

CLAMPBOE®



PEN-TYPE DIGITAL MULTIMETER

MODEL NO: CDM80C

PART NO: 4501160

OPERATING INSTRUCTIONS

UK
CA | CE



DL0723

INTRODUCTION

Thank you for purchasing this CLARKE product.

This instrument is a professional, portable multimeter with an easy to read LCD display. It incorporates overload protection, low battery indication, with both auto-range and manual ranges available.

During use, the instrument automatically shows the value and unit of the measurement. The meter includes Data Hold and Max. Hold features and automatic power-off.

Before attempting to use this product, please read this manual thoroughly and follow the instructions carefully. In doing so you will ensure the safety of yourself and that of others around you, and you can look forward to your purchase giving you long and satisfactory service.

GUARANTEE

This product is guaranteed against faulty manufacture for a period of 12 months from the date of purchase. Please keep your receipt which will be required as proof of purchase.

This guarantee is invalid if the product is found to have been abused or tampered with in any way, or not used for the purpose for which it was intended.

Faulty goods should be returned to their place of purchase, no product can be returned to us without prior permission.

This guarantee does not effect your statutory rights.

ENVIRONMENTAL RECYCLING POLICY



Through purchase of this product, the customer is taking on the obligation to deal with the WEEE in accordance with the WEEE regulations in relation to the treatment, recycling & recovery and environmentally sound disposal of the WEEE.

In effect, this means that this product must not be disposed of with general household waste. It must be disposed of according to the laws governing Waste Electrical and Electronic Equipment (WEEE) at a recognised disposal facility.

SAFETY INFORMATION



WARNING: TAKE CARE WHEN USING THIS METER. IMPROPER USE CAN RESULT IN ELECTRIC SHOCK OR DAMAGE TO THE METER. TAKE ALL NORMAL SAFETY PRECAUTIONS AND FOLLOW THE SAFEGUARDS SUGGESTED IN THIS MANUAL.

BEFORE USE

1. When using the meter, the user must observe all normal safety rules concerning:
 - General protection against electric shock
 - Protection of the meter against misuse.
2. When the meter is delivered, confirm it has not been damaged in transit.
3. The test leads must be kept in good condition. Before using, check that the insulation on the test leads has not been damaged or any wire exposed.
4. Use only the test leads supplied to ensure operational safety. If necessary, they must be replaced with test leads of the same model or class.





DURING USE

1. Do not take measurements that exceed the maximum values for this meter.
2. Do not touch the metal probes of the test leads when the meter is connected to the circuit being measured.
3. Do not take voltage measurements if you suspect the value exceeds 600V.
4. If the appropriate value range is unknown, select the highest range on the scale.
5. Disconnect the test leads from the circuit under test before turning the rotary function selector.
6. Do not measure the resistance, diode or continuity of live circuits.
7. Do not connect the meter to any voltage source while the rotary selector is in the Current, Resistance, Diode or Continuity range.
8. Do not use the meter near explosive gases or steam.
9. Stop using the meter if any abnormalities or faults are observed.
10. Do not use the meter unless its battery cover is correctly fastened.
11. Do not store or use the meter in areas exposed to direct sunlight, at high temperature or with high relative humidity.

