

# CERTIFICATE OF CALIBRATION

Issued By Transmille Ltd

Certificate Number EXAMPLE

Date of Issue EXAMPLE



Approved Signatory



Transmille Ltd  
Unit 4 Select Business Centre  
Lodge Road, Staplehurst  
Kent. TN12 0QW.  
Tel : 01580 890700 Fax : 01580 890711

**EXAMPLE  
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EXAMPLE  EXAMPLE

Customer :

Date Received : EXAMPLE

**Instrument :** System ID : EXAMPLE  
Description : Precision Multimeter  
Manufacturer : Transmille  
Model Number : 8081  
Serial Number : EXAMPLE  
Procedure Version : 1/N

## Environmental Conditions

Temperature : 20°C +/- 1°C  
Relative Humidity : 50% +/- 10%  
Mains Voltage : 230V +/- 10V  
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  
The instrument Serial interface was used during 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 : EXAMPLE

Date of Calibration : EXAMPLE

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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UKAS Accredited Calibration Laboratory No. 0324  
**AFTER ADJUSTMENT RESULTS**

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Test Title	Applied Value	Reading	Uncertainties
<b>DC Voltage Ranges</b>			
100mV	100.000 0mV	100.000 1mV	500nV
100mV	-100.0000mV	-100.0000mV	500nV
1V Zero	0.000 000 0V	0.000 000 0V	0.2uV
1V	1.000 000 0V	1.000 000 1V	2uV
1V	-1.0000000V	-1.0000003V	2uV
10V Zero	0.000 000V	0.000 000V	1uV
10V	10.000 000V	10.000 001V	30uV
10V	-10.000000V	-10.000002V	30uV
100V Zero	0.000 00V	0.000 00V	10uV
100V	100.000 00V	100.000 02V	300uV
100V	-100.00000V	-100.00000V	300uV
1000V	1 000.000 0V	999.999 9V	3mV
1000V	-1000.0000V	-1000.0001V	3mV
<b>DC Volts Linearity</b>			
10V Range	8.000 000V	8.000 015V	24uV
10V Range	6.000 000V	6.000 012V	18uV
10V Range	4.000 000V	4.000 006V	12uV
10V Range	2.000 000V	2.000 001V	6uV
10V Range	-2.000000V	-2.000003V	6uV
10V Range	-4.000000V	-4.000006V	12uV
10V Range	-6.000000V	-6.000007V	18uV
10V Range	-8.000000V	-8.000005V	24uV
<b>100mV AC Range</b>			
AC Volts 1kHz	100.000 0mV	100.000 7mV	27uV
AC Volts 1KHz	20.000 0mV	19.997 2mV	27uV
AC Volts 10Hz #	100.000 0mV	100.003 5mV	27uV
AC Volts 40Hz	100.000 0mV	99.998 4mV	27uV
AC Volts 56Hz	100.000 0mV	99.998 2mV	27uV
AC Volts 106Hz	100.000 0mV	99.995 1mV	27uV
AC Volts 206Hz	100.000 0mV	99.999 4mV	27uV
AC Volts 2kHz	100.000 0mV	99.993 1mV	27uV
AC Volts 10kHz	100.000 0mV	100.000 1mV	27uV
AC Volts 20kHz	100.000 0mV	99.997 0mV	27uV
AC Volts 50kHz #	100.000 0mV	99.998 1mV	44uV
AC Volts 100kHz #	100.000 0mV	99.999 7mV	44uV

