

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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



4353

Accredited to
ISO/IEC 17025:2005

Alpha Electronics (Southern) Ltd

Issue No: 003 Issue date: 28 September 2009

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Calibration performed at the above address only

DETAIL OF ACCREDITATION

Measured Quantity Instrument or Gauge	Range	Best Measurement Capability Expressed as an Expanded Uncertainty ($k=2$)	Remarks
ELECTRICAL			
DC Voltage			
Generation	Up to 202 mV 202 mV to 1.1 V 1.1 V to 2.02 V 2.02 V to 20.2 V 20.2 V to 202 V 202 V to 1 kV	31 ppm + 4 μ V 31 ppm + 5 μ V 31 ppm + 5 μ V 26 ppm + 46 μ V 31 ppm + 480 μ V 31 ppm + 5 mV	
Measurement	Up to 100 mV 100 mV to 1 V 1 V to 10 V 10 V to 100 V 100 V to 1 kV 1 kV to 20 kV 20 kV to 40 kV	9 ppm + 0.8 μ V 6 ppm + 1 μ V 6 ppm + 2 μ V 10 ppm + 40 μ V 11 ppm + 300 μ V 0.03% + 6 V 0.03% + 35 V	
DC Current			
Generation	Up to 100 μ A 100 μ A to 200 μ A 0.2 mA to 1 mA 1 mA to 2 mA 2 mA to 10 mA 10 mA to 20 mA 20 mA to 100 mA 100 mA to 200 mA 0.2 A to 1 A 1 A to 2 A 2 A to 10 A 10 A to 20 A 20 A to 1000 A	94 ppm + 35 nA 94 ppm + 36 nA 83 ppm + 48 nA 83 ppm + 68 nA 50 ppm + 350 nA 81 ppm + 1.3 μ A 67 ppm + 3.5 μ A 120 ppm + 3.6 μ A 140 ppm + 41 μ A 90 ppm + 280 μ A 350 ppm + 520 μ A 350 ppm + 810 μ A 0.3% + 0.5 A	For the calibration of clampmeters only



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ELECTRICAL (cont'd)			
DC Current (cont'd)			
Measurement	Up 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 30 A	28 ppm + 0.8 nA 28 ppm + 8 nA 28 ppm + 62 nA 43 ppm + 0.6 μ A 130 ppm + 12 μ A 900 ppm + 5 mA	
DC Resistance			
Sourcing	0.1 Ω 1 Ω 10 Ω 100 Ω 1 k Ω 10 k Ω 100 k Ω 1 M Ω 10 M Ω 100 M Ω 1 G Ω	170 ppm + 6 m Ω 110 ppm + 6 m Ω 110 ppm + 6 m Ω 60 ppm + 6 m Ω 42 ppm + 50 m Ω 42 ppm + 0.5 Ω 37 ppm + 5 Ω 110 ppm + 50 Ω 360 ppm + 480 Ω 0.5% + 6 k Ω 1.3% + 52 k Ω	
Specific Values	400 $\mu\Omega$ 4 m Ω 40 m Ω 400 m Ω 4 Ω 40 Ω 400 Ω 4 k Ω 40 k Ω 400 k Ω	1 $\mu\Omega$ 3 $\mu\Omega$ 7 $\mu\Omega$ 70 $\mu\Omega$ 5 m Ω 6 m Ω 55 m Ω 580 m Ω 6 Ω 55 Ω	Suitable for the calibration of low resistance ohmmeters up to 10 A.
Other Values	1 k Ω to 100 k Ω 100 k Ω to 1 M Ω 1 M Ω to 10 M Ω 10 M Ω to 100 M Ω 100 M Ω to 1 G Ω 1 G Ω to 10 G Ω 10 G Ω to 100 G Ω 100 G Ω to 500 G Ω	0.01% 0.07% 0.01% 0.11% 0.09% 0.18% 0.6% 1.6% to 5%	Suitable for the measurement of insulation testers up to 5 kV.
Measurement	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 10 M Ω to 100 M Ω 100 M Ω to 1 G Ω	19 ppm + 60 $\mu\Omega$ 14 ppm + 0.6 m Ω 13 ppm + 0.7 m Ω 12 ppm + 7 m Ω 13 ppm + 60 m Ω 19 ppm + 2.4 Ω 58 ppm + 120 Ω 0.6% + 4 k Ω 0.7% + 520 k Ω	



