Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

UKAS CALIBRATION **0564** **Accredited to ISO/IEC 17025:2017**	**TC Ltd** **Issue No:** 030 **Issue date:** 07 July 2022	
	Brimington Road North **Whittington Moor** **Chesterfield** **Derbyshire** **S41 9BE**	**Contact: Mr L R Walker** **Tel: +44 (0)1246 454672** **E-Mail: laboratory@tc.co.uk** **Website: www.tc.co.uk**

Calibration performed by the Organisation at the locations specified

Locations covered by the organisation and their relevant activities

Laboratory locations:

Location details		Activity	Location code
Address Brimington Road North Whittington Moor Chesterfield Derbyshire S41 9BE	**Local contact** **Contact:** Mr L R Walker **Tel:** +44 (0)1246 454672 **E-Mail:** laboratory@tc.co.uk **Website:** www.tc.co.uk	Temperature Electrical	UK
Address Str. Ecaterina Teodoroiu nr. 13C Campina 105600, Jud Prahova, Romania	**Local contact** **Contact:** Mrs D Manta **Tel:** +40 244 330030 **E-Mail:** diana_manta@tcsrl.ro **Website:** www.tc.uk	Temperature	RO

Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
TEMPERATURE			Unless otherwise stated Calibration performed within Metal Block Baths or Calibration performed within Tube Furnaces	UK
Resistance thermometers	Liquid nitrogen (-196 °C) Triple point of water (0.01 °C) -100 °C to -30 °C - 30 °C to + 20 °C 20 ºC to 90 ºC 90 ºC to 200 ºC 200 ºC to 400 ºC 400 °C to 620 °C	0.20 °C 0.050 °C 0.60 °C 0.20 °C 0.20 ºC 0.20 ºC 0.40 ºC 0.40 °C	2 wire, 3 wire and 4 wire resistance thermometers	
Thermocouples - noble metal	20 °C to 200 °C 200 ºC to 400 ºC 400 ºC to 620 ºC 620 °C to 1100 °C 1100 °C to 1200 °C 1200 °C to 1330 °C 1330 ºC to 1590 ºC	0.90 °C 0.90 ºC 0.90 ºC 1.70 °C 1.70 °C 2.70 °C 3.30 ºC	Extension and Compensating Cables	
Thermocouples – base metal	Liquid nitrogen (-196 °C) -100 °C to -30 °C - 30 °C to + 200 °C 200 °C to 400 °C 400 ºC to 620 ºC 620 °C to 1100 °C 1100 °C to 1200 °C 1200 °C to 1330 °C	0.35 °C 0.60 °C 0.30 °C 0.50 °C 0.60 ºC 1.80 °C 1.80 °C 2.60 °C		
Temperature indicators and transmitters with probes	Ranges as for sensor type	As for sensor type	Including instruments with electrical outputs	
ELECTRICAL				
Electrical calibration of temperature simulators for the following sensors			All electrical procedures use direct comparison to laboratory standards unless otherwise stated	
Resistance sensors (PT 100)	-200 °C to +800 °C	0.05 °C	2 wire, 3 wire and 4 wire resistance sensors	

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty (k = 2)	Remarks	Location Code
ELECTRICAL Continued				
Noble metal thermocouples	-20 °C to +1750 °C	0.80 °C	Including cold junction compensation	
Base metal thermocouples	-200 °C to +1372 °C	0.40 °C	Including cold junction compensation	
Electrical calibration of temperature indicators, controllers and recorders for the following sensors				
Resistance sensors (PT 100)	-200 °C to +800 °C	0.05 °C	2 wire, 3 wire and 4 wire resistance sensors	
Noble metal thermocouples	-20 °C to +1750 °C	0.80 °C	Including cold junction compensation	
Base metal thermocouples	-200 °C to +1372 °C	0.40 °C	Including cold junction compensation	
TEMPERATURE			Unless otherwise stated Calibration performed within Metal Block Baths or Calibration performed within Tube Furnaces	RO
Temperature indicators and transmitters with probes	Ranges as for sensor type	As for sensor type	Including instruments with electrical outputs	
Thermocouples – base metal	-25 °C to +150 °C 150 °C to 620 °C 620 ºC to 1200 ºC 1200 °C to 1330 °C	0.40 °C 0.60 °C 1.80 ºC 2.60 °C		
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: $Q[a, b] = [a^2 + b^2]^{1/2}$