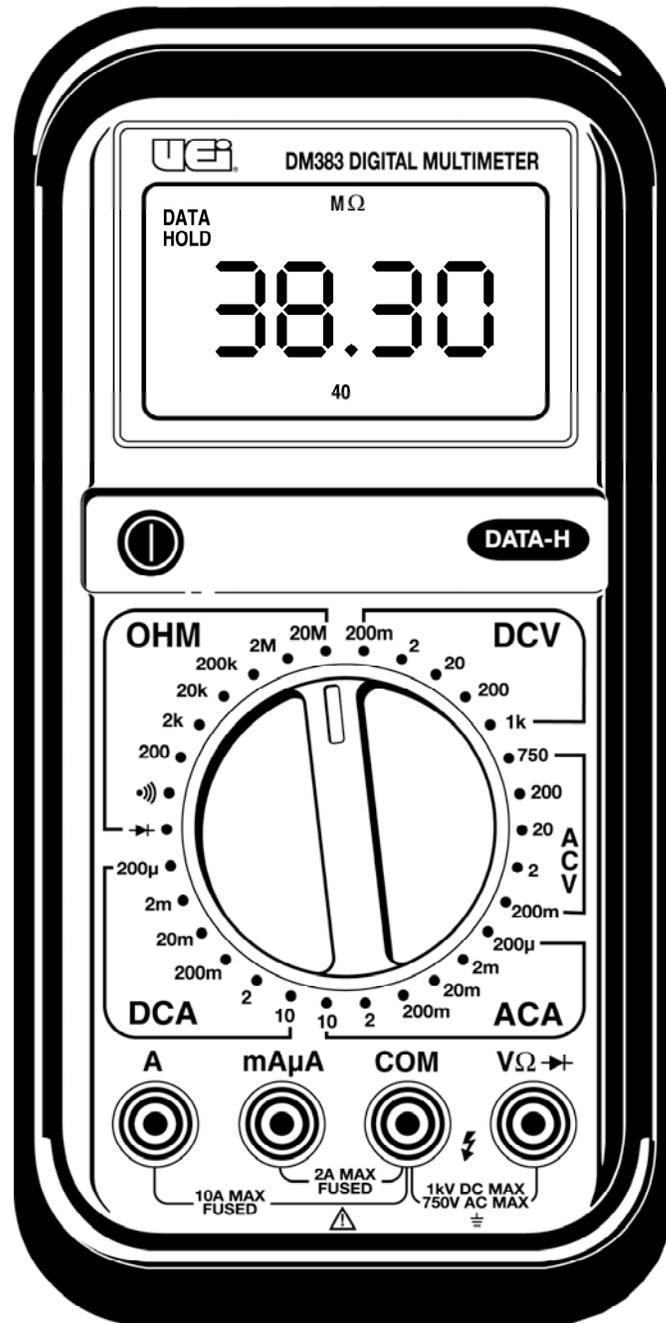


UEI INSTRUCTION MANUAL

DM383/DM410

Digital Multimeter



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Introduction

The DM383 is an industrial duty digital multimeter that lets you keep your measurements in clear view. When your control panel doesn't allow you to stay close to your meter, you can count on the extra large digital display to keep you informed.

Features include

- Designed to meet or exceed IEC348 and UL1244
- 3-1/2 digit LCD display with 0.91" tall numerals
- Data Hold
- Diode Test
- Rubber boot
- 600 Volt fuse protection on all current ranges
- Continuity buzzer
- Auto polarity
- 20µA range for measuring Flame Safeguard current (DM410 only)

Safety Notes

Before using this meter, read all safety information carefully. 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.

- Do not attempt to measure any voltage that exceeds the category-based rating of this meter
- Do not attempt to use this meter if either the meter or the test leads have been damaged. Turn it in for repair at a qualified repair facility
- Ensure meter leads are fully seated by making a quick continuity check of the leads prior to making voltage measurements
- Keep your fingers away from the test lead's metal probe contacts when making measurements. Always grip the leads behind the finger guards molded into the probes
- Do not open the meter to replace batteries or fuses while the probes are connected



WARNING!

Exceeding the specified limits of this meter is dangerous and can expose the user to serious or possibly fatal injury.

- Do not try to measure any voltage that exceeds 1000 V DC or 750 V AC
- Voltages above 25 volts AC or DC may constitute a serious shock hazard
- Turn off power, disconnect the battery, and discharge all capacitors before using the Ω and diode functions
- Use a current clamp if measuring any current above 10 amps
- 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 a circuit

- In the event of electrical shock, ALWAYS bring the victim to the emergency room for evaluation, regardless of the victim's apparent recovery - Electrical shock can cause an unstable heart rhythm that may need medical attention
- 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 the meter to the desired function and range; connect the test leads to the meter first, then to the circuit under test. Reapply power
- If any of the following indications occur during testing, turn off the power source to the circuit under test:
 - Arcing
 - Flame
 - Smoke
 - Extreme Heat
 - Smell of Burning Materials
 - Discoloration or Melting of Components



CAUTION!

