

CERTIFICATE OF CALIBRATION

ISSUED BY AVON-DYNAMIC CALIBRATION



Date of Issue 14 July 2022

Certificate Number K683974



CALIBRATE MEASURE INNOVATE

For:

SIGNATROL LTD
UNIT E2
GREEN LANE BUSINESS PARK
TEWKESBURY
GL20 8SJ

Approved Signatory

Mr B. Greenham

<u>Manufacturer:</u>	AGILENT	<u>Date of Receipt:</u>	11 July 2022
<u>Model Number:</u>	34401A	<u>Specification:</u>	Manufacturer
<u>Inventory Number:</u>	MY41050872	<u>Calibrated by:</u>	TNEALE
<u>Serial Number:</u>	MY41050872	<u>Next Calibration Due:</u>	14 July 2023
<u>Description:</u>	DIGITAL MULTIMETER	<u>Page 1 of 4</u>	

Report: This instrument has been calibrated to the stated specification, unless otherwise stated. The recorded measurements were correct when taken within the conditions stated. The calibration was carried out using standards which are subject to regular periodic verification and are traceable to National Standards.

Laboratory Conditions Temperature: 20.0 ± 3°C
Humidity: 50%rh ± 20%rh

Comment :- **Calibrations marked ## (Not UKAS Accredited) in this Certificate have been included for completeness.**

Calibration Code A All prime parameters were found to be within the stated specification with no adjustment necessary.

Compliance Statement: Conformity / Non-Conformity statements are based on simple acceptance rule (ILAC-G8:09/2019) where, Acceptance Limit (AL) equals Tolerance Limit (TL). Provided that the Tolerance Uncertainty Ratio (TUR) 1:1.

Date of Calibration: 14 July 2022

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k = 2$, providing a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

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REPORT

The unit under test was allowed to stabilise for 24 hours in the laboratory environment prior to testing. The unit was allowed to settle for 1 minute before each reading was taken.

Results: As received. No adjustment was necessary.

DC Voltage Ranges

Settings: Voltage DC & 6½ Digit Resolution

<u>Range</u>	<u>Applied Voltage</u>	<u>Instrument Reading</u>	<u>Specification</u>	<u>Uncertainty of Measurement</u>
100 mV	+ 100.000 00 mV	+ 100.002 4 mV	± 8.5 µV	± 5.8 µV
1 V	+ 1.000 000 0 V	+ 1.000 009 V	± 47 µV	± 28 µV
10 V	+ 10.000 000 V	+ 10.000 04 V	± 400 µV	± 330 µV
	- 10.000 00 V	- 10.000 08 V	± 400 µV	± 330 µV
100 V	+ 100.000 00 V	+ 99.997 1 V	± 5.1 mV	± 4.8 mV
1 000 V	+ 1 000.0000 V	+ 999.975 V	± 55 mV	± 33 mV

AC Voltage Ranges (100mV to 750V)

Settings: Voltage AC, 3Hz Filter Slow & 6½ Digit

<u>Range</u>	<u>Applied Voltage</u>	<u>Instrument Reading</u>	<u>Specification</u>	<u>Uncertainty of Measurement</u>
100 mV	100.000 00 mV @ 1 kHz	100.026 3 mV	±100 µV	± 30 µV
	10.000 00 mV @ 1 kHz	9.962.1 mV	± 46 µV	± 8.6 µV
	100.000 00 mV @ 30 kHz	100.033 7 mV	± 170 µV	± 120 µV
1 V	1.000 000 0 V @ 1 kHz	0.999 465 V	± 900 µV	± 260 µV
	1.000 000 0 V @ 30 kHz	0.999 431 V	± 1.7 mV	± 450 µV
10 V	10.000 000 V @ 1 kHz	9.997 82 V	± 9 mV	± 2.6 mV
	10.000 000 V @ 30 kHz	9.999 34 V	± 17 mV	± 5.8 mV
100 V	100.000 0 V @ 1 kHz	99.967 8 V	± 90 mV	± 29 mV
	100.000 0 V @ 30 kHz	99.966 9 V	± 170 mV	± 46 mV
750 V	750.000 0 V @ 1 kHz	749.645 V	± 675 mV	± 360 mV
	200.000 0 V @ 30 kHz	199.965 V	± 615 mV	##

