


# Schedule of Accreditation

issued by

## United Kingdom Accreditation Service

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

 <b>8809</b> Accredited to <b>ISO/IEC 17025:2017</b>	<b>ABB Limited</b> Issue No: 015 Issue date: 17 August 2021	
	<b>Oldends Lane</b> <b>Stonehouse</b> <b>Gloucester</b> <b>GL10 3TA</b>	<b>Contact: Dr Jonathan Farrington</b> <b>Tel: +44 (0) 1453 853449</b> <b>Fax: +44 (0) 1453 821382</b> <b>E-Mail: instrument.support@gb.abb.com</b> <b>Website: www.abb.com/measurement</b>

**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
<b>Address</b> Oldends Lane Stonehouse Gloucester GL10 3TA  <b>Local contact</b> Dr Jonathan Farrington  Tel: 01453 853449 Fax: 01453 821382 E-Mail: instrument.support@gb.abb.com	Electrical Pressure Temperature	Lab

#### Site activities performed away from the locations listed above:

Location details	Activity	Location code
Customers' Premises  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.	Temperature Electrical	Site



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Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ( $k = 2$ )	Remarks	Location Code
<b>ELECTRICAL</b>			All electrical calibrations are performed as a direct comparison against a reference standard unless stated otherwise	Lab
<b>DC Voltage</b>				
Measurement	0 mV to 100 mV 100 mV to 50 V	0.027 mV 4.6 mV	For measurement of instrument outputs	
Generation	0 mV to 100 mV 100 mV to 12 V	0.013 mV 2.5 mV	For the calibration of measuring instruments	
<b>DC Current</b>				
Measurement	0 mA to 100 mA	0.013 mA	For measurement of instrument outputs	
Generation	0 mA to 25 mA	0.0050 mA	For the calibration of measuring instruments	
<b>DC Resistance</b>				
Measurement	0 $\Omega$ to 400 $\Omega$ 400 $\Omega$ to 4 k $\Omega$	0.21 $\Omega$ 0.50 $\Omega$	For measurement of instrument outputs	
Generation	0 $\Omega$ to 400 $\Omega$ 400 $\Omega$ to 4 k $\Omega$	0.10 $\Omega$ 0.40 $\Omega$	For the calibration of measuring instruments	
Electrical calibration of temperature indicators, controllers and recorders for the following sensors:				
Noble metal thermocouples Type R & S	0 °C to 1768 °C	1.1 °C	with cold junction compensation	
Base metal thermocouples Type K, T, N and J	-200 °C to 0 °C 0 °C to 1370 °C	0.50 °C 0.56 °C	with cold junction compensation	
Pt100	-200 °C to +850 °C	0.15 °C		



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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ( $k = 2$ )	Remarks	Location Code
<b>ELECTRICAL</b> (cont'd)				Site
<b>DC Voltage</b>				
Measurement	0 mV to 100 mV 100 mV to 50 V	0.040 mV 13 mV	For measurement of instrument outputs	
Generation	0 mV to 100 mV 100 mV to 12 V	0.035 mV 3.3 mV	For the calibration of measuring instruments	
<b>DC Current</b>				
Measurement	0 mA to 100 mA	27 $\mu$ A	For measurement of instrument outputs	
Generation	0 mA to 25 mA	8.5 $\mu$ A	For the calibration of measuring instruments	
<b>DC Resistance</b>				
Measurement	0 $\Omega$ to 400 $\Omega$ 400 $\Omega$ to 4 k $\Omega$	0.11 $\Omega$ 1.5 $\Omega$	For measurement of instrument outputs	
Generation	0 $\Omega$ to 400 $\Omega$ 400 $\Omega$ to 4 k $\Omega$	0.13 $\Omega$ 1.2 $\Omega$	For the calibration of measuring instruments	
Electrical calibration of temperature indicators, controllers and recorders for the following sensors:				
Noble metal thermocouples Type R & S	0 $^{\circ}$ C to 1768 $^{\circ}$ C	1.7 $^{\circ}$ C	with cold junction compensation	
Base metal thermocouples Type K, T, N and J	-200 $^{\circ}$ C to 0 $^{\circ}$ C 0 $^{\circ}$ C to 1370 $^{\circ}$ C	1.2 $^{\circ}$ C 0.70 $^{\circ}$ C	with cold junction compensation	
Pt100	-200 $^{\circ}$ C to +850 $^{\circ}$ C	0.45 $^{\circ}$ C		
<b>PRESSURE</b>				Lab
Gas Pressure (gauge)			Methods consistent with EURAMET CG17	
Calibration of pressure indicating instruments and gauges	-85 kPa to 0 kPa 0 kPa to 400 kPa 400 kPa to 1.2 MPa 1.2 MPa to 2 MPa	0.19 kPa 0.32 kPa 0.37 kPa 0.41 kPa	Calibration of instruments with an electrical output can be undertaken	



