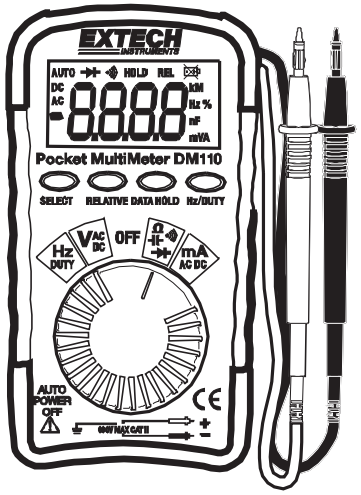
User's Guide

EXTECH INSTRUMENTS

Pocket Multimeter
4000 Count Autoranging DMM
Model: DM110



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 or visit our website at www.extech.com for contact information. 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.

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DM110 V2.1 04/06

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

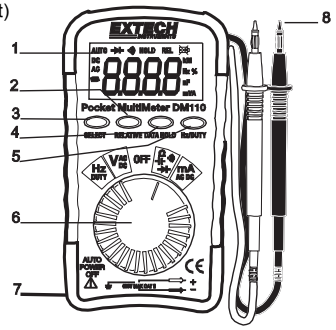
Safety Precautions

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 disconnect the test leads from any voltage source 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.

Description

Meter Description

1. 3 3/4 Digit (4000 count)
2. RELATIVE button
3. SELECT button
4. DATA HOLD button
5. Hz/DUTY button
6. Function switch
7. Rubber holster
8. Test leads



Specifications

Electrical Specifications

Function	Range	Accuracy
DC Voltage	400.0mV	±(0.7% rdg + 3d)
	4.000V, 40.00V,	±(1.0% rdg + 3d)
	400.0V,500V	±(1.3% rdg + 3d)
AC Voltage (40-400Hz)	4.000V, 40.00V	±(1.0% rdg + 10d)
	400.0V, 500V	±(2.3% rdg + 5d)
DC Current (50-60 Hz)	40.00mA	±(2.0% rdg + 5d)
	400.0mA	
AC Current	40.00mA	±(2.5% rdg + 10d)
	400.0mA	
Resistance	400.0Ω, 4.000kΩ, 40.00kΩ, 400.0kΩ	±(2.0% rdg + 5d)
	4.000MΩ	±(5.0% rdg + 5d)
	40.00MΩ	±(10.0% rdg + 5d)
Capacitance	4.000nF	±(5.0% rdg + 0.3nF)
	40.00nF	±(5.0% rdg + 30d)
	400.0nF	±(3.0% rdg + 15d)
	4.000µF, 40.00µF, 200.0µF	±(10.0% rdg + 15d)
Frequency	9.999Hz, 99.99Hz, 999.9Hz, 9.999kHz, 99.99kHz, 999.9kHz, 10MHz	±(2.0% rdg + 5d)
Duty Cycle	0.1-99%	±(2.0% rdg + 5d)

Max input voltage	500V AC/DC
Input Sensitivity, (Frequency Ranges)	10Vrms min. <9.999KHz 40Vrms min. >99.99KHz
Diode Test	Test current 1mA max., open circuit voltage of 1.5V typical
Continuity Check	Audible signal if the resistance is < 60Ω
Display	4000 count 3 ¾ digit LCD
Over range indication	LCD displays "OL"
Polarity	Minus (-) sign for negative polarity.
Low Battery Indication	"BAT" symbol indicates low battery condition.
Battery	CR2032 3V Lithium
Operating Temperature	32°F to 104°F (0°C to 40°C)
Storage Temperature	14°F to 122°F (-10°C to 50°C)
Weight	1.7oz (50g)
Size	4.25x2.2x.5" (108x56x11.5mm)
Standard	IEC1010 CAT II 600V Pollution degree II, CE Approved

Operation

AC or DC Voltage Measurement

1. Set the function switch to the "**AC/DCV**" position
2. Press the SELECT button to select AC or DC voltage measurement
3. 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).
4. Read the voltage on the display

Resistance/Continuity Measurement

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. Read the value on the display.
4. For Continuity tests, press the SELECT button until the "•)))" symbol appears in the display.
5. If the resistance is less than 60 ohms, an audible tone will sound.

Capacitance Measurement

WARNING: To avoid electric shock, disconnect power to the unit under test and discharge all capacitors before taking any capacitance 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. Press the SELECT button until "nF" appears in the display.
3. Press the RELATIVE button to zero the display
4. Connect the test leads to the capacitor to be measured.
5. Read the value on the display.

Diode Test

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

1. Set the function switch to " Ω •)))"position.
2. Press the SELECT button once to enter Diode Test. The " " symbol will appear in the display.
3. Touch the test probe tips to the diode or semiconductor junction you wish to test. Note the meter reading.
4. Reverse the test lead polarity by reversing the red and black leads. Note this reading.
5. 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

AC/DC Current Measurement

1. Set the function switch to the "**mA AC/DC**" position.
2. Press the SELECT button to measure AC or DC mA.
3. Remove power from the circuit under test and open the circuit at the point where you wish to measure current.
4. 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.
5. Apply power to the circuit.
6. Read the value on the display

Frequency/Duty Cycle Measurement

1. Set the function switch to the "**HZ/DUTY"** position.
2. Press the Hz/DUTY button once to display Duty Cycle %. Pressing the button again will toggle the display to frequency (Hz).
3. 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).
4. Read the value on the display.

Features

Relative Button

The relative measurement feature allows you to make measurements relative to a stored reference value. A reference voltage can be stored and measurements made in comparison to that value. The displayed value is the difference between the reference value and the measured value.

1. Perform the measurement as described in the operating instructions.
2. Press the RELATIVE button to store the reading in the display and the "REL" indicator will appear on the display.
3. The display will now indicate the difference between the stored value and the measured value.
4. Press the RELATIVE button to exit the relative mode.

Note: The Relative function does not operate in the Frequency function.

Data Hold Button

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

1. Press the "**DATA HOLD**" button to "freeze" the display, the "**HOLD**" indicator will appear.
2. Press the "**DATA HOLD**" button to return to normal operation.

Auto Power Off

1. To save power, the display automatically turns off in 30 minutes.
2. Press the SELECT button to turn display back on.
3. To cancel Auto Power Off, set the function switch to the off position. Hold down the SELECT button and turn the function switch to the desired position and release the SELECT button after 3 seconds.

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 rear housing is in place and fastened securely.

Replacing the Battery

1. Remove the rubber holster (if in place)
2. Remove Philips head screw and lift off the rear housing of the meter.
3. Replace old battery with fresh CR2032 type button battery.
4. Replace the rear cover and secure the screw.

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Support line (781) 890-7440

Technical support: Extension 200; E-mail: support@extech.com

Repair & Returns: Extension 210; E-mail: repair@extech.com

Product specifications subject to change without notice

For the latest version of this User's Guide, Software updates, and other up-to-the-minute product information, visit our website: www.extech.com

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