

**DRAPER**

**EN**

Original Instructions  
Version 4 - January 2026

300 SERIES

# DIGITAL MULTIMETER

41821



**UK  
CA** **CE**

# 1. Preface

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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://drapertools.com/manuals) for the latest version.

## 1.1 Product Reference

**User Manual for:** 300 Series Digital Multimeter

**Stock No:** 41821

**Part No:** DMM300

## 1.2 Revisions

**Version 1:** March 2017

**Version 2:** June 2017

**Version 3:** February 2023

**Version 4:** January 2026

As our manuals are continually updated, always ensure that the latest version is used.

Please visit [drapertools.com/manuals](https://drapertools.com/manuals) for the latest version of this manual and the associated parts list, if applicable.

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## 3.1 Intended Use

This meter is designed to measure voltage, current and resistance across AC and DC circuits. It can also measure diode, continuity, engine dwell and engine speeds.

Any other application beyond the conditions established



for use will be considered misuse. Draper Tools accepts no responsibility for improper use of this product.

Read this manual in full before attempting to assemble, operate or maintain the product, and retain it for later use.

## 3.2 Specification

Stock No.	41821
Part No.	DMM300
Multimeter rating	CAT III, 600V
Sampling rate (approx.)	0.4 sec
Battery Type Required	2 x AAA (not supplied)
Fuse Protection Type	
V $\Omega$ mAHZ Terminal	600mA/600V
10 A Terminal	10A/600V
Overload Protection	
200mV range	250V DC or AC rms
2V – 600V range	600V DC or AC rms
Operating conditions	
Ambient temperature	0 to 40°C
Storage temperature	-10 to 50°C
Dimensions	150 X 73 X 45mm
Net Weight (approx.)	235g

### 3. Product Introduction

Measurement	Range	Accuracy	Resolution
<b>DC Voltage</b>	200mV	±0.7% reading, +3 digits	0.1mV
	2V		0.001V
	20V		0.01V
	200V		0.1V
	600V		1V
<b>AC Voltage</b>	200mV	±1% reading, +3 digits	0.1mV
<b>Frequency range 40 - 400Hz</b>	2V		0.001V
	20V		0.01V
	200V		0.1V
	600V		1V
<b>DC Current</b>	2A	±2.5% reading, 10 digits	0.001A
	10A		0.01A
<b>AC Current</b>	2A	±3% reading, 10 digits	0.001A
	10A		0.01A
<b>Resistance (Ω)</b>	200Ω	±1% reading, +5 digits	0.1Ω
	2kΩ		0.001Ω
	20kΩ		0.01kΩ
	200kΩ	±1% reading, +2 digits	0.1kΩ
	2MΩ		0.001MΩ
	20MΩ		0.01MΩ
<b>Engine Dwell Angle</b>	4cyl	±3°	0.1°
	6cyl		
	8cyl		
<b>Engine REV (Rotation Speed)</b>	4cyl	±3% reading, +3 digits	10rpm
	6cyl		
	8cyl		
<b>Diode</b> 	Value displayed – diode forward voltage drop. Forward DC current approx. 1mA Reverse DC current approx. 1.5V		
<b>Continuity</b> 	Buzzer will beep when resistance is <50Ω. Open Circuit voltage approx. 0.5V.		

**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.



**WARNING! Contact with live circuits can result in severe electrical shock. When measuring voltage above 30V, current above 10mA or AC power with an inductive load, take care not to touch the exposed contacts as they may give a serious electric shock.**

- **DO NOT** measure voltages above 600V.
  - **DO NOT** apply voltages to the probes whilst measuring current or diodes.
  - **DO NOT** measure maximum current 10A for more than 30seconds in a 15-minute period.
- **ONLY** trained and competent personnel may operate this device.
- Use this product **ONLY** as instructed in this manual.
- Use **ONLY** accessories and spare parts supplied by Draper Tools.
  - **DO NOT** use any other leads with this product than those supplied. Contact Draper Tools for replacement options if the leads become damaged.
  - If the fuses must be replaced, use an identical item with the same specification.
  - Replace the battery with one 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 or probe leads are damaged in any way or if there is evidence of battery leakage.
  - 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.
- **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.

