Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

0499

Accredited to ISO/IEC 17025:2017

PreSet Calibration Services Ltd

Issue No: 050 **Issue date:** 23 December 2022

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Calibration performed by the Organisations at the locations specified below

Locations covered by the organisation and their relevant activities

Laboratory locations:

Location details		Activity	Location code
Address 94A East Street Bridport Dorset DT6 3LL	**Local contact** Mr S S Kick Tel: +44 (0) 333 1210499 Email: info@preset.com Website: www.preset.com	Electrical, Pressure, Humidity, Temperature, Time Interval and Weighing Instrument Calibration	Lab

Site activities performed away from the locations listed above:

Location details	Activity	Location code
The customers' site or premises must be suitable for the nature of the particular calibrations undertaken and will be the subject of contract review arrangements between the laboratory and the customer.	Electrical, Pressure, Humidity, Temperature, Time Interval and Weighing Instrument Calibration	Site

Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
TEMPERATURE			Calibration by comparison with reference instruments	Lab
Resistance thermometers	-95 °C to +200 °C 200 °C to 600 °C	0.12 °C 0.14 °C	In block bath	
Thermocouples	-95 °C to +200 °C 200 °C to 600 °C 600 °C to 1100 °C 1100 °C to 1200 °C	0.19 °C 0.42 °C 1.3 °C 2.1 °C	In block bath	
Electronic thermometers with sensors	As for sensor type above			
Temperature block calibrators	-95 °C to +200 °C 200 °C to 600 °C 600 °C to 1100 °C	0.27 °C 0.40 °C 1.9 °C		
Temperature controlled baths, fridges/refrigerators, freezers, autoclaves, ovens, furnaces and environmental chambers	-95 °C to +200 °C 200 °C to 500 °C 500 °C to 1100 °C	1.0 °C 2.0 °C 3.0 °C	Single and multipoint time dependent temperature profiling, also referred to as spatial temperature surveying or mapping	Site
Pt100 sensors	-95 °C to +200 °C 200 °C to 300 °C 300 °C to 500 °C 500 °C to 800 °C	0.44 °C 0.62 °C 2.0 °C 3.0 °C	In block bath	
Thermocouples	-95 °C to +200 °C 200 °C to 500 °C 500 °C to 1100 °C	1.0 °C 2.0 °C 3.0 °C	In block bath	
Electronic thermometers with sensors	As for sensor types above	As for sensor types above		
Temperature block calibrators	-95 °C to +200 °C 200 °C to 400 °C 400 °C to 1100 °C	0.35 °C 0.50 °C 2.5 °C		
HUMIDITY				Lab
Relative Humidity	10 %rh to 50 %rh 50 %rh to 95 %rh for the temperature range 10 °C to 40 °C	1.7 %rh 1.5 %rh	Calibration by comparison with reference instruments	
	10 %rh to 50 %rh 50 %rh to 95 %rh for the temperature range 40 °C to 60 °C	1.4 %rh 1.5 %rh		

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
HUMIDITY (continued)				
Temperature sensors incorporated in humidity instruments	10 °C to 60 °C	0.37 °C		
Relative humidity	15 %rh to 95 %rh for the temperature range 10 °C to 60 °C	3.7 %rh		Site
Temperature (sensors incorporated in humidity instruments)	15 °C to 60 °C	0.60 °C		
PRESSURE			Methods consistent with EURAMET CG17.	Lab & Site
Hydraulic Pressure (Gauge)				
Calibration of pressure indicating instruments and gauges	0 MPa to 20 MPa 20 MPa to 70 MPa	8.1 kPa 12 kPa		
Gas Pressure (Gauge)				
Calibration of pressure indicating instruments and gauges	- 100 kPa to 0 kPa 0 kPa to 2.5 kPa 2.5 kPa to 400 kPa 400 kPa to 2 MPa 2 MPa to 4 MPa	0.65 kPa 12 Pa 0.67 kPa 0.80 kPa 0.90 kPa		
Gas Pressure (Absolute)				
Calibration of pressure indicating instruments and gauges	3.5 kPa to 700 kPa	0.13 kPa		
ELECTRICAL				
Values and uncertainties listed below are applicable for the calibration of both measurement instruments and for instruments with an output. the method used is by direct comparison unless otherwise stated in the remarks column.				
DC RESISTANCE				Lab & Site
Generation				
Specific values	1 Ω 10 Ω 100 Ω 1 kΩ 10 kΩ 100 kΩ 1 MΩ 10 MΩ 100 MΩ 1 GΩ	13 mΩ 6.0 mΩ 18 mΩ 20 mΩ 1.1 Ω 10 Ω 46 Ω 1.8 kΩ 0.130 MΩ 42 MΩ	These values can be generated for the calibration of resistance measuring instruments	

