

CERTIFICATE OF CALIBRATION

ISSUED BY: LAMBDA CALIBRATION LTD

DATE OF ISSUE: 04th August 2023

CERTIFICATE No: 787522R1



0495



Lambda
CALIBRATION LTD

11-13 Chorley Central
Business Park
Stump Lane
Chorley
PR6 0BL
Tel: 01257 244 670

Page 1 of 3

APPROVED SIGNATORY


C Reed E Santos R Armitage
K Quigley D Pilkington

Customer: DJB Labcare Ltd, Milton Keynes, MK16 9QS
Item No: 1632
Description: Calibrator
Model/Range: TC303
Manufacturer: Beamex
Date of Cal: 07/07/2023
Basis: E-2000
Equipment Used: Multifunction Calibrator (LMMC-02), Longscale Multimeter (LVD-37), Thermocouple Thermometer (LTHE-22), Thermocouple Probe (LTP-18)
Temp/Humidity: 20°C ± 2°C, <80%rh

Visual /Operational Checks:

Unit Under Test (UUT) Condition	Functional
Condition of Supplied Leads	Functional
Battery	Does not hold charge

Summary of Results:

Pre Calibration Status	Results reported as found
Post Calibration Status	Results reported as found
Adjustments	No
Repairs	No
Comments	This certificate replaces the previous certificate number 787522 issued on 10/07/2023. Reason: "UUT reference temperature error" wrongly calculated. Other changes for clarity.

Measured results and measurement uncertainties are detailed on the following pages.

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: [1] The 'Compliance Statement' is based on 'simple acceptance' (result vs tolerance) with the relevant calibration uncertainty being no greater than the tolerance. [2] Reported activities were carried out at the address detailed in the header. [3] The results relate only to the items calibrated. 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.

CERTIFICATE OF CALIBRATION

ISSUED BY: LAMBDA CALIBRATION LTD

UKAS ACCREDITED CALIBRATION LABORATORY No: 0495

CERTIFICATE No:

787522R1

Page 2 of 3

Reference Temperature Error

The UUT was left overnight to stabilise. The UUT indication from a calibrated thermocouple probe was compared to a laboratory reference probe.

UUT Indication (°C)	Reference Temperature (°C)	Error (°C)
20.3	20.17	0.13

Reference probe reported temperature: 20.17°C

Measurement Mode:

The UUT was set to T-Type thermocouple, reference temperature set to 0°C. Voltages equivalent to the Nominal Temperatures were applied.

Nominal Temperature (°C)	Applied Voltage (mV)	UUT Indication (°C)
-190.0	-5.439	-190.3
-80.0	-2.788	-80.1
-50.0	-1.819	-50.1
-30.0	-1.121	-30.1
-10.0	-0.388	-10.1
0.0	0.000	0.1
4.0	0.156	4.1
37.0	1.486	37.1
50.0	2.036	50.1
100.0	4.279	100.1
150.0	6.704	150.1
200.0	9.288	200.1
250.0	12.013	250.1
300.0	14.862	300.1
390.0	20.255	390.1

CERTIFICATE OF CALIBRATION

ISSUED BY: LAMBDA CALIBRATION LTD

UKAS ACCREDITED CALIBRATION LABORATORY No: 0495

CERTIFICATE No:

787522R1

Page 3 of 3

Simulation Mode

The UUT was set to T Type thermocouple simulate, with reference temperature set to 0°C. The UUT output voltage was measured.

UUT Setting (°C)	Nominal Output (mV)	Measured Output (mV)	Equivalent Temperature (°C)
-190.0	-5.439	-5.4387	-190.2
-80.0	-2.788	-2.7876	-79.98
-50.0	-1.819	-1.8196	-50.02
-30.0	-1.121	-1.1204	-29.98
-10.0	-0.383	-0.3833	-10.01
0.0	0.000	-0.0011	-0.03
4.0	0.156	0.1548	3.99
37.0	1.486	1.4858	36.99
50.0	2.036	2.0351	49.97
100.0	4.279	4.2785	100.00
150.0	6.704	6.7016	149.96
200.0	9.288	9.2863	199.96
250.0	12.013	12.0124	249.99
300.0	14.862	14.8601	299.97
390.0	20.255	20.2524	389.96

End of Results

Estimated Uncertainty of Measurement:

Reference Junction Measurement: $\pm 0.12^{\circ}\text{C}$
Simulated Temperature: $\pm 0.13^{\circ}\text{C}$
DC Voltage Measurement: $\pm(93\text{ppm} + 4.1\mu\text{V})$