

DIGITAL MULTIMETER OPERATION MANUAL

1. SUMMARIZE



The meter is a stable multimeter with 3 2/1 LCD display, It uses the LCD with 26mm high make the reading clearly .unit symbol displaying. The meter is used to measure inductance and capacitance .It takes dual-integral A/D convert as key point. Using large scale integrated circuit .It's an ideal tool for lab, factory and family.

2. SAFETY NOTE

The meter meets the standards of IEC1010. Read the operation manual carefully before operation.

1. Do not input DC Voltage or AC Voltage.
2. The voltage below 36V is safety. To avoid electric shock, check whether the test leads are connected correctly, whether the insulation is good when measuring over 36DCV or 25ACV, .
3. Remove the test leads when changing function and range.
4. To select correct function and range, beware of error operation.;


5. SAFETY SYMBOLS

“” THE OPERATOR MUST REFER TO THE MANUAL ,
 “” LOW BATTERY.

RANGE	ACCURACY	RESOLUTION	MEASURE FREQUENCY	THROUGH VOLTA GE
2nF	±(1.0%+5)	1pF	1KHz	150mV
200nF		100pF	1KHz	150mV
2uF		1nF	1KHz	150mV
20uF	±(2.0%+5)	10nF	100Hz	150mV
200uF		100nF	100Hz	15 mV
	0.1uF to 100.0uF ±(2.0%+5) 100.1uF to 199.9uF ±(3.0%+10)			
1000uF	Just for reference	1uF	100Hz	1.5mV

3. CHARACTERISTIC

3-1. GENERAL

- (1). Displaying: LCD displaying.
- (2). Max. displaying: 1999 (3 1/2 digit) auto polarity indication.
- (3). Measuring method: dual slope A/D conversion.
- (4). Sampling rate: approx. 3 times/second.
- (5). Over range indication: the MSD displays “1” .
- (6). Low battery indication: “” appears.
- (7). Operation environment: (0~40) °C, R.H.<80% .
- (8). Power: 9V×1 (NEDA1604/6F22 or equivalent model.
- (9). Size:190×88.5×27.5mm
- (10). Weight : approx 320g(include battery)
- (11). Accessory: operation manual, holster, gift box, test leads, and battery.

3-2. TECHNICAL CHARACTERISTIC

Accuracy:±(a%×rdg+d)

Temperature:(23±5)°C, R.H.<75%, one year guaranteed from the production date.

(1). Inductance(L)

RANGE	ACCURACY	RESOLUTION	MEASURE FREQUENCY	THROUGH CURRENT
2mH	±(2.0%+5)	1uH	1KHz	150uA
20mH		10 uH	1KHz	150uA
200mH		100uH	1KHz	150uA
2H	±(5.0%+5)	1mH	1KHz	150uA
20H	±(5.0%+15)	10mH	100Hz	15uA

uH=10⁻⁶H mH=10⁻³H

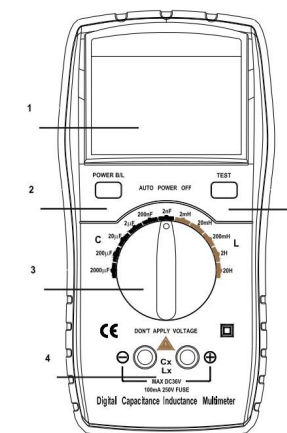
(2).CAPACITANCE(C)

PF=10⁻¹²F nF=10⁻⁹F uF=10⁻⁶F

4. OPERATION

4-1 Front panel description

- (1). LCD display: display the measured value and unit.
- (2).Backlight switch: turn on /off the backlight .
- (3).Function key: Selecting measuring range and function.
- (4).Input terminal: connect the test leads.
- (5).Measuring switch: Press the key to start measure .



4-2 CONSIDERATION OF MEASUREMENT

- (1) This LC METER is intended for measuring the capacitance value of a capacitor, the inductance value of an inductor. It is not intended for determining the “Q” factor for above reactive components. Misleading readings may be obtained if the measurement of the inductance or capacitance of a resistor is attempted.
- (2) When measuring components in circuit, the circuit must be switched off and de-energized before connecting the test

- leads.
- (3) For all measurements, should connect BLACK test lead to “-” terminal and RED test lead to “+” terminal.
 - (4) Do not short-circuit the input terminal, or will cause the internal burning .

4-3.INDUCTANCE (L) MEASUREMENT PROCEDURE

- (1) Set POWER switch to “ON” position.
- (2) Select the range switch for the maximum expected inductance.
- (3) Connect the alligator clips to the inductor leads.
- (4) Read the display. The value is direct reading in the electrical units (uH, H) indicated at the selected switch. If DISPLAY show “1”. It indicates on Out-of-Range measurement. If the display indicates one of more reading zeros, shift to the next lower range scale to improve the resolution of the measurement.

NOTE:

- (a) If the inductance value is unmarked, start from the 2mH range and keep increasing until the over range indication goes off and a reading is obtained.
- (b) Very low inductance measurement should be performed by using extremely short leads in order to avoid introducing any stray inductance.
- (c) This instrument is not intended for determining the “Q” factor for the inductor. Misleading readings may be obtained if the measurement of the inductance of a resistor is attempted.
- (d) At range 2Mh,short –circuit the test leads,to measure the inductance value ,then subtracts it from the real measurement .

4-4.CAPACITANCE(C) MEASURING PROCEDURE

- (1) Set POWER switch to “ON” position.
- (2) Select the range switch for the maximum expected capacitance.
- (3) Fully discharge any capacitors.
- (4) Connect the alligator clips to the capacitor leads.
- (5) Read the display. The value is direct reading in the electrical unit (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 2nF 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 (possible a few pF on 2nF 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 did measured by opening the leads at the trips, recording the open circuit value and subtracting the 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.

5. MAINTENANCE

DO NOT try to verify the circuit for it's a precision meter.

1. Beware of waterproof, dustproof and shockproof.
2. Do not operate and store the meter in the circumstance of high temperature, high humidity, and flammability, explosive and strong magnetic field.
3. Use the damp cloth and soft solvent to clean the meter, do not use abrasive and alcohol.
4. If do not operate it for a long time, should take out the battery.
5. When LCD displays “  ” symbol, should replace the battery as below:
 - (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.


FUSE REPLACEMENT

Use the same type fuse as specified.

1. Remove the screw on the back of the case.
2. Replace the fuse with a new one .
3. Reinstall the screw in the case bottom.

6. TROUBLE SHOOTING

If the meter does not work properly, check the meter as following:

CONDITIONS	WAY TO SOLVE
NO DISPLAYING	● Power is off ● Replace battery
 symbol displays	● Replace battery
NO CURRENT INPUT	● Replace fuse
BIG ERROR	● Replace battery

- The specifications are subject to change without notice.
- The content of this manual is regarded as correct, error or omits Pls. contact with factory.
- We hereby will not be responsible for the accident and damage caused by improper operation.
- The function stated for this User Manual cannot be the reason of special usage.

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