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INSTRUCTION MANUAL PCE-PMM1





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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.

Specifications

Electrical Specifications

Function	Range	Accuracy
	400.0mV	±(0.7% rdg + 3d)
DC Voltage	4.000V,	\pm (1.0% rdg + 3d)
	40.00V,	
	400.0V, 500V	\pm (1.3% rdg + 3d)
AC Voltage	4.000V,	±(1.0% rdg + 10d)
50-60Hz	40.00V	
	400.0V, 500V	\pm (2.3% rdg + 5d)
	400.0Ω4.000k	\pm (2.0% rdg + 5d)
Resistance	Ω, 40.00k $Ω$,	
	400.0kΩ	
	4.000 Μ Ω	\pm (5.0% rdg + 5d)
	40.00MΩ	±(10.0% rdg + 5d)
	4.000nF	±(5.0% rdg + 0.3 nF)
Capacitance	40.00nF	\pm (5.0% rdg + 30d)
	400.0nF	\pm (3.0% rdg + 15d)
	4.000µF,	±(10.0% rdg + 15d)
	40.00μF,	
	200.0μF	
_	9.999Hz,	
Frequency	99.99Hz,	
	999.9Hz,	. (0.00(1
	9.999kHz,	±(2.0% rdg + 5d)
	99.99kHz,	
	999.9kHz, 10MHz	
Duty Cycle	0.1-99%	+(2.0% rda + 5d)
DC Current	40.00mA	$\pm (2.0\% \text{ rdg} + 5d)$
DC Current	200.0mA	±(2.0% rdg + 5d)
	200.0IIIA	<u> </u>

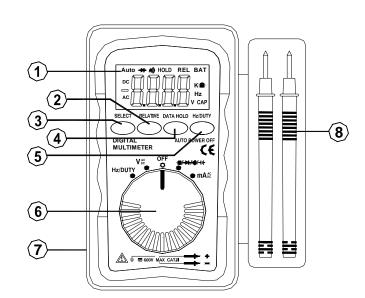


AC Current	40.00mA	$\pm (2.5\% \text{ rdg} + 10d)$
50-60Hz	200.0mA	, , ,

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. Plastic case
- 8. Test leads



Max input voltage 500V AC/DC

Input Sensitivity, 10Vrms min. <9.999KHz (Frequency Ranges) 40Vrms min. >99.99KHz

Diode TestTest current 1mA max., open circuit voltage of 1.5V typical

Continuity Check Audible signal if the resistance is $< 60\Omega$

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.

Fuse "BAT" symbol indicates low battery condition.

mA range; 0.4A/250V fast acting resettable fuse

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 IEC61010 CAT II 500V Pollution degree II, CE Approved



Operation

AC/ DC Voltage Measurement

- 1. Set the function switch to the "AC/DCV" position.
- 2. Press the "SESECT" button to measure DCV or ACV.
- 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 " $\Omega \rightarrow \bullet$))) $\rightarrow l$ " 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 " $\Omega \rightarrow \bullet$))) $\rightarrow \vdash$ " 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 " $\Omega \rightarrow \bullet$))) -II- "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 MEASUREMENTS

- 1. For current measurements up to 400mA AC/DC, set the function switch to the mA position.
- 2. Press the MODE button to indicate "AC" or "DC" on the display.
- 3. Remove power from the circuit under test, then open up 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.
 - Touch the red test probe tip to the positive side of the circuit.
- 5. Apply power to the circuit.
- 6. Read the current in 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.

RESETTABLE FUSE

- 1. The fast acting, 0.4 A/250V resettable fuse will open if the current limits of the meter are exceeded.
- 2. The fuse will automatically reset itself when the suspect current is removed from the meter's input

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.

In this direction will find a vision of the measurement technique: http://www.industrial-needs.com/measuring-instruments.htm

NOTE: "This instrument doesn't have ATEX protection, so it should not be used in potentially explosive atmospheres (powder, flammable gases)."