

**EN**

Original Instructions  
Version 3  
June 2024



# 400 SERIES **DIGITAL CLAMP METER**

**41864**



# 1. Preface

## 1.1 Product Reference

User Manual for: 400 Series Digital Clamp Meter

Stock No: 41864

Part No: DCM400

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](http://drapertools.com/manuals) for the latest version.

## 1.2 Revisions

Version 1: March 2017  
First release

Version 2: June 2017

Version 3: June 2024

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# 3. Product Introduction

## 3.1 Intended Use

This meter is designed to measure voltage, current and resistance across AC and DC circuits. Fitted with a large LCD backlit display screen and work light.

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

Part of our core range, this product is suitable for regular use by enthusiasts and tradespersons alike.

## 3.2 Specification

Stock No.	41864
Part No.	DCM400
Jaw Opening Max. Size:	36mm (approx)
Battery Type:	3 x 1.5V AAA (not supplied)
Meter Rating;	CAT III 600V
Overload Protection:	600V DC or AC (RMS).
Weight:	333g (including battery)
Dimensions:	208 X 79 X 36mm
Operating Conditions	
Operating Temperature:	5 - 35°C
Storage Temperature:	-10 - 50°C

**DC Voltage**

Range	Accuracy	Resolution
200mV	±0.8% reading + 2 digits	0.1mV
2V		1mV
20V		10mV
200V		0.1V
600V	±1% reading + 2 digits	1V

Input impedance: 10MΩ.

Max. input voltage: 600V DC or AC (RMS).

**AC Voltage**

Range	Accuracy	Resolution
200mV	±1% reading + 10 digits	0.1mV
2V		1mV
20V		10mV
200V		0.1V
600V	±1.2% reading + 10 digits	1V

Input Impedance: 10MΩ.

Measuring frequency range: 40Hz~400Hz.

Maximum Input Voltage: 600V DC or AC (RMS).

**AC Current**

Range	Accuracy	Resolution
2A	±3.5% reading + 10 digits	0.001A
20A	±3% reading + 10 digits	0.01A
200A	±2.5% reading + 10 digits	0.1A
600A	±1.5% reading + 5 digits	1A

Maximum input current: 600A AC.


Frequency range: 50Hz.

**Resistance**

Range	Accuracy	Resolution
200Ω	±1.2% reading + 2 digits	0.1Ω
2kΩ		0.001kΩ
20kΩ		0.01kΩ
200kΩ		0.1kΩ
2MΩ	±2% reading + 5 digits	0.001MΩ
20MΩ		0.01MΩ


Overload protection: 600V DC or AC (RMS).

**Diode** 

Range	Accuracy	Resolution
	Displays the forward pressure drop approximation (Open circuit voltage of about 1.5V)	1mV

Overload protection: 250V DC or AC (RMS).

**Continuity Test** 

Range	Accuracy	Resolution
	The buzzer will sound when about ≤60Ω (open circuit voltage of about 0.45V)	100mΩ

**Note:** The buzzer may sound between 60Ω and 120Ω.

The buzzer does not sound when it is greater than 120Ω.

Overload protection: 250V DC or AC (RMS).

# 4. Health and Safety Information

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**Important:** Read all the Health and Safety instructions before attempting to use this product. Failure to read 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 DC or AC (RMS).
- **DO NOT** apply voltages to the probes whilst measuring current, diodes, continuity or capacitors.
- Discharge all high-voltage capacitors before measuring capacitance.
- **DO NOT** clamp both the live and neutral wires at the same time during the measurement.
- Remove the test leads from the meter when measuring using the clamp.
- **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 battery must be replaced, use 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.
- Ensure that the function dial is in the correct position before taking a measurement.
- **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 probes and clamp during use.
- **ALWAYS** remove the contact leads from the device before removing the battery cover or opening the back panel.
- **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 sockets.
- **DO NOT** abuse, mutilate or burn the battery.
- Ensure the battery is fitted in the correct +/- orientation.
- 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.**

5.1 Product Overview



- (1) Measurement clamp head.
- (2) Inspection light.
- (3) Protection guard.
- (4) Clamp trigger.
- (5) Measuring function selection dial.
- (6) Back light & work light.
- (7) Function buttons.
- (8) Display.
- (9) Probe sockets.
- (9a) (COM) Common earth probe
- (9b) INPUT
- (10) Current direction marking.

- (14) Continuity checking indicator.
- (15) Maximum measurement indicator.
- (16) Data hold indicator.
- (17) DC Signal measurement indicator.
- (18) Negative polarity indicator.
- (19) AC Signal indicator.
- (20) Unit indicator.

5.2 What's in the Box?

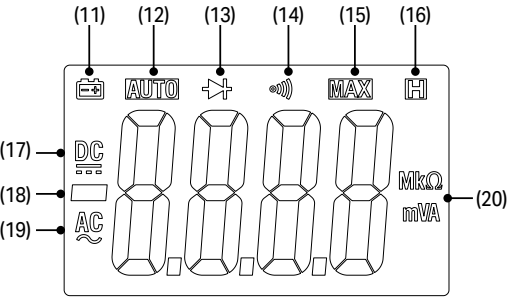
Carefully remove the product from the packaging and examine it for any signs of damage that may have occurred during shipment.

