



DM505

1000V Digital Multimeter

INSTRUCTION MANUAL

ENGLISH



Intertek

600V

CAT III

1000V

CAT II

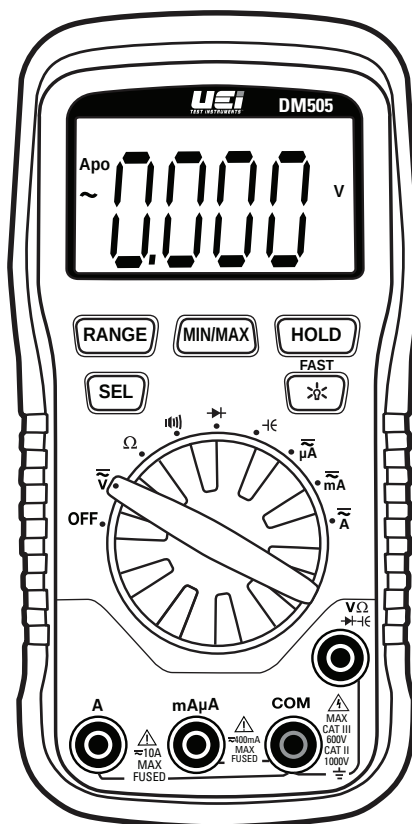


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FUNCTIONS

- 1000V AC/DC
- 10A AC/DC
- Resistance 40M Ω
- Diode test
- Audible continuity
- Capacitance 9999 μ F
- Milliamps/Microamps

FEATURES

- Auto/Manual ranging
- Auto power off
- Min/Max
- Hold
- 1 ms Fast response Min/Max
- Low battery indicator
- Test lead holders
- Kick stand
- High resolution backlit display
- Auto selection
- Fused test lead inputs
- Rubber boot

GENERAL SPECIFICATIONS

- **Operating Temperature:** 32° to 122°F (0° to 50°C)
- **Storage Temperature:** -44° to 122°F (-20° to 50°C)
- **Operating Humidity:** <75% max.
- **Operating Altitude:** 6561 ft (2000m)
- **Display:** 6,000 count
- **Backlight:** Yes
- **Over-range:** "OL" is displayed
- **Dimensions:** 6.49" x 3.3" x 2.17"
- **Item Weight:** 15.0 oz
- **Calibration:** Recommended annually
- **CAT Rating:** CAT III 600V/CAT II 1000V
- **Certifications:** cELTus UL 61010-1:2012 3rd
CE EN 61010-1:2010 3rd, IEC61010-2-033:2012, Ed.1, EN 61326-1:2013
FCC, RoHS Compliant, TOV protection, IP 42, 6' Drop protection
- **Battery Type:** (AA) 2
- **Test Leads:** CAT III test leads
- **Accuracy:** $\pm$ (% of reading + # of least significant digits)

CATEGORY DEFINITIONS

Measurement Category	Short-Circuit (typical) kA*	Location in the building installation
II	< 10	Circuits connected to mains socket outlets and similar points in the MAINS installation
III	< 50	Mains distributions parts of the building
IV	> 50	Source of the mains installation in the building

IMPORTANT SAFETY WARNINGS

WARNING

Read entire Safety Notes section regarding potential hazards and proper instructions before using this meter. In this manual the word “**WARNING**” is used to indicate conditions or actions that may pose physical hazards to the user. The word “**CAUTION**” is used to indicate conditions or actions that may damage this instrument.

WARNING

To ensure safe operation and service of the tester, follow these instructions. Failure to observe these warnings can result in severe injury or death.

