

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

 UKAS CALIBRATION 4595 Accredited to ISO/IEC 17025:2017	Withnell Sensors Limited	
	Issue No: 016 Issue date: 03 September 2021	
	The Old Silk Mill Bury Lane Withnell Nr Chorley PR6 8RX	Contact: Samantha Smith Tel: +44 (0)1254 831 375 Fax: +44 (0)1254 919 403 E-Mail: sales@withnellsensors.co.uk Website: www.withnellsensors.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
The Old Silk Mill Bury Lane Withnell Nr Chorley PR6 8RX	Local contact Samantha Smith Temperature Humidity Voltage Resistance	P

Site activities performed away from the locations listed above:

Location details	Activity	Location code
Customer premises	Temperature – indicators with probes including data loggers	S



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Calibration and Measurement Capability (CMC)

Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ($k = 2$)	Remarks	Location Code
TEMPERATURE				
Platinum resistance thermometers	- 196 °C (LN ₂) - 60 °C 0.01 °C (triple point of water) 100 °C 231.928 °C (Tin FP) 419.527 °C (Zinc FP)	0.0060 °C 0.0060 °C 0.0050 °C 0.0080 °C 0.0080 °C 0.010 °C	Calibration in a range of baths utilising liquid media FP = Freezing Point	P
Indicators with probes including data loggers	-90 °C to 140 °C 140 to 250 °C - 196 °C (LN ₂)	0.020 °C 0.022 °C 0.011 °C	Calibration in a range of baths utilising liquid media	P
Indicators with probes including data loggers	-90 °C to 140 °C	0.066 °C	Calibration in dry block bath	S
Platinum resistance thermometers	-90 °C to 140 °C 140 °C to 250 °C 420 °C	0.011 °C 0.022 °C 0.013 °C	Calibration in a range of baths utilising liquid and salt media	P
Cold junction compensation	Ambient temperature 20 °C ±2 °C	0.045 °C	KAYE Sensor Input Module for KAYE Validator 2000 and KAYE Validator AVS (Advanced Validation System)	P
Dry Block Calibrators	-90 °C to +125 °C 125 °C to 400 °C	0.069 °C 0.16 °C	Calibration in removable or fixed metal inserts	P
HUMIDITY				
	10 %rh to 90 %rh Temperature range 10 °C to 20 °C	0.5 %rh to 1.4 %rh	By comparison with dew- point hygrometer and Platinum Resistance Thermometers	P
	10 %rh to 90 %rh Temperature range 20 °C to 30 °C	0.5 %rh to 1.0 %rh		
	10 %rh to 90 %rh Temperature range 30 °C to 60 °C	0.5 %rh to 2.0 %rh		
Temperature probes in air	10 °C to 20 °C 20 °C to 30 °C 30 °C to 40 °C 40 °C to 50 °C 50 °C to 60 °C	0.27 °C 0.21 °C 0.33 °C 0.46 °C 0.50 °C		



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Measured Quantity Instrument or Gauge	Range	Expanded Measurement Uncertainty ($k = 2$)	Remarks	Location Code
ELECTRICAL				
VOLTAGE				
Sourcing for Calibration of Kaye Validator 2000 & Kaye Validator AVS (Advanced Validation System)	0 V to 30 mV 30 mV to 60 mV 60 mV to 100 mV 100 mV to 1 V 1 V to 10 V 10 V to 15 V	0.75 μ V 0.80 μ V 0.91 μ V 4.6 μ V 59 μ V 75 μ V	Calibration with reference meter	P
RESISTANCE				
Calibration of Kaye Validator 2000 & Kaye Validator AVS (Advanced Validation System)	100 Ω to 200 Ω	0.62 m Ω	Calibration with reference meter	P
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: $Q[a, b] = [a^2 + b^2]^{1/2}$