

CERTIFICATE OF CALIBRATION

ISSUED BY: LAMBDA CALIBRATION LTD

DATE OF ISSUE: 25th February 2016

CERTIFICATE No: 385910




Lambda
CALIBRATION LTD

11-13 Chorley Central
Business Park
Stump Lane
Chorley
PR6 0BL
Tel: 0845 241 1533

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APPROVED SIGNATORY


A Kelly D Pilkington
D Whalley C Reed R Armitage

Customer: DJB Labcare Ltd, Milton Keynes, MK16 9QS
Item No: 1632
Description: Calibrator
Model/Range: TC303
Manufacturer: Beamex
Date of Cal: 22/2/2016
Basis: E-2000
Equipment Used: LVD-26, LTHE-22, LTP-18, LMMC-14
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.

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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: 20.53°C

UUT reference temperature error: +0.07°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	-190.0
-80.0	-2.788	-80.0
-50.0	-1.819	-50.0
-30.0	-1.121	-30.0
-10.0	-0.383	-10.0
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	-5.43566	-189.83
-80.0	-2.788	-2.78457	-79.89
-50.0	-1.819	-1.80559	-49.90
-30.0	-1.121	-1.11762	-29.91
-10.0	-0.383	-0.3803	-9.93
0.0	0.000	0.00307	0.08
4.0	0.156	0.15804	4.06
37.0	1.486	1.49026	37.10
50.0	2.036	2.03482	49.98
100.0	4.279	4.27813	99.99
150.0	6.704	6.70401	150.00
200.0	9.288	9.28864	200.01
250.0	12.013	12.01523	250.03
300.0	14.862	14.86488	300.05
390.0	20.255	20.25577	390.01

Estimated Uncertainty of Measurement:

Simulated Temperature: $\pm 0.13^{\circ}\text{C}$

Reference Junction Measurement: $\pm 0.12^{\circ}\text{C}$