

# CERTIFICATE OF CALIBRATION

ISSUED BY The Roxspur Measurement & Control  
Calibration Laboratory



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0043

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Approved Signatory

Date of Issue: 16 October 2013

Certificate No: U47483T

Customer **Signatrol Limited**  
Unit E2  
Green Lane Business Park  
Tewkesbury  
Gloucestershire  
GL20 8SJ

Date Received 11 October 2013  
Calibration Date 16 October 2013

Order Ref 44418  
Our Ref **L214993**

Equipment Tested Digital Thermometer & PRT Probe

Description  
Manufacturer: Gallenkamp, Model: Autotherm  
Pt100 resistance thermometer, 4 wire construction  
Range/Scale: -50 °C to 200 °C with 0.01 °C and 0.001 °C resolution  
Digital Indicator Serial No: **CE09/JN/10104-1**  
Probe length: 330 mm; probe diameter: 6 mm Probe Serial No: **004606** in Channel A

Measurements The digital thermometer & platinum resistance thermometer was calibrated at the following points: -  
50 °C, -20 °C, 0 °C, 4 °C, 20 °C, 80 °C, 130 °C & 200 °C

Procedure 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. Calibrated "As Found" [i.e. No Adjustments Made]. Calibration has been carried out using Laboratory procedures in accordance with BS EN/ISO 17025.

Notes The ambient temperature at the time of calibration was 21 °C ( $\pm 2$  °C).  
Previous Calibration Details: Lab No: 0043, Certificate No: U45112T, Date: 19 October 2012

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor  $k = 2$ , providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

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M. Donnelly  
 R. Stephenson  
 W. Smith  
 J. Watson

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UKAS ACCREDITED CALIBRATION LABORATORY No.0043

The probe was immersed to a minimum immersion depth of 200 mm.

## As Found Results

Reference Temperature °C	Indicator on 0.01 °C resolution Temperature °C	Indicator on 0.001 °C resolution Temperature °C	Measured Errors °C 0.01 °C	Measured Errors °C 0.001 °C
0.000	0.05	0.047	0.05	0.047
-49.978	-49.95	-49.944	0.03	0.034
-19.989	-19.97	-19.973	0.02	0.016
-0.004	0.03	0.027	0.03	0.031
4.063	4.10	4.097	0.04	0.034
19.997	20.03	20.035	0.03	0.038
80.082	80.12	80.116	0.04	0.034
129.915	129.96	129.957	0.05	0.042
200.000	200.02	200.012	0.02	0.012
-0.006	0.04	0.037	0.05	0.043

Measurement Uncertainty:  $\pm 0.05$  °C

Calibrated by : Shaun Boldy

- END -

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor  $k = 2$ , providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.