DRAPER®

THE TOOL COMPANY

DIGITAL MULTIMETER WITH BACKLIGHT

STOCK No.60792 PART No.DMM1A

● INSTRUCTIONS ●

IMPORTANT: PLEASE READ THESE INSTRUCTIONS CAREFULLY TO ENSURE THE SAFE AND EFFECTIVE USE OF THIS TOOL.

CE

04/2000

INTRODUCTION

Digital Multimeter

This lightweight multimeter is ideal for general electrical and automotive use.

DECLARATION ON CONFORMITY

We, Draper Tools Ltd. Hursley Road, Chandlers Ford, Eastleigh, Hampshire. SO53 1YF. England.

Declare under our sole responsibility that the product:

Stock No:- 60792 Part No:- DMM1A

Description:- Digital Multimeter with back light

To which this declaration relates is in conformity with the following directive(s):-89/336/EEC, & 73/23/EEC

With reference to:- EN50081/1, EN55022, EN50082-1, EN55024, EN61000-4-2,-3,-8, ENV50204, EN 61010-1 & EN 61010-2-031

JOHN DRAPER
Managing Director 04/2000

GUARANTEE

Draper electric lights have been carefully tested and inspected before shipment and are guaranteed to be free from defective materials and workmanship for a period of 12 months from the date of purchase except where items are hired out when the guarantee period is ninety days from the date of purchase.
Should the light develop any fault, please return the complete item to your nearest authorized warranty repair agent or contact Draper Tools Limited, Chandlers Ford, Eastleigh, Hampshire. SO53 1YF. England. Telephone: (023) 8049 4333.
If upon inspection it is found that the fault occurring is due to defective materials or workmanship, repairs will be carried out free of charge. This guarantee does not apply to normal wear and tear, nor does it cover any damage caused by misuse, careless or unsafe handling, alterations, accident, or repairs attempted or made by any personnel other than the authorized Draper warranty repair agent.
This guarantee applies in lieu of any other guarantee expressed or implied and variations of its terms are not authorized.
Your Draper guarantee is not effective unless you can produce upon request a dated receipt or invoice to verify your proof of purchase within the 12 month period.
Please note that this guarantee is an additional benefit and does not effect your statutory rights.
Halogen tubes are a consumable and are not covered by this guarantee.
DRAPER TOOLS LIMITED.

FEATURES

- 20 position rotary function and range selector.
- Recessed input terminals for added safety.
- Measures A.C./D.C. voltage, D.C. amps, resistance, diode measurement, transistor and HFE measurements.
- 10 amp fuse protection.
- Audible continuity buzzer.
- 1.5V/9V battery test.
- Integral stand for easy visibility.
- Supplied with test leads, battery and instruction manual.
- Back light function.

SPECIFICATIONS

RANGE SELECTION	RANGE	RESOLUTION	ACCURACY
D.C. Voltage Overload Protection: 220Vrms A.C. for 200mV range and 600V D.C. or 600 Vrms A.C. for other ranges.	200mV 2000mV 20V 200V 600V	100µV 1mV 10mV 100mV 1V	+/- 0.5% of reading +/- 2 digits +/- 0.5% of reading +/- 2 digits +/- 0.5% of reading +/- 2 digits +/- 0.5% of reading +/- 2 digits +/- 0.8% of reading +/- 2 digits
A.C. Voltage Overload Protection: 600V D.C. or 600Vrms for all ranges.. Response: Average responding, calibrated in rms of a sine wave. Frequency range: 15Hz 450Hz.	200V 600V	100mV 1V	+/- 1.2% of reading +/- 10 digits +/- 1.2% of reading +/- 10 digits
D.C. Current Overload Protection: 200mA 250V fuse (10A range unfused). Measuring Voltage drop: 200mV.	200µA 2000µA 20mA 200mA 10A	100µA 1µA 10µA 100µA 10mA	+/- 1.0% of reading +/- 2 digits +/- 1.0% of reading +/- 2 digits +/- 1.0% of reading +/- 2 digits +/- 1.2% of reading +/- 2 digits +/- 3.0% of reading +/- 2 digits
Resistance Maximum Open Circuit Voltage: 2.8V. Overload Protection: 15 seconds maximum 220Vrms on all ranges.	200 ohm 2000 ohm 20k ohm 200k ohm 2000k ohm 20M ohm	100m ohm 1 ohm 10 ohm 100 ohm 1k ohm 10K ohm	+/- 0.8% of reading +/- 2 digits +/- 0.8% of reading +/- 2 digits +/- 0.8% of reading +/- 2 digits +/- 0.8% of reading +/- 2 digits +/- 1.0% of reading +/- 2 digits +/- 1.6% of reading +/- 3 digits