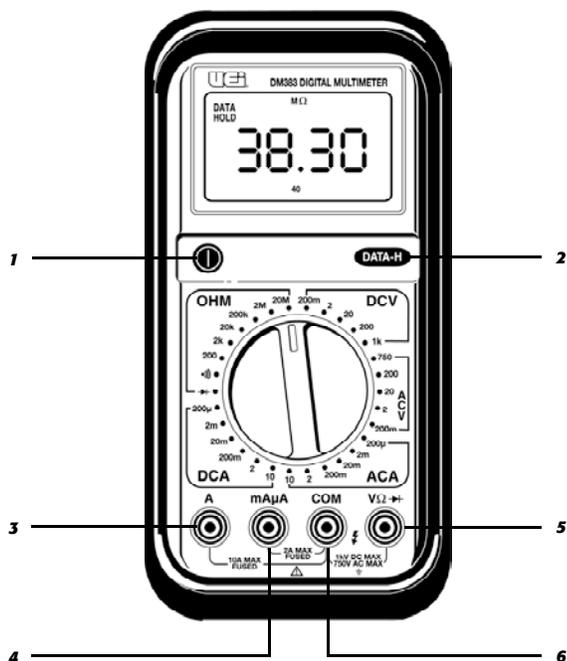
Do not attempt to remove the meter leads from the circuit under test. The leads, the meter, or the circuit under test may have degraded to the point that they no longer provide protection from the voltage and current applied. If any of these erroneous readings are observed, disconnect power immediately and recheck all settings and connections

International Symbols

	Dangerous Voltage		Ground
	AC Alternating Current		Warning or Caution
	DC Direct Current		Double Insulation (Protection Class II)
	Either AC or DC		Fuse
	Not Applicable to Identified Model		Battery

Controls, Indicators and Input Jacks

1. **ON/OFF Push-button:** Used to turn the power to the meter on or off.
2. **Data Hold Push-button:** Freezes the reading on the LCD for all functions and ranges.
3. **"A" input jack:** The red test lead is plugged into this jack for measuring current on the 10 AC or DC amp functions.
4. **"mA μ A" input jack:** The red test lead is plugged into this jack for measuring mA or μ A on either AC or DC current functions.
5. **"COM" input jack:** The black test lead is plugged into this jack for all measurements.
6. **"V Ω " input jack:** The red test lead is plugged into this jack for all ACV, DCV, OHM, Continuity Buzzer and Diode test functions and ranges.



Operating Instructions

Measuring DC Volts



WARNING!

To avoid the risk of electrical shock, instrument damage and/or equipment damage input voltage must not exceed 1000 volts DC. Do not attempt to take any unknown voltage measurements that may be in excess of 1000 volts DC.

1. Set function and range switch to the desired DC V range. If you do not know the value of the voltage to be measured, always start with the highest range and reduce the setting as required to obtain a satisfactory reading.
2. Plug the red test lead into the "V/ Ω " input jack and the black lead into the "COM" input jack of the instrument.
3. Disconnect the test leads to the circuit to be tested.
4. Connect the test leads to the circuit to be tested.
5. Reapply power to the circuit, the measured voltage will appear on the display of the instrument.
6. If the red test lead is connected to the negative (or lower voltage) side of the circuit, a minus sign will appear on the display, at the left.
7. Disconnect power to the circuit before removing the test leads from the circuit.

Measuring AC Volts



WARNING!

To avoid the risk of electrical shock, instrument damage and/or equipment damage input voltage must not exceed 750 volts AC. Do not attempt to take any unknown voltage measurements that may be in excess of 750 volts AC.

1. Set function and range switch to the desired AC V range. If you do not know the value of the voltage to be measured, always start with the highest range and reduce the setting as required to obtain a satisfactory reading.
2. Plug the red test lead into the "V/ Ω " input jack and the black lead into the "COM" input jack of the instrument.
3. Disconnect the test leads to the circuit to be tested.
4. Connect the test leads to the circuit to be tested.
5. Reapply power to the circuit, the measured voltage will appear on the display of the instrument.
6. Disconnect power to the circuit before removing the test leads from the circuit.

Measuring DC Current (Amps)



CAUTION!

The current functions are protected by a fuse of 600 volt rating. To avoid damage to the instrument, current sources having open circuit voltages greater than 600 volts DC or AC must not be measured.

NOTE: When taking current measurements, the DM383/DM410 must be connected in *SERIES* with the circuit, or circuit element under test. Never connect the test leads across a voltage source (in parallel). This can cause damage to the circuit under test or the DM383/DM410.

