

DRAPER®

INSTRUCTIONS FOR

Digital AC/DC Clamp Meter

Stock No.04698 Part No.DCM1B

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



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GENERAL INFORMATION

These instructions accompanying the product are the original instructions. This document is part of the product, keep it for the life of the product passing it on to any subsequent holder of the product. Read all these instructions before assembling, operating or maintaining this product.

This manual has been compiled by Draper Tools describing the purpose for which the product has been designed, and contains all the necessary information to ensure its correct and safe use. By following all the general safety instructions contained in this manual, it will ensure both product and operator safety, together with longer life of the product itself.

All photographs and drawings in this manual are supplied by Draper Tools to help illustrate the operation of the product.

Whilst every effort has been made to ensure the accuracy of information contained in this manual, the Draper Tools policy of continuous improvement determines the right to make modifications without prior warning.

1. TITLE PAGE

1.1 INTRODUCTION:

USER MANUAL FOR:

DIGITAL AC/DC CLAMP METER

Stock no. 04698

Part no. DCM1B

1.2 REVISIONS:

Date first published May 2012

As our user manuals are continually updated, users should make sure that they use the very latest version.

Downloads are available from: <http://www.drapertools.com/b2c/b2cmanuals.pgm>

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1.3 UNDERSTANDING THIS MANUALS SAFETY CONTENT:

WARNING! Information that draws attention to the risk of injury or death.

CAUTION! Information that draws attention to the risk of damage to the product or surroundings.

1.4 COPYRIGHT © NOTICE:

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In all cases this copyright notice must remain intact.

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3. GUARANTEE

3.1 GUARANTEE

Draper tools have been carefully tested and inspected before shipment and are guaranteed to be free from defective materials and workmanship.

Should the tool develop a fault, please return the complete tool to your nearest distributor or contact Draper Tools Limited, Chandler's Ford, Eastleigh, Hampshire, SO53 1YF. England. Telephone: (023) 8026 6355.

A proof of purchase must be provided with the tool.

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 period covering parts/labour is 12 months from the date of purchase. This guarantee does not apply to normal wear and tear, nor does it cover any damage caused by misuse, careless or unsafe handling, alterations, accidents, or repairs attempted or made by any personnel other than the authorised Draper warranty repair agent.

Note: If the tool is found not to be within the terms of warranty, repairs and carriage charges will be quoted and made accordingly.

This guarantee applies in lieu of any other guarantee expressed or implied and variations of its terms are not authorised.

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 months period.

Please note that this guarantee is an additional benefit and does not affect your statutory rights.

4. INTRODUCTION

4.1 SCOPE

This digital AC/DC clamp meter has 17 position rotary function and range selector, recessed terminals for added safety, LCD screen and tough moulded plastic housing.

It is testing DC voltage, AC voltage, AC current, resistance, temperature, continuity, insulation testing (probe not supplied).

4.2 SPECIFICATION

Stock no 04698
Part no DCM1B
Battery Type 1x 9V PP3
Dimensions 237(H) x 100(W) x 45(D) mm
Weight (no leads) 310g

DC VOLTAGE: Input impedance $\geq 9M$. Overload protection 1000V $\overline{=}$

Range	Resolution	Accuracy
200mV	100 μ V	$\pm (0.8\% \text{ rdg} + 3 \text{ dgt})$
2V	1mV	
20V	10mV	
200V	100mV	
1000V	1V	$\pm (1.2\% \text{ rdg} + 5 \text{ dgt})$

AC VOLTAGE: Input impedance $\geq 9M$, 45-400Hz. Overload protection 750V $\sim/\overline{=}$

Range	Resolution	Accuracy
200V	100mV	$\pm (1.2\% \text{ rdg} + 5 \text{ dgts})$
750V	1V	$\pm (2.0\% \text{ rdg} + 5 \text{ dgts})$

AC CURRENT: Overload protection 1200A (within 60 seconds)

Range	Resolution	Accuracy
20A	10mA	$\pm (2.5\% \text{ rdg} + 8 \text{ dgts})$
200A	100mA	$\pm (2.5\% \text{ rdg} + 5 \text{ dgts})$
1000A	1A	$\pm (2.5\% \text{ rdg} + 5 \text{ dgts}) (\leq 800A)$
		If $> 800A$, the reading is only for reference.