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<b>1V AC Range</b>			
1Volt Range 1KHz	1.000 000V	0.999 995V	120uV
1Volt Range 1KHz	0.200 000V	0.199 980V	30uV
1Volt Range 10Hz #	1.000 000V	1.000 076V	120uV
1Volt Range 40Hz	1.000 000V	0.999 983V	120uV
1Volt Range 56Hz	1.000 000V	0.999 987V	120uV
1Volt Range 106Hz	1.000 000V	0.999 962V	120uV
1Volt Range 206Hz	1.000 000V	1.000 007V	120uV
1Volt Range 2kHz	1.000 000V	0.999 976V	300uV
1Volt Range 10kHz	1.000 000V	0.999 969V	300uV
1Volt Range 20kHz	1.000 000V	0.999 984V	300uV
1Volt Range 50kHz	1.000 000V	0.999 996V	300uV
1Volt Range 100kHz #	1.000 000V	1.000 022V	300uV
1Volt Range 400kHz #	1.000 000V	1.000 105V	300uV
1Volt Range 1MHz #	1.000 000V	1.000 166V	900uV
<b>10 Volt AC Range</b>			
10Volt Range 1KHz	10.000 00V	10.000 16V	1.2mV
10Volt Range 1KHz	2.000 00V	2.000 00V	300uV
10Volt Range 10Hz #	10.000 00V	9.999 14V	2.5mV
10Volt Range 40Hz	10.000 00V	10.000 13V	1.2mV
10Volt Range 56Hz	10.000 00V	10.000 16V	1.2mV
10Volt Range 106Hz	10.000 00V	10.000 16V	1.2mV
10Volt Range 206Hz	10.000 00V	10.000 13V	1.2mV
10Volt Range 2kHz	10.000 00V	9.999 75V	3mV
10Volt Range 10kHz	10.000 00V	9.999 55V	3mV
10Volt Range 20kHz	10.000 00V	10.000 45V	3mV
10Volt Range 50kHz	10.000 00V	10.000 62V	3mV
10Volt Range 75kHz #	10.000 00V	10.000 64V	3mV
10Volt Range 100kHz#	10.000 00V	10.000 82V	3mV
<b>100V AC Range</b>			
100V Range 1KHz	100.000 0V	100.002 1V	12mV
100V Range 1KHz	20.000 0V	19.999 9V	3mV
100V Range 40Hz	100.000 0V	100.001 4V	12mV
100V Range 56Hz	100.000 0V	100.001 6V	12mV
100V Range 106Hz	100.000 0V	100.002 1V	12mV
100V Range 206Hz	100.000 0V	100.006 1V	12mV
100V Range 2kHz	100.000 0V	100.002 9V	30mV
100V Range 10kHz	100.000 0V	100.007 1V	30mV
100V Range 20kHz	100.000 0V	100.006 0V	30mV

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Test Title	Applied Value	Reading	Uncertainties
<b>1000 Volt AC Range</b>			
1000V Range 1KHz	700.000V	700.016V	100mV
1000V Range 1KHz	200.000V	199.986V	30mV
1000V Range 40Hz	700.000V	699.988V	100mV
1000V Range 56Hz	700.000V	699.964V	100mV
1000V Range 106Hz	700.000V	699.991V	100mV
1000V Range 206Hz	700.000V	699.991V	100mV
1000V Range 2kHz	700.000V	699.962V	190mV
1000V Range 10kHz	700.000V	700.028V	190mV
1000V Range 20kHz	700.000V	700.025V	190mV
<b>DC Current</b>			
100uA Zero	0.000 00uA	0.000 06uA	100pA
100uA DC Range	100.000 00uA	99.999 98uA	800pA
100uA DC Range	-100.00000uA	-99.99997uA	800pA
1mA Zero	0.000 000 0mA	0.000 000 2mA	8nA
1mA DC Range	1.000 000 0mA	1.000 000 4mA	8nA
1mA DC Range	-1.0000000mA	-0.9999998mA	8nA
10mA Zero	0.000 000mA	0.000 003mA	15nA
10mA DC Range	10.000 000mA	10.000 002mA	85nA
10mA DC Range	-10.000000mA	-10.000000mA	85nA
100mA Zero	0.000 00mA	0.000 00mA	200nA
100mA DC Range	100.000 00mA	100.000 03mA	800nA
100mA DC Range	-100.00000mA	-99.99983mA	800nA
1A Zero	0.000 000 0A	-0.0000003A	5uA
1A DC Range	1.000 000 0A	0.999 989 1A	11uA
1A DC Range	-1.0000000A	-0.9999919A	11uA
10A Zero	0.000 000A	0.000 072A	400uA
10A DC Range	10.000 000A	9.999 901A	400uA
10A DC Range	-10.000000A	-9.999875A	400uA
30A Zero	0.000 00A	-0.00014A	2mA
30A DC Range	30.000 00A	30.001 88A	5mA
30A DC Range	-30.00000A	-30.00093A	5mA
<b>100uA AC Current Range</b>			
100uA AC 1kHz	100.000 0uA	100.007 3uA	20nA
100uA AC 1kHz	20.000 0uA	19.998 2uA	8nA
100uA AC 10Hz #	100.000 0uA	100.007 9uA	45nA
100uA AC 40Hz	100.000 0uA	99.997 5uA	20nA
100uA AC 56Hz	100.000 0uA	99.997 8uA	20nA
100uA AC 106Hz	100.000 0uA	99.996 8uA	20nA
100uA AC 206Hz	100.000 0uA	99.997 3uA	20nA
100uA AC 10kHz #	100.000 0uA	99.999 7uA	45nA
<b>1mA AC Current Range</b>			
1mA AC 1kHz	1.000 000mA	1.000 034mA	190nA
1mA AC 1kHz	0.200 000mA	0.199 985mA	70nA

