

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

| | | |
|---|---|--|
|  <p>UKAS CALIBRATION 0690</p> <p>Accredited to ISO/IEC 17025:2005</p> | <h3 style="margin: 0;">Airflow Measurements Ltd</h3> <p style="margin: 0;">Issue No: 018 Issue date: 12 December 2011</p> | |
| | <p>72 Manchester Road Kearsley Bolton BL4 8NZ</p> | <p>Contact: Mr A Leonard Tel: +44 (0) 1204 571499 Fax: +44 (0) 1204 571734 E-Mail: cal@airflowmeasurements.com Website: www.airflowmeasurements.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 |
|--|---|---|---|
| <u>Air Velocity</u> Calibration of Anemometers and Pitot Tubes by comparison | 0.1 m/s to 1 m/s 1 m/s to 2 m/s 2 m/s to 10 m/s 10 m/s to 20 m/s 20 m/s to 30 m/s | 0.25 % + 0.075 m/s 0.25 % + 0.10 m/s 0.25 % + 0.15 m/s 0.25 % + 0.25 m/s 0.25 % + 0.30 m/s | Usable wind tunnel diameter 100 mm |
| PRESSURE <u>Gas pressure (absolute)</u> Calibration of pressure indicating instruments and gauges | 3.5 kPa to 131 kPa | 50ppm + 20 Pa | NOTE: Absolute pressure calibration can be carried out using associated barometric pressure measurement. The uncertainty values given below will be increased by 25 Pa. |
| <u>Gas pressure (gauge)</u> Calibration of pressure indicating instruments and gauges | - 100 kPa to - 3.5 kPa 0 Pa to 2.5 kPa 2.5 kPa to 200 kPa 200 kPa to 500 kPa 500 kPa to 4 MPa | 0.035 % + 100 Pa 0.020 % + 0.50 Pa 0.050 % + 1 Pa 0.025 % + 300 Pa 0.025 % + 700 Pa | Calibration of devices with an electrical out put may be undertaken |
| <u>Hydraulic pressure (gauge)</u> Calibration of pressure indicating instruments and gauges | 0.2 MPa to 30 MPa | 0.030 % + 1.7 kPa | |
| DC VOLTAGE | 0 V to 100 mV 100 mV to 1 V 1 V to 10 V 10 V to 100 V 100 V to 1 kV | 60 ppm + 6.5 μ V 36 ppm + 32 μ V 36 ppm + 300 μ V 55 ppm + 5.0 mV 55 ppm + 30 mV | |



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|--|--|--|--|
| DC RESISTANCE | 0 Ω to 100 Ω 110 Ω to 1 k Ω 1.1 k Ω to 10 k Ω 11 k Ω to 100 k Ω 110 k Ω to 1 M Ω 1 M Ω to 10 M Ω 11 M Ω to 100 M Ω 110 M Ω to 1 G Ω 1.1 G Ω to 2 G Ω | 120 ppm + 16 m Ω 120 ppm + 16 m Ω 120 ppm + 6.5 Ω 120 ppm + 10 Ω 120 ppm + 20 Ω 120 ppm + 300 Ω 0.25 % + 30 k Ω 1.2 % + 300 k Ω 6.0 % + 300 k Ω | |
| DC CURRENT | 0 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 | 200 ppm + 600 nA 200 ppm + 1.0 μ A 200 ppm + 1.0 μ A 200 ppm + 7.5 μ A 200 ppm + 12 μ A | Current coils with 5 and 50 turns available to simulate current up to 1000 Amps, for calibration of current clamps |
| AC VOLTAGE | 45 Hz to 5 kHz: 5 mV to 100 mV 100 mV to 1 V 1 V to 10 V 10 V to 100 V 100 V to 750 V | 0.15 % + 120 μ V 0.10 % + 250 μ V 0.10 % + 2.5 mV 0.10 % + 24 mV 0.20 % + 500 mV | |
| AC RESISTANCE | At 50 Hz: 0.3 Ω to 10 Ω 11 Ω to 100 Ω 110 Ω to 1 k Ω | 0.10 % + 20 m Ω 0.20 % + 300 m Ω 0.30 % + 250 m Ω | Calibration of loop impedance meters |
| RCD Trip Current | 0 mA to 300 mA | 0.30 % + 5.0 mA | |
| RCD Trip time | 0 s to 400 ms 400 ms to 1 s | 0.30 % + 5.0 ms 0.30 % + 10 ms | |
| AC CURRENT | 45 Hz to 5 kHz: 1 mA 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 1 A to 20 A | 0.38 % + 12 μ A 0.38 % + 120 μ A 0.38 % + 120 μ A 0.38 % + 250 μ A 0.38 % + 3.5 mA 0.65 % + 75 mA | Current coils with 5 and 50 turns available to simulate current up to 1000 Amps, suitable for current clamps. |



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| FREQUENCY | 1 Hz to 100 kHz 100 kHz 1 MHz 5 MHz 10 MHz | 100 μ Hz 1.0 part in 10^7 1.0 part in 10^7 1.0 part in 10^7 1.0 part in 10^7 | |
| TIME INTERVAL | 1 μ s 5 μ s 20 μ s 500 μ s 1 ms 5 ms 10 ms 50 ms 100 ms | 0.020 μ s 0.10 μ s 0.10 μ s 11 μ s 0.020 ms 0.10 ms 0.20 ms 1.1 ms 2.1 ms | Repetitive signals suitable for calibrating oscilloscope time bases. |
| Elapsed time, single event Manually triggered devices | 0 s to 24 Hours | 3.5 ppm + 2.0 ms | |
| Electronically triggered devices | 1 s to 24 hours | 3.5 ppm | |
| TEMPERATURE | 15 $^{\circ}$ C to 25 $^{\circ}$ C | 0.50 $^{\circ}$ C | Can only be quoted as an ancillary measurement, suitable for reference junction measurements when performing electrical simulation of temperature measuring devices |



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|---|------------|----------------|---|--|---------|
| | | | Without Cold Junction Compensation | Including Cold Junction Compensation | |
| Electrical calibration of temperature indicators | Type | Range °C | | | |
| Thermocouple indicators | T | - 240 to - 100 | 0.70 °C | 0.90 °C | |
| | | - 100 to 0 | 0.60 °C | 0.80 °C | |
| | | 0 to 400 | 0.60 °C | 0.80 °C | |
| | K | - 200 to - 100 | 0.80 °C | 0.80 °C | |
| | | - 100 to 0 | 0.70 °C | 0.80 °C | |
| | | 0 to 1370 | 0.60 °C | 0.90 °C | |
| | S | 0 to 1700 | 0.80 °C | 0.90 °C | |
| | R | - 50 to 0 | 1.2 °C | 1.3 °C | |
| 0 to 1700 | | 0.70 °C | 0.90 °C | | |
| N | - 250 to 0 | 0.62 °C | 0.80 °C | | |
| | 0 to 1300 | 0.60 °C | 0.80 °C | | |
| J | - 180 to 0 | 0.60 °C | 0.80 °C | | |
| | 0 to 700 | 0.60 °C | 0.80 °C | | |
| E | 0 to 800 | 0.60 °C | 0.80 °C | | |
| B | 0 to 1800 | 0.80 °C | 0.90 °C | | |
| Resistance thermometer indicators | Pt 100 | - 200 to + 800 | 0.050 °C | | |
| END | | | | | |