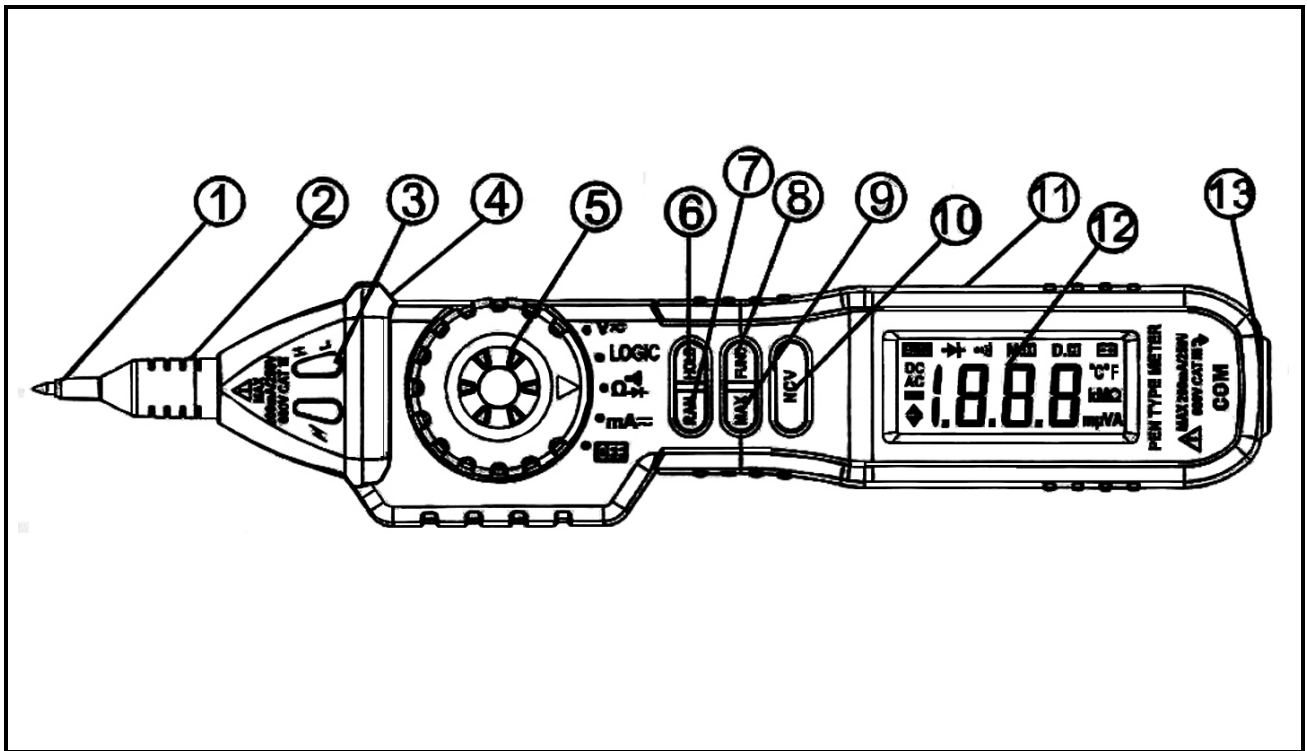
12. To avoid false readings, replace the batteries as soon as the Low Battery indicator appears.
13. Before use, verify the meter operation by measuring a known voltage.
14. Never touch exposed wiring, connections or any live circuit while taking any measurements.
15. Keep your body isolated from ground by using dry clothing, rubber shoes, rubber mats or any approved insulating material.

SAFETY SYMBOLS

Please read all of the safety and operating instructions carefully before using this product. The following safety symbols may be found on the product.

	General hazard warning		High voltage danger.
	Earth symbol		Class II insulation without earth conductor.

FEATURES



COMPONENTS OF THE METER

1	Positive test probe	8	Function Button
2	Probe cover (removable)	9	Max Hold Button
3	LED Indicators	10	Non-contact voltage button
4	Protective Shoulder	11	Panel
5	Rotary Switch	12	LCD Screen
6	Data Hold Button	13	COM jack
7	Range Button		

ITEMS SUPPLIED

- Multi-meter
- Black test lead & probe
- Pair crocodile clip extensions
- 2 x AAA batteries
- 1 x Belt pouch

BUTTONS AND FUNCTIONS

Button	Function	Description
HOLD	Any mode	Press to hold the current reading on the display. Hold the button while turning on the meter to turn off the auto power feature.
RANGE	V \approx Ω mA \approx	Switch ranges in manual range. Hold to return to auto range.
MAX	Any mode	Press to hold the maximum measured value on the display.
NCV	Any mode	Hold for non-contact voltage detection
FUNC	V~ Logic Ω \rightarrow \rightarrow \bullet $\))$ mA \approx	Switch between AC and DC voltage. Hold down for Logic level test. Switch between resistance, diode and continuity modes. Switch between AC and DC current.

ADDITIONAL FEATURES

Rotary switch	Selects between functions
Test probe	For V/ Ω / \rightarrow \rightarrow / \bullet $\))$ measurements
COM Jack	Common test lead input
LCD display	Shows results of measurements
LED indicator	In Logic mode, green indicates low level, red indicates high level
Probe cover	Used when making category III or higher measurements. Twist to remove if making category II or lower measurements.
Protection ring	Keep hands behind the protective shoulder and away from the probe tip to avoid injury.