WARNING

- Before each use, verify meter operation by measuring a known voltage or current.
- Never use the meter on a circuit with voltages that exceed the category based rating of this meter.
- Do not use this meter during electrical storms or in wet weather.
- Do not use the meter or test leads if they appear damaged.
- Ensure meter leads are fully seated and keep fingers away from the metal probe contact when making measurements. Always grip the leads behind the finger guards molded into the probe.
- Do not open the meter to replace batteries while the probes are connected.
- Use caution when working with voltages above 60 DC or 25 AC RMS. Such voltages pose shock hazards.
- To avoid false readings that can lead to electrical shock, replace batteries if a low battery indicator appears.
- Unless measuring voltage or current, shut off and lockout power before measuring resistance or capacitance.
- Always adhere to national and local safety codes. Use proper personal protective equipment (PPE) to prevent shock and arc blast injury where hazardous live conductors are exposed.
- Always turn off power to a circuit or assembly under test before cutting, unsoldering or breaking the current path. Even small amounts of current can be dangerous.
- Always disconnect the live test lead before disconnecting the common test lead from the circuit.
- In the event of electrical shock, ALWAYS bring the victim to the emergency room for evaluation, regardless of victim's apparent recovery. Electrical shock can cause unstable heart rhythms that may need medical attention.
- If any of the following occur during testing, turn off the power source to the circuit being tested: arcing, flame, smoke, extreme heat, smell of burning materials or discoloration or melting of components.

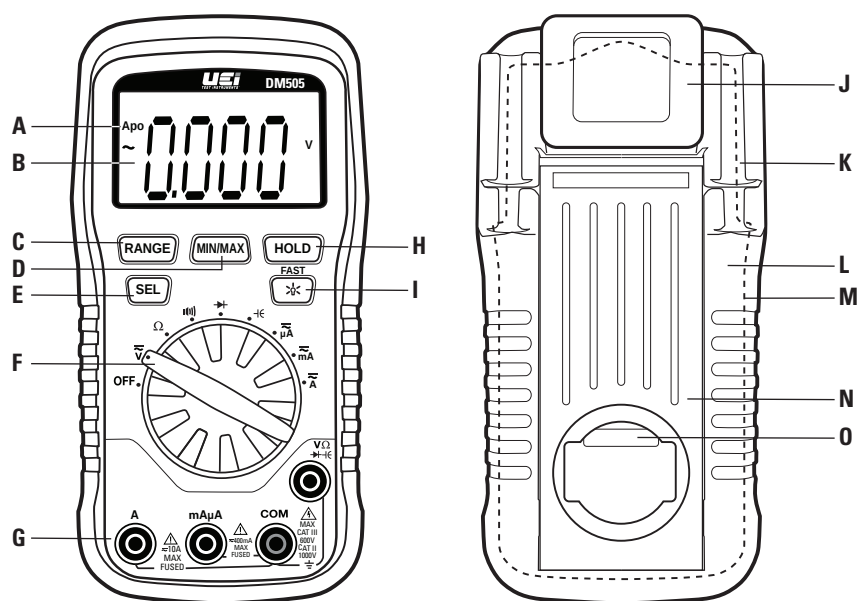
WARNING

Higher voltages and currents require greater awareness of physical safety hazards. Before connecting the test leads; turn off power to the circuit under test, set meter to the desired function and range; connect the test leads to the meter first, then connect to the circuit under test. Reapply power. If an erroneous reading is observed, disconnect power immediately and recheck all settings and connections.

WARNING

This meter is designed for trade professionals who are familiar with the hazards of their trade. Observe all recommended safety procedures that include proper lockout utilization and use of personal protective equipment that includes safety glasses, gloves and flame resistant clothing.

OVERVIEW



A. Apo: Auto power off after 30 minutes of use. Press and hold the HOLD button while turning the meter on to disable Apo.

B. Digital Backlit Display

C. Range Button:

- Press to change from auto ranging to manual ranging.
- Press repeatedly to select proper range.
- Press and hold to return to auto range (AT will be displayed on screen).

D. Min/Max Button:

- Press to enter MAX/MIN mode.
- In the V, μ A, mA or Amps functions, either select AC/DC or change to manual ranging before pressing this button to enter MAX/MIN mode.
- Press repeatedly to alternate between Maximum and Minimum readings.
- Press and hold to return to live readings

E. Select Button: Press to select AC, DC or Auto Selection in the following functions: Voltage, μ A, mA, Amps.

F. Function Dial: Turns on meter and is used to select the function.

G. Category Max Indicator: Maximum CAT Rating for fused input jacks.

- Multifunction input port used for measuring: AC or DC volts, resistance, continuity, diode, Amps, mA, μ A.
- Use CATIII test leads or higher.

H. Hold/Fast Button:

- Press to hold the reading on the display. Press again to return to live reading.
- Press to enter Fast MAX/MIN mode in MAX/MIN mode.
- Press again to return to normal MAX/MIN mode.