1. Set function and range switch to the desired DC A range. If you do not know the value of the current to be measured, always start with the highest range and reduce the setting as required to obtain a satisfactory reading.
2. Plug the red test lead into the "mA μ A" input jack (**if 10 amp range is being used, plug the red lead into the "A" input jack**) and the black lead into the "COM" input jack of the instrument.
3. Disconnect the power from the circuit to be tested.
4. Connect the test leads in series to the circuit to be tested.
5. Reapply power to the circuit, the measured current will appear on the display of the instrument.
6. Disconnect power to the circuit before removing the test leads from the circuit.

Measuring AC Current (Amps)



CAUTION!

The current functions are protected by a fuse of 600 volt rating. To avoid damage to the instrument, current sources having open circuit voltages greater than 600 volts DC or AC must not be measured.

NOTE: When taking current measurements, the DM383/DM410 must be connected in *SERIES* with the circuit, or circuit element under test. Never connect the test leads across a voltage source (in parallel). This can cause damage to the circuit under test or the DM383/DM410.

1. Set function and range switch to the desired AC A range. If you do not know the value of the current to be measured, always start with the highest range and reduce the setting as required to obtain a satisfactory reading.
2. Plug the red test lead into the "mA μ A" input jack (**if 10 amp range is being used, plug the red lead into the "A" input jack**) and the black lead into the "COM" input jack of the instrument.
3. Disconnect the power from the circuit to be tested.
4. Connect the test leads in series to the circuit to be tested.
5. Reapply power to the circuit, the measured current will appear on the display of the instrument.
6. Disconnect power to the circuit before removing the test leads from the circuit.

Measuring Resistance (OHMS, Continuity)



CAUTION!

Turn off power and discharge all capacitors on circuit to be tested before attempting in-circuit resistance measurements. Failure to do so may end up in equipment and or instrument damage.

The resistance measuring circuit applies a known value of constant current through the unknown resistance and then measures the voltage developed across it. Therefore, remove all power to the circuit under test when making resistance measurements. If any voltage is present in the test circuit an erroneous reading will result. The DM383/DM410 may be damaged if voltage in excess of 600 AC V is present.

NOTE: When measuring critical low ohm values, touch tips of test leads together and record the reading. Subtract this reading from any additional measurement to obtain the most accurate value.

1. Set the function switch to the desired " Ω " position.
2. Insert the black test lead into the "COM" input jack and the red test lead into the "V Ω " input jack.
3. Connect the test leads to the circuit to be measured.
4. The measured resistance will be on the DM383/DM410 display.

Audible Continuity Buzzer

1. Set the function switch to the desired "(•))" position.
2. Insert the black test lead into the "COM" input jack and the red test lead into the "V Ω " input jack.
3. Connect the test leads to the circuit to be measured.
4. The DM383/DM410 will emit a continuous tone for resistance's of less than 90 ohms.

Diode Test

1. Set the function switch to the desired " \rightarrow " position.
2. Insert the black test lead into the "COM" input jack and the red test lead into the "V Ω " input jack.
3. Touch the red test lead to the Anode (+ side, non-banded end) and the black test lead to the Cathode (- side, banded end).
4. If the diode is good, the reading should indicate 0.3 to 0.8 on the LCD.
5. Reverse the red and black leads on the diode, if the LCD reads "OFL" (the overload sign) the diode is good.

NOTE: A defective diode will read "OFL" (the overload sign) or 0.00 no matter how the test leads are connected.

Microwave Diodes

Most microwave diodes can not be tested by a DMM with a diode test function. This is because the DMM does not supply enough power to turn these diode on. UEI offers an accessory test lead, model ATL60, that boosts the power output so that microwave diodes can be adequately tested. Consult your distributor for more details.

Maintenance

Service



WARNING!

Repair and service of this instrument is to be performed by qualified personnel only. Improper repair or service could result in physical degradation of the meter. This could alter the protection from electrical shock and personal injury this meter provides to the operator. Perform only those maintenance tasks that you are qualified to do.

These guidelines will help you attain long and reliable service from your meter:

1. Calibrate your meter annually to ensure it meets original performance specifications.
2. Keep your meter dry. If it gets wet, wipe it dry immediately.
3. Whenever practical, keep the meter away from dust and dirt, which can cause premature wear and collect on internal components.
4. Although your meter is built to withstand the rigors of daily use, it can be damaged by severe impacts. Use reasonable caution when using and storing the meter.

NOTE: When servicing the meter, use only the replacement parts specified.

Cleaning and Decontamination

Periodically clean your meter's case using a damp cloth. **DO NOT** use abrasives, cleaning solvents or strong detergents, as they may damage the finish or affect the reliability of the structural components.