SPECIFICATIONS

Model Number	CDM80C
Product Dimensions	222 x 44 x 30 mm
Weight (inc batteries)	130g
Test leads length (inc probe)	1000 mm
Fuse protection	400mA/600V
Power	2 x AAA batteries
Maximum display value	1999
Over-range indication	"1"
Polarity display	"-" for negative polarity
Detects and measures voltages	DCV 200m/2/20/200/600 \pm 0.7% ACV 200m, 2,20,200 \pm 0.8% 600 \pm 1.0%
Detects and measures resistance	Ohm 200 \pm 1.0% 2k,20k,200k, 2M \pm 1%, 20M \pm 1%
Detects and measures current	DC: 20mA, 200mA \pm 1.5% AC: 20mA, 200mA \pm 2.0%
Operating temperature	0 - 40°C
Storage temperature	-10°C to 50°C

OPERATION

Before taking the measurement of voltage with the probe, make sure there is no electronic device connected to the test socket of the instrument.

DC VOLTAGE MEASUREMENT

Range	Resolution	Accuracy
200mV	0.1mV	± 0.7% of reading, ± 2 digits
2V	0.001V	
20V	0.01V	
200V	0.1V	
600V	1V	

Input impedance: 10MΩ

Overload protection: 200mV range: 250V DC or AC rms 2 V-600V ranges: 600V DC or AC rms

Max. input voltage: 600V DC

AC VOLTAGE MEASUREMENT

Range	Resolution	Accuracy
200mV	0.1mV	± 0.8% of reading, ± 3 digits
2V	0.001V	
20V	0.01V	
200V	0.1V	
600V	1V	± 1.0% of reading, ± 3 digits

Input impedance: 10MΩ

Overload protection: 200mV range: 250V DC or AC rms 2V-600V ranges: 600V DC or AC rms

Frequency range: 40-400Hz

Response: average (rms of sine wave)

Max. input voltage: 600V AC rms


RESISTANCE

Range	Resolution	Accuracy
200 Ω	0.1 Ω	$\pm 1.0\%$ of reading, ± 3 digits
2k Ω	0.001 Ω	$\pm 1.0\%$ of reading, ± 1 digits
20k Ω	0.01 Ω	
200k Ω	0.1 Ω	
2M Ω	0.001M Ω	
20M Ω	0.01M Ω	$\pm 1.0\%$ of reading, ± 5 digits

Open circuit voltage: 250mV

Overload protection: 250V DC or AC rms

CONTINUITY

Function	Description
	The built-in buzzer sounds when the resistance is less than 50 Ω

Open circuit voltage: approximately 500mV

Overload protection; 250V or AC rms

DIODE TEST

Range	Description	
	0.001V	Displays approx forward-biased voltage

Forward DC current: approximately 1mA

Reverse DC voltage: approximately 1.5V

Overload protection: 250V or AC rms

DC CURRENT MEASUREMENT

Measuring Range	Resolution	Accuracy
20mA	0.01mA	$\pm 1.5\%$ of reading, ± 3 digits
200mA	0.1mA	

Overload protection: re-settable fuse.

AC CURRENT MEASUREMENT

Measuring Range	Resolution	Accuracy
20mA	0.01mA	± 2% of reading, ± 3 digits
200mA	0.1mA	

Overload protection: re-settable fuse

Frequency range: 40Hz to 200Hz

Response: average (rms of sine wave).

LOGIC TEST

Function	Description
Logic	

Input impedance: 1MΩ

Overload protection: 250V or AC rms

USING THE METER

READING HOLD

1. During measurement, press the "**HOLD**" button to keep the current reading on the display. "**D.H**" will appear on the display. Press the "**HOLD**" again to return to normal display.

MAX HOLD

1. During measurement, press the "**MAX**" button and the display will show the maximum value recorded. "**M.H**" will appear on the display. Press "**MAX**" again to return to normal display.

FUNCTION BUTTON

1. In voltage/current modes, press the "**FUNC**" button to switch between AC/DC. At the resistance/diode/continuity position, press "**FUNC**" to switch between these modes.

MANUAL RANGE


1. In voltage/current/resistance modes, the default range is "**AUTO**". Press the "**RAN**" button to switch to manual range. Each press of the button increases the range, and returns to the lowest range once pressed in the highest range. Hold down the "**RAN**" to return to auto range.

