

DIGITAL C METER OPERATION MANUAL

1. FEATURES

- ✧ Easy and correct readout.
- ✧ High measuring accuracy.
- ✧ Measurements are possible even under a strong magnetic field.
- ✧ LSI-circuit provides high reliability and durability.
- ✧ Input overload protection is provided.
- ✧ LCD display for low power consumption and clear readout even in bright ambient light conditions.
- ✧ In-line pushbuttons allow one hand operation.
- ✧ Light-weight and compact construction for easy operation.
- ✧ Low battery condition is indicated on the LCD display.

2. SPECIFICATIONS

2-1.GENERAL SPECIFICATIONS

Display	:LCD (Liquid Crystal Display) Max Indication 1999.
Measurement	:C (Capacitance)
Range	:single 9 position, whole range value (from 0.1pF to 20000uF)
Zero Adjustment	:Manual (range:±20pF)
Calibrate Adjustment	:Have two internal adjustment. One is panel Zero adjustment.
Over-input	:Display shows "1".
Sampling Time	:0~5second
Operating Temp	:0°C to 40°C.
Operating Humidity	:80% MAX.R.H.
Power Supply	:Single, standard 9 volt battery. NEDA 1604IEC6F22
Battery Life	:Alkaline type approx.: 200 hours. Zinc-Carbon type approx.: 100 hours

Typical consumption current :3~4mA (200pF-200uF)

Standard Accessories: Test alligator clips (red & black)... 1 pair.

Instruction manual.....1 pc.

2-2. ELECTRICAL SPECIFICATION

Accuracy is ± (percentage of reading + number of digit) at 23 ± 5°C, <80%RH.

Range	Accuracy	Resolut	Test Frequency	Max indication value	
200pF	±(1%+10d)	0.1pF	820Hz	199.9pF	
2nF		1pF		1.999nF	
20nF		10pF		19.99nF	
200nF		100pF		199.9nF	
2uF		1000pF		1.999uF	
20uF		0.01uF		82Hz	19.99uF
200uF		0.1uF			199.9uF
2000uF	±(2%+10d)	1uF	8.2Hz	1999uF	
20000uF		10uF		19.99mF	

pF= Pico Farad(10^{-12} F), nF= nan Farad(10^{-9} F), uF= micro Farad(10^{-6} F)

Zero Error: ±20pF

Excitativ voltage: Max.2.8Vrms

Overload Rating: Protection by a 0.2A/250V fuse.

3.CONSIDERATION OF MEASUREMENT

- (1) This C METER is intended for measuring the capacitance value of a capacitor. It is not intended for determining the "Q" factor for above reactive components. Misleading readings may be obtained if the measurement of capacitance of a resistor is attempted.
- (2) When measuring components within circuit that circuit must be switched off and de-energized before connecting the test leads.
- (3) Do not close (black & red) test leads.
- (4) Instruments used in dusty environments should be stripped and cleaned periodically.
- (5) Do not leave the instrument exposed to direct heat from the sun for long periods.
- (6) Before removing the battery and fuse compartment cover, ensure that the instrument is disconnected with any circuit and the power switch is in the off position.
- (7) For all measurements, should connect BLACK test lead into "-" terminal and RED test lead into "+" terminal.

4.CAPACITANCE(C) MEASURING PROCEDURE

- (1) Press POWER key, turn on the power.
- (2) Select the range switch for the maximum expected capacitance.
- (3) Check "0" indication: If test range is 200pF, 2nF, 20nF, should check "0" indication before test.
- (4) Observe polarity when connecting polarized capacitors.
- (5) Full discharge any capacitors.
- (6) Connect the alligator clips to the capacitors leads.
- (7) Read the display. The value is direct reading in the electrical unit (pF, nF, uF) indicated at the selected range switch. If DISPLAY show "1", It indicate on Out-of-Range measurement. If the display indicates one or more leading zeros, shift to the next lower range scale to improve the resolution of the measurement.

NOTE:

- (a) If the capacitance value is unmarked, start from the 200pF range and keep increasing until the over-range indication goes off and a reading is obtained.
- (b) A shorted capacitor will read over-range on all ranges. A capacitance with low voltage leakage will read over range, or a much higher value than normal.

An open capacitor will read zero on all ranges (possibly a few pF on 200pF

range, due to stray capacitance of the instrument).

- (c) Very low capacitance measurement should be performed by using extremely short leads in order to avoid introducing any stray inductance.
- (d) When using the optioned test leads, remember that the leads introduce a measurable capacitance to the measurement. As a first approximation, the test capacitance is measured by opening the leads at the trips, recording the open circuit value and subtracting that value.
- (e) Capacitors, especially electrolytic, often have notoriously wide tolerances. Do not be surprised if the measured value is greater than the value marked on the capacitor, unless it is a close tolerance type. However, value is seldom drastically below the rated value.
- (f) If changing range, measured value will be changed, leakage-voltage capacitors will be checked also. Leakage-resistance will be decreased in lower range.

5. MAINTENANCE

1) 9-Volt battery replacement

- a. Ensure the instrument is not connected to any external circuit. Set the selector switch to OFF position and remove the test leads from terminals.
- b. Remove the screw on the bottom case and lift the bottom case.
- c. Remove the spent battery and replace it with a battery of the same type.

2) Fuse replacement

- a. Ensure the instrument is not connected to any external circuit. Set the selector switch to OFF position and remove the test leads from terminals.
- b. Remove the screw on the bottom case and lift the bottom case.
- c. Replace the fuse with the same type and rating: 5X20mm, 200mA/250V, fast-blow fuse or as the replacements.