I. Back Light Button: Press to on back light. Press again to turn off. Back light duration is 1 minute.

J. Recess for magnetic hanger

K. Test Lead Holders

L. Protective Rubber Boot

M. Battery Cover (under protective rubber boot)

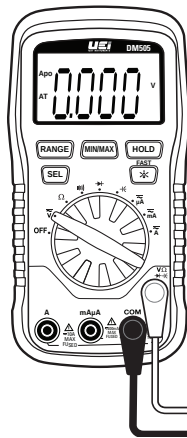
N. Kick Stand

O. Serial Number (under kick stand)

SYMBOLS

	Negative		AC/DC Voltage or Current		Low Battery
OL	Overload: Range Exceeded	Apo	Auto power off Active	MAX	Maximum measured value displayed
HOLD	Hold/Capture Value	MIN	Minimum measured value displayed	μF	Microfarad
V	Voltage	A	Amps		Diode
μA	Microamps	mA	milliamps		Ground
nF	nano Farads	Ω	Ohms/Resistance		Dangerous Levels
	Continuity		Warning or Caution	Auto	Auto Selection
	Fuse	AT	Auto-ranging		High Voltage Indication

AC/DC Voltage: <1000V AC/DC



⚠ WARNING

- Use CATIII rated Test leads or higher.
- Do not attempt to measure more than 1000V AC/DC.
- Do not exceed 25 volts AC or 60 volts DC – RMS at either the common or multifunction input ports as measured from earth ground.

Features:



AC VOLTS

Ranges	Accuracy	Resolution	Overload Protection
600 mV to 1000V	±(1.0% +3 dgts)	0.1 mV to 1V	1000V

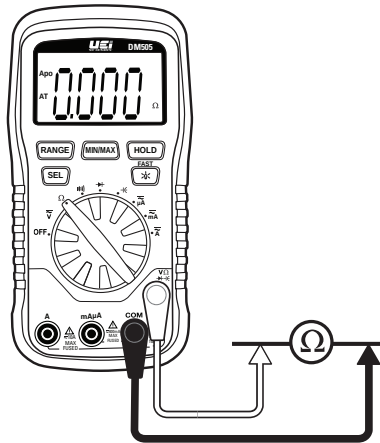
Minimum sensitivity: 0.5V AC (auto selection mode), Frequency bandwidth: 400Hz

DC VOLTS

Ranges	Accuracy	Resolution	Overload Protection
600 mV to 1000V	±(0.5% +3 dgts)	0.1 mV to 1V	1000V

Minimum sensitivity: 0.5V DC (auto selection mode)

Resistance: <40MΩ



Features:

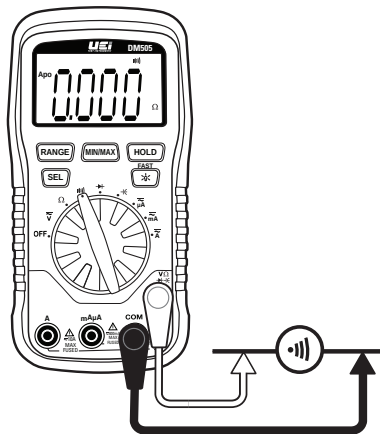


⚠ WARNING

- Do not measure resistance on a live circuit.

Ranges	Accuracy	Resolution	Overload Protection
600Ω to 6MΩ	±(0.8% +5 dgts)	0.1Ω to 0.001MΩ	600V
40MΩ	±(1.5% +5 dgts)	0.01MΩ	

Continuity



Features:



- Buzzer sounds at less than 40Ω.

⚠ WARNING

- Do not measure resistance on a live circuit.

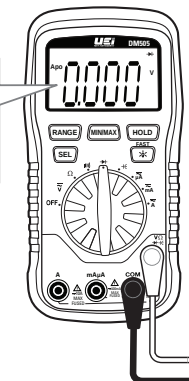
Open Circuit Voltage	Audible Threshold	Overload Protection
Approx.: <1.0V	Approx.: 40Ω	600V

Diode

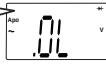
GOOD DIODE

BAD DIODE

Forward Bias
Displays approx. voltage drop



Open Diode
Displays "OL"
Both directions



or



'0' Both directions (shorted)

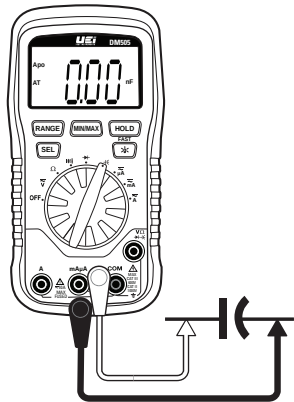
• Forward voltage drop if forward biased.
• "OL" if reverse biased.