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Test Title	Applied Value	Reading	Uncertainties
1mA AC 10Hz #	1.000 000mA	1.000 118mA	390nA
1mA AC 40Hz	1.000 000mA	0.999 931mA	190nA
1mA AC 56Hz	1.000 000mA	1.000 018mA	190nA
1mA AC 106Hz	1.000 000mA	1.000 032mA	190nA
1mA AC 206Hz	1.000 000mA	0.999 975mA	190nA
1mA AC 2kHz #	1.000 000mA	0.999 933mA	390nA
1mA AC 10kHz #	1.000 000mA	1.000 001mA	390nA

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Test Title	Applied Value	Reading	Uncertainties
<b>10mA AC Current Range</b>			
10mA AC 1kHz	10.000 00mA	10.000 37mA	2uA
10mA AC 1kHz	2.000 00mA	1.999 87mA	700nA
10mA AC 10Hz #	10.000 00mA	9.999 86mA	4.5uA
10mA AC 40Hz	10.000 00mA	9.998 95mA	2uA
10mA AC 56Hz	10.000 00mA	9.999 89mA	2uA
10mA AC 106Hz	10.000 00mA	10.000 35mA	2uA
10mA AC 206Hz	10.000 00mA	10.000 61mA	2uA
10mA AC 10kHz #	10.000 00mA	10.000 13mA	4.5uA
<b>100mA AC Current Range</b>			
100mA AC 1kHz	100.000 0mA	100.003 2mA	20uA
100mA AC 1kHz	20.000 0mA	19.998 3mA	7uA
100mA AC 10Hz #	100.000 0mA	99.991 5mA	48uA
100mA AC 40Hz	100.000 0mA	99.988 2mA	20uA
100mA AC 56Hz	100.000 0mA	99.999 1mA	20uA
100mA AC 106Hz	100.000 0mA	100.004 6mA	20uA
100mA AC 206Hz	100.000 0mA	100.005 1mA	20uA
100mA AC 10kHz #	100.000 0mA	99.980 3mA	48uA
<b>1A AC Current Range</b>			
1A AC 1kHz	1.000 000A	0.999 980A	310uA
1A AC 1kHz	0.200 000A	0.199 943A	90uA
1A AC 10Hz #	1.000 000A	0.999 872A	620uA
1A AC 40Hz	1.000 000A	0.999 966A	310uA
1A AC 56Hz	1.000 000A	0.999 864A	310uA
1A AC 106Hz	1.000 000A	0.999 980A	310uA
1A AC 206Hz	1.000 000A	1.000 004A	310uA
1A AC 10kHz #	1.000 000A	1.000 017A	620uA
<b>10A AC Current Range</b>			
10A AC 1kHz	10.000 00A	10.000 91A	5mA
10A AC 1kHz	2.000 00A	2.000 27A	1mA
10A AC 10Hz #	10.000 00A	10.002 00A	10.3mA
10A AC 40Hz	10.000 00A	10.001 46A	5mA
10A AC 56Hz	10.000 00A	9.999 97A	5mA
10A AC 106Hz	10.000 00A	10.000 83A	5mA
10A AC 206Hz	10.000 00A	10.000 89A	5mA

