


Schedule of Accreditation

issued by

United Kingdom Accreditation Service

21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

 UKAS CALIBRATION 0794 Accredited to ISO/IEC 17025:2005	Calibration Services (Calserv) Limited Issue No: 026 Issue date: 10 July 2009	
	Ty Isaf Frongoch, Bala Gwynedd Wales LL23 7NU	Contact: Mr Dave Ayres Tel: +44 (0)1678 521567 Fax: +44 (0)870 051 0010 E-Mail: info@calserv.co.uk Website: www.calserv.co.uk

Calibration performed by the Organisations at the locations specified below

Locations covered by the organisation and their relevant activities

Laboratory locations:

Location details	Activity	Location code
Address Ty Isaf Frongoch, Bala Gwynedd Wales LL23 7NU Local contact Mr Dave Ayres Tel: +44 (0)1678 521567 Fax: +44 (0)870 051 0010 Email: info@calserv.co.uk	Temperature, relative humidity, electrical and time interval calibration	Lab

Site activities performed away from the locations listed above:

Location details	Activity	Location code
Any suitable site	Temperature chamber calibration	Site



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DETAIL OF ACCREDITATION

Measured Quantity Instrument or Gauge	Range	Best Measurement Capability Expressed as an Expanded Uncertainty ($k=2$)	Remarks	Location Code
TEMPERATURE				Lab
Platinum resistance thermometers				
Calibration at fixed points				
TP Mercury	-38.8344 °C	3 mK	Note: TP = Triple Point FP = Freezing Point MP = Melting Point	
TP Water	0.01 °C	1.6 mK		
MP Gallium	29.7646 °C	3 mK		
FP Indium	156.5985 °C	5 mK		
FP Tin	231.928 °C	6 mK		
FP Zinc	419.527 °C	10 mK		
FP Aluminium	660.323 °C	16 mK		
Calibration by comparison				
	-196 °C	0.007 °C		
	-90 °C to 0 °C	0.007 °C		
	0 °C	0.005		
	0 °C to 250 °C	0.010 °C		
	250 °C to 300 °C	0.015 °C		
	300 °C to 420 °C	0.02 °C		
	420 °C to 660 °C	0.035 °C		
Thermistors				
	-90 °C to 0 °C	0.007 °C		
	0 °C	0.005 °C		
	-0 °C to 250 °C	0.010 °C		
Thermocouples - base metal				
	-196 °C	0.2 °C		
	-90 °C to 0 °C	0.15 °C		
	0 °C to 40 °C	0.10 °C		
	40 °C to 80 °C	0.15 °C		
	80 °C to 350 °C	0.2 °C		
	350 °C to 420 °C	0.3 °C		
	420 °C to 660 °C	0.4 °C		
	660 °C to 1100 °C	0.7 °C		
	1100 °C to 1300 °C	2.1 °C		
Thermocouples - noble metal				
	0 °C to 280 °C	0.5 °C		
	280 °C to 660 °C	0.45 °C		
	660 °C to 1100 °C	0.7 °C		
	1100 °C to 1300 °C	2.1 °C		
Calibration of temperature probes in an air chamber				
	5 °C to 10 °C	0.35 °C	Including temperature probes built in to humidity instruments.	
	10 °C to 50 °C	0.22 °C		
Electronic thermometers, data loggers and transmitters with sensors	Range as for sensor type	As for sensor type	Including instruments with electrical outputs	



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Measured Quantity Instrument or Gauge	Range	Best Measurement Capability Expressed as an Expanded Uncertainty ($k=2$)	Remarks	Location Code
TEMPERATURE (cont'd)				
Metal block calibrators and portable liquid baths	0 °C -95 °C to -50 °C -50 °C to 250 °C 250 °C to 300 °C 250 °C to 660 °C 660 °C to 1100 °C 1100 °C to 1300 °C	0.015 °C 0.045 °C 0.025 °C 0.045 °C 0.1 °C 1.0 °C 2.4 °C	Appropriate for zero reference baths	
Averaging thermometers and other instruments with large temperature probes				
Straight probes up to 2 m	5 °C to 50 °C	±0.023 °C	Calibration at uniform temperatures in a stirred liquid bath	
Probes which can be coiled	-20 °C to 50 °C	±0.06 °C		
Temperature controlled baths, fridges, freezers, ovens, furnaces and environmental chambers, inclusive of controllers and displays	-200 °C to 250 °C 250 °C to 660 °C 660 °C to 1100 °C 1100 °C to 1300 °C	0.55 °C 1.0 °C 1.4 °C 3.6 °C	Single or multiple point measurements	Site
HUMIDITY				
Relative humidity instruments	5 to 10 °C, 10 % rh to 90 % rh 10 to 15 °C, 5 % rh to 50 % rh 10 to 15 °C, 50 % rh to 95 % rh 15 to 30 °C, 5 % rh to 95 % rh 30 to 40 °C, 5 % rh to 95 % rh 40 to 50 °C, 5 % rh to 90 % rh	0.6 % rh + 2.7 % of reading 0.8 % rh + 1.5 % of reading 3.2 % of reading 0.8 % rh + 1.3 % of reading 0.8 % rh + 1.7 % of reading 0.8 % rh + 1.7 % of reading		Lab
Using unsaturated salts	5 % rh 10 % rh 35 % rh 50 % rh 80 % rh 95 % rh At ambient temperature	0.7 % rh 0.5 % rh 0.7 % rh 1.1 % rh 1.3 % rh 1.4 % rh		
ELECTRICAL				
Electrical calibration of temperature simulators for the following sensors:				Lab
Noble metal thermocouples	-200 °C to 500 °C 500 °C to 1800 °C	0.5 °C 0.3 °C	including cold junction compensation	
Base metal thermocouples	-200 °C to 1380 °C	0.13 °C	including cold junction compensation	
Resistance sensors	-200 °C to 800 °C	0.0017 °C		



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ELECTRICAL (cont'd)				
Electrical calibration of temperature indicators, controllers and recorders for the following sensors:				
Noble metal thermocouples	-200 °C to 500 °C 500 °C to 1800 °C	0.5 °C 0.3 °C	including cold junction compensation	
Base metal thermocouples	-200 °C to 1380 °C	0.13 °C	including cold junction compensation	
Resistance sensors	-200 °C to 800 °C	0.007 °C		
DC Resistance measurement and generation, including calibration of thermistor indicators by resistance simulation.	Up to 10 Ω 10 Ω to 100 Ω 100 Ω to 1 k Ω 1 k Ω to 10 k Ω 10 k Ω to 100 k Ω 100 k Ω to 1 M Ω 1 M Ω to 10 M Ω	50 ppm + 6 m Ω 25 ppm + 16 m Ω 40 ppm + 16 m Ω 30 ppm + 60 m Ω 30 ppm + 4 Ω 45 ppm + 18 Ω 160 ppm + 1.2 k Ω		
TIME				Lab
Time interval	1 minute to 24 hours	0.5 s		
END				