Features:    

Open Circuit Voltage	Overload Protection
Approx.: <3.0V DC	600V

Capacitance

Features:    



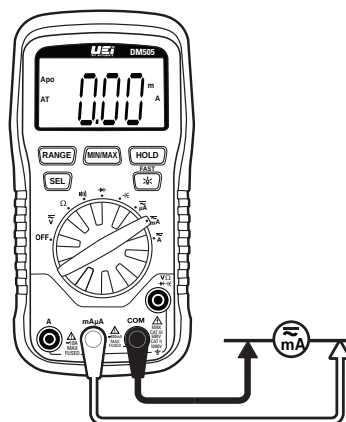
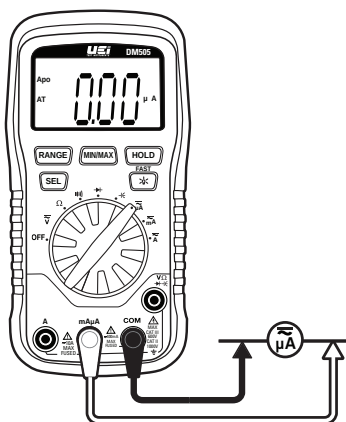
AC VOLTS

Ranges	Accuracy	Resolution	Overload Protection
10nF to 9999μF	±(3.0% +5 dgts)	0.01nF to 1μF	600V

⚠ WARNING
To avoid damaging the meter or equipment under test, safely discharge Capacitors before measuring capacitance. Large value capacitors should be discharged through an appropriate Resistance load. Use the DC Voltage function to confirm the capacitor discharge.

AC/DC Microamps: 6000 μ A

AC/DC Milliamps: 400mA



Features: RANGE MIN/MAX HOLD SEL ⏏

AC μ A

Ranges	Accuracy	Resolution	Overload Protection
600 μ A to 6000 μ A	$\pm(1.2\% + 5 \text{ dgts})$	0.1 μ A to 1 μ A	600mA /1000V Fast Fuse

Minimum sensitivity: 50 μ A AC (auto selection mode only)

DC μ A

Ranges	Accuracy	Resolution	Overload Protection
600 μ A to 6000 μ A	$\pm(1.0\% + 3 \text{ dgts})$	0.1 μ A to 1 μ A	600mA /1000V Fast Fuse

Minimum sensitivity: 50 μ A DC (auto selection mode only)

ACmA

Ranges	Accuracy	Resolution	Overload Protection
60mA to 400mA	$\pm(1.2\% + 5 \text{ dgts})$	0.01mA to 0.1mA	600mA /1000V Fast Fuse

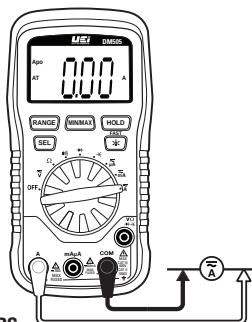
Minimum sensitivity: 5mA AC (auto selection mode only)

DCmA

Ranges	Accuracy	Resolution	Overload Protection
60mA to 400mA	$\pm(1.0\% + 3 \text{ dgts})$	0.01mA to 0.1mA	600mA /1000V Fast Fuse

Minimum sensitivity: 5mA DC (auto selection mode only)

AC/DC Amps: <10A



⚠ WARNING

- Do not attempt to measure more than 10A AC.

Features:



AC AMPS

Ranges	Accuracy	Resolution	Overload Protection
6A to 10A	$\pm(1.5\% + 5 \text{ dgts})$	0.001A to 0.01A	11A/1000V Fast fuse

Minimum sensitivity: 500mA AC (auto selection mode only)

⚠ CAUTION: 20A overload for 30 seconds max.

