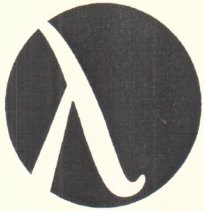


# CERTIFICATE OF CALIBRATION

ISSUED BY: LAMBDA CALIBRATION LTD

DATE OF ISSUE: 14<sup>th</sup> March 2017

CERTIFICATE No: 438258



Lambda  
CALIBRATION LTD

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

Page 1 of 3

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: 14/03/2017  
Basis: E-2000  
Equipment Used: LVD-21, 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.

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:  
438258

Page 2 of 3

## 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: 21.5°C

Reference probe reported temperature: 21.32°C

UUT reference temperature error: +0.18°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	-50.1
-30.0	-1.121	-30.0
-10.0	-0.388	-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

# CERTIFICATE OF CALIBRATION

ISSUED BY: LAMBDA CALIBRATION LTD

UKAS ACCREDITED CALIBRATION LABORATORY No: 0495

CERTIFICATE No:

438258

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	-5.4383	-189.978
-80.0	-2.788	-2.7862	-79.945
-50.0	-1.819	-1.8178	-49.976
-30.0	-1.121	-1.1199	-29.974
-10.0	-0.383	-0.3806	-9.946
0.0	0.000	0.0004	0.010
4.0	0.156	0.1561	4.018
37.0	1.486	1.4891	37.073
50.0	2.036	2.0364	50.021
100.0	4.279	4.2803	100.041
150.0	6.704	6.7040	149.995
200.0	9.288	9.2882	200.006
250.0	12.013	12.0151	250.026
300.0	14.862	14.8621	300.006
390.0	20.255	20.2553	390.010

## Estimated Uncertainty of Measurement:

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

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