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Test Title	Applied Value	Reading	Uncertainties
<b>30A AC Current Range</b>			
30A AC 1kHz	30.000 0A	29.998 9A	13mA
30A AC 1kHz	2.000 0A	2.000 6A	2mA
30A AC 10Hz #	30.000 0A	30.001 2A	29mA
30A AC 40Hz	30.000 0A	30.004 9A	13mA
30A AC 56Hz	30.000 0A	29.999 7A	13mA
30A AC 106Hz	30.000 0A	30.000 0A	13mA
30A AC 206Hz	30.000 0A	30.006 0A	13mA
<b>Resistance Ranges</b>			
1 Ohm 4W	0.999 934 $\Omega$	0.999 934 $\Omega$	4 $\mu\Omega$
10 Ohm 4W	9.999 70 $\Omega$	9.999 70 $\Omega$	30 $\mu\Omega$
100 Ohm 4W	99.998 7 $\Omega$	99.998 8 $\Omega$	200 $\mu\Omega$
1 kOhm 4W	1.000 006k $\Omega$	1.000 006k $\Omega$	2m $\Omega$
10 kOhm 4W	10.000 03k $\Omega$	10.000 03k $\Omega$	16m $\Omega$
100 kOhm 4W	100.003 78k $\Omega$	100.003 79k $\Omega$	230m $\Omega$
1 MOhm 2W	1.000 086M $\Omega$	1.000 086M $\Omega$	6 $\Omega$
10 MOhm 2W	10.000 80M $\Omega$	10.000 80M $\Omega$	180 $\Omega$
100 Ohm low I	99.998 7 $\Omega$	99.998 7 $\Omega$	200 $\mu\Omega$
1 kOhm low I	1.000 006k $\Omega$	1.000 006k $\Omega$	2m $\Omega$
10 kOhm low I	10.000 03k $\Omega$	10.000 03k $\Omega$	16m $\Omega$
<b>Electrometer Measurements - Current Measurements</b>			
10nA	10.000 00nA	10.000 40nA	40pA
100nA	100.000 0nA	100.000 2nA	130pA
1uA	1.000 000uA	1.000 000uA	136pA
10uA	10.000 00uA	10.000 02uA	190pA
<b>Electrometer Measurements - Resistance Measurements @ 100V</b>			
100 MOhm @ 100V	99.998M $\Omega$	100.002M $\Omega$	3.3k $\Omega$
1 GOhm @ 100V	1.000 04G $\Omega$	1.000 00G $\Omega$	93k $\Omega$
10 GOhm @ 100V	10.09G $\Omega$	10.07G $\Omega$	45M $\Omega$
100 GOhm @ 100V	99.48G $\Omega$	99.10G $\Omega$	510M $\Omega$
1 TOhm @ 100V	1.000 60T $\Omega$	0.995 00T $\Omega$	5G $\Omega$
<b>Frequency</b>			
1 MHz	1.000 000MHz	1.000 001MHz	1Hz
<b>Thermocouple</b>			
K Type 1000°C	1 000.00°C	999.99°C	0.01°C
<b>PRT Measurement</b>			
100Ohm	0.00°C	0.01°C	0.05°C
<b>Interface</b>			
GPIB	---	Pass	
LAN	---	Pass	
USB	---	Pass	