DELIVERY NOTE

Ship-to No.	20420002
Delivery No.	**1013665686**
Date of order	26.06.2007
Date of despatch	02.07.2007
Page	1 of 1
Parcel	1 of 1

ɔmer Purchase Order Ref.	POR05579
)rder Ref.	205876159
act	Mr. DEREK LAMB
act No.	80127738
)hone	01535 634542

Ordered Qty	Sales Unit	Qty this Delivery
1	EA	1
1	EA	1

out in our current catalogue. Please check your delivery. You must notify RS in writing, accompanied with your order. UK customers intending to export any of the goods supplied, are responsible for ıay be required.

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R450/EBS.0905

Grp No.	1016	Calibrated	
Del No. 1013665686			00:00:00
Bin	**Article**	**Qty**	**TO Num**
END OF ORDER			

*** PACK PARCEL INSERT ***
8844858 (28/6)
HELEN

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CERTIFICATE OF CALIBRATION

Issued by: RS Components Ltd

Date Issued: 02 Jul 2007 Certificate No. 1061358

RS Calibration

Calibration and Repair Service

Venture Close, Lammas Rd,
Corby, Northants, NN17 5EX

Tel: 01536 405545
Fax: 01536 401590

Alan Goodley

Client	VIAMED. Keighley, West Yorkshire. BD20 7DT
Instrument	Fluke 867B Graphical Digital Multimeter
Serial No.	6911002
Client Reference	CE080
Procedure ID.	230.2881 Rev. P2
Date Received	29 Jun 2007
Date of Calibration	02 Jul 2007
Performance Status	Pass

Equipment Used to Carry Out Calibration	**Equipment ID.**
Fluke 5700A Multifunction Calibrator	Cal 026
Racal 1991 Frequency Counter	Cal 553
Time P5025 Capacitance Box	Cal 093

The measurements reported in this certificate were carried out using equipment whose values are traceable to national standards.

All procedures employed and results reported are in compliance with the requirements of the International Standard ISO/IEC 17025:2005.

The management controls of the RS Calibration Laboratory are registered under the British Standard BS EN ISO 9001 : 2000 No. RS 00362.

Uncertainties

The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor k = 2, providing a level of confidence of approximately 95%.

This certificate reports recorded values for the instrument 'As Received'.

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The instrument was allowed to stabilise in the laboratory for a period of not less than 60 minutes before any measurements were made.

The voltage and current functions were calibrated by applying nominal values at a number of points.

The resistance, frequency and capacitance functions were calibrated by applying a measured value at a number of points.

The ambient temperature and relative humidity throughout the calibration were (20 ± 2) °C and (50 ± 10) %RH respectively.

DC Voltage

Range	Applied Nominal Value	UUT Indicated Value	UUT L.S.D Stability
300 mV	290 mV	289.98 mV	0
3 000 mV	-2 900 mV	-2 899.7 mV	0
30 V	10 V	9.999 V	0
	20 V	19.999 V	0
	29 V	28.998 V	0
300 V	290 V	289.98 V	0
1 000 V	900 V	899.9 V	1

AC Voltage (True RMS)

300 mV	290 mV	60 Hz	289.71 mV	0
3 V	2.9 V	60 Hz	2.897 7 V	0
30 V	29 V	60 Hz	28.977 V	0
	29 V	1 kHz	28.995 V	0
	29 V	10 kHz	28.989 V	0
	29 V	200 kHz *	28.003 V	1
300 V	290 V	60 Hz	289.80 V	0
1 000 V	900 V	60 Hz	899.3 V	1

AC Voltage (Average Value)

300 mV	290 mV	60 Hz	289.7 mV	0
3 V	2.9 V	60 Hz	2.898 V	0
30 V	29 V	60 Hz	28.99 V	0
	29 V	1 kHz	28.99 V	0
	29 V	10 kHz	28.99 V	0
	29 V	40 kHz *	28.97 V	0
300 V	290 V	60 Hz	289.9 V	0
1 000 V	900 V	60 Hz	900 V	0

The values marked with an '*' are not covered by this laboratory's uncertainties but are included for completeness.

