

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.

**Copyright © 2000 Extech Instruments Corporation. All rights reserved
including the right of reproduction in whole or in part in any form.**

38109 V1.4 8/01

Safety

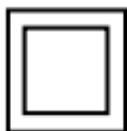
International Safety Symbols



Refer to the manual for further information.



Hazardous voltages may be present



Double insulation

Safety Precautions

1. Improper use of this meter can cause damage, shock, injury or death. Read and understand this users manual before operating the meter.
2. Make sure any covers or battery doors are properly closed and secured.
3. Always remove the test leads before replacing the battery or fuses.
4. Do not exceed the maximum rated input limits.
5. Use great care when making measurements if the voltages are greater than 25VAC rms or 35VDC. These voltages are considered a shock hazard.
6. Always discharge capacitors and remove power from the device under test before performing Capacitance, Diode, Resistance or Continuity tests.
7. Remove the battery from the meter if the meter is to be stored for long periods.

Specifications

Electrical Specifications

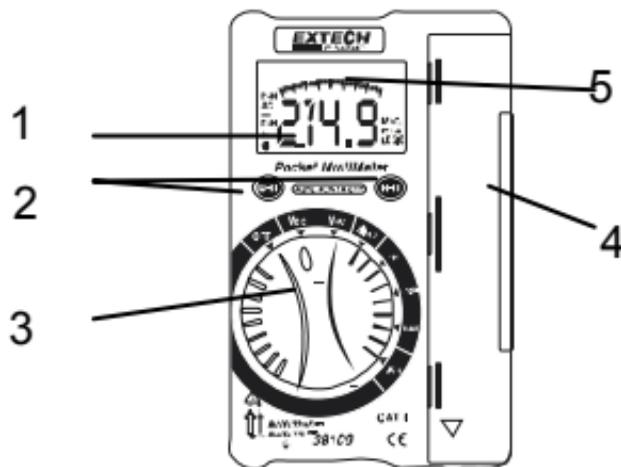
Function	Range	Accuracy
DC Voltage	400.0mV, 4.000V, 40.00V,400.0V	$\pm(1.5\% \text{ rdg.} + 2 \text{ digits})$
AC Voltage	400.0mV, 4.000V, 40.00V,400.0V	$\pm(2.0\% \text{ rdg.} + 5 \text{ digits})$ 40Hz – 400Hz
DC Current	400.0mA	$\pm(2.0\% \text{ rdg.} + 4 \text{ digits})$
Resistance	400.0 Ω	$\pm(2.0\% \text{ rdg.} + 4 \text{ digits})$
	4.000k Ω , 40.00k Ω , 400.0k Ω	$\pm(2.0\% \text{ rdg.} + 2 \text{ digits})$
	4M Ω	$\pm(2.0\% \text{ rdg.} + 4 \text{ digits})$
	40.00M Ω	$\pm(3.0\% \text{ rdg.} + 5 \text{ digits})$

Diode Test	Test voltage of 1.0V @ 1mA approx. (max).
Battery Test	1.5V batteries
Continuity Check	Audible signal if the resistance is < 50Ω
Display	4000 count 3 ¾ digit LCD
Bar Graph	23 Segment bar graph
Over range indication	LCD displays "OL"
Polarity	Minus (-) sign for negative polarity.
Low Battery Indication	"LBT" symbol indicates low battery condition.
Batteries	Two LR44 Button batteries
Fuse	F800mA, 250V Fast Acting
Operating Temperature	41°F to 104°F (5°C to 40°C)
Storage Temperature	-4°F to 140°F (-20°C to 60°C)
Weight	0.3lb (136g)
Size	2.8x4.6x.7" (73x117x18mm)
Standard	IEC1010 CAT II 400V, CE Approved

Description

Meter Description

1. 3 3/4 Digit (4000 count)
Liquid Crystal Display (LCD).
2. Function push-buttons
3. Rotary function switch
4. Integrated test leads
5. Analog bar-graph



Operation

AC or DC Voltage Measurements

1. Set the function switch to the “**VDC**” position for DC voltage measurements, or “**VAC**” position for AC voltage measurements.
2. Touch the test probe tips to the circuit under test. Be sure to observe the correct polarity (red lead to positive, black lead to negative).
3. Read the voltage on the display

DC Current Measurements

1. For current measurements up to 400mA AC, set the function switch to the “**DCA**” position.
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 in the display. The display will indicate the proper decimal point, value and symbol.

Resistance Measurements

WARNING: To avoid electric shock, disconnect power to the unit under test and discharge all capacitors before taking any resistance measurements. Remove the batteries and unplug the line cords. Never measure continuity on circuits or wires that have voltage on them.

1. Set the function switch to the " Ω " position.
2. Connect the test leads to the circuit to be measured.
3. For Continuity tests, if the resistance is less than 50 ohms, an audible tone will sound.

Diode Test

WARNING: To avoid electric shock, do not test any diode that has voltage on it.

1. Set the function switch to “” position.
2. Touch the test probe tips to the diode or semiconductor junction you wish to test. Note the meter reading.
3. Reverse the test lead polarity by reversing the red and black leads. Note this reading.
4. The diode or junction can be evaluated as follows:
 - A. If one reading shows a value and the other reading shows OL, the diode is good.
 - B. If both readings show OL, the device is open.
 - C. If both readings are very small, or 0, the device is shorted

Logic Test

1. Set the function switch to the “**Logic**” position. “**rdY**” will appear in the display.
2. Connect the black test lead to the ground point of the circuit under test, and the red test lead to the logic supply voltage (V_{ss} or $V+$).
3. Press the “R-H” button to store the logic high value. “**Hi**” will appear in the display.
4. The red test lead may be moved from test point to test point while the black lead remains connected to the ground point.
5. The meter will display one of three indications:
 - A. If the measured value exceeds 70% of the stored value ($V+$), **Hi** (High) will be displayed.
 - B. If the measured value falls below 30% of the stored value ($V+$), **Lo** (Low) will be displayed.

- C. If the measured value is between 30% and 70% of the stored value (V+), “---” will be displayed.

NOTE: The input voltage is limited to a maximum of 40V. Do not attempt to exceed the maximum input voltage limit.

Battery Check

1. Set the function switch to the “**Bat**” position.
2. Connect the black test lead to the negative “-” pole of the battery, and connect the red test lead to the positive “+” pole of the battery to check the voltage of a 1.5V battery.

Features

Auto / Manual Range

The meter will power up in Auto Range mode (the best range for measurements is automatically selected). For Manual range applications, follow these steps:

1. Press the “**R-H**” button. The “**R-H**” indicator will illuminate and the currently selected range will be held.
2. Press the “**R-H**” button to step through the available ranges until you select the range desired.
3. Press and hold the “**R-H**” button for 2 seconds to exit the manual ranging mode and return to Autorange mode.

Data Hold

The Data Hold function allows the meter to “freeze” a measurement for later reference

1. Press the “**D-H**” button to “freeze” the display, the “**D-H**” indicator will appear.
2. Press the “**D-H**” button to return to normal operation.

Maintenance

WARNING: Disconnect the test leads from any source of voltage before removing the back cover or the battery/fuse door. Do not operate your meter until the battery/fuse door is in place and fastened securely.

Replacing the Batteries

1. Remove Philips head screw and battery door from the rear of the meter.
2. Replace old batteries with fresh LR44 type button batteries.

Replacing the Fuses

1. Open the battery/fuse door by loosening the screw on the battery/fuse door using a Phillips head screwdriver.
2. Remove the old fuse from its holder by gently pulling it out. Replace with a new F800mA, 250V fast acting fuse.