4. INTRODUCTION

RESISTANCE: Overload protection 250V $\overline{\sim}$ /rms ~

Range	Resolution	Accuracy
200 Ω	100m Ω	\pm (1.2% rdg + 5 dgts)
20K Ω	10 Ω	\pm (1.0% rdg + 3 dgt)
2M Ω	1K Ω	\pm (1.5% rdg + 5 dgts)

TEMPERATURE: Sensor: Type K thermocouple.

Range	Resolution	Accuracy
0 to 400°C	1°C	\pm (1.0% rdg + 5 dgts)
400 to 750°C		\pm (2.0% rdg + 5 dgt)
32 to 752°F	1°F	\pm (1.0% rdg + 9 dgts)
752 to 1382°F		\pm (2.0% rdg + 9 dgts)

reading - accuracy of the measurement circuit.

digits - accuracy of the analogue to digital conversion.

WARNING: Ensure the test leads are fully engaged prior to carrying out any measurements to avoid electric shock.

4.3 HANDLING & STORAGE

Care must still be taken when handling this machine, dropping it will have an effect on the accuracy. This machine is not a toy and must be respected.

The environment will have a negative result on its operation if you are not careful. If the air is damp, components will rust. If the machine is unprotected from dust and debris; components will become clogged: And if not cleaned and maintained correctly or regularly the machine will not perform at its best.

5. HEALTH & SAFETY INFORMATION

5.1 SAFETY INFORMATION:

The following safety information must be observed to insure maximum personal safety during the operation of this meter.

- Do not use the meter if the meter or test leads look damaged, or if you suspect that the meter is not operating correctly.
- Never ground yourself when taking electrical measurements. Do not touch exposed metal pipes, outlets, fixtures, etc. which might be at ground potential. Keep your body isolated from ground by using dry clothing, rubber shoes, rubber mats, or any approved insulating material.
- Turn off power to the circuit under test before cutting, unsoldering, or breaking the circuit. Small amounts of current can be dangerous.
- Use caution when working above 60Volts DC or 30Volts AC, as these voltages pose a shock hazard.
- When using probes, keep your fingers behind the finger guards on the probes.
- Measuring voltage which exceeds the limits of the multimeter may damage the meter and expose the operator to a shock hazard. Always recognise the meter voltage as stated on the front of the meter.
- Never apply voltage or current to the meter that exceeds the specified maximum.
- Ensure the test probes are fully connected to the meter to avoid electric shock.

6. TECHNICAL DESCRIPTION









6.1 IDENTIFICATION



- ① Current clamp.
- ② Clamp trigger.
- ③ Function and range selector switch.
- ④ Liquid crystal display.
- ⑤ Data hold button.
- ⑥ COM jack socket. Plug in the black (negative) test lead.
- ⑦ V, Ω , $^{\circ}\text{C}$, (Voltage, Resistance, Temperature), jack socket. Plug in the red (positive) test lead.
- ⑧ EXT jack socket. From extension insulation resistance tester unit.

6. TECHNICAL DESCRIPTION

6.2 OTHER METER MARKINGS

	AC Voltage DC Voltage		Caution.
	Units of measuring current (AMPS).		Caution, risk of electric shock.
	Units of measuring voltage (VOLTS).		Audible continuity range.
	Units of measuring resistance (OHMS).		Indicates that the meter battery voltage has dropped excessively.

7. SETTING THE DIGITAL METER

WARNING: Each time you use this instrument, inspect the test leads, connectors and probes for damage, e.g. cracks or breaks in the insulation. Any defective leads should be replaced. If the voltage to be measured is not known and the meter is not autoranging, set the selector switch to the highest range and reduce until a satisfactory reading is obtained. Always ensure that the probe plugs are inserted fully into the multimeter.

WARNING: Risk of electrocution. High-voltage circuits, both AC and DC, are very dangerous and should be measured with great care.

1. ALWAYS turn the function switch to the OFF position when the meter is not in use.
2. If "OL" appears in the display during a measurement, the value exceeds the range you have selected. Change to a higher range.

NOTE: On some low AC and DC voltage ranges, with the test leads not connected to a device, the display may show a random, changing reading. This is normal and is caused by the input sensitivity. The reading will stabilise and give a proper measurement when connected to a circuit..

