CERTIFICATE OF CALIBRATION

ISSUED BY: LAMBDA CALIBRATION LTD

DATE OF ISSUE: 04th August 2023 CERTIFICATE No: 787522R1

UKAS CALIBRATION
0495

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APPROVED SIGNATORY

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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.

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

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: ±0.12°C
Simulated Temperature: ±0.13°C
DC Voltage Measurement: ±(93ppm + 4.1μV)