

# CERTIFICATE OF CALIBRATION

Issued By Transmille Ltd.

Certificate Number 32276

Date of Issue 15 November 2016



0324



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Approved Signatory

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

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

Date Received : 11 November 2016

<b>Instrument :</b>	System ID :	H8AA61208	Job Number :	63268-2
	Description :	Digital Multimeter (5.5 digit)	Ref. Number :	CE1013
	Manufacturer :	Hewlett Packard	Site :	
	Model Number :	3478A	Location :	
	Serial Number :	2911A61208		
	Procedure Version :	3.00/N		

## 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 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. Nelson

**Date of Calibration :** 15 November 2016

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. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

# CERTIFICATE OF CALIBRATION

UKAS Accredited Calibration Laboratory No. 0324  
**AS FOUND RESULTS**

Certificate Number  
32276

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Test Title	Applied Value	Reading	Uncertainties
<b>DC Voltage Ranges</b>			
30mV D.C.	30.000 0mV	29.999 5mV	±3.2uV
300mV D.C.	300.000mV	299.999mV	±6.5uV
3V D.C.	3.000 00V	3.000 05V	±60uV
30V D.C.	30.000 0V	30.000 8V	±730uV
300V D.C.	300.000V	300.005V	±7.3mV
<b>Linearity - 30V DC Range</b>			
Linearity	5.000 0V	5.000 1V	±220uV
Linearity	10.000 0V	10.000 1V	±240uV
Linearity	15.000 0V	15.000 2V	±270uV
Linearity	20.000 0V	20.000 4V	±300uV
Linearity	25.000 0V	24.999 8V	±660uV
<b>AC Voltage @ 200Hz</b>			
300V A.C.	300.000V	300.174V	±150mV
30V A.C.	30.000 0V	30.005 3V	±19mV
3V A.C.	3.000 00V	3.000 99V	±1.7mV
300mV A.C.	300.000mV	300.033mV	±200uV
<b>DC Current Ranges</b>			
300mA D.C.	300.000mA	299.905mA	±280uA
1A D.C.	1.000 00A	0.999 89A	±330uA
<b>AC Current Ranges</b>			
300mA A.C.	300.000mA	300.012mA	±590uA
1A A.C.	1.000 00A	1.000 23A	±1.5mA
<b>Resistance Ranges</b>			
10Ω 4W	10.006 1Ω	10.007 1Ω	±6.9mΩ
100Ω 4W	100.006Ω	100.013Ω	±12mΩ
1kΩ 4W	0.999 96kΩ	0.999 97kΩ	±96mΩ
10kΩ 4W	10.000 4kΩ	10.000 5kΩ	±960mΩ
100kΩ 2W	99.996kΩ	99.997kΩ	±9.6Ω
1MΩ 2W	1.000 03MΩ	1.000 02MΩ	±160Ω
10MΩ 2W	10.002 3MΩ	10.004 8MΩ	±4.6kΩ

**End of results**