- **DO NOT** measure resistors, capacitors or diodes while they are charged. Discharge fully before carrying out a measurement.
- 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 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.
- Always keep your fingers behind the guards on the test probes during use.
- Ensure the selector dial is in the correct function mode before taking any measurements.
- **ALWAYS** turn the function dial to the '**OFF**' position and remove the probe leads from the device before opening the battery compartment cover.
- **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.
- **NEVER** insert the probe contacts into the device terminals.
- **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.**

# 5. Identification and Unpacking

## 5.1 Product Overview

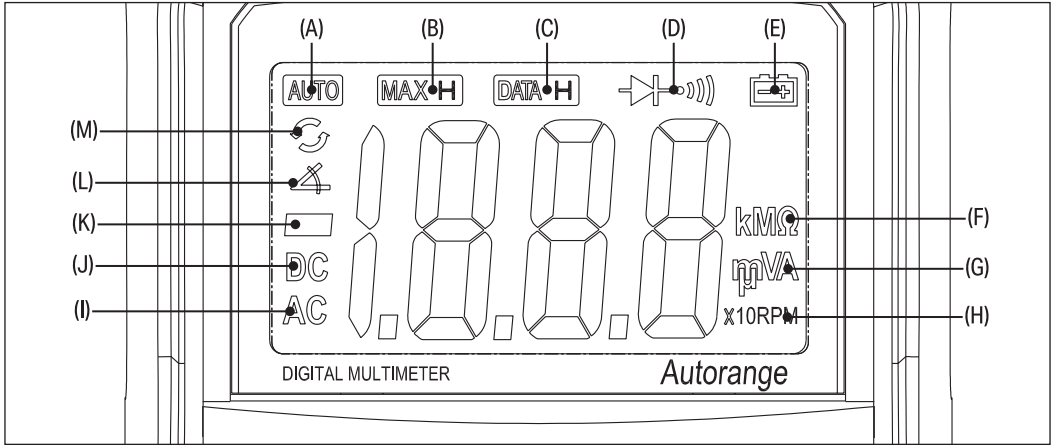
Carefully remove the product from the packaging and examine it for any signs of damage that may have occurred during shipment.

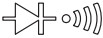




If any part is damaged or missing, do not attempt to use the product. Please contact the Draper Helpline; contact details can be found at the back of this manual.



- (1) LCD Display
- (2) **'HOLD'** button
- (3) **'FUNCTION'** select button
- (4) Measurement selector dial
- (5) 10A current terminal
- (6) **(COM)** Common earth probe (-) terminal
- (7) **DWELL/Diode/RPM/Ω/V** (+) terminal
- (8) **'MAX'** value hold button
- (9) **'Backlight'** button
- (10) Battery compartment cover/stand
- (11) 1 x Test leads
  - (11a) Positive red lead (+)
  - (11b) Negative black lead (-)
- (12) Test probe protective caps
- (13) Storage case (not shown)

## 5.2 Display Screen Explained



Symbol		Description
(A)	AUTO	Auto range mode active
(B)	MAX H	Maximum Value Hold enabled
(C)	DATA H	Data Hold enabled
(D)		Diode/Continuity test selected
(E)		Low battery indicator
(F)	kMΩ	Resistance measurement mode
(G)	mμVA	Unit of current
(H)	X10RPM	Engine Rev speed
(I)	AC	Alternating current
(J)	DC	Direct Current
(K)		Negative sign
(L)		Dwell angle measurement
(M)		Tach rpm speed measurement

## 5.3 Packaging

Keep the product packaging for the duration of the warranty period in case the product needs to be returned for repair.

