

CERTIFICATE OF CALIBRATION

Issued By Transmille Ltd.

Certificate Number 38680

Date of Issue 10 May 2019



0324



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Approved Signatory

G.A. Shapland M.A. Bailey S.A. Hawkins J.J. Bailey

Customer : SIGNATROL LTD
UNIT E2, GREEN LANE BUSINESS PARK
TEWKESBURY GLOUCESTERSHIRE GL20 8SJ

Date Received : 07 May 2019

Instrument :	System ID :	A1A050872	Job Number :	71878-1
	Description :	Digital Multimeter (6.5 digit)	Ref. Number :	CE026
	Manufacturer :	Agilent	Site :	
	Model Number :	34401A	Location :	
	Serial Number :	MY41050872	Last Calibration Certificate :	35886
	Procedure Version :	3.02/N	Last Calibration Date :	01/05/2018

Environmental Conditions

Temperature : 20°C +/- 1°C
Relative Humidity : 40% +/- 20%

Mains Voltage : 230V +/- 12V
Mains Frequency : 50Hz +/- 1Hz

Comments

Instrument was allowed to stabilise for at least 12 hours before calibration.
4 Wire kelvin connections were used for ohms measurements below 10kOhms
Front Panel Terminals were used for calibration.

Calibration Information

The instrument was calibrated against laboratory standards whose values are traceable to recognised National Standards. The uncertainty limits quoted refer to the measured values only, with no account being taken of the instruments ability to maintain its calibration.

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

Calibrated By : M. Nelson

Date of Calibration : 10 May 2019

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Test Title	Applied Value	Reading	Uncertainties
DC Voltage			
100mV D.C. Range	100.000 0mV	100.002 1mV	±590nV
1V D.C. Range	1.000 000V	1.000 005V	±3.4uV
10V D.C. Range	10.000 00V	10.000 02V	±40uV
100V D.C. Range	100.000 0V	99.998 6V	±400uV
1000V D.C. Range	1 000.000V	999.978V	±4mV
AC Voltage			
100mV A.C. @ 200Hz	100.000 0mV	100.067 1mV	±38uV
1V A.C. @ 200Hz	1.000 000V	0.999 522V	±121uV
10V A.C. @ 40Hz	10.000 00V	9.992 66V	±1.2mV
10V A.C. @ 200Hz	10.000 00V	9.997 54V	±1.2mV
10V A.C. @ 1kHz	10.000 00V	9.999 51V	±1.2mV
10V A.C. @ 10kHz	10.000 00V	9.999 83V	±2.7mV
100V A.C. @ 200Hz	100.000 0V	99.994 0V	±30mV
750V A.C. @ 200Hz	700.000 0V	699.588 0V	±350mV
DC Current			
10mA D.C. Range	10.000 00mA	9.999 95mA	±95nA
100mA D.C. Range	100.000 0mA	100.000 8mA	±875nA
1A D.C. Range	1.000 000A	0.999 737A	±64uA
3A D.C. Range	2.000 00A	1.999 51A	±520uA
AC Current @ 60Hz			
1A A.C. Rng @ 60Hz	0.100 00A	0.100 01A	±70uA
1A A.C. Rng @ 60Hz	0.500 00A	0.500 10A	±180uA
1A A.C. Rng @ 1kHz	1.000 00A	1.000 31A	±310uA
3A A.C. Rng @ 60Hz	2.000 00A	1.997 98A	±1.7mA
Resistance			
100Ω Range	99.998 7Ω	100.005 3Ω	±170uΩ
1kΩ Range	1.000 005kΩ	1.000 060kΩ	±1.7mΩ
10kΩ Range	10.000 05kΩ	10.000 54kΩ	±20mΩ
100kΩ Range	100.004 0kΩ	100.009 1kΩ	±240mΩ
1MΩ Range	1.000 082MΩ	1.000 013MΩ	±5.2Ω
10MΩ Range	10.000 71MΩ	9.999 99MΩ	±180Ω
100MΩ Range	100.002 9MΩ	100.492 8MΩ	±1.6kΩ

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Linearity			
10V Linearity	-9.00000V	-9.00005V	±37uV
10V Linearity	-8.00000V	-8.00000V	±34uV
10V Linearity	-7.00000V	-7.00003V	±31uV
10V Linearity	-6.00000V	-6.00004V	±28uV
10V Linearity	-5.00000V	-4.99998V	±25uV
10V Linearity	-4.00000V	-4.00001V	±22uV
10V Linearity	-3.00000V	-3.00000V	±20uV
10V Linearity	-2.00000V	-2.00000V	±20uV
10V Linearity	-1.00000V	-1.00000V	±20uV
10V Linearity	0.000 00V	0.000 00V	±20uV
10V Linearity	1.000 00V	1.000 00V	±20uV
10V Linearity	2.000 00V	2.000 01V	±20uV
10V Linearity	3.000 00V	3.000 03V	±20uV
10V Linearity	4.000 00V	4.000 00V	±22uV
10V Linearity	5.000 00V	4.999 97V	±25uV
10V Linearity	6.000 00V	6.000 03V	±28uV
10V Linearity	7.000 00V	7.000 01V	±31uV
10V Linearity	8.000 00V	7.999 99V	±34uV
10V Linearity	9.000 00V	9.000 05V	±37uV
Frequency			
10Hz	10.000 0Hz	10.000 0Hz	±310uHz
100Hz	100.000Hz	100.000Hz	±3.1mHz
1kHz	1.000 00kHz	1.000 00kHz	±31mHz
10kHz	10.000 0kHz	10.000 0kHz	±310mHz
100kHz	100.000kHz	100.000kHz	±3.1Hz