

CLARKE®



DIGITAL MULTIMETER

MODEL NO: CDM35C

PART NO: 4501150

OPERATING INSTRUCTIONS



GC0415

INTRODUCTION

Thank you for purchasing this CLARKE product.

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

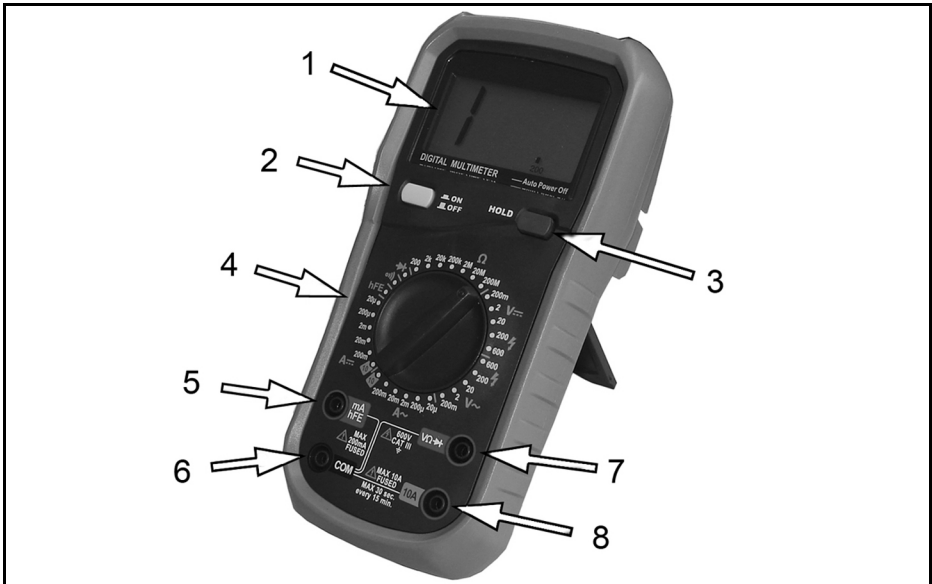
1. Do not take measurements that exceed the maximum values for this meter.
2. Do not touch the metal probes of the test leads when the meter is connected to the circuit being measured.
3. Keep your fingers behind the probe barriers when taking measurements.
4. Do not take voltage measurements if you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


12. Do not store or use the meter in areas exposed to direct sunlight, at high temperature or with high relative humidity.
13. To avoid false readings, replace the batteries as soon as the Low Battery indicator appears.
14. Before use, verify the meter operation by measuring a known voltage.
15. Never touch exposed wiring, connections or any live circuit while taking any measurements.
16. Keep your body isolated from ground by using dry clothing, rubber shoes, rubber mats or any approved insulating material.

SPECIFICATIONS

Product dimensions: (D x W x H)	56 x 94 x 196 mm
Weight (inc battery)	500 g
Test leads length (inc probes)	1000 mm
Max voltage between input & earth	600V
Fuses	F1 400mA/600V F2 10A/600V
Power	9V battery
Maximum display value	1999
Over-range indication	"1"
Polarity display	"-" for negative polarity
Detects and measures voltages	DCV 200m/2/20/200 ± 0.5%, 600±0.8% ACV 200m ± 1.2% 2/20/200 ± 0.8%, 600 ± 1.2%
Detects and measures resistance	Ohm 200ohm ± 0.8%, 2k/20k/ 200k/ 2M ± 8%, 20M ± 1%, 200M ± 6%
Detects and measures current	DCA 2μ, 20m± 8%, 200μ± 1.5%, 10± 2% ACA 20μ ± 1%, 200μ± 1.8%, 10± 3%
Detects and measures frequency	Hz 20k ± 2%
Operating temperature	0-40°C
Storage temperature	0°C to 60°C
Auto power-off time	20 min

FEATURES OF THE METER



	Feature	Description/Use
1	Display	Digital LCD
2	Power Button	Power ON/OFF.
3	Data Hold Button	Press the HOLD button. The LCD will hold the last reading measured and display the H symbol. When the button is released, the meter will return to normal.
4	Rotary Switch	Selects different functions and range
		The four input sockets are used as follows:
5	mA hFE	Positive input socket for current, mA, capacitance and diode tests (connected via black test probe or used as a dedicated multifunction test socket)
6	COM	All common inputs to be measured are connected via the black test probe or used as a dedicated multifunction test socket.
7	V.Ω 	Positive input socket voltage, resistance, frequency, diode and buzzer measurement (connected using red test probe)
8	10A	Positive input end of 10A (connected using red test probe)

MEASUREMENT FEATURES OF THE METER






- Alternating voltage measurement:- $V\sim$
- Direct voltage measurement:- $V=$
- Alternating current measurement:- $A\sim$
- Direct current measurement:- $A=$
- Resistance measurement:- Ω
- Diode measurement:- $\rightarrow|+$
- Continuity:- $\bullet||)$
- Frequency measurement:- Hz
- Transistor gain:- hFE

ITEMS SUPPLIED

- Multi-meter c/w polymer holder & fold-out stand
- Pair of test lead/probes (1 red/1 black)
- 9-volt battery

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 with danger.
	Earth		Class II wiring without earth conductor.
	Possibility of high voltage		

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.

