

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

 <p>UKAS CALIBRATION</p> <p>0724</p> <p>Accredited to ISO/IEC 17025:2005</p>	<h3 style="margin: 0;">SGS United Kingdom Limited</h3> <p style="margin: 0;">Issue No: 021 Issue date: 21 December 2010</p>	
	<p>K6 Workshop Wilton International Site Redcar Cleveland TS10 4RG</p>	<p>Contact: Mr W Bingham Tel: +44(0)1642 459444 Fax: +44(0)1642 459222 E-Mail: bill_bingham@sgs.com Website: www.uk.sgs.com</p>
<p>Calibration performed at the above address only</p>		

DETAIL OF ACCREDITATION

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty (k = 2)	Remarks
PRESSURE			
<u>Gas pressure gauge</u>			
Calibration of pressure indicating instruments and gauges	- 100 kPa to - 3.5 kPa 3.5 kPa to 7 MPa	0.0080 % 0.0080 %	Calibration of pressure devices with an electrical output can be undertaken
<u>Hydraulic pressure gauge</u>			
Calibration of pressure indicating instruments and gauges	0.6 MPa to 120 MPa	0.010 %	
TEMPERATURE			
Liquid-in-glass thermometers	- 50 °C to - 1 °C - 1 °C to + 65 °C 65 °C to 250 °C	0.060 °C 0.050 °C 0.050 °C	Plus 1/10 scale division
Resistance thermometers	- 50 °C to - 1 °C - 1 °C to + 65 °C 65 °C to 250 °C	0.060 °C 0.050 °C 0.050 °C	
Temperature indicators with sensors	- 50 °C to - 1 °C - 1 °C to + 65 °C 65 °C to 250 °C	0.080 °C 0.070 °C 0.080 °C	
ELECTRICAL			
DC RESISTANCE	0 Ω to 10 Ω 10 Ω to 100 Ω 100 Ω to 1 kΩ 1 kΩ to 10 kΩ 10 kΩ to 100 kΩ 100 kΩ to 1 MΩ 1 MΩ to 10 MΩ 10 MΩ to 100 MΩ 100 MΩ to 1 GΩ	17 ppm + 190 μΩ 14 ppm + 1.5 mΩ 12 ppm + 12 mΩ 12 ppm + 120 mΩ 12 ppm + 1.2 Ω 18 ppm + 18 Ω 58 ppm + 720 Ω 580 ppm + 58 kΩ 0.64 % + 6.0 MΩ	



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DC VOLTAGE	0 mV to 100 mV 100 mV to 1 V 1 V to 10 V 10 V to 100 V 100 V to 1 kV	11 ppm + 1.2 μ V 9.0 ppm + 9.3 μ V 9.0 ppm + 92 μ V 12 ppm + 1.2 mV 12 ppm + 18 mV	
AC VOLTAGE	100 μ V to 100 mV 1 kHz	0.010 % + 23 μ V	
	100 mV to 1 V 40 Hz to 1 kHz	0.010 % + 88 μ V	
	1 V to 10 V 40 Hz to 1 kHz	0.010 % + 840 μ V	
	10 V to 100 V 40 Hz to 1 kHz	0.020 % + 23 mV	
	100 V to 700 V 50 Hz to 1 kHz	0.050 % + 32 mV	
Generation only (Increased frequency range)	10 mV to 300 mV 10 Hz to 3 kHz	0.050 % + 140 μ V	
	300 mV to 3 V 10 Hz to 3 kHz	0.050 % + 1.4 mV	
	3 V to 30 V 10 Hz to 3 kHz	0.050 % + 14 mV	
	30 V to 100 V 10 Hz to 3 kHz	0.050 % + 47 mV	
	100 V to 300 V 40 Hz to 3 kHz	0.10 % + 280 mV	
	300 V to 750 V 40 Hz to 3 kHz	0.10 % + 700 mV	
DC CURRENT	0 μ A to 1 μ A 1 μ A to 10 μ A 10 μ A to 100 μ A 100 μ A to 1 mA 1 mA to 10 mA 10 mA to 100 mA 100 mA to 1 A	46 ppm + 110 pA 25 ppm + 310 pA 24 ppm + 2.6 nA 24 ppm + 25 nA 24 ppm + 250 nA 41 ppm + 4.1 μ A 130 ppm + 130 μ A	
Generation only (Extended range)	1 A to 3 A 3 A to 10 A	700 ppm + 2.1 mA 640 ppm + 6.4 mA	
	3 A to 30 A 30 A to 100 A 100 A to 150 A 150 A to 500 A	0.10 % 0.091 % 0.10 % 0.091 %	Using multi turned coil, suitable only for calibration of clamp-on ammeters.



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AC CURRENT Generation only (Extended range and frequency)	1 μ A to 100 μ A 1 kHz	0.070 % + 78 nA	
	100 μ A to 1 mA 1 kHz	0.070 % + 730 nA	
	1 mA to 10 mA 45 Hz to 1 kHz	0.10 % + 7.3 μ A	
	10 mA to 100 mA 45 Hz to 1 kHz	0.10 % + 73 μ A	
	100 mA to 1 A 45 Hz to 1 kHz	0.14 % + 1.2 mA	
	30 μ A to 300 μ A 10 Hz to 3 kHz	0.090 % + 0.40 μ A	
	300 μ A to 3 mA 10 Hz to 3 kHz	0.090 % + 2.5 μ A	
	3 mA to 30 mA 10 Hz to 3 kHz	0.090 % + 25 μ A	
	30 mA to 300 mA 10 Hz to 3 kHz	0.10 % + 280 μ A	
	300 mA to 3 A 10 Hz to 3 kHz	0.10 % + 3.5 mA	
	3 A to 10 A 10 Hz to 3 kHz	0.23 % + 23 mA	
	3 A to 30 A 10 Hz to 100 Hz	0.17 %	
	30 A to 100 A 10 Hz to 100 Hz	0.33 %	
	100 A to 150 A 10 Hz to 100 Hz	0.17 %	
150 A to 500 A 10 Hz to 100 Hz	0.33 %		



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Temperature indicators and recorders, calibration by electrical simulation			Including cold junction compensation
Type K	- 270 °C to - 250 °C - 250 °C to - 100 °C - 100 °C to + 1370 °C	3.8 °C 1.0 °C 0.10 °C	
Type T	- 270 °C to - 200 °C - 200 °C to - 100 °C - 100 °C to 0 °C 0 °C to 400 °C	4.1 °C 0.50 °C 0.30 °C 0.20 °C	
Type J	- 210 °C to -100 °C - 100 °C to + 1200 °C	0.30 °C 0.10 °C	
Resistance Thermometers Pt 100	- 0200 °C to 800 °C	0.05 °C	
FREQUENCY			
Generation	1 Hz to 10 MHz	1.0 in 10^{-7}	May also be expressed as $1/f$ for the average time interval of repetitive signals and oscilloscope calibration
Measurement only	0.1 Hz to 225 MHz	1.2 in 10^{-7}	
Pulse counting	1 Hz to 100 kHz	1 count	
END			