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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ( $k = 2$ )	Remarks	Location Code
<b>TEMPERATURE</b>				Lab
Resistance thermometers	Ice point (0 °C) -35 °C to +140 °C 140 °C to 250 °C 250 °C to 450 °C 450 °C to 650 °C	0.040 °C 0.080 °C 0.24 °C 0.46 °C 0.53 °C	Calibration performed within Metal Block Baths	
Thermocouples	Ice point (0 °C) -35 °C to +140 °C 140 °C to 250 °C 250 °C to 450 °C 450 °C to 650 °C 650 °C to 1100 °C 1100 °C to 1200 °C	0.40 °C 0.45 °C 0.50 °C 0.70 °C 0.80 °C 2.0 °C to 2.6 °C 3.1 °C		
Temperature indicators and recorders with sensors	Ice point (0 °C) -35 °C to +140 °C 140 °C to 250 °C 250 °C to 450 °C 450 °C to 650 °C 650 °C to 1100 °C 1100 °C to 1200 °C	0.040 °C 0.080 °C 0.24 °C 0.46 °C 0.53 °C 2.0 °C to 2.6 °C 3.0 °C		
Wireless temperature loggers	Ice point (0 °C) -35 °C to +40 °C	0.085 °C 0.12 °C	Calibration performed within Liquid Baths	
Temperature controlled incubators, ovens, environmental chambers, fridges/refrigerators, freezers, rooms and similar enclosures (inclusive of associated indicators, controllers and recorders, all with sensors, within the specified parameters and ranges)	-80 °C to -40 °C -40 °C to 0 °C 0 °C to 140 °C 140 °C to 250 °C 250 °C to 450 °C 450 °C to 650 °C  -30 °C to +40 °C	2.1 °C 1.1 °C 1.7 °C 1.8 °C 2.1 °C 2.2 °C  0.30 °C	Single and multipoint time dependent temperature profiling, also referred to as spatial temperature surveying or mapping  Using thermocouples  Using PRT sensors or wireless temperature loggers	Site
Resistance thermometers	-35 °C to 0 °C 0 °C to 140 °C 140 °C to 250 °C 250 °C to 450 °C 450 °C to 650 °C	0.45 °C 0.65 °C 0.85 °C 1.5 °C 2.3 °C		Site



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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ( $k = 2$ )	Remarks	Location Code
<b>TEMPERATURE</b> (cont'd) Thermocouples	-35 °C to 0 °C 0 °C to 140 °C 140 °C to 250 °C 250 °C to 450 °C 450 °C to 650 °C	0.80 °C 0.95 °C 1.1 °C 1.7 °C 2.4 °C	Calibration performed within Metal Block Baths	Site
Temperature indicators and recorders with sensors	-35 °C to 0 °C 0 °C to 140 °C 140 °C to 250 °C 250 °C to 450 °C 450 °C to 650 °C	0.45 °C 0.60 °C 0.85 °C 1.5 °C 2.3 °C		Site
END				



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### 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:  $Q[a, b] = [a^2 + b^2]^{1/2}$