**WARNING! Keep packaging materials out of reach of children. Dispose of packaging correctly and responsibly and in accordance with local regulations.**

Please visit [drapertools.com](http://drapertools.com) for our full range of accessories and consumables.

## 6. Installing/Replacing the Battery

**Important:** ONLY use 2 X AAA batteries.



Fig. 1

1. Disconnect the test probes and ensure the selector dial (4) is in the **'OFF'** position before installing or removing the battery.
2. Undo the screw in the battery compartment cover (10) and lift off.
3. Fit the batteries in the compartment, check that they are in the correct +/- orientation when installed.
4. Refit and screw the compartment cover back on.

## 7. Operating Instructions


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

**Important:** Inspect the device for signs of damage, particularly the probes and insulated cables before each use. Replace faulty leads immediately.

### 7.1 Automatic Power Off



- The meter will automatically enter sleep mode if no operation for approx. 15 minutes. 1 minute before shutdown the buzzer will sound 5 times.
- To restart the meter, press the **'FUNC'** button (2).
- To turn off the automatic power off function, press and hold the **'FUNC'** button while turning the dial on.

### 7.2 Function Buttons

Button	Function
<b>'HOLD' (2)</b>	<ul style="list-style-type: none"><li>• Press to hold the value shown on the screen.</li><li>• To cancel press the button again.</li></ul>
<b>'FUNC' (3)</b>	<ul style="list-style-type: none"><li>• Press the function button to switch between:<ul style="list-style-type: none"><li>– DC and AC voltage measurements</li><li>– DC and AC current measurements</li><li>– Resistance, continuity and diode test functions</li></ul></li></ul>
<b>'MAX' (8)</b>	<ul style="list-style-type: none"><li>• Press the <b>'MAX'</b> button to hold the maximum data reading on the screen.</li><li>• To cancel press the button again.</li></ul>
 <b>(9)</b>	<p>Back light</p> <ul style="list-style-type: none"><li>• To switch on the backlight – press and hold the <b>'Backlight'</b> button (9) for more than 2 seconds.</li><li>• Press the button again to switch off the light.</li></ul> <p><b>Note:</b> Frequent use of the back light will shorten the life of the batteries.</p>

## 7.3 Measurements

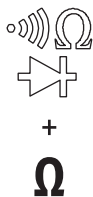
- Remove the protective caps from the end of the test leads (11).
- For each measurement type, connect the positive (+) red probe (11A) to the voltage, resistance, dwell, diode & RPM terminal (7) or 10A terminal (5), and connect the negative probe (-) black (11B) to the common earth probe terminal (6).
- If a negative value is shown on the display, check the polarity of the probes at the component contacts and the device terminals.
- Turn the measuring selector dial (4) to select the required measurement mode. Always return the dial to the 'OFF' position once measuring is complete.

Measurement	Measuring Selector Dial Position	Action
DC or AC Voltage		<ol style="list-style-type: none"> <li>1. Move the selector dial (4) to the voltage position.</li> <li>2. Press the 'FUNC' button (3) to select either <b>AC</b> or <b>DC</b> voltage.</li> <li>3. Connect the test leads to the test circuit. The voltage value will be displayed on the LCD screen (1). For DC voltage the polarity of the red lead connection will also be indicated.</li> </ol> <p><b>CAUTION!</b></p> <ul style="list-style-type: none"> <li>• If the measurement is unknown, always set to the highest position.</li> <li>• <b>DO NOT</b> measure voltage higher than 600V DC or 600V rms AC as this will damage the meter.</li> </ul>
DC or AC Current		<ol style="list-style-type: none"> <li>1. Plug the red positive probe into the 10A (5) terminal.</li> <li>2. Turn the selector dial (4) to the current position.</li> <li>3. Press the 'FUNC' button (3) to select either <b>AC</b> or <b>DC</b> mode.</li> <li>4. Turn off the power to the circuits to be measured and then discharge all capacitors.</li> <li>5. Connect the test leads in series to the test circuit. Then turn on the power to the circuits.</li> </ol> <ul style="list-style-type: none"> <li>• For DC voltage the polarity of the red lead connection will also be indicated.</li> </ul> <p><b>CAUTION!</b></p> <ul style="list-style-type: none"> <li>• If unsure of the measured current range, start from 10A.</li> <li>• <b>DO NOT</b> exceeding the maximum measurement stated as this will blow the fuse or damage the meter.</li> <li>• <b>DO NOT</b> measure maximum current 10A for longer than 30 seconds in a 15 minute period.</li> </ul>