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DC Current

Range	Applied Nominal Value	UUT Indicated Value	UUT L.S.D Stability
300 uA	290 uA	289.93 uA	0
3 000 uA	2 900 uA	2 899.4 uA	0
30 mA	29 mA	29.002 mA	0
300 mA	290 mA	290.01 mA	1
3 A	2 A	1.999 5 A	1
10 A	2 A	2.000 A	0

AC Current (True RMS)

300 uA	290 uA	60 Hz	289.61 uA	1
3 000 uA	2 900 uA	60 Hz	2 897.6 uA	0
30 mA	29 mA	60 Hz	28.968 mA	0
300 mA	290 mA	60 Hz	289.83 mA	0
3 A	2 A	60 Hz	1.994 0 A	0
10 A	2 A	60 Hz	1.994 A	1

AC Current (Average Value)

300 uA	290 uA	60 Hz	289.7 uA	0
3 000 uA	2 900 uA	60 Hz	2 898 uA	0
30 mA	29 mA	60 Hz	28.98 mA	0
300 mA	290 mA	60 Hz	289.9 mA	0
3 A	2 A	60 Hz	1.995 A	0
10 A	2 A	60 Hz	1.99 A	0

Resistance

Range	Applied Value	UUT Indicated Value	UUT L.S.D Stability
300 Ω	99.995 Ω	99.99 Ω	0
3 kΩ	0.999 95 kΩ	1.000 0 kΩ	0
30 kΩ	9.999 7 kΩ	9.999 kΩ	0
300 kΩ	99.997 kΩ	99.99 kΩ	0
3 MΩ	0.999 95 MΩ	0.999 8 MΩ	0
30 MΩ	9.998 4 MΩ	9.997 MΩ	0

Conductance

300 nS	10.000 5 MΩ	100.01 nS	1
3 000 nS	1.000 1 MΩ	1 000.1 nS	0

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Capacitance

Range	Applied Value	UUT Indicated Value	UUT L.S.D Stability
1 uF	0.899 9 uF	0.901 uF	1
10 uF	9.008 uF	9.01 uF	0
100 uF	90.08 uF	89.7 uF	0

A functional test was carried out on the 1 000 and 10 000 uF ranges and they were found to operate satisfactorily.

Frequency

Auto	900.000 Hz	1 V	900.03 Hz	1
	9.000 00 kHz	1 V	9.000 4 kHz	0
	90.000 0 kHz	1 V	90.004 kHz	0
	900.000 kHz	1 V	900.04 kHz	0

Logic Tests

TTL: The instrument indicated a change in logic state from LO to HI at 1.97 V

3 V CMOS: The instrument indicated a change in logic state from LO to HI at 1.71 V

5 V CMOS: The instrument indicated a change in logic state from LO to HI at 2.95 V

END OF CALIBRATION **CALIBRATED BY:- AAG**

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RS Calibration

Calibration and Repair Service

Measurement Uncertainties of the applied values

DC Voltage

290 mV	± 100 ppm
2.9 V to 900 V	± (100 ppm + 1 L.S.D)

AC Voltage (60 Hz to 10 kHz)

290 mV to 900 V	± 0.13%

DC Current

290 uA to 29 mA	± 200 ppm
290 mA	± 350 ppm
2 A	± 400 ppm + 1 L.S.D)

AC Current

290 uA to 290 mA	± 0.11%
2 A	± 0.14%

Resistance

100 Ω	± 300 ppm
1 kΩ to 1 MΩ	± 250 ppm
10 MΩ	± 300 ppm

Frequency

900 Hz to 900 kHz	± 1 L.S.D

Capacitance

0.9 uF	± (700 ppm + 1 L.S.D)
9 uF	± (0.1% + 1 L.S.D)
90 uF	± (0.23% + 1 L.S.D)

Compliance to Specification

The specification published by the manufacturer and found in the instrument's handbook has been used to determine performance at the measured points.

Reported values

The uncertainties quoted refer to the applied values, which include any identified contribution of the instrument under test and not to the ability of the instrument to maintain it's calibration.

When in use due allowance should be made for the stability of the reading as found in the 'UUT L.S.D. Stability' column.

The L.S.D component of the above measurement uncertainties refer to the display resolution of the instrument under test.