Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

0576

Accredited to ISO/IEC 17025:2017

Kistler Instruments Ltd

Issue No: 042 **Issue date:** 12 May 2025

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Calibration performed at the above address only

Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks
Values and uncertainties listed below are applicable for the calibration of both measuring instruments and for instruments with an output. The method used is by direct comparison against laboratory references unless otherwise stated in the remarks column.			
Charge; DC, 100 Hz & 1 kHz			For the calibration of charge amplifiers and charge meters
Nominal Set points at full range			
	10 pC	0.19 %	
	100 pC	0.033 %	
	1 nC	0.033 %	
	10 nC	0.033 %	
	100 nC	0.033 %	
	1 µC	0.033 %	
	2 µC	0.033 %	
Range values	2 pC to 10 pC	0.19 %	
	10 pC to 100 pC	0.060 %	
500 mV to 10 V	100 pC to 1 nC	0.060 %	
	1 nC to 10 nC	0.060 %	
	10 nC to 100 nC	0.060 %	
	100 nC to 1 µC	0.060 %	
	200 nC to 2 µC	0.060 %	
All range values	2 pC to 10 pC	0.24 %	
	10 pC to 100 pC	0.15 %	
	100 pC to 1 nC	0.15 %	
	1 nC to 10 nC	0.15 %	
	10 nC to 100 nC	0.15 %	
	100 nC to 1 µC	0.15 %	
	200 nC to 2 µC	0.15 %	
DC Voltage			
	Zero Volts	60 µV	Measurement of residual noise from the carge amplifier output/input
	100 mV to 200 mV	0.027 % + 12 µV	Available source values
	200 mV to 10 V	0.012 % + 12 µV	
	100 mV to 500 mV	0.027 % + 115 µV	These values can be Measured
	500 mV to 10 V	0.013 % + 115 µV	
Voltage Current resistance ratio Piezo resistive amplifiers	10 Ω to 1000 Ω	0.04 %	
Excitation current	1 mA to 4 mA	0.025 %	

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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks
PRESSURE Hydraulic Pressure Continuous calibration of piezoelectric pressure sensors	10 MPa to 20 MPa 20 MPa to 30 MPa 30 MPa to 100 MPa 100 MPa to 800 MPa	1.8 % 1.0 % 0.74 % 0.70 %	By comparison with a reference sensor using a pressure ram
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: $Q[a, b] = [a^2 + b^2]^{1/2}$