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ELECTRICAL (cont'd)			
AC Voltage			
Generation	<i>40 Hz to 45 Hz</i> 10 mV to 200 mV 200 mV to 2 V 2 V to 20 V 20 V to 200 V <i>45 Hz to 1 kHz</i> 10 mV to 200 mV 200 mV to 2 V 2 V to 20 V 20 V to 200 V 200 V to 1 kV <i>1 kHz to 20 kHz</i> 10 mV to 200 mV 200 mV to 2 V 2 V to 20 V 20 V to 200 V <i>20kHz to 50kHz</i> 2V to 20V <i>1 kHz to 5 kHz</i> 200 V to 700 V	0.21% + 62 μV 0.21% + 410 μV 0.21% + 3.5 mV 0.05% + 24 mV 0.043 % + 31 μV 0.043% + 110 μV 0.036% + 1.1 mV 0.04% + 8.7 mV 0.04% + 87 mV 0.085% + 46 μV 0.08% + 160 μV 0.062% + 2 mV 0.09% + 50 mV 0.21% + 38 mV 0.15% + 500 mV	
Measurement	<i>40 Hz to 1 kHz</i> 1 mV to 10 mV 10 mV to 100 mV 100 mV to 1 V 1 V to 10 V 10 V to 100 V 100 V to 700 V <i>1 kHz to 10 kHz</i> 1 mV to 10 mV 10 mV to 100 mV 100 mV to 1 V 1 V to 10 V 10 V to 100 V 100 V to 700 V <i>10 kHz to 20 kHz</i> 1 mV to 10 mV 10 mV to 100 mV 100 mV to 1 V 1 V to 10 V 10 V to 100 V <i>20 kHz to 50 kHz</i> 1 mV to 10 mV 10 mV to 100 mV 100 mV to 1 V 1 V to 10 V 10 V to 100 V	0.05% + 3 μV 0.02% + 2 μV 0.01% + 30 μV 0.01% + 300 μV 0.02% + 4 mV 0.05% + 40 mV 0.05% + 3 μV 0.02% + 2 μV 0.02% + 30 μV 0.02% + 300 μV 0.02% + 4 mV 0.07% + 40 mV 0.07% + 3 μV 0.02% + 2 μV 0.02% + 30 μV 0.02% + 300 μV 0.1% + 4 mV 0.13% + 3 μV 0.05% + 2 μV 0.09% + 30 μV 0.04% + 300 μV 0.04% + 4 mV	