## 7. Operating Instructions

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Resistance

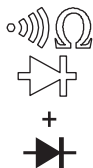


1. Turn the selector dial (4) to the '**Diode/Resistance/continuity**' position.
2. Press the '**FUNC**' button (3) to select the resistance function.
3. Connect the test leads across the item to be tested.

**Note:**

- For measurements > 1MΩ the reading may take a few seconds to stabilise.
- Disconnect **all** power to the circuits and discharge **all** capacitors before carrying out a measurement.

Diode



1. Turn the selector dial (4) to the '**Diode/Resistance/continuity**' position.
2. Press the '**FUNC**' button (3) to select the diode function.
3. Connect the red test lead to the anode and the black lead to the cathode of the diode.

Continuity



1. Turn the selector dial (4) to the '**Diode/Resistance/continuity**' position.
2. Press the '**FUNC**' button (3) and select the '**continuity buzzer**' function.
3. Connect the test leads across the circuit to be tested.



**CAUTION!**

- Disconnect **all** power to the circuits and discharge **all** capacitors before carrying out a measurement.
- If the resistance is >20Ω then '**OL**' will be displayed.

REV/ RPM  
(TACH)



**4CYL**  
**6CYL**  
**8CYL**


1. Turn the selector dial (4) to the required '**TACH**' position (4CYL, 6CYL or 8CYL). and **X10RPM** will be displayed on the screen.

**Important:** Refer to the vehicle manufacturer's manual for the specific location and more details on how to test the engine speed.

Dwell Angle



**4CYL**  
**6CYL**  
**8CYL**

1. Turn the selector dial (4) to the required '**DWELL** 

**Important:** Refer to the vehicle manufacturer's manual for the specific location and more details on how to measure the dwell angle.

## 8. Warranty

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Warranty is 12 months from date of purchase.

Visit [drapertools.com/warranty](http://drapertools.com/warranty) for more information.


**Important:** Disconnect the probes from the terminals and any other source of voltage before performing any maintenance on this product.

## 9.1 General 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.**

- Replace the probes **IMMEDIATELY** if they are damaged in any way or the conductors are exposed; contact Draper Tools for replacement options. **Important:** Replacement probes must be rated CAT III 600V.
- If the low battery indicator () is shown on the display, replace the battery as soon as possible; see **6 Installing/Replacing the Battery**.
- Remove the battery 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.

# 10. 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.



# 11. Explanation of Symbols



Read the instruction manual



**Warning!**



**Warning - risk of shock**



Class II construction  
(Double insulated)



Do not incinerate or throw onto fire



WEEE -

Waste Electrical & Electronic Equipment

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



European conformity



UK Conformity Assessed

## Contact Details

### **Draper Tools Limited**

Hursley Road  
Chandler's Ford  
Eastleigh  
Hampshire  
SO53 1YF  
UK

**Website:** [drapertools.com](http://drapertools.com)

**Email:** [sales@drapertools.com](mailto:sales@drapertools.com)

**Product Helpline:** +44 (0) 23 8049 4344

**Telephone Sales Desk:** +44 (0) 23 8049 4333

**General Enquiries:** +44 (0) 23 8026 6355

### **Draper Tools Europe B.V.**

Oude Graaf 8  
6002 NL  
Weert  
Netherlands

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