WARNING:

To avoid electric shock remove test leads before opening cover. To prevent risk of fire use only the correct fuse as shown on the rear cover of the meter. (Fuse is bypassed on 10A setting, ensure you refer to 'Fuse Replacement' on page 3 or point 5 on page 5).

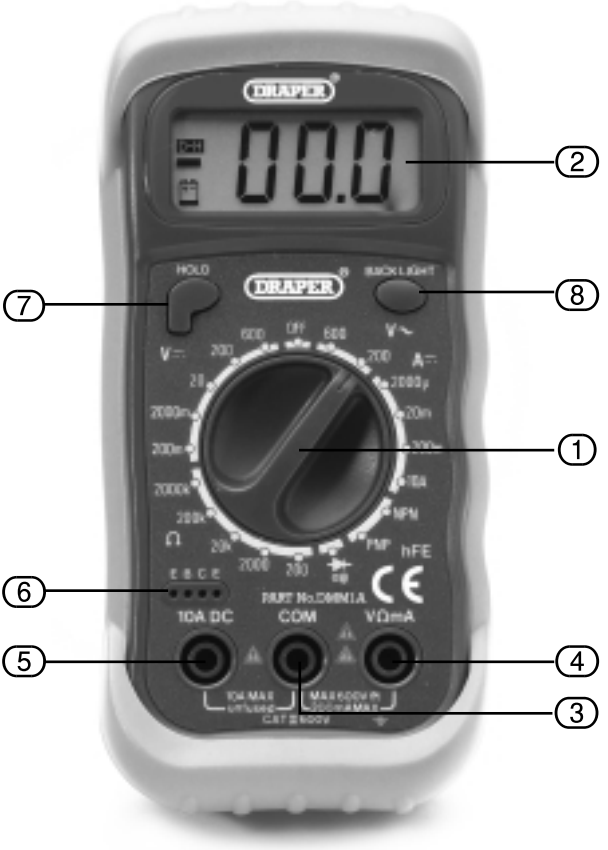
MAINTENANCE

Fuse Replacement:
If the fuse blows, this is usually as a result of an operator error. Open the case and replace the fuse with a '200mA/250V' rated replacement.

Battery Replacement:
If the '  ' sign appears on the LCD display unit, the battery needs to be replaced immediately. Remove the screw on the back cover and open the case. Replace the depleted battery with 1x 9V PP3 battery.

DRAPER
THE TOOL COMPANY

KNOW YOUR MULTIMETER



KNOW YOUR MULTIMETER CONT...

1. **Function and Range Selector Switch**
   This switch is used to select the function and desired range.
2. **Display**
   LCD display unit.
3. **'Com' Jack Socket**
   Plug in the black (negative) test lead.
4. **'V/Ω/mA (voltage/resistance/amperage) Jack Socket (max 200mA)**
   Plug in the red (positive) test lead for all voltage, resistance and amperage (max 200mA) measurements.
5. **'10A' Jack Socket (max 10A)**
   Plug in the red (positive) test lead for measuring amperage to a minimum of 200mA to a maximum of 10A.
6. **Transistor Test socket**
   Suitable for both NPN and PNP transistors
7. **Hold Button**
   Stores reading on display.
8. **Back Light Button**

OTHER METER MARKINGS/READINGS

	Diode test mode has been selected.		Caution (see note 5 above and warning on page 1).
	Indicates that the meter battery voltage has dropped excessively.		Caution, risk of electric shock.
uA,mA,A	Units for current measurements.	A.C.V.	A.C. Voltage ranges.
mV, V	Units for voltage measurements.	D.C.V.	D.C. Voltage ranges.
Ω, KΩ, MΩ	Units for resistance measurements.	D.C.A.	D.C. Current ranges.

