

CERTIFICATE OF CALIBRATION

ISSUED BY The Roxspur Measurement & Control
Calibration Laboratory



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0043

Page 1 of 2

Assessed Signatory

SHAUN BOLDY

Date of Issue: 30 October 2018

Certificate Number 143914

Customer: SIGNATROL LIMITED
UNIT E2
GREEN LANE BUSINESS PARK
GLOUCESTERSHIRE
GL20 8SJ

Date Received 24 October 2018
RM&C Order Ref. L508052
Customer Order No. 45663
Calibration Date 30 October 2018

Equipment Information

| | | | |
|--------------------|---|------------------------|--------------------------|
| Description | GALLENKAMP AUTOTHERM DIGITAL INDICATOR WITH PROBE | | |
| Manufacturer | GALLENKAMP | Serial Number | CE09/JN/10104-1 & 004606 |
| Model Number | AUTOTHERM | Customer Inventory No. | CE1056 |
| Calibrated Range | -50 °C to 190 °C | RM&C I.D. No. | RMC0023067 |
| Scale / Resolution | 0.001 °C | | |
| Calibration Points | -50 °C, 0 °C, 30 °C, 130 °C & 190 °C | | |

Conditions

| | | | |
|----------------------|----------------|-------------------------|-------------|
| Lab Temperature | 21.0 °C ± 2 °C | Department | TEMP - BATH |
| Probe Type | Pt100 | Engineer | SHAUN BOLDY |
| Probe Length | 330 mm | Last Certificate Number | 120130 |
| Probe Diameter | 6 mm | | |
| Min. Immersion Depth | 200 mm | | |

Procedure : RM&C 023 DTI & RTD

The thermometer under test was allowed to equilibrate within a controlled, stable environment, the temperature of which was measured using traceable reference Platinum Resistance Thermometers. The following results indicate the measured test thermometer temperature against the measured temperature at the time of calibration. The measurement uncertainty was calculated in accordance with M3003 (Edition 3 – November 2012) and as such takes into account such factors as the calibration & drift of the reference standards, stability, repeatability and resolution of reference instruments and that of the unit under test.

The results are valid at the time of calibration only. The temperature scale used was ITS-90. All measurements are traceable to National Standards. Calibration has been carried out using Laboratory procedures (LAB-PROC-023) in accordance with BS EN ISO 17025. The results are valid at the time of calibration only and are "As Found" (i.e. No Adjustments Made).

Notes :

Probe Serial No: 004606 was calibrated in channel A.

No measured errors, in the parameters checked, exceeded a tolerance of ±0.06 °C, not taking into account the uncertainty of measurement.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of $k = 2$, providing a level of confidence 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. The certificate may not be reproduced other than in full, except with the prior written approval of the issuing Laboratory.

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Certificate Number

143914

Page 2 of 2

Calibration Results

Serial No: CE09/JN/10104-1 & 004606 in Ch A

| Reference Temperature °C | Thermometer Reading °C | Measured Error °C | Measurement Uncertainty ± °C |
|-----------------------------|---------------------------|----------------------|---------------------------------|
| -0.001 | 0.053 | 0.054 | 0.06 |
| -50.040 | -49.992 | 0.048 | 0.06 |
| -0.001 | 0.049 | 0.050 | 0.06 |
| 30.038 | 30.098 | 0.060 | 0.06 |
| 130.001 | 130.053 | 0.052 | 0.06 |
| 189.984 | 190.036 | 0.052 | 0.06 |
| -0.005 | 0.048 | 0.053 | 0.06 |

- End of Certificate -

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of $k = 2$, providing a level of confidence 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. The certificate may not be reproduced other than in full, except with the prior written approval of the issuing Laboratory.