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
ELECTRICAL (continued)				
DC RESISTANCE (continued)				Lab & Site
Other Values	0 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	10 mΩ 100 mΩ 0.22 Ω 1.0 Ω 0.13 kΩ 0.30 kΩ 0.030 MΩ 0.030 MΩ		
Measurement	0 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	19 mΩ 120 mΩ 0.67 Ω 13 Ω 0.59 kΩ 4.0 kΩ 1.0 MΩ	Outputs of instruments can be measured	
DC Voltage				
Generation	0 mV to 20 mV 20 mV to 200 mV 200 mV to 2 V 2 V to 20 V 20 V to 200 V 200 V to 1 kV	7.0 μV 8.0 μV 61 μV 800 μV 7.0 mV 23 mV	These values can be generated for the calibration of measuring instruments	
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	9.2 μV 62 μV 670 μV 6.4 mV 62 mV	For measurement of instrument outputs	
DC Current				
Generation	0 μA to 200 μA 200 μA to 2 mA 2 mA to 20 mA 20 mA to 200 mA 200 mA to 2 A 2 A to 20 A	18 nA 820 nA 3.0 μA 60 μA 580 μA 9.0 mA	These values can be generated for the calibration of measuring instruments	
	20 A to 50 A 50 A to 250 A 250 A to 500 A 500 A to 1000 A	0.27 A 1.0 A 1.5 A 1.5 A	Simulation using a 50 turn coil for the calibration of clampmeters	
Measurement	0 mA to 10 mA 10 mA to 100 mA 100 mA to 1 A 1 A to 3 A 3 A to 10 A 10 A to 240 A 240 A to 1000 A	4.3 μA 35 μA 0.82 mA 1.9 mA 1.5 A 6.0 A 25 A	For measurement of instrument outputs	

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
ELECTRICAL (continued)				Lab & Site
AC Voltage				
Generation	*40 Hz to 1 kHz:* 1 mV to 20 mV 20 mV to 200 mV 200 mV to 2 V 2 V to 20 V 20 V to 200 V 200 V to 700 V	 65 μV 300 μV 600 μV 5.0 mV 40 mV 250 mV	These values can be generated for the calibration of measuring instruments	
Measurement	*40 Hz to 1 kHz:* 10 mV to 100 mV 100 mV to 1 V 1 V to 10 V 10 V to 100 V 100 V to 750 V	 78 μV 960 μV 8.6 mV 51 mV 580 mV	For measurement of instrument outputs	
AC Current				
Generation	*40 Hz to 1 kHz* 10 μA to 200 μA	 1.0 μA	These values can be generated for the calibration of measuring instruments	
	60 Hz to 1 kHz 200 μA to 2 mA 2 mA to 20 mA 20 mA to 200 mA 200 mA to 2 A 2 A to 20 A	 2.0 μA 11 μA 150 mA 500 μA 10 mA		
	60 Hz to 1 kHz 20 A to 50 A 50 to 250 A 250 to 500 A 500 A to 1000 A	 1.0 A 2.7 A 3.0 A 3.0 A	Simulation using a 50 turn coil for the calibration of clampmeters	
Measurement	*40 Hz to 1 kHz:* 100 mA to 1 A 1 A to 3 A	 1.6 mA 1.7 mA	For measurement of instrument outputs	
Additional measurements in support of IEE 17th Edition test equipment				Lab & Site
RCD testers				
Trip current	6 mA, 10 mA and 30 mA 100 mA, 300 mA, and 500 mA 1000 mA	7.0 % + 20 μA 7.0 % + 160 μA 7.0 % + 840 μA		
Trip time	20 ms to 390 ms 390 ms to 5 s	1.0 ms 8.9 ms		

