Schedule of Accreditation

issued by

United Kingdom Accreditation Service

2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

10872

Accredited to ISO/IEC 17025:2017

Direct Calibration Solutions Ltd

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Unit 24 IO Centre
Salbrook Road
Salfords
Surrey
RH1 5GJ
United Kingdom

Contact: Mr Chris Tymms
Tel: +44 (0) 129 338 7107
Fax: +44 (0) 129 338 7147
E-Mail: Chris.Tymms@directcal.co.uk
Website: directcalibrationsolutions.co.uk

Calibration performed at the above address only

Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks
ELECTRICAL			All calibrations are performed as a comparison against a reference standard
Resistance Measurement	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	3.8 mΩ 12 mΩ 56 mΩ 740 mΩ 6.7 Ω 83 Ω 2.3 kΩ 1.1 MΩ	Outputs of instruments within these values can be measured to the listed uncertainties
Resistance Sourcing	10 Ω 100 Ω 1 kΩ 10 kΩ 100 kΩ 1 MΩ 10 MΩ 100 MΩ	70 mΩ 115 mΩ 310 mΩ 2.7 Ω 31 Ω 715 Ω 13 kΩ 290 kΩ	These values can be generated for the calibration of measuring instruments
DC Voltage Measurement	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	12 µV 56 µV 490 µV 5 mV 47 mV	Outputs of instruments within these values can be measured to the listed uncertainties
DC Voltage Generation	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	26 µV 600 µV 1.7 mV 13 mV 130 mV	These values can be generated for the calibration of measuring instruments
AC Voltage Measurement	*10 Hz to 20 kHz* 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	 66 µV 2.5 mV 13 mV 88 mV 650 mV	Outputs of instruments within these values can be measured to the listed uncertainties

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks
ELECTRICAL (continued)			
AC Voltage Generation	*10 Hz to 2 kHz* 10 mV to 100 mV 100 mV to 1 V 1 V to 10 V	 130 µV 1,3 mV 13 mV	These values can be generated for the calibration of measuring instruments
	2 kHz to 20 kHz 10 mV to 100 mV 100 mV to 1 V 1 V to 10 V	 245 µV 3,7 mV 22 mV	
	40 Hz to 1 kHz 10 V to 100 V 100 V to 1 kV	 150 mV 1,5 V	
DC Current Measurement	0 µA to 100 µA 100 µA to 1 mA 1 mA to 10 mA 10 mA to 100 mA 100 mA to 1 A 1 A to 10 A	39 nA 290 nA 5.0 µA 34 µA 480 µA 6.1 mA	Outputs of instruments within these values can be measured to the listed uncertainties
DC Current Generation	0 µA to 100 µA 100 µA to 1 mA 1 mA to 10 mA 10 mA to 100 mA 100 mA to 1 A 1 A to 10 A	59 nA 420 nA 4.2 µA 41 µA 420 µA 6.8 mA	These values can be generated for the calibration of measuring instruments
AC Current Measurement	*10 Hz to 5 kHz* 0 µA to 100 µA 100 µA to 1 mA 1 mA to 10 mA 10 mA to 100 mA 100 mA to 1 A 1 A to 10 A	 140 nA 1.3 µA 15 µA 130 µA 1.3 mA 14 mA	Outputs of instruments within these values can be measured to the listed uncertainties
AC Current Generation	*40 Hz to 1 kHz* 0 µA to 100 µA 100 µA to 1 mA 1 mA to 10 mA 10 mA to 100 mA 100 mA to 1 A 1 A to 10 A	 640 nA 6.5 µA 18 µA 170 µA 1.6 mA 26 mA	These values can be generated for the calibration of measuring instruments
Frequency Measurement	5 Hz to 10 Hz 10 Hz to 40 Hz 40 Hz to 300 kHz	6.0 mHz 7,6 mHz 23 Hz	Outputs of instruments within these values can be measured to the listed uncertainties
Frequency Generation	1 Hz to 100 Hz 100 Hz to 1 kHz 1 kHz to 10 kHz 10 kHz to 100 kHz	4.4 mHz 44 mHz 440 mHz 4,4 Hz	These values can be generated for the calibration of measuring instruments

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks
ELECTRICAL (continued)			
Tachometers	60 rpm to 60000 rpm	2.2 rpm	Calibration of optical tachometers
Capacitance	10 nF 100 nF 1 µF	110 pF 1.1 nF 11 nF	These values can be generated for the calibration of measuring instruments
END			

Appendix - Calibration and Measurement Capabilities

Introduction

The definitive statement of the accreditation status of a calibration laboratory is the Accreditation Certificate and the associated Schedule of Accreditation. This Schedule of Accreditation is a critical document, as it defines the measurement capabilities, ranges and boundaries of the calibration activities for which the organisation holds accreditation.

Calibration and Measurement Capabilities (CMCs)

The capabilities provided by accredited calibration laboratories are described by the Calibration and Measurement Capability (CMC), which expresses the lowest measurement uncertainty that can be achieved during a calibration. If a particular device under calibration itself contributes significantly to the uncertainty (for example, if it has limited resolution or exhibits significant non-repeatability) then the uncertainty quoted on a calibration certificate will be increased to account for such factors.

The CMC is normally used to describe the uncertainty that appears in an accredited calibration laboratory's schedule of accreditation and is the uncertainty for which the laboratory has been accredited using the procedure that was the subject of assessment. The measurement uncertainty is calculated according to the procedures given in the GUM and is normally stated as an expanded uncertainty at a coverage probability of 95 %, which usually requires the use of a coverage factor of $k = 2$. An accredited laboratory is not permitted to quote an uncertainty that is smaller than the published measurement uncertainty in certificates issued under its accreditation.

Expression of CMCs - symbols and units

It should be noted that the percentage symbol (%) represents the number 0.01. In cases where the measurement uncertainty is stated as a percentage, this is to be interpreted as meaning percentage of the measurand.
Thus, for example, a measurement uncertainty of 1.5 % means $1.5 \times 0.01 \times q$, where q is the quantity value.

The notation Q[a, b] stands for the root-sum-square of the terms between brackets: $Q[a, b] = [a^2 + b^2]^{1/2}$