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ELECTRICAL (cont'd)			
AC Voltage (cont'd)			
Measurement (cont'd)	50 kHz to 100 kHz 1 mV to 10 mV 10 mV to 100 mV 100 mV to 1 V 1 V to 10 V 10 V to 100 V	0.58% + 3 μ V 0.1% + 2 μ V 0.12% + 30 μ V 0.09% + 300 μ V 0.14% + 4 mV	
	40 Hz to 20 kHz 700 V to 1 kV	0.8% + 1.6 V	
	50 Hz 1 kV to 20 kV 20 kV to 28 kV	0.4% + 60 V 0.4% + 120 V	
AC Current			
Generation	40 Hz to 45 Hz 20 μ A to 200 μ A 200 μ A to 2 mA 2 mA to 20 mA 20 mA to 200 mA 200 mA to 2 A 2 A to 20 A	0.2% + 300 nA 0.2% + 600 nA 0.2% + 6 μ A 0.21% + 6.7 μ A 0.2% + 21 μ A 0.18% + 6 mA	
	45 Hz to 1 kHz 20 μ A to 200 μ A 200 μ A to 2 mA 2 mA to 20 mA 20 mA to 200 mA 200 mA to 2 A	0.11% + 300 nA 0.1% + 470 nA 0.1% + 4.7 μ A 0.1% + 5.7 μ A 0.11% + 21 μ A	
	45 Hz to 100 Hz 2 A to 20 A	0.05% + 3 mA	
	50 Hz 20 A to 1000 A	0.3% + 0.5 A	For the calibration of clampmeters only
Measurement	45 Hz to 100 Hz 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 1 A to 3 A 3 A to 10 A	0.075% + 35 nA 0.075% + 250 nA 0.075% + 2 μ A 0.075% + 25 μ A 0.1% + 250 μ A 0.8% + 2 mA 0.8% + 15 mA	
	100 Hz to 300 Hz 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	0.075% + 35 nA 0.075% + 250 nA 0.04% + 2 μ A 0.04% + 25 μ A 0.12% + 250 μ A	



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ELECTRICAL (cont'd)			
AC Current (cont'd)	300 Hz to 1 kHz 10 µA to 100 µA	0.075% + 35 nA	
Measurement (cont'd)	300 Hz to 5 kHz 100 µA to 1 mA 1 mA to 10 mA 10 mA to 100 mA 100 mA to 1 A	0.04% + 250 nA 0.04% + 2 µA 0.04% + 25 µA 0.12% + 250 µA	
AC Power Sourcing	40 Hz to 400 Hz 3 W to 40 W 40 W to 4 kW 4 kW to 20 kW	0.2% 0.1% 0.1%	At unity power factor
	50 Hz to 60 Hz 20 kW to 100 kW 100 kW to 1 MW	0.4% 0.4%	
Capacitance Sourcing	1 nF 10 nF 20 nF 50 nF 100 nF 1 µF 10 µF	0.3% + 3 pF 0.3% + 3 pF 0.3% + 3 pF 0.3% + 10 pF 0.3% + 10 pF 0.5% + 210 pF 0.7% + 320 pF	
Inductance Sourcing	1 mH 10 mH 100 mH 1 H	1% + 10 µH 1% + 10 µH 1% + 18 µH 1% + 200 µH	
Frequency Sourcing	1 Hz, 10 Hz, 100 Hz 1 kHz, 10 kHz, 100 kHz 1 MHz, 10 MHz	25 ppm 25 ppm 25 ppm	
Measurement	1 Hz to 1 GHz	1 ppm	
Time Interval	20 ms to 400 ms 400 ms to 900 ms	1 ms 8.2 ms	For the calibration of RCD timers
Loop Resistance	50 Hz 0.05 Ω to 5 Ω 10 Ω to 100 Ω 100 Ω to 1 kΩ	0.58% + 16 mΩ 0.58% + 35 mΩ 0.58% + 46 mΩ	Suitable for AC Current up to 25A. Nominal is dependent on local Loop.
Optical Tachometer	60 rpm to 60000 rpm	60 ppm + 0.7 rpm	



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Capacitance Sourcing	1 kHz 10 pF to 900 pF 900 pF to 9 nF 9 nF to 90 nF 90 nF to 900 nF 900 nF to 9 μ F	1.2% + 6 pF 1.2% + 8 pF 1.2% + 42 pF 1.2% + 420 pF 1.2% + 4.2 nF	
Temperature indicators, calibration by electrical simulation			
Resistance Thermometer (PT100)	-200 °C to 850 °C	0.01 °C	
Base metal thermocouple	-270 °C to 1340 °C	0.2 °C	Including cold junction compensation
Noble metal thermocouple	-50 °C to 1820 °C	0.7 °C	Including cold junction compensation
END			