

Introduction

Thank you for selecting the Model 38073A Mini Analog MultiMeter. The 38073A measures AC/DC Voltage, DC mA Current, Resistance, dB, and 1.5V/9V batteries. This device is shipped fully tested and calibrated and, with proper use, will provide years of reliable service. Please visit our website (www.extech.com) to check for the latest version of this User Manual, Translations, Product Updates, Product Registration, and Customer Support.

Features

- Easy to read, color coded display
- Analog meter with battery test
- Lightweight, rugged construction

PER IEC1010 OVERVOLTAGE INSTALLATION CATEGORY III

Equipment of OVERVOLTAGE CATEGORY III is equipment in fixed installations. Examples include switches in the fixed installation and some equipment for industrial use with permanent connection to the fixed installation.

Safety Information

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



WARNINGS

WARNINGS identify hazardous conditions and actions that could cause BODILY HARM or DEATH

- Keep hands and fingers behind the finger guards at all times.
- Remove test leads before opening the meter.
- Use the meter only as specified in this User Manual.
- Use the proper terminals when taking measurements.
- Verify the meter's operation by measuring a known voltage.
- Do not apply more than the rated voltage between terminals or between any terminal and earth ground.
- Replace blown fuses with fuses of the same type and rating.
- Voltages above 30 VAC RMS, 42 VAC peak, or 60 VDC pose a shock hazard.
- Do not measure voltage above 300V in CAT III installations.

- To avoid electric shock, replace batteries when necessary.
- Disconnect power to the circuit under test and discharge all capacitors before testing resistance.
- Do not use the meter in the presence of explosive gas or vapor.
- To reduce risk of fire or electric shock, do not use the meter if it is wet.
- Individual protective equipment should be used if HAZARDOUS LIVE parts in the installation where measurements are to be carried out could be accessible.



CAUTIONS

CAUTIONS identify conditions and actions that could cause DAMAGE to the meter or equipment under test.

- Disconnect test leads before changing the position of the rotary switch.
- Do not expose the meter to extremes in temperature or humidity.

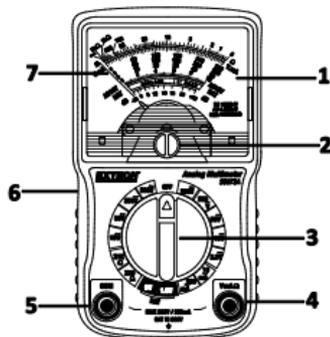
Safety Symbols

	This symbol, adjacent to another symbol, indicates the user must refer to the manual or user guide for further information.
	Risk of electrical shock
	Equipment protected by double or reinforced insulation

Description

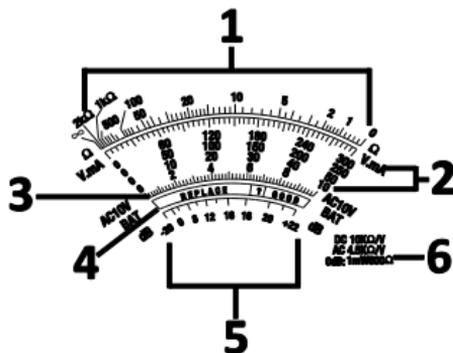
Meter Description

1. Analog scale
2. Mechanical zero
3. Rotary switch
4. V-mA- Ω positive input jack
5. COM negative input jack
6. Zero Ω adjustment dial
7. Pointer needle



Display Description

1. Resistance Ohms (Ω) measurement scale
2. Voltage / DC mA measurement scale
3. 10V AC measurement scale
4. Battery Test measurement scale
5. Decibel (dB) measurement scale
6. dB conversion chart



Operating Instructions

WARNING: Risk of electrocution. High-voltage circuits are extremely dangerous and should be measured with care.

Getting Started

Before taking any measurements, use a flat head screwdriver to turn the mechanical zero adjustment screw (2) until the pointer needle (7) points to the zeros at the left end of the scale. For greater accuracy, lay the meter on a flat, non-metallic surface when testing.

AC/DC Voltage Measurements

CAUTION: Do not measure voltages higher than 300V. Damage may occur to the meter.

1. Set the function switch to the correct AC/DC voltage range.
2. Insert the black test lead into the **COM** input and the red test lead into the **VmAΩ** input.
3. For DC, touch the black test lead to the negative side of the circuit under test and touch the red test lead to the positive side. For AC, the test lead polarity is not a factor.
4. For DC only, if the pointer needle deflects to the left side of the scale, reverse the test leads.
5. Use the chart below to read AC/DC voltage measurements.

