

DRAPER

EN

Original Instructions
Version 1 - August 2024

POCKET **DIGITAL MULTIMETER**

02590



**UK
CA** **CE**

1.1 Product Reference

User Manual for: Pocket Digital Multimeter

Stock No: 02590

Part No: DMM100

1.2 Revisions

Version 1: August 2024 – First release

Read this manual in full before using this product and retain it for future use. Always use the latest version of the manual. Please visit [drapertools.com/manuals](https://www.drapertools.com/manuals) for the latest version.

2. Intended Use

This compact meter is designed to measure AC/DC voltage, AC/DC current, resistance, diode and continuity.

Any other application beyond the conditions established for use will be considered misuse. Draper Tools accepts no responsibility for improper use of this product.

2.1 Specification

Stock No.	02590
Part No.	DMM100
Multimeter Rating:	CAT III, 300V
Dimensions:	L 115 X W 56 x H 23mm
Batteries Required:	2 x LR44/1.5V button cell (not supplied)
Fuse Protection:	F250mAH 300V
Overload Protection:	300V DC/AC rms
Weight (approx.):	100g
IP Rating:	IP20
Operating Temperature:	0°C to 40°C
Storage Temperature:	-10°C to 50°C
Humidity:	<85%

Range Selection	Range	Resolution	Accuracy
DC Voltage	200mV	0.1mV	+/- 0.8% reading +/-5 digits
Input impedance: 10MΩ	2V	0.001V	
	20V	0.01V	
	200V	0.1V	
	300V	1V	
AC Voltage	2V	0.001V	+/- 1% reading +/-5 digits
Input impedance: 10MΩ	20V	0.01V	
Frequency range	200V	0.1V	+/- 1.2% reading +/-5 digits
40 – 400Hz	300V	1V	
DC Current	20mA	0.01mA	+/- 1.2% reading +/-5 digits
	200mA	0.1mA	
AC Current	20mA	0.01mA	+/- 1.5% reading +/-5 digits
Frequency range 40 – 400Hz	200mA	0.1mA	
Resistance	200Ω	0.1Ω	+/- 1.2% reading +/-5 digits
	2kΩ	0.001kΩ	
	20kΩ	0.01kΩ	+/- 1% reading +/-5 digits
	200kΩ	0.1kΩ	
	2MΩ	0.001MΩ	+/- 1.2% reading +/-5 digits
	20MΩ	0.01MΩ	
Diode	Approx. forward voltage drop of the diode displayed. Open circuit voltage about 1.5V		
Continuity	Open circuit voltage about 0.5V The buzzer will sound if resistance is <30Ω and will not sound if >100Ω.		

Important: Read all the Health and Safety instructions before attempting to use this product. Failure to follow these instructions may result in serious injury or death.

 **CAUTION! Contact with live circuits can result in severe electrical shock.**

- **Take care not to touch the exposed contacts as they may give a serious electric shock.**
- **Use caution when working with voltage above 60V DC, 30V AC RMS or 42V peak.**
- **DO NOT measure voltage above 300V DC or AC (RMS).**
- **DO NOT apply voltages to the probe while measuring current, diodes or continuity.**
- **ONLY** trained and competent personnel may operate this device.
- Use this product **ONLY** as instructed in this manual.
- **ALWAYS** connect the black test lead before connecting the red test lead and disconnect the red test lead first.
- Use **ONLY** accessories and spare parts supplied by Draper Tools.
 - If the fuse must be replaced, use an identical item with the same specification.
 - If the battery must be replaced, use ones with the same specification.
- Observe all standard precautions and good practice when working with live electrical currents.
- Inspect the product for damage before every use, particularly the contact tips.
- **DO NOT** use this product if the device, case or probe leads are damaged in any way or if there is evidence of battery leakage. Contact Draper Tools for replacement options if the leads become damaged.
 - If battery acid comes into contact with your skin, wash it off immediately with plenty of clean water.
 - If battery acid comes into contact with your eyes, flush them with plenty of clean water and seek immediate medical attention.
- Ensure that the device is clean, dry and free from grease before use.
- Ensure that the function dial is in the correct position before switching on the device.
- **DO NOT** use this product if it exhibits abnormal behaviour and have it checked by a qualified and authorised technician before next use.
- **DO NOT** exceed the maximum rated capacity per function for this device as it may expose you to a shock hazard.
- Ensure that the probe contacts are disconnected from the load or test circuit before moving the function dial.
- Assess any specific additional risks to the operator before each use.
- **DO NOT** expose this product to excessive ambient temperature, high humidity, flammable substances or environments that produce a strong magnetic field.
- **DO NOT** use this product around explosive gases, vapours or dust.
- **DO NOT** immerse this device in water or expose it to wet conditions.
- **ALWAYS** wear protective insulated gloves while using this product.
- Keep your fingers behind the guards on the test probes during use.
- **ALWAYS** turn the function dial to the '**OFF**' position before opening the back panel to replace the batteries or the fuse.
- **DO NOT** operate this device with the rear housing open or missing and **DO NOT** use it if the rear housing cannot be closed properly.
- **DO NOT** abuse, mutilate or burn the battery.
- Remove the batteries when the product is stored for extended periods.
- **DO NOT** attempt to repair this device; it contains no user-serviceable parts.
- Keep this product out of reach of children.