AUTO POWER OFF

1. The meter has an auto power off feature that will turn the meter off automatically if left on. After approx. 14 minutes of non-use, the meter will sound 5 short beeps and then 1 minute later the meter will sound 1 long beep and turn itself off.
2. After auto power off has occurred, either move the rotary switch or press the "**FUNC**", "**MAX**" or "**RAN**" buttons to turn the meter back on.
3. In you hold down the "**HOLD**" button when turning on the meter, this will disable the auto power off function. The auto power off function will re-enable after the meter is turned off again.

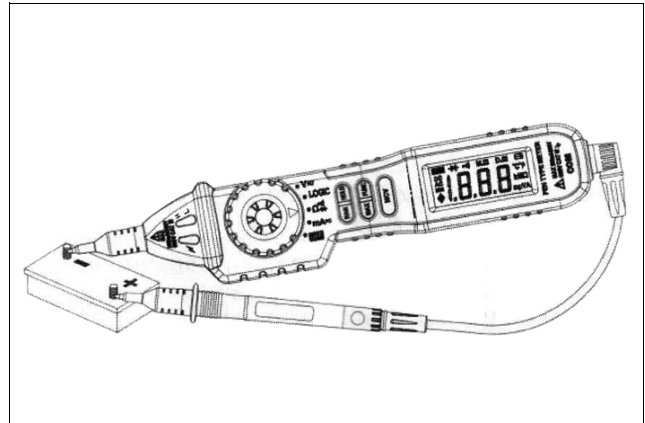
PREPARING FOR MEASUREMENT

1. Select the desired function using the rotary switch. If in manual mode, select the highest range first if the value to be measured is unknown beforehand and then lower as needed.

2. When connecting the meter to a circuit, connect the common lead first, then the meter's test probe.
3. If the battery voltage becomes $<2.4V$, the  symbol appears on the display. Replace the batteries before making measurements.

DC VOLTAGE

1. Use the probe cover if making measurements on category III or above installations.
2. Insert the black test lead into the "COM" jack.
3. Turn the rotary switch to the $V \approx$ position.
4. The default mode is DC voltage. Press the "RAN" to switch the manual range if needed.
5. Connect the test probe and test lead across the voltage source or load measurement.
 - The display will show the measured value. Observe the polarity of the test probe for DC voltage measurements.



WARNING: TO PREVENT ELECTRIC SHOCK AND DAMAGE TO THE METER OR PERSONAL INJURY, DO NOT MEASURE VOLTAGES THAT MAY EXCEED 600VDC.

NOTE: Before connecting the probe and test lead at lower voltage ranges, the display may show erratic readings. This is normal because the meter is highly sensitive. Once a connection is made, the true reading will be displayed.

NOTE: OL indicated an over range situation in manual mode. A higher range should be selected.

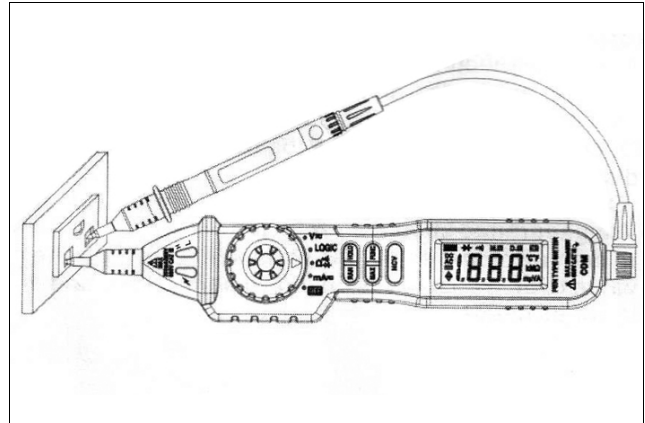
NOTE: In manual mode, select the highest range first if the value to be measured is unknown beforehand and lower as needed.

AC VOLTAGE



WARNING: TO PREVENT ELECTRIC SHOCK AND DAMAGE TO THE METER OR PERSONAL INJURY, DO NOT MEASURE VOLTAGES THAT MAY EXCEED 600V AC RMS.