PREPARATION

1. Switch on the power by turning the rotary switch. If the battery voltage is lower than 7V, the " " symbol will appear and the battery should be replaced.
 - The " " symbol next to the input lead shows that the input voltage or current should not exceed the specified value in order to protect the internal circuit from damage.
2. Turn the rotary switch to the required function and range to be measured.
3. Choose the highest range when the value to be measured is unknown.
 - When making a connection, connect the common test lead first and then the powered test lead.
4. Remove the positive test lead first when disconnecting.


READING HOLD

1. Press "**HOLD**" button to hold the readings of current measurement.
2. Press the "**HOLD**" button again to release the hold.

DC/AC VOLTAGE MEASUREMENT



WARNING: USE CAUTION WHEN MEASUREING HIGH VOLTAGE CIRCUITS TO AVOID ELECTRICAL SHOCK AND INJURY. DO NOT TEST VOLTAGES HIGHER THAN 600V DC/600V AC

1. Plug the black test lead into the "**COM**" jack and the red test lead into the "**VTemp**  **Hz**" jack.
2. Set the rotary switch to the "**V--**" position for DC measurement and "**V~**" for AC measurement and at the proper range.
3. Connect the test leads to the voltage source or load for measurement.
4. Read the value on the main indicator of the LCD. The polarity symbol denotes the polarity of the end connected by the red test lead.

NOTE: At small voltage ranges, unsteady readings will appear before the test leads make contact with the circuit. This is normal the meter is highly sensitive. When the test leads are connected to the circuit, the true reading will be shown.

NOTE: When "1" is shown on the LCD, it means the measurement has exceeded the allowable range. A higher range should be selected.

NOTE: When the scale of the value to be measured is unknown, select the highest range first and lower the range accordingly.

DC/AC CURRENT MEASUREMENT



WARNING: USE CAUTION WHEN MEASURING HIGH VOLTAGE CIRCUITS TO AVOID ELECTRICAL SHOCK AND INJURY. DO NOT TEST VOLTAGES HIGHER THAN 600V DC/AC. TO AVOID ELECTRICAL SHOCK AND INJURY POWER OFF THE CIRCUIT AND DISCHARGE THE CAPACITANCE BEFORE MEASURING CURRENT.

1. Plug the black test lead into the "COM" jack.
2. When the current to be measured is under 200mA, plug the red test lead into the "mA" jack; when the current to be measured is over 200mA but under 10A, plug the red test lead into the "10A" jack.
3. Set the rotary switch to the "A-" position for DC measurement and "A~" for AC measurement and at the proper range.
4. Connect the test leads to the circuit.
5. Read the value on the display.
6. The polarity symbol denotes the polarity of the red test lead.
 - The polarity symbol denotes the polarity of the red test lead.

NOTE: When '1' is shown on the LCD, it means the measurement has exceeded the allowable range; a higher range should be selected.

NOTE: When the scale of the value to be measured is unknown, select the highest range first and then lower the range accordingly.

NOTE: "⚠" indicates the maximum current of the mA jack is 200mA and the maximum current of the 10A jack is 10A. At either jack, current exceeding the limit will blow the fuse.

RESISTANCE MEASUREMENT



WARNING: TO AVOID ELECTRICAL SHOCK AND INJURY POWER OFF THE CIRCUIT AND DISCHARGE THE CAPACITANCE BEFORE MEASURING RESISTANCE.

Plug the black test lead into the "COM" jack and the red test lead into the "V Ω Hz" jack.

2. Set the rotary switch to the "**hFE**" position and at the correct range.
3. Determine if the transistor to be tested is either and NPN or PNP type, then insert the three pins of the transistor into the corresponding holes of the multifunction socket.
4. Read the approximate transistor gain on the LCD.

TECHNICAL SPECIFICATIONS

DC VOLTAGE

Range	Resolution	Accuracy
200mV	0.1 μ V	\pm 0.5% of reading, + 2 digits
2V	1mV	
20V	10mV	
200V	100mV	
600V	1V	\pm 0.8% of reading, + 2 digits

- Max input voltage: 250V DC at 200mV range, 600V DC elsewhere.
- Input impedance: 10M Ω .

