CERTIFICATE OF CALIBRATION

ISSUED BY: LAMBDA CALIBRATION LTD

DATE OF ISSUE: 27th March 2018 CERTIFICATE No: 546853

UKAS CALIBRATION 0495

Lambda CALIBRATION LTD

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APPROVED SIGNATORY

A Kelly D Pilkington
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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:	21/03/2019
Basis:	E-2000
Equipment Used:	Multifunction Calibrator (LMMC-10), Longscale Multiimeter (LVD-35), Thermocouple Thermometer (LTHE-22), Thermocouple Probe (LTP-18)
Temp/Humidity:	20°C ± 2°C, <80%rh

Visual /Operational Checks:

Case Condition	Satisfactory
Operation of Switches & Display	Satisfactory
Leads Condition	Satisfactory
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
Other Comments	-

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 any reported summary of the results does not take the measurement uncertainty into consideration.

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Reference Temperature Error

The UUT was left overnight to equilibrate. The UUT reading from a calibrated thermocouple probe was compared to that from a laboratory reference probe.

UUT reported temperature: 20.6°C

Reference probe reported temperature: 20.44°C

UUT reference temperature error: +0.16°C

Measurement Mode:

The UUT was set to T-Type thermocouple, reference temperature set to 0°C, and voltages equivalent to the set point temperatures were applied.

Applied Simulation Temperature (°C)	Applied Voltage (mV)	UUT Display (°C)
-190.0	-5.439	-190.1
-80.0	-2.788	-80.0
-50.0	-1.819	-50.1
-30.0	-1.121	-30.1
-10.0	-0.388	-10.2
0.0	0.000	0.0
4.0	0.156	4.0
37.0	1.486	37.0
50.0	2.036	50.0
100.0	4.279	100.0
150.0	6.704	150.0
200.0	9.288	200.0
250.0	12.013	250.0
300.0	14.862	300.0
390.0	20.255	390.0

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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	-5.4382	-189.97
-80.0	-2.788	-2.7871	-79.97
-50.0	-1.819	-1.8188	-49.99
-30.0	-1.121	-1.1197	-29.97
-10.0	-0.383	-0.3820	-9.97
0.0	0.000	0.0004	0.01
4.0	0.156	0.1554	4.00
37.0	1.486	1.4879	37.04
50.0	2.036	2.0371	50.03
100.0	4.279	4.2804	100.04
150.0	6.704	6.7050	150.02
200.0	9.288	9.2887	200.01
250.0	12.013	12.0143	250.02
300.0	14.862	14.8629	300.02
390.0	20.255	20.2561	390.02

Estimated Uncertainty of Measurement:

Simulated Temperature: ±0.13°C
Reference Junction Measurement: ±0.12°C