1. Use the probe cover if making measurements on category III or above installations.
2. Insert the black test lead into the "COM" jack.
3. Turn the rotary switch to the $V \approx$ position.
4. The default mode is DC voltage. Press the "FUNC" to switch to AC voltage. Press "RAN" to select manual range if needed.
5. Connect the test probe and test lead across the voltage source or load measurement.
 - The display will show the measured value.



NOTE: Before connecting the probe and test lead at lower voltage ranges, the display may show erratic readings. This is normal because the meter is highly sensitive. Once a connection is made, the true reading will be displayed.

NOTE: OL indicated an over range situation in manual mode. A higher range should be selected.

NOTE: In manual mode, select the highest range first if the value to be measured is unknown beforehand and lower as needed.

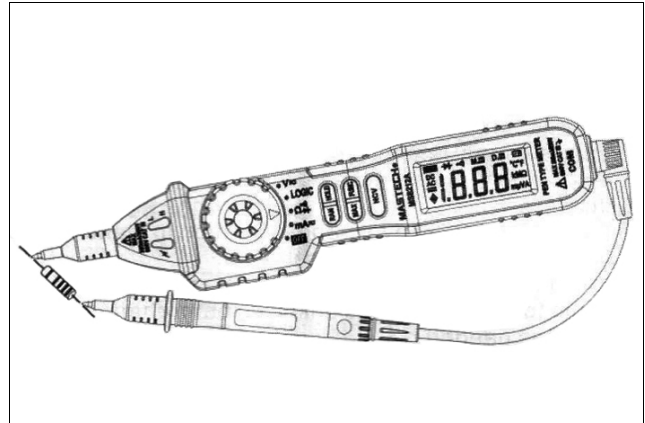
NOTE: Millivolt range is only available in manual range mode.

RESISTANCE



WARNING: TO PREVENT ELECTRIC SHOCK BE SURE ALL POWER TO THE CIRCUIT IS OFF AND ANY CAPACITORS HAVE FULLY DISCHARGED BEFORE MEASURING RESISTANCE.

1. Use the probe cover if making measurements on category III or above installations.
2. Insert the black test lead into the "COM" jack.
3. Turn the rotary switch to the Ω position.
4. Press "RAN" to switch to manual range if needed.



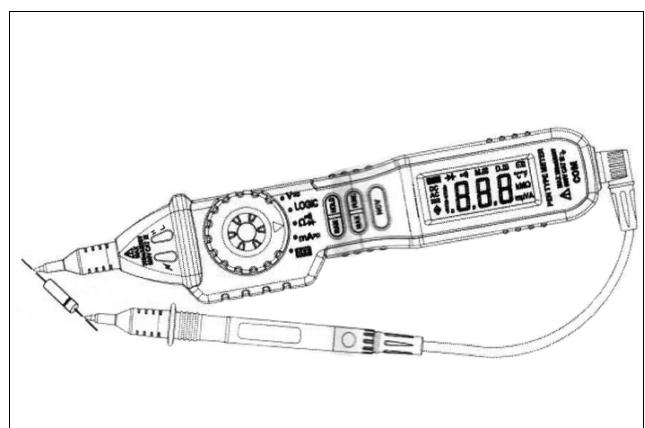
5. Connect the test probe and test lead across the resistance for measurement.
 - The display will show the measured value.

NOTE: OL indicated an over-range situation in manual mode. A higher range should be selected.

NOTE: If the resistance is greater than 1Ω , the meter may take few seconds to get a stable reading. This is normal for high resistance measurements. When the leads are not connected or when measuring an open circuit, the display will read "O.L".

DIODE TEST

1. Use the probe cover if making measurements on category III or above installations.
2. Insert the black test lead into the "COM" jack.
3. Turn the rotary switch to the position.
4. The default mode is resistance. Press "FUNC" to switch to diode test.



5. Connect the test probe to the anode (+) and the test lead to the cathode (-) of the diode.

- The display will show the measured value.

