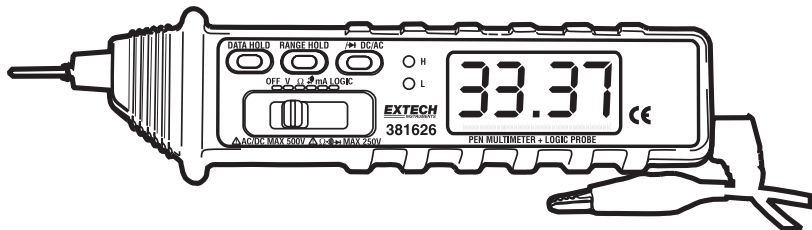


**EXTECH**  
INSTRUMENTS

# Pen Multimeter

Model 381626



**CAUTION:** Read, understand and follow all Safety Rules and Operating Instructions in this manual before using this product.

This instrument is a 3200 count pen style digital multimeter. It can be used for measuring AC or DC voltage, AC or DC current, resistance, diodes and continuity. It can also be used as a logic test pen. The measuring ranges are changed automatically or can be manually set. All measurements are displayed with 0.6 inch high characters with full parameter symbols. This meter is easily operated and all ranges have overload protection. It is an ideal instrument for use in the home, factory, school and laboratory. The DMM is for indoor use only. It is UL 1244 listed.

**WARNING: USE EXTREME CAUTION IN THE USE OF THIS DEVICE.** Improper use of this device can result in injury or death. Follow all safeguards suggested in this manual in addition to the normal safety precautions used in working with electrical circuits. DO NOT service this device if you are not qualified to do so.

EXTECH INSTRUMENTS CORPORATION warrants this instrument to be free of defects in parts and workmanship for one year from date of shipment. 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 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.

## SPECIFICATIONS

	Ranges	Resolution	Accuracy	
DC Voltage	300mV, 3V 30,300, 500V	100 $\mu$ V	$\pm$ (1.5% reading + 5 digits) $\pm$ (1.0% reading + 2 digits)	Input Impedance 10M $\Omega$ Max Input 500V AC/DC AC Freq. Response: 40Hz to 400Hz Average responding
AC Voltage	3, 30, 300, 500V	1mV	$\pm$ (1.5% reading + 8 digits)	
DC Current	30, 300mA	10 $\mu$ A	$\pm$ (1.5% reading + 3 digits)	
AC Current	30, 300mA	10 $\mu$ A	$\pm$ (2.0% reading + 5 digits)	
Resistance	300,3k,30k,300k $\Omega$ 3M $\Omega$ 30M $\Omega$	0.1 ohms	$\pm$ (1.5% reading + 5 digits) $\pm$ (2.0% reading + 8 digits) $\pm$ (3.0% reading + 10 digits)	Overload Protection: 250VAC rms Open ckt. V: 0.6V - 1.2V
Continuity	Buzzer sounds for resistance less than 20 ohms (approximately)			
Logic	<1V Logic low, 1V to 2V Indeterminate, >2V Logic High, 3V reference, 220k $\Omega$ input impedance			
Operating Temp.	32 $^{\circ}$ F to 122 $^{\circ}$ F (0 $^{\circ}$ C to 50 $^{\circ}$ C)			
Storage Temp.	-4 $^{\circ}$ F to 140 $^{\circ}$ F (-20 $^{\circ}$ C to 60 $^{\circ}$ C)			
Relative Humidity	<70% operating, <80% storage			
Operating Altitude	2000 meters (7000ft.) maximum			
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.			
Power supply	Two 1.5V AAA batteries			
Dimensions/Wt.	1x7.5x1.9" (26x191x40mm) / 3.9oz (120gm)			

## SAFETY INSTRUCTIONS



Caution ! Refer to the explanation in this Manual



Warning ! Risk of electric shock



Earth (Ground)



Double Insulation or Reinforced insulation

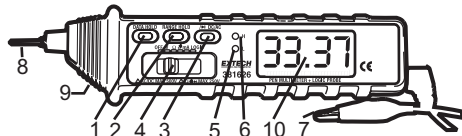
This meter has been designed to be safe in use, but the rules listed below should be carefully followed for safe operation.