ACV Range	DCV Range	Scale	Multiply reading by
N/A	2.5	0-250	0.01
10	10	0-10	1
50	50	0-50	1
250	250	0-250	1
300	300	0-300	1

DC mA Current Measurements

1. Set the function switch to the correct mA DC range.
2. Remove power to the circuit under test and open the circuit at the point to be measured.
3. Insert black test lead into the **COM** input and red test lead into the **VmAΩ** input.
4. Touch the black test lead to the negative side of the circuit and the red test lead to the positive side.
5. Apply power to the circuit.
6. If the needle deflects to the left, reverse the test leads.
7. Use the chart below to read DC mA measurements.

DCmA Range Setting	Scale	Multiply reading by
10	0-10	1
250	0-250	1

Resistance Measurements

WARNING: To avoid electric shock, disconnect power to the unit under test and discharge all capacitors before taking resistance measurements.

1. Before testing resistance, test the condition of the battery:
 - a. Set the function switch to **Ω X1K** or **Ω X10** position.
 - b. Short the test leads. The needle deflects to the right side.
 - c. Keep the test leads shorted. Turn the 0 Ω adjustment dial (6) until the needle reads zero Ω .
 - d. If the needle will not zero, replace the battery.
2. Set the function switch to the **X1K** or **X10** range.
3. Insert the black test lead into the **COM** input and the red test lead into the **VmA Ω** input.
4. Touch the test leads across the circuit. Disconnect one side of the part under test so the rest of the circuit will not interfere with the resistance reading.
5. Read the measured resistance on the green Ω scale and multiply the reading by 10 or 1000 (see step 2).
6. When switching between functions, always zero the needle again (step 1) to avoid inaccurate readings.

Battery (1.5V and 9V) Testing

1. Set the function switch to the 1.5V or 9V position.
2. Insert the black test lead into the **COM** input and the red test lead into the **VmA Ω** input.
3. Touch the black test lead to the negative side of the battery and the red test lead to the positive side of the battery.
4. Use the display scale labeled BAT to determine the quality of the battery.

Green=Good	?=Replace Soon	Red=Replace Immediately
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Decibel (dB) Measurements

The decibel scale measures the milliwatt power dissipation on a 600Ω load by measuring the voltage across the load. An AC voltage of $0.775V_{rms}$ across 600Ω is equal to $1mW$ or “0” dB.

1. Insert the black test lead into the **COM** input and the red test lead into the **VmA Ω** input.
2. Set the function switch to the desired AC voltage range and read the decibel measurement on the bottom (red) scale.
3. Use the decibel conversion chart located on the meter to calculate the measurement for the AC voltage range.

Maintenance



WARNING: To avoid electrical shock, turn meter off, remove test leads, and disconnect meter from any circuit before opening the case.

Battery Replacement

1. Turn meter off and disconnect test leads from the meter and circuit under test.
2. Remove the (1) Phillips head screw on the back of the meter.
3. Open battery compartment, replace (1) 1.5V ‘AA’ battery observing correct polarity. Re-assemble the meter before use.

Safety: Never dispose of batteries in a fire. If the meter is not to be used for 60 days or more, remove the battery and store separately.



Never dispose of used batteries or rechargeable batteries in household waste. As consumers, users are legally required to take used batteries to appropriate collection sites, the retail store where the batteries were purchased, or wherever batteries are sold.

Disposal: Do not dispose of this instrument in household waste. The user is obligated to take end-of-life devices to a designated collection point for the disposal of electrical and electronic equipment.

Fuse Replacement

1. Turn the meter off and remove the test leads from the meter.
2. Remove the Phillips head screw from the back of the meter and lift off cover.
3. Replace the fuse with one of the same type and rating. Re-assemble the meter.

Specifications

Specifications stated for ambient conditions 23°C ±2°C (73.4°F ±3.6°F); Relative Humidity < 60%

Function	Range	Accuracy
AC Voltage	10 / 50 / 250 / 300 VAC	± 5% of Full Scale
DC Voltage	2.5 / 10 / 50 / 250 / 300 VDC	± 4% of Full Scale
DC Current	10 / 250 mA	± 4% of Full Scale
Resistance	Rx10 / Rx1K	± 4% of Full Scale
Battery Test	1.5V / 9V	
Decibels	-20dB to +22dB (AC Voltage range 10V)	
Sensitivity	10kΩ per 1VDC / 4.5kΩ per 1VAC	

General Specifications

Display	Analog with Zero Adjustment
Operating Temp./Humidity	18 - 25°C (64 - 77°F); <75% RH
Operating Altitude	2000m (7000 ft.) maximum.
Battery	One (1) 1.5V 'AA' Battery
Fuse	500 mA / 500V fast blow
Dimensions	116 x 68 x 34 mm (4.6 x 2.7 x 1.3")
Weight	120g (4.2 oz.)
Safety Compliance	EN61010-1: CATIII 300V; Pollution Degree 2
Ingress Protection Rating	IP20
Standards	CE and ETL

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