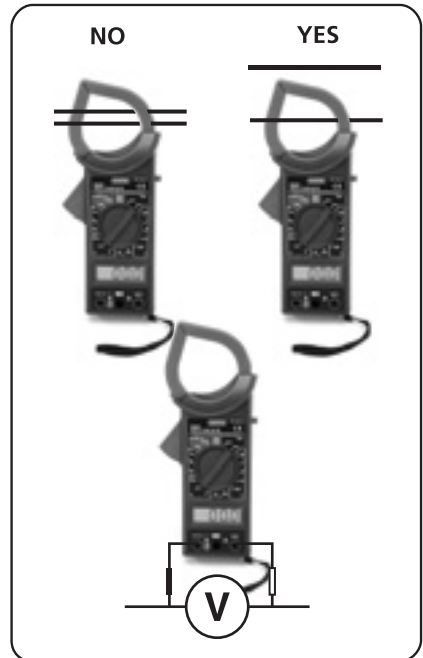
7.1 AC CURRENT MEASUREMENTS:

WARNING: Ensure that the test leads are disconnected from the meter before making current clamp measurements.

1. Set the function switch to the 1000A, 200A or 20A range. If the circuit range to be measured is not known, select the higher range first then move to the lower range if necessary.
2. Press the trigger to open jaw. Fully enclose one conductor to be measured.
3. The clamp meter LCD will display the reading.

7.2 AC/DC VOLTAGE MEASUREMENTS:

1. Insert the black test lead into the negative (COM) terminal and the red test lead into the positive (V) terminal.
2. Select AC or DC and the range with the selector switch.
3. If the range of the voltage measured is not known, select the higher range first then move to the lower range if necessary.
4. Connect the test leads in parallel to the circuit under test.
5. Read the voltage measurement on the LCD display.



7.3 DATA HOLD:

To freeze the LCD meter reading, press the data hold button. The data hold button is located on the right side of the meter. Press the data hold button again to return to normal operation.

7. SETTING THE DIGITAL METER

7.4 TEMPERATURE MEASUREMENTS

WARNING: To avoid electric shock, disconnect both test probes from any source of voltage before making a temperature measurement.

NOTE: To avoid possible damage to the meter or other equipment, remember that while the meter is rated for 0° C to +750°C and 32°F to 1382°F, the K Type Thermocouple provided with the meter is rated to 250°C. For temperatures out of that range, use a higher rated thermocouple.

The K Type Thermocouple provided with the meter is a present, it is not professional and can only be used for non-critical reference measurements. For accurate measurements, use a professional thermocouple.

1. Connect the K type thermocouple to the corresponding measurement socket.
2. Set the rotary switch to the desired temperature range.
3. Touch the K type thermocouple to the object to be measured.
4. Wait a while, read the temperature value displayed on the LCD.

7.5 FREQUENCY AND CONTINUITY MEASUREMENTS

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

1. insert the black test lead into the negative (COM) terminal and the red test lead into the positive terminal.
2. Set the function switch to the Ω ())) range position.
3. Touch the test probe tips across the circuit or component under test. It is best to disconnect one side of the device under test so the rest of the circuit will not interfere with the resistance reading.
4. For resistance test (Ω), read the resistance on the LCD display.
5. For continuity tests (Ω ())) , if the resistance is <200, a tone will sound.

8. BATTERY INSTALLATION

WARNING: To avoid electric shock, disconnect the test leads from any source of voltage before opening the casing.

1. Disconnect the test leads from the meter.
2. Open the casing by loosening the screw at the rear.
3. Open the casing gently, taking care not to damage the meter.
4. Insert the battery into the holder, observing the correct polarity.
5. Close and resecure the casing.

WARNING: To avoid electric shock, do not operate the meter until the casing is in place and fastened securely.

Note: If your meter does not function correctly, check the battery to ensure it is properly installed.

9. DISPOSAL

9.1 DISPOSAL

- At the end of the machine's working life, or when it can no longer be repaired, ensure that it is disposed of according to national regulations.
- Contact your local authority for details of collection schemes in your area.

In all circumstances:

- Do not dispose of power tools with domestic waste.
- Do not incinerate.
- Do not abandon in the environment.
- Do not dispose of WEEE* as unsorted municipal waste.



* Waste Electrical & Electronic Equipment.

10. EXPLANATION OF SYMBOLS

10.1 EXPLANATION OF SYMBOLS



WEEE

Do not dispose of Waste Electrical & Electronic
Equipment in with domestic rubbish

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- **Service/Warranty Repair Agent**

For aftersales servicing or warranty repairs, please contact the Draper Tools Helpline for details of an agent in your local area.

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