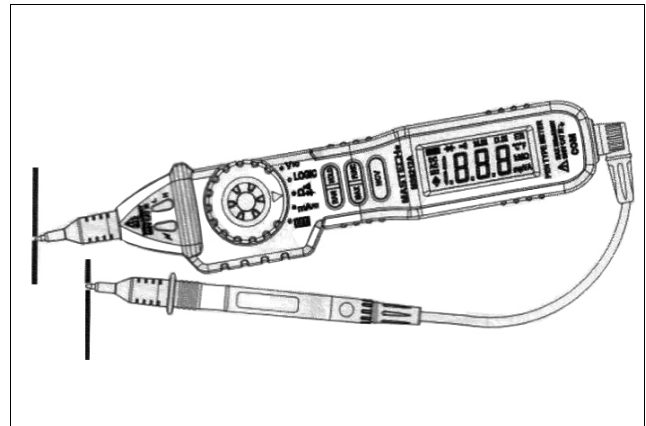
NOTE: The display shows the approx. forward voltage drop. If the connections are reversed or the leads are not connected, the display will show “O.L”.

CONTINUITY



WARNING: TO PREVENT ELECTRIC SHOCK BE SURE ALL POWER TO THE CIRCUIT IS OFF AND ANY CAPACITORS HAVE FULLY DISCHARGED BEFORE MEASURING CONTINUITY.

1. Use the probe cover if making measurements on category III or above installations.
2. Insert the black test lead into the “COM” jack.
3. Turn the rotary switch to the position.
4. The default mode is resistance. Press “FUNC” to switch to continuity.



5. Connect the test probe and the test lead across the circuit for measurement.
 - If the measured resistance is less than 50Ω, the buzzer will sound.

NOTE: If the leads are not connected or the resistance is higher than 200Ω, the display will show “O.L”.

DC CURRENT



WARNING: RISK OF ELECTRIC SHOCK. NEVER MEASURE CURRENT WHERE OPEN CIRCUIT VOLTAGES EXCEED 250V TO PREVENT DAMAGE TO THE METER OR PERSONAL INJURY

1. Use the probe cover if making measurements on category III or above installations.
2. Insert the black test lead into the “COM” jack.
3. Turn the rotary switch to the “mA ≈ ” position.


4. The default mode is DC current. Press "**RAN**" to switch to manual range if needed.
5. Connect the test probe and test lead in series with the circuit under measurement.
 - The display will show the measured value. Observe the polarity of the test probe for DC Current measurements.

NOTE: "**O.L**" indicated an over-range situation in manual mode. A higher range should be selected.

AC CURRENT



WARNING: RISK OF ELECTRIC SHOCK. NEVER MEASURE CURRENT WHERE OPEN CIRCUIT VOLTAGES EXCEED 250V TO PREVENT DAMAGE TO THE METER OR PERSONAL INJURY

1. Use the probe cover if making measurements on category III or above installations.
2. Insert the black test lead into the "**COM**" jack.
3. Turn the rotary switch to the "**mA** 
" position.4. The default mode is DC current. Press "**FUNC**" to switch to AC Current. Press **RAN** to switch to manual range if needed.
5. Connect the test probe and test lead in series with the circuit under measurement.
6. The display will show the measured value. Observe the polarity of the test probe for AC Current measurements.

NOTE: "**O.L**" indicated an over-range situation in manual mode. A higher range should be selected.

LOGIC TEST



WARNING: TO PREVENT ELECTRIC SHOCK AND DAMAGE TO THE METER OR PERSONAL INJURY, DO NOT MEASURE VOLTAGES THAT MAY EXCEED 100V AC RMS.

1. Use the probe cover if making measurements on category III or above installations.
2. Insert the black test lead into the "**COM**" jack.
3. Turn the rotary switch to the "**LOGIC**" position.

4. Connect the black test lead to the circuit's earth (-) terminal.
5. Hold down the **"FUNC"** button and touch the test probe to the circuit for measurement. The LEDs near the tip of the meter will indicate the current logic level (red indicates "high" level or "1" and green indicates "low" level or "0").
6. The display will also show the logic level along with the voltage measured ("▲" representing "high" level and "▼" representing "low" level).


NOTE: If the leads are disconnected or the voltage measured is less than 1.5V the LED will be green.

NOTE: "FUNC" button must be held down during logic testing.

NON-CONTACT VOLTAGE (NCV)

1. With the rotary switch in any position except OFF, hold down the **"NCV"** button.
2. Move the tip of the meter near the voltage source or conductor. If the voltage detected is greater than 110VAC, the buzzer will beep and the NCV indicator near the tip of the meter will flash.

NOTE: Voltage may still exist even with no indication given off by the meter. Do not solely rely on NCV detection to determine the presence of voltage. Socket design, insulation thickness and other factors may affect readings.