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
ELECTRICAL (continued)				
AC Resistance for loop testers at 50 Hz				
Nominal values; additive to prevailing loop impedance	0.05 Ω, 0.15 Ω, 0.33 Ω, 1.8 Ω, 3.3 Ω, 18 Ω and 33 Ω	0.054 Ω	Nominal laboratory loop impedance 0.4 Ω.	
Calibration of Portable Appliance Testers				Lab & Site
Earth Bond	20 mΩ	5.0 %		
	190 mΩ, 210 mΩ, 950 mΩ, 1 Ω 1.05 Ω, 1.08 Ω, 2 Ω, 10 Ω and 18 Ω	1.0 %		
	0 V to 20 V	50 mV		
	100 mA to 50 A *50 Hz* 1 mA to 2 A *50 Hz* 0 mA to 2 A dc	0.50 % + 200 mA 0.50 % + 2.0 mA 0.10 % + 2.0 mA		
Insulation	95 kΩ, 105 kΩ, 500 kΩ, 950 kΩ, 1.05 MΩ, 5 MΩ and 10 MΩ 100 MΩ	0.10 % 1.0 %		
	0 kV to 1 kV 0 mA to 20 mA	2.5 V 50 μA		
Leakage	*At 50 Hz:* 50 μA to 20 mA	50 μA		
Load	*At 50 Hz* 2 V to 500 V 5 mA to 13 A at 50 Hz	1.2 V 6.5 mA		
Electrical calibration of temperature simulators, indicators, controllers and recorders for the following sensors:-				
Noble metal thermocouples	0 °C to 500 °C 500 °C to 1500 °C	0.30 °C 0.30 °C	Including cold junction compensation	Lab
Base metal thermocouples	-160 °C to 0 °C 0 °C °C to 1200 °C	0.10 °C 0.10 °C	Including cold junction compensation	
Resistance sensors (Pt100)	-200 °C to +600 °C	0.050 °C	Simulation	
	-200 °C to +600 °C	0.040 °C	Measurement	
Cold junction compensation	At ambient temperature	0.070 °C	Nominal laboratory ambient temperature 20 °C	

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
ELECTRICAL (continued)				Site
Noble metal thermocouples	0 °C to 1200 °C	0.60 °C	including cold junction compensation	Site
Base metal thermocouples	-190 °C to +1300 °C	0.50 °C	including cold junction compensation	
Resistance sensors (Pt100)	-200 °C to +800 °C	0.20 °C	Simulation	
	-200 °C to +800 °C	0.20 °C	Measurement	
Frequency			These values can be generated for the calibration of measuring instruments	Lab & Site
Generation	0.1 Hz to 20 Hz 20 Hz to 50 Hz 50 Hz to 200 Hz 200 Hz to 1 kHz 1 kHz to 10 kHz 10 kHz to 500 kHz 500 kHz to 1 MHz 1 MHz to 10 MHz	0.4 mHz 1.0 mHz 5.0 mHz 12 mHz 31 mHz 0.20 Hz 15 Hz 100 Hz		
Capacitance			These values can be generated for the calibration of capacitance measuring instruments	
Generation Specific values	*1 kHz* 1 nF, 10 nF, 20 nF, 50 nF 100 nF, 200 nF, 500 nF 1 μF 10 μF, 20 μF 50 μF, 100 μF	 0.20 nF 2.0 nF 4.0 nF 40 nF 1.2 μF		
Inductance			These values can be generated for the calibration of inductance measuring instruments	
Generation Specific values	*1 kHz* 1 mH, 1.9 mH, 5 mH, 10 mH 19 mH, 50 mH, 100 mH 190 mH, 500 mH 1 H 10 H	 2.0 μH 1.2 mH 1.2 mH 12 mH 120 mH		
Time interval				
Timers	10 s to 72 hr	0.80 s		

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
WEIGHING INSTRUMENTS			Methods consistent with EURAMET guide cg-18.	
Digital one pan non-automatic weighing instruments	Maximum capacity 200 mg 500 mg 1 g 2 g 5 g 10 g 20 g 50 g 100 g 200 g 500 g 1 kg 2 kg 5 kg 10 kg 20 kg 30 kg 50 kg 60 kg	CMC (mg) 0.003 1 0.003 9 0.004 7 0.062 0.077 0.093 0.13 0.17 0.28 0.52 1.4 7.8 16 390 770 1.6 g 2.3 g 3.9 g 5.1 g	Weights are available in OIML class: E2 from 1 mg to 200 g, Max. grouped load 500 g F1 from 100 mg to 1 kg, Max. grouped load 2 kg M1 from 5 kg to 20 kg, Max. grouped load 60 kg	Lab & Site
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: $Q[a, b] = [a^2 + b^2]^{1/2}$