °C 50 °C to 100 °C 100 °C to 200 °C 200 °C to 300 °C 300 °C to 400 °C 400 °C to 500 °C <u>On-site</u> -30 °C to 0 °C 0 °C (liquid bath) 0 °C to 30 °C 30 °C to 50 °C 50 °C to 100 °C 100 °C to 200 °C 200 °C to 300 °C 300 °C to 400 °C 400 °C to 500 °C	UTCP-003-V06	0.097 °C 0.15 °C 0.073 °C 0.039 °C 0.044 °C 0.11 °C 0.26 °C 0.40 °C 0.37 °C 0.49 °C 0.073 °C 0.054 °C 0.074 °C 0.052 °C 0.11 °C 0.26 °C 0.40 °C 0.37 °C 0.49 °C
6. <u>Thermocouple Sensors With or Without Display</u> <u>In-house</u> Type J -30 °C to 0 °C 0 °C to 100 °C 100 °C to 200 °C 200 °C to 300 °C 300 °C to 400 °C 400 °C to 500 °C	UTCP-004-V07	0.21 °C 0.24 °C 0.34 °C 0.97 °C 1.3 °C 1.6 °C

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Type K -30 °C to 100 °C 100 °C to 200 °C 200 °C to 300 °C 300 °C to 400 °C 400 °C to 500 °C		0.41 °C 0.43 °C 0.62 °C 0.67 °C 0.83 °C
Type N -30 °C to 0 °C 0 °C to 100 °C 100 °C to 200 °C 200 °C to 300 °C 300 °C to 400 °C 400 °C to 500 °C		0.34 °C 0.36 °C 0.43 °C 0.58 °C 0.64 °C 0.80 °C
Type T -80 °C to -40 °C -40 °C to -30 °C -30 °C to 150 °C 150 °C to 250 °C 250 °C to 300 °C 300 °C to 350 °C		0.28 °C 0.30 °C 0.29 °C 0.81 °C 1.0 °C 1.2 °C
Type R 0 °C to 200 °C 200 °C to 500 °C		1.2 °C 1.3 °C
<u>On-site</u> Type J -30 °C to 0 °C 0 °C to 100 °C 100 °C to 200 °C 200 °C to 300 °C 300 °C to 400 °C 400 °C to 500 °C		0.35 °C 0.46 °C 0.72 °C 1.1 °C 1.3 °C 1.6 °C

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Type K -30 °C to 100 °C 100 °C to 200 °C 200 °C to 300 °C 300 °C to 400 °C 400 °C to 500 °C Type N -30 °C to 0 °C 0 °C to 100 °C 100 °C to 200 °C 200 °C to 300 °C 300 °C to 400 °C 400 °C to 500 °C Type T -30 °C to 0 °C 0 °C to 50 °C 50 °C to 100 °C 100 °C to 150 °C 150 °C to 250 °C 250 °C to 300 °C 300 °C to 350 °C Type R 0 °C to 400 °C 400 °C to 500 °C		0.47 °C 0.56 °C 0.69 °C 0.74 °C 0.88 °C 0.39 °C 0.42 °C 0.52 °C 0.65 °C 0.71 °C 0.86 °C 0.27 °C 0.30 °C 0.40 °C 0.51 °C 0.81 °C 1.1 °C 1.2 °C 1.3 °C 1.4 °C
7. <u>Temperature Block Calibrators</u> <u>Multiple/Single Holes</u> <u>In-house and On-site</u> <u>Deviation Test Only</u> -35 °C to 500 °C	UTCP-005-V06	0.10 °C

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8. <u>RTD Sensors With Transmitters</u> <u>In-house</u> -50 °C to 0 °C 0 °C (ice point) 0 °C to 25 °C 25 °C to 75 °C 75 °C to 100 °C 100 °C to 150 °C 150 °C to 200 °C 200 °C to 300 °C 300 °C to 400 °C 400 °C to 500 °C <u>On-site</u> -30 °C to 0 °C 0 °C to 100 °C 100 °C to 200 °C 200 °C to 300 °C 300 °C to 400 °C 400 °C to 500 °C	UTCP-006-V07	0.10 °C 0.09 °C 0.17 °C 0.15 °C 0.13 °C 0.20 °C 0.34 °C 0.45 °C 0.43 °C 0.54 °C 0.26 °C 0.27 °C 0.36 °C 0.47 °C 0.44 °C 0.56 °C
9. <u>Temperature Enclosures (according to IEC 6008-3-5)</u> <u>In-house</u> -80 °C to -40 °C -40 °C to -30 °C -30 °C to 0 °C 0 °C 0 °C to 75 °C 75 °C to 100 °C 100 °C to 120 °C 120 °C to 250 °C 250 °C to 750 °C 750 °C to 900 °C 900 °C to 1200 °C	UTCP-007-V08	6.8 °C 3.7 °C 0.76 °C 0.69 °C 0.64 °C 0.70 °C 0.79 °C 3.7 °C 4.4 °C 4.3 °C 10.0 °C

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11. <u>Temperature and Humidity Instruments</u> <u>a. In-house*</u> -30 °C -30 °C to 0 °C 0 °C to 23 °C 23 °C to 50 °C 50 °C to 100 °C 100 °C to 120 °C <u>b. In-house</u> at 55 % relative humidity 0 °C 0 °C to 60 °C at 60 % relative humidity 0 °C 0 °C to 60 °C <u>c. In-house</u> at (20 to 23) °C (10 to 60) % relative humidity (60 to 90) % relative humidity 30 °C at 65 % relative humidity 40 °C at 75 % relative humidity	UTCP-012-V06 *For instruments that need to be calibrated in the environmental chamber.	0.25 °C 0.22 °C 0.12 °C 0.21 °C 0.29 °C 0.37 °C 0.36 °C 0.32 °C 0.41 °C 0.38 °C 1.3 % relative humidity 1.4 % relative humidity 0.43 °C / 1.4 % relative humidity
12. <u>Temperature and Humidity Chambers (according to IEC 60068-3-11)</u> <u>In-house and On-site</u> (30 to 90) % relative humidity at 20 °C (10 to 90) % relative humidity at 23 °C 65 % relative humidity at 30 °C 75 % relative humidity at 40 °C 20 °C to 23 °C 23 °C to 30 °C 30 °C to 40 °C	UTCP-013-V04	2.8 % relative humidity 2.6 % relative humidity 2.5 % relative humidity 2.8 % relative humidity 0.7 °C 0.8 °C 0.9 °C

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2. <u>Weighing Balance and Scales</u> a. Analog Weighing Scale b. Digital Weighing Scale <u>In-house and On-site</u> Resolution up to 200 g 0.0001 g up to 520 g 0.001 g up to 1000 g 0.001 g up to 5200 g 0.01 g up to 12 000 g 0.1 g up to 30 000 g 0.1 g up to 100 000 g 5 g up to 150 000 g 20 g	 <	

* CMC is expressed as an expanded uncertainty estimated at a level of confidence of approximately 95%.

Approved Signatories:

Mr Hero Allan Andal	- For all items in category A, B & C
Mr Lim Kah Sen	- For all items in category A, B & C
Mr Kumaresan Muniandy	- For item B1

Note:

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025. A laboratory's fulfillment of the requirements of ISO/IEC 17025 means the laboratory meets both the technical competence requirements and **management system requirements** that are necessary for it to consistently deliver technically valid calibration results. The **management system requirements** in ISO/IEC 17025 are written in language relevant to laboratory operations and operate generally in accordance with the principles of ISO 9001.