- 1) **NEVER** apply voltage or current to the meter that exceeds the specifications.
- 2) **USE EXTREME CAUTION** when working with high voltages.
- 3) **DO NOT** measure voltage above 500V DC or AC rms.
- 4) **ALWAYS** turn off the power and disconnect the test leads before replacing the fuse or battery.
- 5) Voltage checks on electrical outlets can be difficult and misleading because of the uncertainty of connection to the electrical contacts. Other means

should be used to ensure that the terminals are not "live".







- 6) The product is intended only for indoor use
- 7) If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- 8) Pollution degree: 2

## FUNCTIONAL DESCRIPTION



1. Data Hold Button
2. Range Hold Button
3. DC/AC selection button
4. Function Switch
5. Green LED
6. Red LED
7. Common Terminal
8. Positive Test Probe
9. Battery & Fuse Door
10. LCD Display & Bargraph

## Function Switch Settings

	Switch					
Button	V	$\Omega$	A			Logic
DC, 	DCV	$\Omega$	DCA			Logic
AC, 	ACV	$\Omega$	ACA			Logic

### Range Hold Button

The Resistance, AC or DC voltage or current ranges can be selected manually or automatically. The Range Hold button is used to select the range hold mode as follows.

1. Press to change from automatic to manual ranging.  
“RH” is displayed in the manual range mode
2. Press to change range in the manual range mode.  
Observe the decimal point position to determine the range set.
3. Press and HOLD for 2 seconds to change back to automatic ranging.

### Data Hold Button

1. The display will hold the reading when the Data Hold button is pressed. The “DH” symbol will be displayed.
2. Data Hold will be canceled when the “D-H” button is pressed again or it will be canceled automatically if the Function switch is changed to another position.

## OPERATION

**CAUTION:** This meter is a precision electronic instrument. To avoid damaging the unit, observe all safety statements contained in this manual.

### DC or AC Voltage Measurement

1. Connect the black test lead to the COM jack.
2. Set the Function Switch to the V position and select AC or DC.
3. Connect the positive test probe and the black test lead across the source or load under measurement.  
For DC voltage, the polarity of the measurement will be indicated.

### DC or AC Current Measurement

1. Connect the black test lead to the COM jack.
2. Set the Function Switch to the mA position and select DC or AC.
3. Connect the positive test probe and the black test lead in series with load under measurement.  
For DC current, the polarity of the measurement will be indicated.




## Resistance Measurement

1. Connect the black test lead to the COM jack.
2. Set the Function Switch to the  $\Omega$  position.
3. Connect the positive test probe and the black test probe across the resistance to be measured.

Note: 1) The polarity of the positive test probe is “+”.




- 2) When checking in-circuit resistance, be sure all power is removed from the circuit under test and all capacitors are fully discharged.

## Continuity Test

1. Connect the black test lead to the COM jack.
2. Set the Function Switch to the /  position and select  with button(3).
3. Connect the positive test probe and the black test lead to the circuit. If the resistance is less than approximately  $20\Omega$  the buzzer will sound.

Note: The polarity of the positive test probe is “+”

## Diode Test

1. Connect the black test lead to the COM jack.
2. Set the Function Switch to the /  position and select  with Button(3)
3. Connect the positive test probe and the black test lead across the diode under test. If the positive test probe is

placed on the anode of the diode, the display will indicate the approximate forward voltage drop of the diode.

## Logic Test

1. Connect the black test lead to the COM jack.
2. Set the Function Switch to the L position
3. Connect the black test lead to the common terminal of the circuit to be tested Connect the test probe to the point to be tested.
  - a) If the measured voltage is below the low reference threshold the GREEN LED will light, indicating a logic “0”.
  - b) If the measured voltage is above the high reference threshold the RED LED will light, indicating a logic “1”.
  - c) If the measured voltage is between the reference limits, neither LED will light.
4. In the logic testing mode, the measured voltage is displayed in the LCD.

## Auto Power Off

Power will automatically turn off after 30 minutes of inactivity.

UL Listed

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

**Battery and Fuse Replacement**

NOTE: Do not operate the instrument or connect the test lead or probe to any circuit with the rear cover open.

1. Remove the screw and open the battery door. Replace the old batteries or the blown fuse with the same type.  
Fuse: 800mA/250V fast blow type  
Battery: Two 1.5V AAA or UM-4 type



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