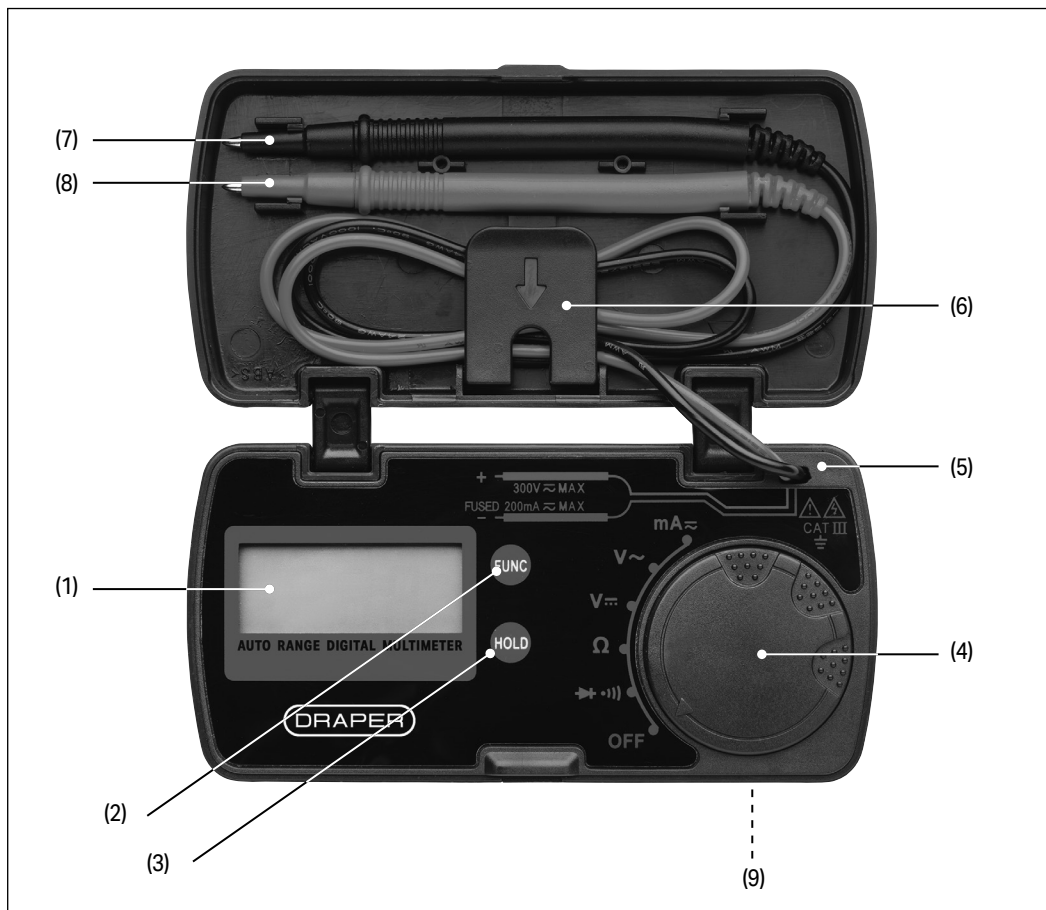
WARNING! ALWAYS ensure that the operator is not in contact with the ground while taking measurements, using insulating materials to prevent the current from earthing.

4. Identification and Unpacking

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Carefully remove the product from the packaging and examine it for any signs of damage that may have occurred during shipment.

If any part is damaged or missing, do not attempt to use the product. Please contact the Draper Helpline; contact details can be found at the back of this manual.



- | | |
|---------------------------|--|
| 1. Display screen | 6. Lead retainer clip |
| 2. 'FUNC' Function button | 7. Negative (black) test lead and probe |
| 3. 'HOLD' button | 8. Positive (red) test lead and probe |
| 4. Function select dial | 9. Back cover (battery/fuse compartment) |
| 5. Storage case | |

Please visit drapertools.com for our full range of accessories and consumables.

5. Operating Instructions

Important: Before operating this product, read and understand all the safety instructions listed in this manual.

5.1 Installing/Replacing the Battery

Important: Use **ONLY** LR44 batteries.



WARNING! Remove the test leads from the circuit under test and turn the function dial to the 'OFF' position before opening the back cover.

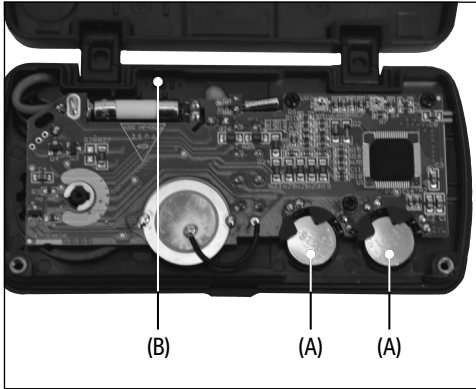


Fig. 1

1. Unscrew and lift the back cover off.
2. Fit two LR44 batteries (A) – ensuring polarity connections are correct (follow the indicators on the battery compartment).
3. Refit and screw the back cover on and tighten securely.

