

# CERTIFICATE OF CALIBRATION

ISSUED BY The Roxspur Measurement & Control  
Calibration Laboratory



0043

Page 1 of 2 Pages  
Approved Signatory

**RM&C** Roxspur  
Measurement  
& Control Ltd

2 Downgate Drive  
Sheffield  
South Yorkshire  
S4 8BT

t: 0114 224 9205  
f: 0114 224 9224

e: service@roxspur.com  
i: www.roxspur.com

Date of Issue: 22 October 2012

Certificate No: U45112T

Customer **Signatrol Limited**  
105 Church Street  
Tewksbury  
Gloucestershire  
GL20 5AB

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

Date Received 17 October 2012  
Calibration Date 19 October 2012

Order Ref 44132  
Our Ref **L213478**

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 Serial No: **004606** in channel A. Probe length: 330 mm; probe diameter: 6 mm

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 2 - January 2007) and as such takes into account such factors as the calibration and drift of the reference standards, gradients of the temperature sources, 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].

Notes The ambient temperature at the time of calibration was 21 °C ( $\pm 2$  °C).  
Previous Calibration Details: Lab No: 0043, Certificate No: U42743T,  
Date: 14 October 2011.

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.

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to recognised national standards, and to units of measurement realised at the National Physical Laboratory or other recognised national standards laboratories. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

# CERTIFICATE OF CALIBRATION

Certificate No.  
U45112T  
Page 2 of 2 Pages

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
0.001	0.03	0.034	0.03	0.033
-50.049	-50.02	-50.018	0.03	0.031
-20.014	-19.99	-19.991	0.02	0.023
-0.005	0.02	0.023	0.03	0.028
4.128	4.15	4.152	0.02	0.024
20.144	20.17	20.175	0.03	0.031
80.083	80.11	80.112	0.03	0.029
129.735	129.76	129.763	0.02	0.028
200.017	200.03	200.028	0.01	0.011
0.002	0.03	0.032	0.03	0.030

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.