NOTE: The NCV indicator LED  may flash while measuring DC/AC voltage due to the presence of induced voltage. External environmental interference from additional sources can falsely trigger NCV detection.

MAINTENANCE

GENERAL CARE



WARNING: BEFORE REMOVING THE REAR COVER, DISCONNECT THE PROBES FROM THE CIRCUIT TO BE MEASURED. ENSURE THE COVER IS TIGHTLY SECURED BEFORE USING THE INSTRUMENT.


Always move the rotary switch to the OFF position when the meter is not in use.

Clean the housing of the instrument only with a wet rag dripped with little detergent but never chemical solution.

In case of any abnormality, stop using the meter and send it for maintenance. Repairs should only be carried out by trained personnel. Always remove test leads from measuring circuits before opening the battery cover.

Remove the batteries if the meter is not to be used for an extended period of time.

REPLACEMENT OF BATTERY AND FUSE

1. If the  symbol appears on the LCD it indicates that the batteries should be replaced. Undo the screw on the back of the meter to open the case. The batteries for this multimeter are AAA and the replacements should be of the same specification.
2. Don't put the instrument into use until the rear cover is screwed on after replacing batteries.

DECLARATION OF CONFORMITY





 Hemmell Street, Epping, Essex, CM16 4LG

DECLARATION OF CONFORMITY

This is an important document and should be retained.

We hereby declare that this product(s) complies with the following legislation:

- The Batteries and Accumulators (Placing on the Market) Regulations 2008*
- The Electromagnetic Compatibility Regulations 2016*
- The Electrical Equipment (Safety) Regulations 2016*
- The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012*

The following standards have been applied to the product(s):

IEC 62321-1:2013, IEC 62321-2:2013, IEC 62321-3-1:2013, IEC 62321-4:2013+A1:2017,
 IEC 62321-5:2013, IEC 62321-6:2015, IEC 62321-7-1:2015, IEC 62321-7-2:2017, IEC 62321-8:2017,
 ISO 17075-1:2017, EN 61010-1:2010+A1:2019, EN 61010-2-030:2010, EN 61010-2-033:2012,
 EN IEC 61326-1:2021, EN IEC 61326-2-2:2021, EN 61010-031:2015


The technical documentation required to demonstrate that the product(s) meet(s) the requirement(s) of the aforementioned legislation has been compiled and is available for inspection by the relevant enforcement authorities.


The UKCA mark was first applied in: 2023

Product Description: Multimeter
 Model Number(s): CDM80C
 Serial/Batch Number: Refer to product/packaging label
 Date of Issue: 26/07/2023

Signed: 
 J.A Clarke
 Director

CDM80C UKCA Clarke DOC 072823 Page 1 of 1





 Fitzwilliam Hall, Fitzwilliam Place, Dublin 2

DECLARATION OF CONFORMITY

This is an important document and should be retained.

We hereby declare that this product(s) complies with the following legislation:

- 2006/66/EC Battery Directive*
- 2014/30/EU Electromagnetic Compatibility Directive*
- 2014/35/EU Low Voltage Directive*
- 2011/65/EU Restriction of Hazardous Substances (RoHS) Directive*


The following standards have been applied to the product(s):

IEC 62321-1:2013, IEC 62321-2:2013, IEC 62321-3-1:2013, IEC 62321-4:2013+A1:2017,
 IEC 62321-5:2013, IEC 62321-6:2015, IEC 62321-7-1:2015, IEC 62321-7-2:2017, IEC 62321-8:2017,
 ISO 17075-1:2017, EN 61010-1:2010+A1:2019, EN 61010-2-030:2010, EN 61010-2-033:2012,
 EN IEC 61326-1:2021, EN IEC 61326-2-2:2021, EN 61010-031:2015

The technical documentation required to demonstrate that the product(s) meet(s) the requirement(s) of the aforementioned legislation has been compiled and is available for inspection by the relevant enforcement authorities.

The CE mark was first applied in: 2013

Product Description: Multimeter
 Model Number(s): CDM80C
 Serial/Batch Number: Refer to product/packaging label
 Date of Issue: 26/07/2023

Signed: 
 J.A Clarke
 Director

CDM80C CE Clarke DOC 072823 Page 1 of 1

A SELECTION FROM THE VAST RANGE OF

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