NOTE: At small voltage ranges, unsteady readings will appear before the test leads make contact with the circuit. This is normal since the meter is highly sensitive. When the test leads connect to the circuit, the true reading will be shown.

AC VOLTAGE

Range	Resolution	Accuracy
200mV	0.1mV	\pm 1.2% of reading, + 3 digits
2V	1mV	\pm 0.8% of reading, + 3 digits
20V	10mV	
200V	100mV	
600V	1V	\pm 1.2% of reading, + 3 digits

- Max input voltage: 250V AC at 200mV range, 600V AC elsewhere.
- Input impedance: 10M Ω .
- Frequency response: 200Hz at 600V range, 40-400Hz
- Response: Average (RMS of sine wave)

NOTE: At small voltage ranges, unsteady readings will appear before the test leads make contact with the circuit. This is normal since the meter is highly sensitive. When the test leads connect to the circuit, the true reading will be shown.

DC CURRENT

Range	Resolution	Accuracy
20 μ A	0.01 μ A	\pm 2.0% of reading, + 5 digits
200 μ A	0.1 μ A	\pm 0.8% of reading, +1 digit
2mA	1 μ A	
20mA	10 μ A	
200mA	100 μ A	\pm 1.5% of reading, +1 digit
10A	10mA	\pm 2% of reading, + 5 digits

- Overload protection: F1 400mA/600V Fuse F2 10A/600V
- 10A range: F2, 10A/600V fuse (quick acting).
- Max input current:
- mA jack (mA range): 200 mA
- 10A jack: 10A

AC CURRENT

Range	Resolution	Accuracy
20 μ A	0.01 μ A	\pm 2% of reading, + 5 digits
200 μ A	0.1 μ A	\pm 1% of reading, + 5 digits
2mA	1 μ A	
20mA	10 μ A	
200mA	0.1mA	\pm 1.8% of reading, + 5 digits
10A mA	10mA	\pm 3% of reading, + 7 digits


- Overload protection: mA ranges: reset table fuse F1, 400mA/600V dc
- 10A range: F2, 10 A/600V fuse
- Max input current: mA jack (mA range) 200mA
- 10A jack: 10A
- Frequency range: 40Hz to 400Hz
- Display: Average (RMS of sine wave)

RESISTANCE


Range	Resolution	Accuracy
200Ω	0.1Ω	± 0.8% of reading, + 3 digits
2kΩ	1Ω	± 0.8% of reading, + 2 digits
20kΩ	10Ω	
200kΩ	100Ω	
2MΩ	1kΩ	
20MΩ	10kΩ	± 1.0% of reading, + 2 digits
200MΩ	100kΩ	± 6.0% of reading, +10 digits

- Overload protection: 250V DC/AC Open circuit voltage: DC ≈ 2.8V.

DIODE TEST

	Resolution	Function
	1mV	Displaying approximate forward voltage of diode

CONTINUITY TEST

	Function
	Built-in buzzer will sound if resistance is lower than 50Ω

TRANSISTOR

Range	Resolution	Accuracy
hFE	1hFE approximation (0-1000)	Base current 10μA Vce is about DC 2.8V

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.

Never use the meter unless the rear cover is secure.

Clean the housing of the meter only with a damp cloth dipped in a little detergent but never chemical solution.

In case of any abnormality, stop using the meter and send it for repair.

REPLACING THE BATTERY

1. Turn off the meter.
2. Unscrew the battery cover and remove.
3. Remove the battery and replace with a new one.
4. Clip the battery compartment to the casing and tighten the screw.

REPLACING FUSES

Fuses rarely need replacement. Almost all fuse blows are the result of operator error. Fuses should be replaced by your Clarke Service Department using the type(s) stated on page 4.

TEST LEAD REPLACEMENT



WARNING: REPLACE THE TEST LEADS WITH IDENTICAL OR COMPATIBLE LEADS. LEAD SPEC: 1000V 10A

Replace the leads if they become damaged.

DECLARATION OF CONFORMITY



Clarke[®]
INTERNATIONAL

Hemndall 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 directive(s):

2004/108/EC *Electromagnetic Compatibility Directive.*

2006/95/EC *Low Voltage Equipment Directive.*

2011/65/EU *Restriction of Hazardous substances.*

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

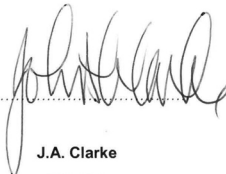
EN 61010-1:2010, EN 61010-2-030:2010, EN 61326-1:2006, EN 61326-2-2:2006

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

The CE mark was first applied in: 2012

Product Description: Digital multimeter(s)
Model number(s): CDM10C, CDM15C, CDM35C, CDM45C
Serial / batch Number: N/A
Date of Issue: 05/02/2015

Signed:



J.A. Clarke
Director

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