

# CERTIFICATE OF CALIBRATION

ISSUED BY: LAMBDA CALIBRATION LTD

DATE OF ISSUE: 19 February 2019 CERTIFICATE No: 541706




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**Lambda**  
CALIBRATION LTD

Units 11- 13  
Chorley Central Business Park  
Stump Lane, Chorley  
Lancashire PR6 0BL  
Tel: 01257 244670

APPROVED SIGNATORY

  
E Santos D Pilkington  
D Whalley C Reed R Armitage

**Customer:** DJB Labcare Ltd  
**Address:** 20 Howard Way, Interchange Park  
Newport Pagnell  
MK16 9QS

**Item Number:** 13070040 (4046)  
**Description:** Digital Thermometer  
**Model/Range:** TMD-56  
**Manufacturer:** Amprobe  
**Date of Cal:** 19 Feb 2019  
**Calibrated by:** Mohammed Abid  
**Procedure Name:** Amprobe, Digital Thermometer, TMD-56 (DJB Labcare)  
**Rev/Basis:** 03:E-650, Based on BS EN 60584.1  
**Temp/Humidity:** 20.0°C ± 2°C <80%rh

The Results on the following pages are: As Found

All Measurements are Traceable to National Standards.

**Note 1:** The unit under test was calibrated using a multifunction calibrator.  
**Note 2:** Where the reported value lies within the stated tolerances then this will be indicated by 'A', if outside then by 'B'.  
**Note 3:** Values quoted in the "UUT Indicated Value" column are not necessarily quoted to the same resolution as the actual displayed value on the UUT.  
**Note 4:** Any supplied test leads have been checked as part of the Visual/Operational test but have not been used during calibration.  
**Note 5:** Temperature indicating instruments that contain an internal reference junction for use with thermocouples are calibrated with the reference junction enabled.

**Engineers' Notes:**

**Equipment Used:** Multi-function Calibrator: LMMC-02 / LMMC-04 / LMMC-10 / LMMC-14

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor  $k=2$ , providing a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements. Unless otherwise stated any reported summary of the results does not take the measurement uncertainty into consideration.  
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. Unless otherwise stated the reported activities were carried out at the address detailed in the header; and the results relate only to the items calibrated.

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UKAS ACCREDITED CALIBRATION LABORATORY No: 0495

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Parameter	UUT Range	UUT Indicated Value	Applied Value	Acceptance Limits Low	Acceptance Limits High	Summary
Visual/Operational Test						OK
Result of Operator Evaluation						
Measurement of Thermocouples (Electrical Simulation)						
Channel T1						
Type T						
		-190.0°C	-190.3	-190.8	-189.2	A
		-80.0°C	-80.3	-80.7	-79.3	A
		-50.0°C	-50.0	-50.7	-49.3	A
		-30.0°C	-30.0	-30.3	-29.7	A
		-10.0°C	-10.0	-10.3	-9.7	A
		0.0°C	-0.2	-0.3	0.3	A
		4.0°C	3.9	3.7	4.3	A
		37.0°C	37.0	36.7	37.3	A
		50.0°C	49.9	49.7	50.3	A
		100.0°C	100.0	99.7	100.3	A
		150.0°C	150.0	149.6	150.4	A
		200.0°C	200.1	199.6	200.4	A
		250.0°C	250.0	249.6	250.4	A
		300.0°C	300.0	299.6	300.4	A
		390.0°C	390.1	389.5	390.5	A
		100.0°F	100.1	99.3	100.7	A
Type K						
		0.0°C	0.3	-0.3	0.3	A
		500.0°C	500.2	499.4	500.6	A
		500.0°C	500.0	499.4	500.6	A
		1000.0°C	1000.3	999.2	1000.8	A
Type J						
		20.0°C	20.0	19.7	20.3	A
		1100.0°C	1100.4	1099.2	1100.8	A
Type E						
		20.0°C	20.0	19.7	20.3	A
		900.0°C	900.2	899.3	900.8	A
Type N						
		20.0°C	20.0	19.6	20.4	A
		1100.0°C	1100.4	1099.1	1101.0	A
Type R						
		500.0°C	500.0	497.8	502.3	A
		1100.0°C	1100.0	1097.5	1102.6	A
Type S						
		500.0°C	500.0	497.8	502.3	A
		1100.0°C	1100.0	1097.5	1102.6	A

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Parameter	UUT Range	UUT Indicated Value	Applied Value	Acceptance Limits Low	Acceptance Limits High	Summary
Channel T2						
Type T		-190.0°C	-190.5	-190.8	-189.2	A
		-80.0°C	-79.9	-80.7	-79.3	A
		-50.0°C	-49.9	-50.7	-49.3	A
		-30.0°C	-30.1	-30.3	-29.7	A
		-10.0°C	-10.2	-10.3	-9.7	A
		0.0°C	0.1	-0.3	0.3	A
		4.0°C	3.9	3.7	4.3	A
		37.0°C	37.1	36.7	37.3	A
		50.0°C	49.9	49.7	50.3	A
		100.0°C	100.0	99.7	100.3	A
		150.0°C	150.1	149.6	150.4	A
		200.0°C	200.0	199.6	200.4	A
		250.0°C	250.0	249.6	250.4	A
		300.0°C	300.0	299.6	300.4	A
		390.0°C	390.1	389.5	390.5	A
		100.0°F	100.1	99.3	100.7	A
Type K		0.0°C	-0.3	-0.3	0.3	A
		500.0°C	500.0	499.4	500.6	A
		1000.0°C	1000.0	999.2	1000.8	A
Type J		20.0°C	20.0	19.7	20.3	A
		1100.0°C	1100.2	1099.2	1100.8	A
Type E		20.0°C	20.0	19.7	20.3	A
		900.0°C	900.2	899.3	900.8	A
Type N		20.0°C	20.3	19.6	20.4	A
		1100.0°C	1100.4	1099.1	1101.0	A
Type R		500.0°C	500.0	497.8	502.3	A
		1100.0°C	1100.0	1097.5	1102.6	A
Type S		500.0°C	500.0	497.8	502.3	A
		1100.0°C	1100.0	1097.5	1102.6	A

End of Calibration Data

Estimated Uncertainty of Measurement:

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### Electrical Measurement of Thermocouples

Type: B	+500°C to +1820°C	±(0.64°C)
Type: C	+0°C to +2320°C	±(0.48°C)
Type: E	-250°C to +1000°C	±(0.53°C)
Type: J	-210°C to +1200°C	±(0.30°C)
Type: K	-200°C to -250°C	±(0.66°C)
Type: K	-200°C to +1300°C	±(0.32°C)
Type: L	-200°C to +900°C	±(0.31°C)
Type: N	-200°C to +1300°C	±(0.40°C)
Type: R	+0°C to +1767°C	±(0.61°C)
Type: S	+0°C to +1767°C	±(0.57°C)
Type: T	-250°C to -200°C	±(0.69°C)
Type: T	-200°C to +400°C	±(0.32°C)