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Resistance Ranges (100Ω to 1MΩ)

Settings: Ω, Digits 6½ & 2 Wire

<u>Range</u>	<u>Applied Resistance</u>	<u>Instrument Reading</u>	<u>Specification</u>	<u>Uncertainty of Measurement</u>
100 Ω	100.00000 Ω	100.012 1 Ω	± 214 mΩ	± 5.3 mΩ
1 kΩ	1.000000 kΩ	1.000 04 kΩ	± 310 mΩ	± 37 mΩ
10 kΩ	10.000000 kΩ	10.000 33 kΩ	± 1.10 Ω	± 410 mΩ
100 kΩ	100.00000 kΩ	100.000 3 kΩ	± 11.0 Ω	± 4.1 Ω
1 MΩ	1.000000 MΩ	1.000 053 MΩ	± 110 Ω	± 52 Ω

Resistance Ranges (100Ω to 100MΩ)

Settings: Ω, Digits 6½ & 4 Wire

<u>Range</u>	<u>Applied Resistance</u>	<u>Instrument Reading</u>	<u>Specification</u>	<u>Uncertainty of Measurement</u>
100 Ω	100.00000 Ω	100.009 5 Ω	± 14 mΩ	± 5.3 mΩ
1 kΩ	1.0000000 kΩ	1.000 036 kΩ	±110 mΩ	± 37 mΩ
10 kΩ	10.000000 kΩ	10.000 32 kΩ	± 1.1 Ω	± 410 mΩ
100 kΩ	100.00000 kΩ	100.003 4 kΩ	± 11 Ω	± 4.1 Ω
1 MΩ	1.0000000 MΩ	1.000 043 MΩ	± 110 Ω	± 52 Ω
10 MΩ	10.000000 MΩ	9.999 43 MΩ	± 4.1 kΩ	± 1.8 kΩ
100 MΩ	100.00000 MΩ	100.006 4 MΩ	± 810 kΩ	± 80 kΩ

DC Current Range (10mA, 100mA 1A & 3A)

Settings: DC Current & Digits 6½

<u>Range</u>	<u>Applied Voltage</u>	<u>Instrument Reading</u>	<u>Specification</u>	<u>Uncertainty of Measurement</u>
10 mA	+ 10.000 000 mA	+10.000 34 mA	± 7 µA	± 2.2 µA
100mA	+ 100.000 00 mA	+100.006 3 mA	± 55 µA	± 21 µA
1 A	+ 1.000 000 0 A	+ 0.999 947 A	± 1.1 mA	± 300 µA
3 A	+ 2.000 000 A	+ 1.999 92 A	± 3.0 mA	± 1.7 mA

AC Current Range (1A & 3A)

Settings: AC Current & Digits 6½

<u>Range</u>	<u>Applied Voltage</u>	<u>Instrument Reading</u>	<u>Specification</u>	<u>Uncertainty of Measurement</u>
1 A	1.000 000 A @ 1kHz	+ 1.000 12 A	± 1.4 mA	± 950 µA
3 A	2.000 000 A @ 1kHz	+ 1.997 78 A	± 4.8 mA	± 2.7 mA

Frequency

<u>Range</u>	<u>Applied Input</u>	<u>Instrument Reading</u>	<u>Specification</u>	<u>Uncertainty of Measurement</u>
100 mV	100.000 00 mV @ 100 Hz	100.000 6 Hz	± 0.1 Hz	± 0.011 Hz
1 V	1.000 000 V @ 100 kHz	100.000 3 kHz	± 10 Hz	± 1.1 Hz

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Standard Used
ADC3034, ADC2830.

Procedure Reference: CLI050, CLI051, CLI052, CLI053, CLI055.

-End of Report-

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $\kappa = 2$, providing a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

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