Battery Replacement

Always use a fresh replacement battery of the specified size and type. Immediately remove the old or weak battery from the meter and dispose of it in accordance with your local disposal regulations. Old or defective batteries can leak chemicals that corrode electronic circuits.



WARNING!

To avoid electric shock, be sure to turn off the meter's power and disconnect both test leads from any equipment before you remove or install batteries.

To install a new battery, follow these procedures:

1. Unplug the test leads and remove the rubber boot from the instrument.
2. Remove the screws in the rear of the instrument and separate the front and rear housing.
3. Replace the batter and/or fuses with the same type and size as the one removed.
4. Snap the front and rear housing back together and reinstall the screws.
5. Reattach the rubber boot.



WARNING!

Under **NO** circumstance should you expose batteries to extreme heat or fire as they may explode and cause injury.

NOTE: If you do not plan to use the meter for a month or more, remove the battery and store it in an area that won't be damaged by a leaking battery.

Specifications

General Specifications

Operating Temperature	32° to 104°F (0° to 40°C)
Storage Temperature	-4° to 140°F (-20° to 60°C)
Relative Humidity	0% to 80% RH
Battery Type	9V, NEDA 6604 or 6F22 or 006P
Battery Life	200 hrs typical, alkaline battery
Size (with boot)	2.25" x 3.875" x 7.35"
Weight (with boot)	1 lb, 3 oz
Safety	Meets or exceeds IEC 348, CSA C22.2 NO. 231, ISA-DS82 and UL1244

DC Volts

Function	Range	Resolution	Accuracy
DC V	200 mV	100 µV	±0.5% of reading, ±1 digit
	2 V	1 mV	
	20 V	10 mV	
	200 V	0.1 V	
	1000 V	1 V	

Maximum Input Voltage = 1000 DC V

Input Impedance = 10 MEG

AC Volts

Function	Range	Resolution	Accuracy
AC V	200 mV	100 µV	±1.2% of reading, ±3 digits
	2 V	1 mV	
	20 V	10 mV	±0.8% of reading, ±3 digits
	200 V	0.1 V	
	750 V	1 V	

Maximum Input Voltage = 750 AC V

Input Impedance = 10 MEG

DC Current (Amps)

Function	Range	Resolution	Accuracy
DC A	*20 μ	0.01 μ A	$\pm 0.5\%$ of reading, ± 1 digit
	200 μ	0.1 μ A	
	2 m	1 μ A	
	20 m	10 μ A	
	200 m	100 μ A	$\pm 1.2\%$ of reading, ± 1 digit
	**2 A	1 mA	$\pm 2.0\%$ of reading, ± 5 digits
	10 A	10 mA	

*DM410 only

**Plug the red test lead into the "mA μ A" input jack for measurements on this range

NOTE: " μ A" and "mA" ranges are protected by a 5 amp, 600 volt fuse
 "A" range is protected by a 10 amp, 600 volt fuse

AC Current

Function	Range	Resolution	Accuracy
AC A	*20 μ	0.01 μ A	$\pm 1.0\%$ of reading, ± 3 digits
	200 μ	0.1 μ A	
	2 m	1 μ A	
	20 m	10 μ A	
	200 m	100 μ A	$\pm 1.8\%$ of reading, ± 3 digits
	**2 A	1 mA	$\pm 3.0\%$ of reading, ± 7 digits
	10 A	10 mA	

*DM410 only

**Plug the red test lead into the "mA μ A" input jack for measurements on this range

NOTE: " μ A" and "mA" ranges are protected by a 5 amp, 600 volt fuse
 "A" range is protected by a 10 amp, 600 volt fuse

Resistance (OHMS, Continuity)

Function	Range	Resolution	Accuracy
Ω	200	0.1 Ω	$\pm 0.5\%$ of reading, ± 1 digit
	2 K	1 Ω	
	20 K	10 Ω	
	200 K	0.1 K Ω	
	2 M	1 K Ω	$\pm 1.0\%$ of reading, ± 2 digits
	20 M	10 K Ω	

Optional Accessories

Optional	
Battery, 9 V	.AB9
Fuse 5A, 600 V Ceramic	.AF120
Fuse 10A, 600 V Ceramic	.AF125
Test lead set	.ATL50
Rubber boot	.AH190
Alligator clip adapters	.AAC
Microwave diode booster leads	.ATL60
Flame safeguard relay test kit	.ATLFSG
AC/DC clamp-on adapter	.CA2K
AC clamp-on adapter	.CA310
Phototach adapter	.DPM2K
Humidity adapter	.HM1K
Temperature adapter	.TA2K



DM383/DM410

Digital Multimeter

Limited Warranty

The DM383/DM410 is warranted to be free from defects in materials and workmanship for a period of five 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. Return the unit postage paid and insured to:

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www.ueitest.com • Email: info@ueitest.com

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