DC AMPS

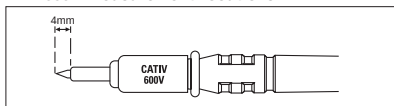
Ranges	Accuracy	Resolution	Overload Protection
6A to 10A	$\pm(1.2\% + 5 \text{ dgts})$	0.001A to 0.01A	11A/1000V Fast fuse

Minimum sensitivity: 500mA DC (auto selection mode only)

⚠ CAUTION: 20A overload for 30 seconds max.

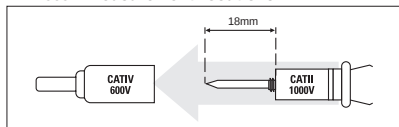
Test Lead Notes

CATIII 1000V Measurement Locations



- Ensure the test lead shield is pressed firmly in place. Failure to use the CATIV shield increases arc-flash risk.

CATII 1000V Measurement Locations

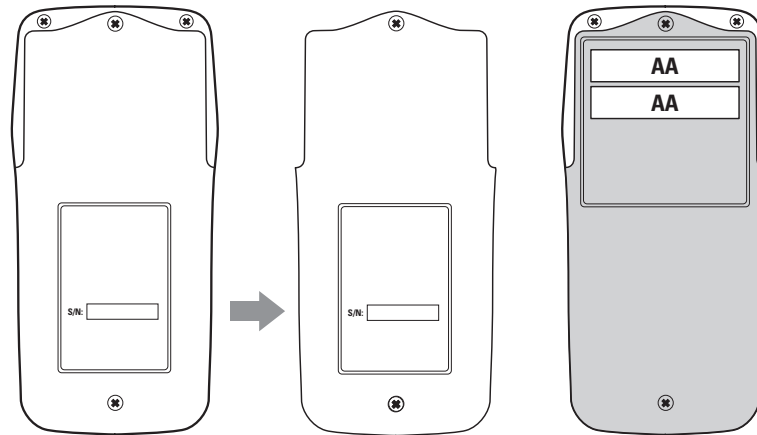


- CAT IV shields may be removed for CAT II locations. This will allow testing on recessed conductors such as standard wall outlets. Take care not to lose the shields.

⚠ WARNING: Test lead category protections apply only to test leads and should not be confused with the meter's specific CAT rating. Observe the maximum category protection indicated on the meter the test leads are plugged into.

Battery Replacement

- When the batteries are too low for safe operation, the Low Battery indicator will display.



FCC/IC INFORMATION

NOTE: This device complies with Part 15 of the FCC Rules and CAN ICES-3(A). Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operations.

INFORMATION TO THE USER

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

⚠ WARNING Any changes or modifications not expressly approved by the manufacturer, could void the user's authority to operate equipment.

WARRANTY

The DM505 is warranted to be free from defects in materials and workmanship for a period of 2 years from the date of purchase. If within the warranty period your instrument should become inoperative from such defects, the unit will be repaired or replaced at UEi's option. This warranty covers normal use and does not cover damage which occurs in shipment or failure which results from alteration, tampering, accident, misuse, abuse, neglect or improper maintenance. Batteries and consequential damage resulting from failed batteries are not covered by warranty.

Any implied warranties, including but not limited to implied warranties of merchantability and fitness for a particular purpose, are limited to the express warranty. UEi shall not be liable for loss of use of the instrument or other incidental or consequential damages, expenses, or economic loss, or for any claim or claims for such damage, expenses or economic loss.

A purchase receipt or other proof of original purchase date will be required before warranty repairs will be rendered. Instruments out of warranty will be repaired (when repairable) for a service charge

This warranty gives you specific legal rights. You may also have other rights, which vary from state to state.

DISPOSAL



CAUTION: This symbol indicates that equipment and its accessories shall be subject to separate collection and correct disposal.

CLEANING

Periodically clean your meters' case using a damp cloth. DO NOT use abrasive, flammable liquids, cleaning solvents, or strong detergents as they may damage the finish, impair safety, or affect the reliability of the structural components.

STORAGE

Remove the batteries when instrument is not in use for a prolonged period of time. Do not expose to high temperatures or humidity. After a period of storage in extreme conditions exceeding the limits mentioned in the General Specifications section, allow the instrument to return to normal operating conditions before using it.

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