5.2 Function Button 'FUNC' (2)

- Turn the function select dial (4) to the required measurement mode. Then press the function button (2) to switch between;
 - AC and DC current measurement when $\text{mA} \approx$ mode selected.
 - Continuity and diode test functions when $\rightarrow \cdot |||$ mode selected.

5.3 Data 'HOLD' Button (3)

- Press to retain the measured value on the screen.
- 'HOLD' will appear on the screen when the data hold mode is selected.

5.4 Function Select Dial (4)

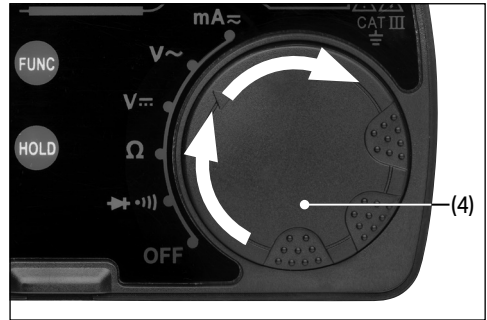











Fig. 2

- Turn the function select dial (4) to select the required measurement mode.
- Always return the dial to the 'OFF' position after testing.

5.5 Auto Power Off


- The meter will automatically go into sleep mode if the meter has not been operated for 15 minutes.
- Turn the function dial or press any button to turn the meter back on.
- **Note:** If the 'HOLD' button is pressed while in sleep mode the auto power off function will be disabled.


Dial Position	Function Mode
	Diode Mode  <ol style="list-style-type: none"> Press the function button (2) to select the diode function. Touch the probe contacts against the contacts of the diode, observing the correct polarity. The approximate forward voltage drop of the diode is displayed on the screen (1); a typical diode functioning normally will deliver a reading of 0.5–0.7. <ul style="list-style-type: none"> If the connection is reversed 'OL' will be displayed.
	Continuity Mode  <ol style="list-style-type: none"> Press the function button (2) to select the continuity function. Connect the test leads across the circuit to be tested. If the resistance is less than about 30Ω, the buzzer will sound. <p>Note: Before testing, disconnect all power to the circuit to be tested and discharge all capacitors thoroughly.</p>
Ω	Resistance Mode <ul style="list-style-type: none"> If the resistance to be tested is part of a circuit, switch the circuit off, disconnect the power and allow all capacitors to discharge before measurement. <p> WARNING! NEVER measure resistance across a voltage source or on a powered circuit.</p> <ul style="list-style-type: none"> Touch the probe contacts at either side of the resistance to be measured. The current value is displayed on the screen (1). <p>Note:</p> <ul style="list-style-type: none"> For resistance measurements > 1M, the reading may take a few seconds to stabilise. This is normal. When the test leads are in open circuit state 'OL' will be displayed to indicate over range.
	DC Voltage mode
	AC Voltage mode
	AC/DC Current mode <p>Use the function button to switch between AC and DC</p> <p>DC Current  on screen. AC Current  on screen.</p> <ol style="list-style-type: none"> Turn off power to the circuit to be tested. Then discharge all capacitors. Break the circuit path to be tested, then connect the test leads in series with the circuit. Turn on power to the circuit, then read the display. For DC current measurements, the polarity of the red test lead connection will be indicated as well.

Important: Disconnect the probes from any source of voltage and turn the Multimeter off before performing any maintenance on this product. **DO NOT** attempt to repair or service the meter unless qualified to do so.

6.1 Maintenance and Storage

- Keep the product clean and free from dust, debris and grease.
- Use a dry cloth **ONLY** to clean the housing of this device.

 **CAUTION! DO NOT use abrasives, solvents or other aggressive chemicals as these may damage plastic or insulated parts.**

- If the low battery indicator () is shown on the display, replace the battery as soon as possible; see **5.1 Installing the Battery**.
- If the fuse (B) must be replaced, follow section **5.1 battery installation**, remove the fuse from its holder and install an equivalent fuse its place.
- **Important:** This product requires a F200mA/250V fast fuse.
- Remove the batteries when storing the device for extended periods.
- Store the device in a cool, clean and dry environment, out of direct sunlight and out of reach of children.

1.2 Disposal

At the end of its working life, dispose of the product responsibly and in line with local regulations. Recycle where possible.

- **DO NOT** dispose of this product with domestic waste; most local authorities provide appropriate recycling facilities.
- **DO NOT** burn or mutilate batteries; this may release toxic or corrosive substances.
- Dispose of batteries separately and in accordance with local regulations.



8. Explanation of Symbols



Read the instruction manual



Warning!



Danger! High voltage/current



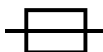
Do not incinerate or throw onto fire



Class II construction
(Double insulated)



Earthed



Fuse



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



European conformity



UK Conformity Assessed

7. Warranty

- Warranty period is 12 months from the date of purchase.
- Visit [drapertools.com/warranty](https://www.drapertools.com/warranty) for full details.

Contact Details

Draper Tools

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Please contact the Draper Tools Product Helpline for repair and servicing enquiries.