OPERATION

WARNINGS:
Before you use the instrument, inspect the test leads, connectors and probes for damage e.g. cracks or breaks in the insulation. Replace any defective leads before use.

If the voltage to be measured is not known, set the selector switch to the highest range and reduce until a satisfactory reading is obtained.

D.C. Voltage Measurement
1. Connect the red test lead to the 'V/Ω/mA' Jack Socket and the black lead to the 'COM' Jack Socket.
2. Set the selector switch to the desired mV D.C./ D.C.V./ A.C.V. range.
3. Connect the test leads to the circuit to be measured.
4. Turn on the power to the circuit to be measured, the voltage value should appear on the digital display along with the voltage polarity (if reversed only).

A.C. Voltage Measurement
1. Connect the red test lead to the 'V/Ω/mA' Jack Socket and the black lead to the 'COM' Jack Socket.
2. Set the selector switch to the desired mV D.C./ D.C.V./ A.C.V. range.
3. Connect the test leads to the circuit to be measured.
4. Turn on the power to the circuit to be measured, the voltage value should appear on the digital display.

D.C. Current Measurement (Amps)
1. Connect the red test lead to the 'V/Ω/mA' Jack Socket and the black lead to the 'COM' Jack Socket (for measurements of up to 200mA). For measurements between 200mA and 10A connect the red test lead to the '10A' socket (Max.10A).
2. Set the selector switch to the desired uA/mA/A range.
3. Open the circuit to be measured and connect the test leads IN SERIES with the load in which current is to be measured.

OPERATION CONT...

Resistance Measurement

1. Connect red test lead to the 'V/Ω/mA' jack socket and the black lead to the 'com' jack socket.
2. Set the selector switch to the desired ohm (Ω).
3. WARNING: If the resistance to be measured is part of a circuit, turn off the power and discharge all capacitors before measurement.
4. Connect the test leads to the circuit to be measured.
5. The resistance value should now appear on the digital display.

Diode Measurement

1. Connect the red test lead to the 'V/Ω/mA' Jack Socket and the black lead to the 'com' jack socket'.
2. Set the selector switch to the  position.
3. Connect the test leads to the circuit to be measured.
4. Turn on the power to the circuit to be measured the voltage value should appear on the digital display. If the diode is reversed, '1' will be displayed on the display.

Transistor Measurement

1. Set the selector switch to the desired 'NPN' or 'PNP' hFE position.
2. Insert the leads into the correct holes of the hFE Socket on the fromt panel.
3. The meter will display the approximate hFE value at the condition of base current 10μA and VCE 2.8V.

Continuity Test

1. Connect the red test lead to the 'V/Ω/mA' jack socket and the black test lead to the 'com' jack socket.
2. Set the selector switch to the position.
3. Connect the test leads to two points of the circuit to be tested. If the resistance is lower than 100 ohms the buzzer will sound.

WARNING - If the resistance to be measured is part of a circuit, turn off power and discharge all capacitors before measurement.

DRAPER
THE TOOL COMPANY

NOTES

DRAPER
THE TOOL COMPANY

NOTES

NOTES

DRAPER TOOLS LIMITED,
Hursley Road, Chandler's Ford,
Eastleigh, Hants. SO53 1YF. England.
Tel: (023) 8026 6355.
Fax: (023) 8026 0784.


www.draper.co.uk
e-mail: sales@draper.co.uk

YOUR DRAPER STOCKIST