

CERTIFICATE OF CALIBRATION

ISSUED BY AVON-DYNAMIC CALIBRATION



Date of Issue 24 July 2023

Certificate Number K785597



CALIBRATE MEASURE INNOVATE

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

Approved Signatory
Mr. M. Hyde

<u>Manufacturer:</u>	AGILENT	<u>Date of Receipt:</u>	20 July 2023
<u>Model Number:</u>	34401A	<u>Specification:</u>	Manufacturer
<u>Inventory Number:</u>	MY41050872	<u>Calibrated by:</u>	BGREENHAM
<u>Serial Number:</u>	MY41050872	<u>Next Calibration Due:</u>	24 July 2024
<u>Description:</u>	DIGITAL MULTIMETER		

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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: 24 July 2023

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: Resistance adjusted in specification.

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	+ 99.999 5 mV	± 8.5 µV	± 5.8 µV
1 V	+ 1.000 000 0 V	+ 1.000 011 V	± 47 µV	± 28 µV
10 V	+ 10.000 000 V	+ 10.000 10 V	± 400 µV	± 330 µV
	- 10.000 00 V	- 10.000 11 V	± 400 µV	± 330 µV
100 V	+ 100.000 00 V	+ 99.998 4 V	± 5.1 mV	± 4.8 mV
1 000 V	+ 1 000.0000 V	+ 999.980 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	100.034 4 mV	±100 µV	± 30 µV
	10.000 00 mV @ 1 kHz	10.006 4 mV	± 46 µV	± 8.6 µV
	100.000 00 mV @ 30 kHz	100.028 5 mV	± 170 µV	± 120 µV
1 V	1.000 000 0 V @ 1 kHz	0.999 385 V	± 900 µV	± 260 µV
	1.000 000 0 V @ 30 kHz	0.999 350 V	± 1.7 mV	± 450 µV
10 V	10.000 000 V @ 1 kHz	9.998 06 V	± 9 mV	± 2.6 mV
	10.000 000 V @ 30 kHz	9.998 82 V	± 17 mV	± 5.8 mV
100 V	100.000 0 V @ 1 kHz	99.977 7 V	± 90 mV	± 29 mV
	100.000 0 V @ 30 kHz	99.967 8 V	± 170 mV	± 46 mV
750 V	750.000 0 V @ 1 kHz	749.618 V	± 675 mV	± 360 mV
	200.000 0 V @ 30 kHz	199.841 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	99.98850 Ω	100.006 3 Ω	± 214 mΩ	± 5.3 mΩ
1 kΩ	0.9999175 kΩ	0.999 965 kΩ	± 310 mΩ	± 37 mΩ
10 kΩ	9.999960 kΩ	10.000 44 kΩ	± 1.10 Ω	± 410 mΩ
100 kΩ	99.99915 kΩ	100.004 2 kΩ	± 11.0 Ω	± 4.1 Ω
1 MΩ	0.9999562 MΩ	1.000 008 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	99.98850 Ω	99.987 0 Ω	± 14 mΩ	± 5.3 mΩ
1 kΩ	0.9999175 kΩ	0.999 940 kΩ	±110 mΩ	± 37 mΩ
10 kΩ	9.999960 kΩ	10.000 23 kΩ	± 1.1 Ω	± 410 mΩ
100 kΩ	99.99915 kΩ	100.003 1 kΩ	± 11 Ω	± 4.1 Ω
1 MΩ	0.9999562 MΩ	1.000 013 MΩ	± 110 Ω	± 52 Ω
10 MΩ	9.998629 MΩ	9.998 62 MΩ	± 4.1 kΩ	± 1.8 kΩ
100 MΩ	100.00962 MΩ	99.991 6 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	+9.999 98 mA	± 7 µA	± 2.2 µA
100mA	+ 100.000 00 mA	+100.001 7 mA	± 55 µA	± 21 µA
1 A	+ 1.000 000 0 A	+ 0.999 827 A	± 1.1 mA	± 300 µA
3 A	+ 2.000 000 A	+ 1.999 63 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	+ 1.000 230 A	± 1.4 mA	± 950 µA
3 A	2.000 000 A @ 1kHz	+ 1.997 92 A	± 4.8 mA	± 2.7 mA

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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	99.994 44 Hz	± 0.1 Hz	± 0.011 Hz
1 V	1.000 000 V @ 100 kHz	99.994 17 kHz	± 10 Hz	± 1.1 Hz

Standard Used

ADC3034

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

-End of Report-

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