

CERTIFICATE OF CALIBRATION



Issued By Transmille Ltd.

Certificate Number 22668

Date of Issue 02 November 2012



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Transmille Ltd.
Unit 4, Select Business Centre
Lodge Road
Staplehurst, Kent. TN12 0QW.
TEL 01580 890700 FAX 01580 890711

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Approved Signatory

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

Customer : SIGNATROL LTD
105 CHURCH STREET, TEWKESBURY
GLOS GL20 5AB

Date Received : 25 October 2012

Instrument :	System ID :	H8AA61208	Job Number :	45504-1
	Description :	Digital Multimeter (5.5 digit)		
	Manufacturer :	Hewlett Packard		
	Model Number :	3478A		
	Serial Number :	2911A61208		
	Procedure Version :	3.00/N		

Environmental Conditions

Temperature : 20°C +/- 1°C
Relative Humidity : 50% +/- 20%

Mains Voltage : 220V +/- 12V
Mains Frequency : 50Hz +/- 1Hz

Comments

Instrument was allowed to stabilise for at least 12 hours before calibration.
4-wire connection was made directly to the unit's terminals

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.A. Bailey

Date of Calibration : 02 November 2012

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to recognised national standards, and to the units of measurement realised at the National Physical Laboratory or other recognised national standards laboratories. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

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AS FOUND RESULTS

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Test Title	Applied Value	Reading	Uncertainties
DC Voltage Ranges			
30mV D.C.	30.000 0mV	29.997 0mV	3.2uV
300mV D.C.	300.000mV	300.001mV	6.5uV
3V D.C.	3.000 00V	3.000 04V	60uV
30V D.C.	30.000 0V	30.000 7V	730uV
300V D.C.	300.000V	300.005V	7.3mV
Linearity - 30V DC Range			
Linearity	5.000 0V	5.000 1V	220uV
Linearity	10.000 0V	10.000 2V	240uV
Linearity	15.000 0V	15.000 3V	270uV
Linearity	20.000 0V	20.000 4V	300uV
Linearity	25.000 0V	25.000 6V	660uV
AC Voltage @ 200Hz			
300V A.C.	300.000V	300.171V	150mV
30V A.C.	30.000 0V	29.998 8V	19mV
3V A.C.	3.000 00V	3.001 21V	1.7mV
300mV A.C.	300.000mV	300.032mV	200uV
DC Current Ranges			
300mA D.C.	300.000mA	299.967mA	280uA
1A D.C.	1.000 00A	0.999 85A	330uA
AC Current Ranges			
300mA A.C.	300.000mA	299.928mA	590uA
1A A.C.	1.000 00A	0.999 94A	1.5mA
Resistance Ranges			
10 Ω 4W	10.001 0 Ω	9.790 0 Ω	6.9m Ω
100 Ω 4W	99.998 Ω	99.780 Ω	12m Ω
1k Ω 4W	0.999 94k Ω	0.999 93k Ω	96m Ω
10k Ω 4W	9.999 5k Ω	9.998 8k Ω	960m Ω
100k Ω 2W	100.005k Ω	100.000k Ω	9.6 Ω
1M Ω 2W	0.999 96M Ω	0.999 91M Ω	160 Ω
10M Ω 2W	9.998 0M Ω	9.997 7M Ω	4.6k Ω

End of results

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AFTER ADJUSTMENT RESULTS

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Test Title	Applied Value	Reading	Uncertainties
DC Voltage Ranges			
30mV D.C.	30.000 0mV	29.997 0mV	3.2uV
300mV D.C.	300.000mV	300.001mV	6.5uV
3V D.C.	3.000 00V	3.000 04V	60uV
30V D.C.	30.000 0V	30.000 7V	730uV
300V D.C.	300.000V	300.005V	7.3mV
Linearity - 30V DC Range			
Linearity	5.000 0V	5.000 1V	220uV
Linearity	10.000 0V	10.000 2V	240uV
Linearity	15.000 0V	15.000 3V	270uV
Linearity	20.000 0V	20.000 4V	300uV
Linearity	25.000 0V	25.000 6V	660uV
AC Voltage @ 200Hz			
300V A.C.	300.000V	300.171V	150mV
30V A.C.	30.000 0V	29.998 8V	19mV
3V A.C.	3.000 00V	3.001 21V	1.7mV
300mV A.C.	300.000mV	300.032mV	200uV
DC Current Ranges			
300mA D.C.	300.000mA	299.967mA	280uA
1A D.C.	1.000 00A	0.999 85A	330uA
AC Current Ranges			
300mA A.C.	300.000mA	299.928mA	590uA
1A A.C.	1.000 00A	0.999 94A	1.5mA
Resistance Ranges			
10 Ω 4W	10.001 0 Ω	9.999 6 Ω	6.9m Ω
100 Ω 4W	99.998 Ω	100.002 Ω	12m Ω
1k Ω 4W	0.999 94k Ω	0.999 94k Ω	96m Ω
10k Ω 4W	9.999 5k Ω	9.999 6k Ω	960m Ω
100k Ω 2W	100.005k Ω	100.007k Ω	9.6 Ω
1M Ω 2W	0.999 96M Ω	0.999 97M Ω	160 Ω
10M Ω 2W	9.998 0M Ω	9.997 8M Ω	4.6k Ω

End of results