User's Guide Mini Analog MultiMeter

Model 38073

Introduction

Congratulations on your purchase of the Extech model 38073 Analog Multimeter. This device measures AC/DC Voltage, DC Current, Resistance, dB, and has battery test, displaying measurements in analog format. Properly used, this meter will provide many years of reliable service.

Safety

International Safety Symbols

This symbol, adjacent to another symbol or terminal, indicates the user must refer to the manual for further information.

This symbol, adjacent to a terminal, indicates that, under normal use, hazardous voltages may be present

Double insulation

WARNINGS

1. When measuring voltage, ensure that the function switch is not in the current or resistance positions. Before taking any measurement ensure that the function switch is set to the appropriate position.
2. Use great care taking measurements when the voltages are greater than 25VAC rms or 35VDC. These voltages are considered a shock hazard.
3. When taking current measurements ensure that the circuit under test is not "live". Remove power to the circuit, apply the test leads, and then power the circuit.
4. For resistance measurements, ensure that the circuit or component is de-energized.
5. Use care when measuring current transformers, high voltage may result at the meter's terminals if an open circuit exists.
6. Ensure that the test leads are in good repair before each use. Have the meter serviced if it appears that the test leads are damaged.
7. Do not exceed the measurement range limits specified by the manufacturer.
8. Replace fuse with fuse of the same rating only.
9. Before opening the case to replace battery or fuse, disconnect the test leads from any circuit or component under test and turn the function switch to the OFF position.

A UL mark does not indicate that this product has been evaluated for the accuracy of its readings.

Specifications

	Range	Accuracy	Sensitivity
DC Voltage	2.5, 10, 50, 250, 300V	± 5% of full scale	2KΩ / Volt sensitivity
AC Voltage	10, 50, 300V	± 5% of full scale	2KΩ / Volt sensitivity
DC Current	0.5, 10, 250mA	± 5% of full scale	
Resistance	Rx10, Rx1000 (Rx1k)	± 5% of full scale	
Decibels	-10 to 56 dB		(0dB = 1mW dissipated in 600Ω)
Battery Test	1.5V	± 10% of full scale	Load current: 125mA
	9V	± 10% of full scale	Load current: 10mA

Display type Analog Continuous
Operating Temp. 41 to 104°F (5 to 40°C)
Storage Temp 41 to 104°F (5 to 40°C)
Battery One 1.5V AA battery
Battery life 10 hours (continuous)
Fuses 500mA, 250V fast acting
Dimensions/Weight 3.5x6.1x1.9" (88x155x49mm) / 10.2 oz. (288g) approx.
Safety For indoor use and in accordance with Overvoltage Category II, Pollution Degree 2. Category II includes local level, appliance, portable equipment, etc., with transient overvoltages less than Overvoltage Category III.

Meter Description

1. Analog Display
2. Display zero adjust
3. 0Ω adjust
4. Function select switch
5. Test Leads

Operation

NOTICE: Read and understand all **warning** statements listed in the safety section of this operation manual prior to using this meter.

AC/DC Voltage Measurements

1. Set the function switch to the desired voltage range position. If the range of the measurement is not known beforehand, select the highest range first and then work down range by range.
2. Connect the test leads in parallel to the circuit under test.
3. Read the voltage measurement on the analog display.

DC mA Current Measurements

1. For mA current measurements set the function switch to the desired current range position and insert the red test lead into the mA terminal. If the range of the measurement is not known beforehand, select the highest range first and work down range by range as needed.
2. Remove power from the circuit under test and open the circuit at the point where you wish to measure current.
3. Touch the black test probe tip to the negative side of the circuit and touch the red test probe tip to the positive side of the circuit.
4. Apply power to the circuit.
5. Read the current on the analog display. If the analog pointer fails to move during current measurements, check the meter's internal fuse.

Resistance Measurements

1. Set the function switch to the desired resistance range position.
2. Touch the test probe tips across the circuit or component under test. It is best to disconnect one side of the resistor under test so the rest of the circuit will not interfere with the resistance reading.
3. Read the resistance on the analog display.

Battery Test

1. Select the 1.5V or 9V BAT position using the function select switch.
2. Connect the red test lead to the positive side of the 1.5V or 9V battery and the black test lead to the negative side of the 1.5V or 9V battery.
3. Read the analog display. The red display region indicates a weak (bad) battery, the green display region indicates a good battery, and the ? region indicates that the battery is on the verge of weakening.

Decibel (dB) Measurements

1. Set the function switch to the desired AC Voltage position.
2. Connect the test leads across the circuit under test.
3. For the 10V AC range, read dB directly from the analog scale.
4. For other ranges, calculate the measurement using the table below:
5. Circuits with dc component, require a capacitor between test leads and circuit.

dB Range	-10 to 22dB	4 to 36 dB	24 to 56 dB
AC Range	10V	50V	500V
Add value to reading	0	14	34

Maintenance

WARNING: To avoid electrical shock, disconnect the meter from any circuit, remove the test leads from the input terminals and turn OFF the meter before opening the case. Do not operate with open case. Install only the same type of fuse or equivalent

Cleaning and Storage

Periodically wipe the case with a damp cloth and mild detergent; do not use abrasives or solvents. If the meter is not to be used for periods of longer than 60 days, remove the battery and store it separately

Battery and Fuse replacement

1. Remove the meter's protective holster
2. Remove the three rear Phillips head screws and open the meter case.
3. Replace the AA battery and/or fuse (500mA @250V, fast acting)
4. Re-assemble the meter

Warranty

EXTECH INSTRUMENTS CORPORATION warrants this instrument to be free of defects in parts and workmanship for one year from date of shipment (a six month limited warranty applies on sensors and cables). If it should become necessary to return the instrument for service during or beyond the warranty period, contact the Customer Service Department at (781) 890-7440 ext. 210 for authorization. **A Return Authorization (RA) number must be issued before any product is returned to Extech.** The sender is responsible for shipping charges, freight, insurance and proper packaging to prevent damage in transit. This warranty does not apply to defects resulting from action of the user such as misuse, improper wiring, operation outside of specification, improper maintenance or repair, or unauthorized modification. Extech specifically disclaims any implied warranties or merchantability or fitness for a specific purpose and will not be liable for any direct, indirect, incidental or consequential damages. Extech's total liability is limited to repair or replacement of the product. The warranty set forth above is inclusive and no other warranty, whether written or oral, is expressed or implied.

Repair and Calibration Services

Extech offers complete repair and calibration services for all Extech products. For periodic calibration, NIST certification or repair of any Extech product, call customer service for details on services available. Extech recommends that calibration be performed on an annual basis to insure calibration integrity.