

CERTIFICATE OF CALIBRATION

ISSUED BY AVON-DYNAMIC CALIBRATION

Date of Issue 09 July 2021

Certificate Number K592695-1



0199

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CALIBRATE MEASURE INNOVATE

For: Signatrol Ltd
Unit E2
Green Lane Business Park
Tewkesbury
GL20 8SJ

Approved Signatory:
M.Hyde

<u>Customer Ref Number</u> :	MY41050872	<u>Date of Calibration</u> :	28 June 2021
<u>Date of Receipt</u> :	21 June 2021	<u>Item Type</u> :	34401A
<u>Item Serial Number</u> :	MY41050872		
<u>Instrument Manufacturer</u> :	Agilent		
<u>Description</u> :	Digital Multimeter		

Note: This certificate supersedes K592695, due to the incorrect date of receipt being stated

Calibrations marked ## (Not UKAS Accredited) in this Certificate have been included for Completeness

Calibrated by : M.Hyde

Procedure: Agilent 34401A IEEE 1.0

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.

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes.
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ISSUED BY AVON-DYNAMIC CALIBRATION

UKAS ACCREDITED CALIBRATION LABORATORY No 0199

Certificate Number

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<u>Test Range</u>	<u>Applied Value</u>	<u>Lower limit</u>	<u>Test Result</u>	<u>Upper limit</u>	<u>Uncertainty of Measurement</u>
Self-Test					
DC VOLTAGE					
100 mV	100.0000 mV	99.9915 mV	100.0018 mV	100.0085 mV	1.4 μ V
-100 mV	-100.0000 mV	-100.0085 mV	-99.9981 mV	-99.9915 mV	1.4 μ V
1 V	1.000000 V	0.999953 V	1.000010 V	1.000047 V	6.8 μ V
-1 V	-1.000000 V	-1.000047 V	-1.000006 V	-0.999953 V	6.8 μ V
10 V	10.00000 V	9.99960 V	10.00009 V	10.00040 V	49 μ V
8 V	8.00000 V	7.99968 V	8.00007 V	8.00032 V	40 μ V
6 V	6.00000 V	5.99976 V	6.00005 V	6.00024 V	31 μ V
4 V	4.00000 V	3.99984 V	4.00004 V	4.00016 V	22 μ V
2 V	2.00000 V	1.99992 V	2.00001 V	2.00008 V	14 μ V
-10 V	-10.00000 V	-10.00040 V	-10.00008 V	-9.99960 V	49 μ V
-8 V	-8.00000 V	-8.00032 V	-8.00007 V	-7.99968 V	40 μ V
-6 V	-6.00000 V	-6.00024 V	-6.00006 V	-5.99976 V	31 μ V
-4 V	-4.00000 V	-4.00016 V	-4.00004 V	-3.99984 V	22 μ V
-2 V	-2.00000 V	-2.00008 V	-2.00002 V	-1.99992 V	14 μ V
100 V	100.0000 V	99.9949 V	99.9983 V	100.0051 V	650 μ V
-100 V	-100.0000 V	-100.0051 V	-99.9982 V	-99.9949 V	650 μ V
1000 V	1000.000 V	999.945 V	999.981 V	1000.055 V	8.5 mV
-1000 V	-1000.000 V	-1000.055 V	-999.982 V	-999.945 V	8.5 mV
AC VOLTAGE					
100 mV	100.0000 mV @ 20 kHz	99.0000 mV	100.0395 mV	101.0000 mV	20 μ V
1 V	1.000000 V @ 20 Hz	0.991000 V	0.999177 V	1.009000 V	140 μ V
1 V	1.000000 V @ 1 kHz	0.999100 V	0.999415 V	1.000900 V	120 μ V
1 V	1.000000 V @ 20 kHz	0.991000 V	0.999390 V	1.009000 V	120 μ V
1 V	1.000000 V @ 50 kHz	0.983000 V	0.999141 V	1.017000 V	250 μ V
1 V	1.000000 V @ 100 kHz	0.932000 V	0.998434 V	1.068000 V	580 μ V
1 V	1.000000 V @ 300 kHz	0.550000 V	0.995558 V	1.450000 V	600 μ V
10 V	10.00000 V @ 20 kHz	9.91000 V	9.99894 V	10.09000 V	620 μ V
100 V	100.0000 V @ 20 kHz	99.1000 V	99.9678 V	100.9000 V	7.2 mV
750 V	750.000 V @ 1 kHz	743.250 V	749.619 V	756.750 V	77 mV
DC CURRENT					
10 mA	10.00000 mA	9.93000 mA	10.00039 mA	10.07000 mA	460 nA
100 mA	100.0000 mA	99.0000 mA	100.0005 mA	101.0000 mA	6.1 μ A
1 A	1.000000 A	0.998000 A	0.999788 A	1.002000 A	110 μ A
3 A	2.000000 A	1.991600 A	1.999611 A	2.008400 A	280 μ A

Procedure: Aailent 34401A IEEE 1.0

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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AC CURRENT					
1 A	1.000000 A @ 5 kHz	0.995000 A	1.000228 A	1.005000 A	620 μ A
3 A	2.000000 A @ 1 kHz	1.979000 A	1.998314 A	2.021000 A	680 μ A
Resistance Test					
100 Ω	100.0000 Ohm	99.8579 Ω	100.0067 Ω	100.1379 Ω	1.3 m Ω
1 k Ω	1.000000 kOhm	0.998830 k Ω	0.999964 k Ω	1.001030 k Ω	11 m Ω
10 k Ω	10.00000 kOhm	9.98843 k Ω	9.99976 k Ω	10.01043 k Ω	110 m Ω
100 k Ω	100.0000 kOhm	99.8843 k Ω	99.9983 k Ω	100.1042 k Ω	1.4 Ω
1 M Ω	1.0000 MOhm	0.9988 M Ω	0.9999 M Ω	1.0010 M Ω	63 Ω
10 M Ω	10.0000 MOhm	9.9885 M Ω	9.9985 M Ω	10.0105 M Ω	470 Ω
100 M Ω	100.0000 MOhm	99.6005 M Ω	100.1686 M Ω	100.4206 M Ω	13 k Ω
FREQUENCY					
	100.0000 Hz @ 100 mV	99.9900 Hz	100.0000 Hz	100.0100 Hz	10 mHz
	100.0000 kHz @ 1 V	99.9900 kHz	99.9984 kHz	100.0100 kHz	10 Hz

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

Uncertainty of Measurement as stated plus 1 display digit

Laboratory Ambient Temperature : 20.0°C \pm 3°C

Laboratory Humidity : 50% \pm 20%rh

Standards Used

ADC2613

End of Report

Procedure: Aailent 34401A IEEE 1.0

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