Before assembling the product, lay the contents out and check them against the parts listed below. 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.



- A. Storage case.
- B. Test probe
- C. Test probe caps

5.2 LCD Display



- (11) Battery low indicator.
- (12) Automatic range indicator.
- (13) Diode checking indicator.

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.

## 6. Operating Instructions

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

### 6.1 Back Light and Work Light Button

Press and hold the '\*' button to switch the back light/work light on or off.

- The lights will automatically turn off after about 15seconds.

**Note:** The inspection light will only come on while in **AC** current function.

### 6.2 Function Switch Button (SEL)

The 'SEL' button is for switching between DCV/ACV, and between diode and continuity measuring.

### 6.3 MAX Readings Button

Press the 'MAX' button to display the maximum value of measurement data on the display.

### 6.4 Auto/Manual Switch Button (RAN)

1. Press the 'RAN' button to switch between AUTO and manual range mode. The default mode is AUTO.
2. To switch back to AUTO mode press and hold the button for more than 2seconds.

### 6.5 AC Current Measurement using Current Clamp Head



**WARNING!** Risk of electric shock. **DO NOT** measure current using the probes. Remove the test leads from the meter when measuring with the clamp head.

1. Rotate the measurement function selection dial to the appropriate current.
2. Press the trigger to open the clamp, pass the wire to be measured into the centre of the clamp, and then slowly release the trigger until the clamp is fully closed.
3. Read the measurement result from the display.

**Note:** The meter can only measure one current conductor at a time.

### 6.6 DC Voltage Measurement

1. Rotate the measurement function selection dial to the **DC** voltage position.
2. Connect the black lead to the **COM** probe socket (9a) and the red lead to the **INPUT** probe socket (9b).
3. The measured value is read from the display. The polarity display will indicate the polarity of the socket to which the red test lead is connected.

### 6.7 AC Voltage Measurement

1. Rotate the measurement function selection dial to the **AC** voltage position.
2. Connect the black lead to the **COM** probe socket (9a) and the red lead to the **INPUT** probe socket (9b).
3. The measured value is read from the display.

### 6.8 Resistance measurement



**WARNING!** Risk of electric shock. When measuring the impedance on the line, make sure that the circuit power is off and the capacitors on the circuit are fully discharged.

1. Rotate the measurement function selection dial to the resistance ( $\Omega$ ) position and ensure that the power to the circuit under test is off.
2. Press the 'SEL' button to select the resistance ( $\Omega$ ) measurement function.
3. Connect the black lead to the **COM** probe socket (9a) and the red lead to the **INPUT** probe socket (9b).
4. The measured value is read from the display.

**Note:** When there is no input (e.g. open circuit), the display will show '**OL**' indicating that the measured value is out of range. If the measured resistance is greater than 1M $\Omega$ , it may take a few seconds for the meter to stabilize the reading. This is normal for high impedance measurements.

### 6.9 Continuity/Diode Test



**WARNING!** Risk of electric shock. Make sure the circuit power is off, and the circuit capacitors are completely discharged.

1. Rotate the measuring function selection dial to the (  $\rightarrow$  ) continuity position and ensure that the power to the circuit under test is off.
2. Connect the black lead to the **COM** probe socket (9a) and the red lead to the **INPUT** probe socket (9b).
3. If the measured resistance of the line is less than  $50\Omega$ , the buzzer will sound.

### 6.10 Holding Reading

1. Press the '**HOLD**' button to hold the reading while taking a measurement, the value and '**H**' will be held on the display.
2. Press the '**HOLD**' button again to return to the normal reading function.

## 7. Maintenance


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

- 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 20A.

### 7.1 Replacement Battery



**WARNING!** To avoid false readings that may result in electric shock or personal injury, replace the battery as soon as the '  ' symbol appears on the meter display. To avoid electrical shock or personal injury, turn off the meter and ensure that the test lead has been disconnected from the measuring circuit before opening the battery cover and replacing it with a new one.

Follow these steps to replace the battery:

1. Turn off the meter.
2. Remove all test leads from the probe sockets.
3. Unscrew the battery compartment cover and remove.
4. Disconnect and remove the old batteries.
5. Replace with three new AAA batteries, pay attention to the battery positive and negative. Do not mix new with old batteries and do not use re-chargeable batteries.
6. Refit the battery cover and tighten the screws.

### 7.2 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.



## 8. Warranty

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Warranty period is 12months from date of purchase.

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



Read the instruction manual



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



For indoor use only;  
do not expose to rain



Class II construction  
(Double insulated)



European conformity



UK Conformity Assessed



Diode test



Temperature



Capacitance



Frequency



Bar graph



Clamp size



Inspection/work light



Fuse



Danger! High voltage/current



Voltage AC



Voltage DC



Current AC



Current DC



Resistance in Ohms



**Warning!**



Continuity test buzzer



Data hold/Screen lock



Auto power off



Low battery display





## Contact Details

### **Draper Tools**

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